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## THE DIAGNOSIS OF EARLY CANCEROUS CHANGES IN PEPTIC ULCER

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The discovery that an apparently benign gastric ulcer is in reality malignant is made often enough to justify the most strenuous efforts to avert such a tragedy. That this feeling is widespread at present is indicated by the abundant literature on the subject. Most of the papers, however, assert or imply that carelessness on the part of the physician is largely responsible and that something useful could be done if he did not stand idly by and allow the patient to drift into the late and hopeless stages of cancer. The thesis is sustained that careful study of people with ulcers which appear to be benign should make it possible to detect early malignant change and to effect a cure by prompt radical operation. It is my purpose in this paper to analyze this position and to see whether in fact it is a sound one.

I will consider first the data that are available for a so-called early diagnosis of carcinomatous gastric ulcer.

1 Roentgen examination. The most extreme suggestion which has been made is that every one over 40 years of age be subjected to half-yearly x-ray studies of the stomach to detect an early lesion. Now even supposing the impossible that people who feel well or who have minor digestive disturbances could actually be persuaded to follow such a plan, what sane radiologist would have the temerity to advise exploration on the strength of dubious x-ray appearances even if they roused considerable suspicion of trouble in his mind? For example, a man, aged 67, complained of a feeling of being full and uncomfortable after eating. These symptoms had been present for six months. He had lost 30 pounds (13.6 kg) and he felt weak. There was gastric anacidity. On x-ray study of the stomach Dr. Newell reported: "The pyloric zone is definitely increased to somewhat more than twice normal. Yet no ulcerative or nodular irregularity can be made out. I am, however, very apprehensive of an organic lesion at the pylorus." Six weeks later another examination showed no change and the patient has improved steadily over a period of five months. Furthermore, some films taken four years ago were compared with the present ones and the thickened appearance of the pyloric ring was already present then. It seems clear, therefore, that one was not dealing here with cancer and observations of this sort so commonly turn out to be of no con-

sequence that it would be unwarranted to subject patients to laparotomy on the strength of them.

2 The long and the short history. The statement is made that a long history of indigestion suggests a benign lesion whereas recent onset of symptoms is more common with malignant disease. There is doubtless some truth in this generalization, but there are so many exceptions that it will hardly serve as a working rule in practice. Especially in connection with the immediate problem of cancerous changes in peptic ulcer does such a rule break down. Many of the ulcer-cancer cases give long histories of indigestion, often with periods of freedom, and who can say when cancer supervened? Furthermore cancer with a short history, indeed cancer at the very onset of symptoms is usually advanced from a surgical standpoint. Every one knows that the growth may attain great size before there is any definite departure from health.

3 Age and sex of the patient. Considerations of age and sex are unfortunately of little help in the present problem. It is precisely in cases of gastric ulcer that malignant change is likely to take place at a relatively early age contrary to the general tendency for cancer to occur in older people. In the present series, which includes fifteen instances of probable or certain ulcer-cancer, three patients were under 35 years of age (26, 29, 33).

4 Size of the ulcer. The interesting measurements of Alvarez and McCarty<sup>1</sup> called attention to the generalization that large ulcers are more likely to be cancerous than small ones. There are, however, so many exceptions both ways that when one is confronted by the individual patient the following of such a dictum is unsafe. The most extreme example in my experience was that of a woman aged 33, with a long story (over ten years) of indigestion. Roentgenograms revealed an ulcer crater hardly more than 0.5 cm in diameter and the gastric acidity was over 100. Here everything pointed to a benign lesion—age, sex, duration, acidity and size of ulcer. Yet within a year she was dead of inoperable cancer, verified by exploration and biopsy. The reverse that large ulcers may be clinically and histologically benign, must also be admitted.

5 Gastric secretion. The presence of a considerable amount of acid in the gastric secretion has quite rightly been regarded as evidence against primary cancer of the stomach. The relations in ulcer-cancer are less well understood and form the subject of the present inquiry.

In previous publications, Pollard and I<sup>2</sup> have presented the evidence for the view that anacidity, so

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Since the preparation of this paper, an article has appeared on gastric acidity and cancer of the stomach (Comfort, M. W. and Van Zant, F. R. *Am. J. Surg.* 26: 415 [Dec.] 1934) in which some of the conclusions reached by the author have been anticipated.

1 Alvarez, W. C. and McCarty, W. C. *Sizes of Resected Gastric Ulcers and Gastric Carcinomas*. J. A. M. A. 91: 266 (July 28) 1928.  
2 Pollard, W. S. and Bloomfield, A. L. *Gastric Secretion in Cancer of the Stomach*. Bull. Johns Hopkins Hosp. 40: 307 (May) 1930.  
Bloomfield, A. L. and Pollard, W. S. *Gastric Anacidity*. New York: Macmillan Company, 1933.

common in cases of cancer of the stomach is associated with a chronic gastritis antecedent to the growth and that it is not the result, as a rule, of destruction of the mucous membrane by cancer. In brief, cancer tends to develop in stomachs already the seat of chronic gastritis with anacidity. There are however in any series of cases a certain number with normal or at least only slightly impaired gastric secretion, these it is difficult to reconcile with the thesis outlined and with them the present study is concerned.

TABLE 1—Gastric Secretion in Ninety-Two Consecutive Cases of Cancer of the Stomach

	Total	Per Cent
Total cases	92	
With anacidity	70	76
With free hydrochloric acid	22	24
Total males	72	
With anacidity	59	82
With free hydrochloric acid	13	18
Total female	20	
With anacidity	11	55
With free hydrochloric acid	9	45

In going over our records of the past few years it was possible to collect a consecutive series of ninety-two cases of cancer of the stomach in which standard histamine tests of gastric secretion had been done. The main statistical facts are shown in table 1.

The chart shows the distribution of the total acidity values of the twenty-two patients who secreted free hydrochloric acid as tested by Töpfer's reagent. While the number of cases is not sufficient to be conclusive it is of interest that they are not grouped at the anacidity end of the scale as one might expect but that they cover the entire range of normal secretion. In fact while there were only six cases with a total acid under 60 there were fifteen with acid of 60 or more. Such a tendency to a bimodal distribution curve suggests that one is dealing with two different classes of material; the obvious conclusion is that the cancers with acid may have a different origin from those arising on a basis of gastritis with anacidity.

It has been suggested that acid gastric secretion in the presence of cancer indicates that the growth has arisen on the basis of peptic ulcer. Our twenty-two cases of cancer with acid were carefully analyzed therefore, to see what evidence existed that such was the case, the conclusions being based on history, roentgen examinations and above all on autopsy or operative material. The data are summarized in table 2.

In nine of the twenty-two cases (table 4) it could definitely be said that benign ulcer preceded the cancer, and in six more this was highly probable. In five cases no conclusion could be reached and in only two was it certain that no ulcer had existed. There is strong evidence therefore that in most of this group of cases with preservation of gastric secretion peptic ulcer was the initial event. As a control, a series of twenty-two consecutive cases of cancer with anacidity were analyzed in the same way (table 3) and here the results were quite different. In not a single case was there proof of preceding ulcer and in all but four it was certain or probable that the cancer was not on a basis of ulcer. The entire situation is summarized in table 4.

The observations support the view that there are two types of cancer of the stomach which differ in their pathogenesis: (1) cancer arising in stomachs the seat of chronic gastritis with anacidity and (2) cancer arising in peptic ulcer. The former is the usual variety,

it comprises from two thirds to three fourths of the cases. Our statistics are also of some practical value, since they indicate that the presence of acid is the crucial factor in the diagnosis of cancer ex ulcere.

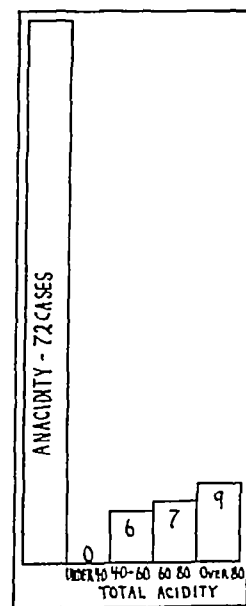
Finally there is the question as to whether a cancerous ulcer may really be malignant from the start—an ulcerated cancer. Everything seems against such a view: the fact that early cancers have been demonstrated histologically on the edge of a typical peptic ulcer and that in the anacidity group nothing suggestive of the craters of peptic ulcers is to be demonstrated. Indeed, the occurrence of cancer in a perfectly normal gastric mucosa must be an extremely rare event if it occurs at all.

In summary then, evidence is presented that there are two types of cancer of the stomach of fundamentally different origin and that they may be differentiated with considerable certainty by the presence or absence of free acid in the gastric secretion. While this general idea is not a new one, the clearness of the concept has been obscured by the old erroneous view that cancer whether or not associated with ulcer, begins in a stomach which has a normal secretion and that in either case the secretion fails as the growth proceeds. On the contrary, one variety of cancer arises in the stomach already the seat of gastritis and anacidity and the other, arising on the basis of ulcer, leads rarely if ever to any material change in the character of gastric secretion.

Finally it must be emphasized that here again studies of gastric secretion fail to help in the practical problem of deciding when a benign ulcer becomes cancerous since the acid persists unchanged or but little diminished. One cannot expect to find anacidity in these cases.

6 Symptomatic response to therapy. It is said that failure of ulcer symptoms to respond to therapy should rouse suspicions of malignancy. Such a rule is, however, of little practical value. In the present series of cancerous ulcers, for example, there was symptomatic relief in five cases for periods of from five to eight months before rapid decline set in. Conversely, it is common experience to observe patients with benign ulcer so refractory to medical therapy that eventually operation is done for this reason only.

The same may be said of decrease in size of the ulcer under medical therapy. Many benign ulcers fail to show any change in size by roentgen examination over long periods of time and in two of our malignant cases the ulcer seemed smaller at the



Distribution of cases of cancer with acid according to degree of total acidity

very time when cancer was extending through the walls of the stomach. Technical difficulties such as lack of filling of the crater with the radiopaque mixture contribute to such errors.

In summary then, none of the criteria that have been proposed for the detection of early malignant change in peptic ulcer are reliable in the individual case, which is the practitioner's concern. The fact statistically valid that among ulcers large ones are more likely to be

malignant than small ones cannot be depended on to give the correct answer in the individual patient, and the same difficulty holds when one considers the type of history, response to therapy, age, sex, and the character of the gastric secretion. One is forced to the conclusion

at issue is whether or not all gastric ulcers should be resected as soon as recognized as a prophylactic against subsequent cancer. Now if partial gastric resection, which is indicated if anything at all is done, were a trivial procedure, no one would question the propriety

TABLE 2—Analysis of Twenty-Two Cases of Cancer of the Stomach with and without Reference to Antecedent Peptic Ulcer

Name	Sex	Age	Aged		History	Roentgen Examination	Course	Evidence Favors Ulcer
			Free	Total				
Wm	♂	40	36	40	Indigestion 1½ years worse past 2 months	Large ulcer high on lesser curvature	Died 1 year later, autopsy report (done elsewhere) carcinoma of stomach	Yes
Ld	♂	40	36	40	Occasional indigestion for years for 6 months epigastric distress 12 hours p.m. relieved by food or soda	Appearance suggests large tumor cecocolic, antrum no crater	Rapid decline operation inoperable cancer of stomach with metastases	?
Ar	♂	40	0	41	Stomach trouble 20 years	Irregular defect on greater curvature near pylorus no crater	Rapid decline operation inoperable cancer of stomach with metastases	?
Ho	♂	40	6	40	Stomach symptoms only two months	Pyloric obstruction	Subtotal gastric resection infiltrating cancer no ulcer	No
Ro	♀	64	56	2	Intermittent gastric distress for many years worse recently	Constant niche on lesser curvature which has appearance of ulcer	Well on medical therapy for 6 months then rapid failure mass in epigastrium and metastases x rays now show large irregular ulcer crater	Yes
Beck	♂	46	44	4	Stomach symptoms 1 year	Large ragged annular filling defect in antral region	Died 6 months later with metastases	?
Tris	♂	40	30	60	Epigastric pain for 2 years off and on	Large ulcer crater high on lesser curvature	Exploration in deep ulcer crater in indurated mass high on lesser curvature gastro-enterostomy 3 years later x rays show lesion more extensive patient very anemic and ill	Yes
McC	♀	46	44	60	Indigestion 2½ years	Ulcer crater on lesser curvature	Excision of ulcer 1 cm wide and 1 cm deep at one edge a few irregular glands with cells invading stroma died 2 years later autopsy recurrent carcinoma of stomach	Yes
Bo	♂	50	4	54	Stomach symptoms 4 months	Large ulcer (3.5 cm) high on lesser curvature	Three months later no healing of ulcer general condition rapidly worse	Yes
Fl	♂	40	30	50	Stomach symptoms off and on for 5 years worse past few months	Widening of pyloric interspace no crater	Pyloroplasty histologically cancer of pylorus (submucous) no ulcer died of recurrence	No
Mu	♀	44	30	50	Stomach symptoms 9 months	Large gastric ulcer (examination made elsewhere)	Improved 6 months on medical treatment then rapidly worse operation extensive infiltrating lesion of lesser curvature with metastases inoperable	Yes
Lj	♀	57	33	70	Stomach symptoms intermittently for 4 years worse past 4 months	Huge defect on lesser curvature	Gastric resection huge ulcerated lesion (cancer) impossible to tell how it started	?
Vi	♀	26	20	74	Symptoms started 2 years ago exploration then large ulcer (not excised) seen high on lesser curvature	Crater 4 cm in diameter on lesser curvature	Improved on medical therapy for 6 months rapid failure then exploration inoperable cancer	Yes
Se	♂	44	46	54	Indigestion 2 years worse past few months	Large filling defect involving antrum	Resection of stomach with removal of growth specimen shows ulcer crater 2 by 4 cm carcinoma was rising in base of ulcer and spreading through stomach wall	Yes
Co	♂	40	74	89	General failure for a year no definite gastric symptoms	Slight irregularity on lesser curvature	Autopsy on lesser curvature 9 cm from pylorus a shallow ulcer 2 by 4 cm one edge of this shows definite cancer histologically	Yes
Ur	♂	40	72	80	Indigestion 4 years much worse 3 weeks	Small ulcer crater near pylorus with obstruction	Subtotal gastrectomy ulcer 1.5 by 4 cm histologically cancer	Yes
De	♂	44	102	106	Epigastric pains 4 months	Ragged annular filling defect at pylorus with partial obstruction	Pyloric resection advanced ulcerated cancer impossible to tell about early stages	?
Ed	♂	48	50	108	Indigestion 4 months	Ulcer crater 2 cm in diameter on lesser curvature	Rapid failure metastases in lymph nodes and liver	Yes
Be	♀	29	68	110	Indigestion 2 years	Ulcer on lesser curvature near pylorus 1 cm in diameter	Temporary relief by medical therapy 4 months later increase of symptoms x rays showed ulcer larger operation cancer	Yes
St	♂	50	96	112	Stomach symptoms 5 months	Annular defect near pylorus with partial obstruction	Exploration annular cancer no ulcer made out	?
Mn	♀	32	106	114	Indigestion for 16 years relieved by alkali	Ulcer crater 1.5 cm in diameter on lesser curvature 1 month later crater smaller	Complete relief on medical therapy for 3 months then mild obstructive symptoms operation indurated area on lesser curvature with ulcer in center gastro-enterostomy only done died 1 year later autopsy cancer of stomach	Yes
F	♀	33	110	120	Indigestion 4 months previous periods of distress	Ulcer crater near lesser curvature 6.5 cm in diameter	Response to medical therapy for months size of ulcer by x rays unchanged then rapid failure exploration inoperable cancer (biopsy)	Yes

that it is impossible even after most careful study and observation to be sure whether early cancerous changes have taken place in an apparently benign peptic ulcer.

If, then, it should be admitted that such changes cannot be detected clinically with any useful degree of certainty, if, in brief, it is impossible to differentiate between benign and malignant ulcer until late and obvious evidences of cancer are present, then the point

of a prophylactic operation just as no one hesitates to have a pigmented mole removed to avoid possible melanosis. Unfortunately the operation is a serious one with considerable immediate mortality, so that the situation will not be bettered unless the hazard of cancerous changes in ulcer is greater than the hazard of operation. It is necessary, therefore, to examine the statistics in regard to these matters.

First as to the hazard of a benign ulcer becoming cancerous. The general feeling in the literature is that probably not more than 5 per cent of apparently benign peptic ulcers are in fact malignant; this is in accord with our own experience. Dr. Chang has recently studied the cases from this clinic. A consecutive series was collected in which the roentgen examination showed craters typical of simple gastric ulcer without other change. It was assumed that if after a follow up period of two years the patient was well the ulcer was benign.

sistent indigestion and with the social and psychologic hazard that must be met when a serious operation is advised. Finally, operation does not necessarily save the patient from cancer, even if only the earliest malignant changes are present. This is well shown by the Mayo series<sup>1</sup> of resections for early cancer or cancerous ulcer. Among sixty-eight such cases in which malignancy could be demonstrated only by the microscope there were thirty-six deaths, or 52.7 per cent presumably of recurrences.

TABLE 3—Analysis of Twenty-Two Cases of Cancer of the Stomach with Anacidity with Reference to Antecedent Peptic Ulcer

Number	Sex	Age	History	Roentgen Examination	Course	Evidence Favors Ulcer
1	♂	71	Indigestion 6 months	Large filling defect at cardia	Metastases to liver and elsewhere	No
2	♂	64	Stomach symptoms 6 months	Ragged irregularly at cardia		No
3	♀	73	Vague failure of health 6 months	Deformity of entire lower half of stomach; no crater	Patient almost moribund	No
4	♀	53	Vomiting one week	Whole antral portion cut off leaving only irregular funnel-shaped lumen with almost complete obstruction		No
5	♂	61	General failure 8 months; no gastric symptoms	Distal two thirds of stomach completely obliterated by a ragged lesion	Autopsy: large cancer of lesser curvature of stomach in distal third; no sign of ulcer	No
6	♂	57	Stomach trouble for years worse past 4 months	Huge irregular filling defect at antrum; no crater	Resection of lesion; advanced sloughing growth	No
7	♂	40	General failure 7 months; no stomach symptoms	Huge ragged lesion of antrum with palpable epigastric mass	Patient moribund	No
8	♂	54	Vomiting 2½ months	Huge irregular defect on greater curvature	Metastases in liver	No
9	♀	26	Indigestion onset 7 years ago	Irregular filling defect at antrum involving both greater and lesser curvatures	Operation: a hard nodular mass extending from pylorus for 8 cm; biopsy showed cancer	?
10	♂	64	Epigastric pain 3 weeks	Large filling defect in mid portion of stomach	Exploration: hard nodular mass near cardia; metastases to liver	No
11	♂	72	Epigastric distress 8 weeks	Irregular filling defect of greater curvature in its middle third	Autopsy: entire stomach except 10 cm at cardia thickly infiltrated with tumor; no localized ulcer	No
12	♂	40	Heavy feeling in stomach for 3 weeks	First x-ray of stomach did not show disease; 5 months later tubular defect in body of stomach; ragged on greater curvature side		No
13	♀	76	Abdominal distress 2 months	Large ragged defect near cardia on greater curvature; no crater	Rapid downhill course	No
14	♂	37	Epigastric distress 3 months	Pyloric obstruction	Operation: resection of pyloric cancer; no ulceration	No
15	♀	40	Digestive symptoms 2 months	Irregular filling defect of entire pyloric antrum; no crater	Operation: unresectable cancer near pylorus with metastases; no signs of ulcer	No
16	♂	60	Epigastric pain 6 months	Irregular filling defect of antrum mainly on greater curvature; no crater seen	Biopsy of skin nodule: adenocarcinoma	No
17	♂	70	General failure and loss of appetite for 3 months	Large filling defect at cardia	Multiple metastases	No
18	♂	47	Indigestion 4 years; abdominal pain 6 weeks	Constant defect in antral region	Operation: resection of pyloric cancer; huge shallow superficial ulceration of mass which shows cancer everywhere	?
19	♂	64	Epigastric pain 3 months	Large filling defect at antrum	Operation: resection of pyloric cancer; no ulcer	No
20	♂	33	Vomiting for a year	Ragged defect at antrum with partial obstruction; no crater	Metastases	No
21	♀	51	Epigastric distress and vomiting 4 weeks	Sawed off pylorus	Operation: huge cancer at pylorus (biopsy)	?
22	♀	60	General failure 5 months; no special stomach symptoms	Huge irregular defect involving half the stomach	Operation: huge cancer; biopsy inoperable	?

at the time of the first examination. Sixty-two cases were studied in this way. Two of the patients, or 3.2 per cent, turned out definitely to have cancer, and in a third case there was serious suspicion of cancer without verification. At most, then, three or 4.8 per cent, of the series of apparently benign ulcers were, or soon became cancerous. These figures do not tell of course how many ulcers would have become cancerous if observed over a longer period—say ten or twenty years—and from this standpoint the figure of 5 per cent would doubtless have to be increased to some extent. Gastric resection, however, involves an operative mortality of at least 10 per cent even in skilled hands<sup>3</sup> and this figure could safely be doubled if one includes operations done by surgeons in general. In addition, even if resection is accomplished, one still has to reckon with possible recurrence of ulcer, with postoperative complications such as adhesions, obstructions and per-

#### SUMMARY

One arrives therefore at certain definite conclusions. First, it is impossible by clinical observation to determine early cancerous changes in apparently benign

TABLE 4—Evidence of Antecedent Gastric Ulcer in Cases of Cancer of Stomach with Anacidity and with Preservation of Gastric Secretion

	Cancer with Acid per Cent	Cancer with Anacidity per Cent
Antecedent ulcer	69 {Definite 41 Probable 27}	0
No antecedent ulcer	9	81.0 {Definite 45.5 Probable 35.5}
Relation to ulcer uncertain	23	18.0

peptic ulcer. The various criteria while statistically valid, are subject to so much variation that they cannot be depended on in the individual case even though great

<sup>3</sup> Rienhoff, W. F. and Baker, B. M. Jr. The Medical and Surgical Aspects of Peptic Ulcer. Internat. Clin. 2: 167 (June) 1934.

size of the lesion points strongly to cancer. Hence, if prophylactic surgery is to be used, one should consider every gastric ulcer as malignant *in posse* if not *in esse* and one should excise them all. But the surgical risks of such wholesale gastric resection are distinctly greater than the hazard of ulcer being or becoming malignant.

The only practical attitude to adopt, therefore, is to regard small apparently innocent gastric ulcers as in fact benign until evidence to the contrary is weighty enough to arouse serious suspicions and to accept the fact that a certain number of unavoidable tragedies will occur. They will occur in the future as they have in the past, not necessarily because physicians are careless but because they are helpless in the face of an insoluble problem of diagnosis.

## CARCINOMA OF THE RECTUM

### SOME CAUSES FOR THE POOR PROGNOSIS

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Carcinoma of the rectum is a very serious disease although it may be uncommon in the experience of any individual physician its early recognition is essential to the life of the patient. Many patients who have carcinoma of the rectum appear at the Mayo Clinic and elsewhere for examination when the local lesion is hopelessly inoperable. This also implies that many of these lesions are beyond even palliative irradiation when first seen. Rankin, in a review of 1727 cases of malignant disease of the rectum that were observed at the clinic discovered that only 55 per cent of the lesions were operable and that resection was possible in only 35 per cent. This indicates obviously that in any group of rectal carcinomas the expectancy of life for the patient is short. When it is recalled that carcinoma of the rectum causes definite and annoying symptoms, such as rectal bleeding, pain, constipation and diarrhea which get progressively worse and that about 95 per cent of all these lesions are within reach of the examining finger, these facts are disheartening.

We realize that carcinomas of the rectum are not alone in not being treated at their most favorable stage. However, after following many patients who have had carcinoma of the rectum, from the time of their admission to the clinic until they were entirely relieved of their trouble or until their demise, we have come to be of the opinion that postponement of care and procrastination are more prevalent among these patients than they are among those who have most other types of carcinoma. The questions that obviously arise are: Why should this be so? Are the methods of diagnosing carcinoma of the rectum at fault? Are physicians more likely to be indifferent to lesions in this part of the body than to lesions in other parts? Does the ubiquitous advertising of cures for piles and constipation hinder the early diagnosis of carcinoma of the rectum because the patient treats himself?

Our observation of so many advanced cases of this disease prompted us to make a review of the causes of late diagnosis. Each of us interviewed 100 patients who had carcinoma of the rectum, as they came under

our personal observation. One of us (J. A. B.) questioned those who were admitted to the intestinal service for preoperative preparation. These were patients who were to be subjected to radical operation or who were about to undergo colostomy for relief of obstruction that was the result of an advanced lesion. The latter patients were placed in the hospital for temporary comfort. The other of us (E. T. L.) questioned 100 patients who were sent for palliative irradiation or who were thought suitable for primary therapeutic irradiation. Both of us followed the same outline for questioning. In addition to the usual points that are covered in an intestinal history the following list of questions was asked every patient and the answers were verified when necessary by an interview with a relative of the patient.

What were the first symptoms which you noted?

What was the progress of the disease?

What did you think was wrong with you?

Did you attempt to treat yourself?

How long had the symptoms been present before you consulted a physician? If there was a delay, why?

What kind of an examination did the physician make and what treatment did he prescribe?

Ninety-two of the 200 patients had consulted a physician within a month from the onset of symptoms. The other 108 had not consulted a physician until from two to twenty-four months after the onset of their trouble and until their own treatment had failed. Granting that a tumor must progress to a certain stage before it can produce symptoms, it seems obvious that in these 108 cases the malignant condition must have progressed to a less favorable stage during the time these patients were treating themselves. It was among this group of patients that adequate treatment usually could not be employed because of the advanced condition of the disease. Only two patients both of whom had severe symptoms came directly to the clinic before they had consulted any physician.

The American Society for the Control of Cancer, and most authors who have written on the subject regard one month as an average amount of time during which a patient may have symptoms before a correct diagnosis is made and treatment instituted. We also believe that a correct diagnosis should be made within one month after the symptoms are present. It might be said in passing that we do not regard the specific mention of carcinoma as indicating correct diagnosis because indirect but equally reliable information about the diagnosis can be obtained from what the physician told the relatives of the patient and from the treatment. As there are but two methods of treatment that are accepted generally—irradiation and operation, we have regarded the use of any medical treatment as an indication of wrong diagnosis, provided we could exclude deliberate experimentation on the part of the physician, or quackery.

In this group of 200 cases, the earliest symptom was bleeding, pain occurred next, then constipation and finally, diarrhea. Most patients complained of combinations of these and said that their symptoms had been getting worse, yet these symptoms, as annoying as they were, did not bring these patients to their physicians early. Self medication had been the rule among these patients, this had included the regulation of diet, the notorious remedies for constipation, and the equally famous "pile cures." In this connection it is necessary to refer only to the remedies for regulation of the

bowels, which are advertised by radio, on billboards in newspapers and in magazines. It seems too bad that the excellent work being carried out by the American Society for the Control of Cancer should be minimized by advertising to a gullible public, and that patients should treat themselves without consulting a physician.

We tried to discover, by questioning the patient why the first physician who had been consulted had failed to make a rectal examination in so many instances and learned that there had been several reasons for this. Often the patient had objected to such an examination and the physician in an attempt to make the best of an unsatisfactory situation, had prescribed a palliative and had requested the patient to return shortly, or else the physician had hesitated to add to the pain of an extremely uncomfortable individual by making a rectal examination and had therefore prescribed palliative medication. It was disclosed that there were three reasons for the failure of these patients to return to their physicians as instructed: first they had obtained relief and had decided that it was unnecessary to return; second, they had discussed their symptoms with friends and had tried the remedies that their friends had recommended; or third, they had feared that they might have carcinoma and because of the relief that had resulted from medication they had decided that they did not have carcinoma but that they had only the symptoms of it. Meanwhile the carcinoma had progressed in silence. The time invariably had come when the patients had had intolerable symptoms and when the remedy no longer had given relief. At this time they had returned to their physicians or had consulted others who had had little trouble in recognizing the underlying cause of the symptoms. Valuable time had been lost in this period by the treatment which had masked the symptoms of carcinoma. Too often the condition had been diagnosed wrongly as 'hemorrhoids' or 'colitis' without a proctoscopic or roentgenologic investigation, and hemorrhoidectomy or other palliative measures had reduced the chances of much greater benefit from correct radical treatment.

Another reason for delay in starting correct treatment had been the fact that both patient and physician often had felt that the operation for carcinoma of the rectum was too formidable. It should be remembered, however, that advances have been made in the management of these cases in recent years which have helped to make surgical treatment of carcinoma of the rectum very satisfactory. In the hands of expert and experienced operators who have their patients prepared by improved methods of preoperative treatment, radical operation entails a mortality of less than 5 per cent. The preoperative vaccination against peritonitis, the thorough emptying of the colon, the replenishing of a depleted water balance, the forced storage of carbohydrates, and the isolating of patients who have disorders of the colon as a unit under combined medical and surgical care are measures that have tended to increase the safety of rectal surgery. Surgical opinion throughout the world is unanimous that the earlier the patient comes for treatment the greater is the likelihood of cure by operation, whereas the later the diagnosis is established the less is the chance of cure by any treatment.

When patients finally have had the diagnosis of carcinoma of the rectum established, much tact in the discussion of the necessary treatment is indicated. Patients do not like to have a colonic stoma if it can be avoided, and this can be done in certain favorable cases by

employing radiotherapy or segmental resection. Hence the fear that a patient has of the inconvenience of a colonic stoma may be groundless. Then, too, a colonic stoma, if suitably made, offers little inconvenience if the patient has been educated to care for it properly. W. J. Mayo has aptly illustrated an unsatisfactory colostomy by the story of the man who pulled the wheelbarrow of refuse. He did not push it because he hated the sight of it. But, as we have said, colonic stomas will cause little trouble if patients are given detailed instructions about their care. We have seen many patients who had refused to submit to colostomy and resection when these operations first had been recommended by their physicians and who later had consented to undergo the same operations on the advice of another physician who had allayed completely their fears of the undesirability of such procedures.

Finally in the minds of many there still seems to lurk the dread and hopelessness in regard to neoplasms of the rectum. This idea must be carefully expelled and the mind of the sufferer must be disabused. We never have found it difficult to convince a patient who had such a lesion that our present method of treatment was essential and satisfactory. It is fortunate that some carcinomas of the large intestine are notoriously slow in their growth and generally have a favorable prognosis. The exact status of a given lesion can be determined only by operation. These facts do not detract from the importance of an early diagnosis, for the nearer a carcinoma approaches operability the better is the chance of permanent cure by whatever method is indicated, radical extirpation or radiotherapy. It should be remembered that, in cases in which the patients are seen early and are carefully selected, radiotherapy without operation is a safe and dependable method of treatment.

This group of 200 cases demonstrates that inoperable carcinomas of the rectum occur largely because patients treat their own disease under the impression that their symptoms are common to most people and are not serious. Both patient and physician make a great mistake in gambling that a lesion is benign. It must be remembered that symptoms of carcinoma of the rectum simulate those of other benign lesions and even those of functional conditions. The importance of early correct diagnosis cannot be overemphasized from the prognostic point of view. Temporization and mismanagement cannot be too strongly condemned, for they will place many patients beyond all hope of cure and relegate them to palliation and hopelessness. If doubt exists about any given lesion or group of symptoms, the lesion should be considered carcinoma until it is proved otherwise by competent examination. The fallacy that rectal symptoms should be considered and treated as functional upsets is perpetuated unfortunately by the exploiters of nostrums and the physician is forced to compete with those who offer free medical advice for pecuniary reasons only. The patient, who lacks discriminating sense therefore treats his symptoms but not the underlying lesion until he becomes convinced, by his own failure to relieve himself, that medical advice is highly desirable. The patient who has rectal (or other) carcinoma and who by his own ignorance and neglect experiences the normal fatal outcome has a gloomy outlook to face. As he nears the end of his torture and learns that he might have been cured by relatively simple measures and that he has been deluded by false hopes through the treacherous

theories of dishonest prophets until his case is hopeless and his family is penniless, his lot is indeed pathetic. As carcinoma of the rectum can nearly always be diagnosed with the index finger, it is lamentable that so many patients who are afflicted with this condition do not consult a physician until it is too late to secure the greatest benefit.

#### CONCLUSIONS

A careful analysis of the answers obtained from 200 patients has led us to conclude that the poor prognosis of carcinoma of the rectum is the result of the following causes:

- 1 The frequent wasting of valuable time on the part of patients by self diagnosis and self treatment and by regarding the symptoms as unimportant

- 2 Delay by the physician to make a digital examination of the rectum

- 3 Lack of knowledge, on the part of the patient concerning the safety and satisfactory end results of rectal surgery

### THE TREATMENT OF DIABETES WITH INSULIN (AFTER TEN YEARS)

#### CONTRASTING THE EFFECTS OF NORMAL AND OF THE OLDER DIABETIC DIETS

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During October 1923 I first attempted the administration of high carbohydrate diets to diabetic patients treated with insulin. Most of the diets employed at that time were not as high in their carbohydrate content, however, as the diets that I have used during the past nine years. A preliminary report of my earlier observations with the high carbohydrate or normal type of diet was made before the Section on Pediatrics of the Medical Society of the State of Pennsylvania in October 1925.<sup>1</sup> In January 1926 Sansum<sup>2</sup> reported the use of somewhat similar diets in a group of insulin treated diabetic patients. Adlersberg and Porges<sup>3</sup> in 1927 also advocated high carbohydrate—"fat poor diets" for the treatment of diabetic patients receiving insulin. At that time it was agreed by all the investigators mentioned that these high carbohydrate diets increased the relative effectiveness of insulin in a majority of the cases studied. Many other clinicians, both in this country and in Europe, have subsequently adopted this method of treating diabetes, reporting similar satisfactory results.

Adlersberg and Porges,<sup>3</sup> Rabinowitch<sup>4</sup> and I<sup>1</sup> have all called attention to the importance of maintaining a

low fat content in these diets. The increased effectiveness of insulin that so commonly follows the substitution of the high carbohydrate-low fat regimen for the low carbohydrate-high fat regimen seems to be chiefly dependent on the degree to which fat is curtailed.

The amount of carbohydrate and its relation to the protein, fat and total calories in the various diets used by different observers in the past eight years has varied considerably. As a rule, however, the objective of most clinicians employing these high carbohydrate diets has been to make them approximately equal to the diets of normal people of similar age, sex, weight and physical activity.

The reasoning that originally led me to experiment with and eventually adopt the higher carbohydrate diet was as follows. Conceding that diabetes was due to an insulin deficiency and that the failure to metabolize food without glycosuria was directly proportional to this deficiency, the artificial administration of insulin in amounts sufficient to restore the total available body insulin to normal should result in the ability of that individual to metabolize a normal diet ("normal" both as to quantity and quality of food).

It is axiomatic that the facts concerning any new therapeutic procedure can be determined only when the application of such procedure has been tested in many cases over a period of years. I have therefore chosen this occasion, ten years after diets high in carbohydrate were first administered, to summarize briefly the results of treatment as I have observed them in a group of 150 cases of diabetes treated with insulin and a high carbohydrate diet during the past ten years. Of this group, twenty-eight have been under observation for from eight to ten years, seventy-eight have been under observation for from five to eight years, and the remainder, or forty-four, have been under continuous observation for from one to five years. This group of 150 patients is only a fraction of the total number of more than 900 cases of diabetes treated with insulin during the past twelve years. The basis of selecting this group of 150 insulin treated patients has been

- 1 Length and continuity of treatment
- 2 Reliability and completeness of their records
- 3 Relative freedom from complicating conditions
- 4 Extensiveness of laboratory data

Limitation of space prevents the presentation of complete protocols of the entire group. I have therefore selected the records of ten patients for tabulation because this group is representative of the variation of the results obtained in the larger group. The group of ten has been further subdivided into two groups of five patients each. In the first group, patients 1, 2, 3, 4 and 5, are included those who have been continuously under my care for from eight to fifteen years. Patients 1, 2, 3 and 4 started insulin treatment from ten to eleven years ago. The second group, comprising patients 6, 7, 8, 9 and 10, had all been under the care of other clinicians for periods ranging from one to nine years. They had all received the lower carbohydrate-higher fat types of diet and had been treated with insulin for at least a year previous to coming under my care. In this respect they serve as a control group.<sup>4a</sup>

It is necessary at this point to explain the method I have used in compiling the tables and charts from the data in the records. In each of the fifteen tables, the total number of units of insulin, the total grams of

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Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1 Geyelin H. R. Recent Studies on Diabetes in Children. *Atlantic M. J.* 29: 829 (Sept.) 1926.

2 Sansum W. D. Blatherwick N. R. and Bowden Ruth. The Use of High Carbohydrate Diets in the Treatment of Diabetes Mellitus. *J. A. M. A.* 86: 178 (Jan 16) 1926.

3 Adlersberg D. and Porges O. Zur Theorie und Praxis der kurativen Diabetesbehandlung. *Klin. Wchnschr.* 5: 1451 (Aug 6) 1908 (Aug 13) 1926. Weitere Erfahrungen über die Behandlung des Diabetes mellitus mit fettarmer Diät. *ibid.* 6: 2371 (Dec 10) 1927.

4 Rabinowitch I. M. Experiences with a High Carbohydrate-Low Calorie Diet for the Treatment of Diabetes Mellitus. *Canad. M. A. J.* 60: 489 (Oct.) 1930. Rabinowitch has insisted on an even lower fat intake than have most observers. He rarely prescribes more than 50 Gm a day.

<sup>4a</sup> The cases referred to do not all appear in the article as printed in THE JOURNAL but can be found in the reprint.



carbohydrate, protein and fat and the total calories and available carbohydrate have been averaged for the year in terms of the daily quantities of each. The weight and height columns in each chart are designed to show the range of variation in early periods or, as in another group of tables, averaged over a period of years. The figure in the column of the tables listed as "Grams Carbohydrate per Unit of Insulin" is, of course, also a yearly average on a per day basis. This figure is obtained by dividing the average daily total grams of available carbohydrate by the total daily dose of insulin. This may be described as the ratio of insulin to carbohydrate or the number of grams of carbohydrate that each unit of insulin will oxidize. It is the best method that I have been able to devise for the estimation of

dextrose. The columns in the tables showing the figures for blood sugar and blood cholesterol are expressed in terms of milligrams per hundred cubic centimeters of blood and unless otherwise indicated, represent the range of blood sugar and cholesterol during the periods indicated. In the charts appended for cases 2, 3 and 4 the blood sugar and blood cholesterol readings are given as the individual determination.

## PROTOCOLS

CASE 2—Reeve A. born Aug 27, 1915 admitted May 2, 1919, in whom the onset of diabetes was manifested by symptoms in February 1919 and proved by urinalysis in March, was treated by diet alone from the time he was first seen until Sept 12, 1922, at which time insulin treatment was begun. His maximum tolerance for food before insulin was begun was below 10 Gm

TABLE 3—High Carbohydrate-Low Fat Diet in Case 2 (Reeve A, Male)

Year	Diet				Total Dextrose	Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Range of Blood Sugar per Cent	Range of Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbo hydrate	Protein	Fat	Calories								
1922-1923	60	60	114	1,200	101	24	4.2	24 Gm	0.22-0.222	0.23-0.45	49-70	3'7"
1924	116	64	82	1,401	100	4	2.8	0 to +	0.080-0.333	0.36-0.20	60-72	4'2"-4'3"
1925-1927	219	81	96	904	12	1	5.6	0 to +	0.040-0.474	0.10-0.30	71-102	4'3"-4'10"
1928-1930	717	78	84	2,316	44	62	3.9	0 to +	0.04-0.418	0.10-0.20	101-124	4'11"-4'4"
1931-1933	412	120	80	1,904	41	51	6.1	0 to +	0.060-0.418	0.10-0.21	118-153	5'4"-5'7"
1934 to June 1	500	120	80	1,904	572	30	6.4	0 to +	0.060-0.211	0.10-0.20	104	5'10"

insulin effectiveness. It may be objected that this method of calculating the effectiveness of insulin is incorrect because it does not include the measurement of that quota of insulin available from the patient's pancreas. This contention is obviously correct, but as there is no means of estimating the influence of the native insulin, I am forced to limit my measurement of the effectiveness of insulin to that quota which is parenterally administered. In children and in other

of carbohydrate, 30 Gm of protein and 80 Gm of fat. On this diet, while in the hospital eight days before insulin was started, the urinary dextrose averaged 34.3 Gm a day.

The subsequent course of the diabetes is summarized in tables 3 and 4. During 1932-1933 and the first three months of 1934 the patient suffered from an extremely severe pansinusitis, which necessitated two radical operations, one on the maxillary sinus and one involving the frontal sinus. Also in 1932 he suffered a compound fracture of both bones in his right arm. Coincidentally with these occurrences it required considerably

TABLE 6—Daily Average of Diet and Insulin Dosage in Case 3 (A B Female)\*

Year	Carbohydrate Gm		Protein Gm		Fat Gm		Calories	Units of Insulin		Days Clear of Urine Sugar	Average Sugar Excreted Daily Gm	Total Available Carbohydrate Gm	Calories per Unit of Insulin	Total Carbohydrate per Unit of Insulin	Range of Weight Pounds	Range of Height
	Total	Average	Total	Average	Total	Average		Total	Average							
1922†	882	10	108	43	320	71	687	None	40	40	44	44	7.0	4.4	70-80	4'0"
1922‡	7,973	60	7,000	60	11,643	112	1,608	2,450	20	40	14	87	7.0	4.4	54-66½	4'3¼"-4'4"
1923	44,404	122	24,006	67	40,121	111	1,700	13,254	70	41	8.7	153	4.9	4.3	60-69½	4'4¼"-4'5¼"
1924	43,842	120	22,000	60	39,760	90	1,647	16,472	40	44	14	142	4.7	3.2	60-68½	4'5¼"-4'8"
1925	70,509	210	20,344	60	60,094	83	1,881	23,131	63	100	5.5	240	3.0	3.0	70-80	4'8"-4'10"
1926§	92,068	236	20,244	70	21,170	61	1,889	16,109	40	202	2.8	42	6.6	6.6	80-84½	4'10"-4'11"
1927	112,042	309	28,490	78	31,120	81	2,111	19,743	51	204	410	30	6.0	6.0	94½-103	5'1"-5'4½"
1928	136,200	372	20,040	70	24,030	66	2,398	20,771	69	204	367	30	6.6	6.6	103-110	5'4½"-5'5¼"
1929	110,030	720	23,020	70	24,000	65	2,208	20,332	50	10	293	30	5.3	5.3	110-129½	5'6½"-5'8½"
1930	127,000	300	20,200	60	27,240	75	2,500	27,070	70	10	400	30	5.3	5.3	127½-131½	5'8½"-5'6½"
1931	128,832	302	20,310	80	27,400	75	2,403	49,430	70	208	346	30	6.2	6.2	120½-130½	5'6½"-5'6¾"
1932	110,532	302	20,004	74	21,720	60	2,080	20,400	60	approx 360	344	34	5.7	5.7	123½-130½	5'11"
1933	109,500	300	27,000	70	21,000	60	2,037	21,000	60							

\* A dietitian has always lived with this patient and the averages are computed from dally charts kept throughout the patient's course of treatment. The patient's weight of January, 1931 was 127½ pounds and her height was 5 feet 6¼ inches.

† Preinsulin period of forty six consecutive days.

‡ Insulin was begun Sept 1, 1922. Average for 122 days (from Sept 1, 1922 to Jan 1, 1923).

§ Average for 363 days (2 days in September were omitted in keeping the chart).

cases of maximum severity, the amount of insulin secreted by the pancreas is surely minimal and reasonably constant. The amount of insulin secreted from the pancreas in the milder forms of diabetes probably varies considerably from day to day and even from month to month, but this variation is greatly minimized when expressed in terms of yearly averages. For the comparative purpose for which I have used it, I believe that this method of estimating the effectiveness of insulin is adequate and at least gives an accurate comparative measure of the action of the parenterally administered insulin in its effect on the oxidation of

more insulin to keep him sugar free. At the present time he is going to public school, is leading an athletic life and works in extra hours to help support his family.

CASE 3—A B a girl, born March 4, 1914 admitted April 2, 1921, in whom the onset of diabetes occurred in January 1921 with polyuria, polydipsia and loss of weight, glycosuria being discovered in the early part of March, weighed 42 pounds (19 Kg) and ranged between 40 and 42 pounds until the time that insulin was first given Aug 30, 1922. Before insulin was given her maximum food tolerance was 15 Gm of carbohydrate, 45 Gm of protein and 85 Gm of fat.

The subsequent course in this case can be observed in tables 5 and 6. At the present time she is healthy and vigorous and is leading an outdoor life with considerable exercise and is in



excellent physical condition. The menses were established at the age of 14 years.

The patient's early record is more completely set forth by Geyelin and his associates.<sup>5</sup>

**CASE 4**—Edwin J. M. born April 29, 1912, admitted Nov. 4, 1922, in whom the onset of diabetes first was manifested by symptoms, Feb. 22, 1918, and proved by urinalysis in March 1918 and Nov. 20, 1922. He lost weight steadily from a maximum of 38 pounds (17.2 kg.) at the age of 6 to 27 pounds (12.2 kg.) (with edema) on Nov. 20, 1922 (four and one half years later), at which time insulin was begun. In a control period of three days before insulin was started on a diet of 20 Gm. of carbohydrate, 35 Gm. of protein and 45 Gm. of fat averaging 603 calories, the daily excretion of sugar averaged 41.1 Gm. and the daily nitrogen loss was 3.3 Gm.

The course of the diabetes under insulin treatment can be seen in tables 7 and 8. At the present time the boy is engaged in vigorous physical exercise and aside from transitory infections of the upper respiratory tract he has enjoyed excellent health during the past eight years.

**CASE 5**—Martha Jean C. born May 3, 1922, admitted June 30, 1927, in whom the onset of diabetes occurred Aug. 1, 1925.

TABLE 7—High Carbohydrate Low Fat Diet in Case 4 (Edwin J. M.)\*

Year	Diet				Total Dextrose	Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Range of Blood Sugar per Cent	Range of Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbohydrate	Protein	Fat	Calories								
1922-1924	76	64	10	1,81	114	47	2.6	+ to ++	0.181-0.62	0.270-0.480	33-63	78"-4'
1925	218	80	92	2,070	246	70	7.4	+ to ++	0.040-0.47	0.150-0.240	63-76	4'-4 1/2"
1926-1929	317	90	61	2,391	371	69	6.4	0 to +	0.040-0.14	0.110-0.162	80-129	4'3 1/2"-5'2"
1931-1933	376	92	77	2,363	431	73	6.0	0 to +	0.070-0.47	0.140-0.24	131-140	5'3"-5'5"

\* These averages have been computed from the patient's daily charts throughout his course of treatment and the urine has been tested for sugar at least twice in the twenty-four hour period daily.

TABLE 9—High Carbohydrate Low Fat Diet in Case 5 (Martha Jean C.)

Year	Diet				Total Dextrose	Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Range of Blood Sugar per Cent	Range of Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbohydrate	Protein	Fat	Calories								
1926-1927	50	51	8	1,169	61	32	2.5					
1927-1928	150	Previous diet before admission	60	1,340	186	24	7.8	0 to ±	0.040-0.175	0.301-0.306	33-42	3'4"-3'6"
1929-1932	282	74	63	2,043	176	21	12.0	0 to +	0.080-0.218	0.116-0.220	49-73	3'11"-4'4"

\* Averages for 170 consecutive days (from beginning of treatment to end of 1927).

was desugarized without insulin and kept sugar free on diet alone until Dec. 1, 1925. At this time insulin was started and continued under the care of her local physician until the time of admission. Diet during that interval was 50 Gm. of carbohydrate, 51 Gm. of protein, 85 Gm. of fat and her insulin dosage was 32 units a day. On this diet and insulin dosage she remained sugar free but had gained only 6 pounds (2.7 kg.) during the eighteen months period.

Diet and insulin were changed as indicated and her course under treatment has continued as shown in tables 9 and 10.

**CASE 6**—Harold G., born Jan. 24, 1914, admitted Feb. 24, 1932, in whom the onset of diabetes occurred suddenly in February 1923 with the usual symptoms, almost went into coma. He was treated with insulin from the outset the total amount ranging from 40 to 75 units a day. The average amount over the period of nine years was 60 units a day. His diet had varied from 50 to 100 Gm. of carbohydrate from 60 to 100 Gm. of protein and was over 200 Gm. of fat. At the time of his first visit he was showing considerable glycosuria, 4.2 per cent the blood sugar was 241 mg. per hundred cubic centimeters of blood and blood cholesterol 389 mg.

The subsequent course of events is shown in table 11. He was first put on a diet of 300 Gm. of carbohydrate, 85 Gm. of protein and 75 Gm. of fat with 60 units of insulin a day. He became sugar free within two months and except for moderate

amounts of sugar infrequently has remained sugar free ever since. At the time of his first visit he showed marked pitting edema and weighed 118 pounds (53.5 kg.). He lost 10 pounds (4.5 kg.) during the first six weeks and has since regained his weight without edema, so that at the present time his weight is 135 pounds (61.2 kg.).

**CASE 7**—Herbert N. born March 1, 1914, admitted June 4, 1932, showed manifestations of the onset of diabetes in January 1930. He was desugarized by starvation and kept sugar free on a low diet (exact figure not known) until October 1930, at which time he was given insulin and, until admission, was kept on a diet of 80 Gm. of carbohydrate, 90 Gm. of protein and 215 Gm. of fat. Glycosuria had been combated by insulin which averaged 110 units a day from October 1930 until June 4, 1932. During this period the patient had suffered from many hypoglycemic reactions some of which had been very severe. His chief complaint when he was first seen, was that he was hungry all the time.

Since admission the course of the patient's diabetes is summarized in table 12. The total amount of insulin required daily to maintain an aglycosuria has varied from 70 to 52 units a day and he feels much better as regards physical endurance and mental attitude and is now satisfied with his diet.

**CASE 9**—Silvia L. S., born Aug. 14, 1875, admitted Nov. 9, 1933, had lost 35 pounds (16 kg.) from the date of onset of diabetes January 1926, until April 1926. She was desugarized with a low diet and remained sugar free but continued to get weaker and was finally placed on a diet of 130 Gm. of carbohydrate, 65 Gm. of protein and 150 Gm. of fat with 32 units of insulin daily. On this diet she had gained approximately 22 pounds (10 kg.) and said she had remained nearly sugar free but had not been strong and had had a series of boils ever since 1929. Her diet at the time of admission and her insulin dosage were the same as just given. Her blood sugar was 176 mg. per hundred cubic centimeters of blood and her blood cholesterol was 285 mg.

She was immediately put on a diet of 275 Gm. of carbohydrate, 85 Gm. of protein and 85 Gm. of fat with 32 units of insulin a day. This dosage had to be increased to 40 units a day before she was desugarized. She has remained sugar free on this dose. Blood sugar, May 29, 1934, was 105 mg. per hundred cubic centimeters of blood and blood cholesterol was 250 mg. It is interesting to observe that in this patient the blood cholesterol, although it has remained below 220 mg. per hundred cubic centimeters of blood in six determinations from Dec. 4, 1933, until April 27, 1934, has now increased to 250 mg. Concomitantly with this increase in blood cholesterol, the patient admits that she has been overeating the fat content of her diet.

**CASE 10**—William I. born Sept. 21, 1910, admitted April 5, 1933, has had diabetes for one year. The onset, in April 1932, was sudden. He was immediately put on a diet of 100 Gm. of

<sup>5</sup> Geyelin, H. R., Harrop, George, Murray, Marjorie F. and Corwin, Eugenia. The Use of Insulin in Juvenile Diabetes. *J. Metab. Research* 2 (Nov. Dec.) 1922. This case is listed as case 2 and cases 2 and 4 in the present paper are listed in Harrop's paper as cases 3 and 7 respectively.

carbohydrate, 50 Gm of protein and 50 Gm of fat. He was desugarized for four days with insulin. He had no more insulin until August, and at that time the diet was gradually increased to 150 Gm of carbohydrate, 120 Gm of protein and 180 Gm of fat, with 65 units of insulin a day. He has been on this diet ever since and has remained sugar free. The insulin dosage is still 65 units a day. The blood sugar at this time was 125 mg per hundred cubic centimeters of blood and blood cholesterol was 368 mg.

On admission the patient was immediately put on 350 Gm of carbohydrate, 120 Gm of protein and 90 Gm of fat, and it was possible to keep him sugar free on a dose of 52 units daily within three weeks of the time the diet was changed. From

hydrate. Of the total number of 150 cases, in thirty-nine cases, or 26 per cent, I have been able to increase the carbohydrate intake of the diet from 100 to 200 per cent or more without requiring additional insulin (cases 1, 6, 7 and 10). Some of these cases have required even less insulin on the higher carbohydrate diets than they had required on the lower carbohydrate diets (table 12). Sixty-nine of my patients, or 46 per cent of the 150 cases studied, have required less than a 20 per cent increase in insulin when transferred from low to high carbohydrate diets. In this group the change of diets has often involved an increase in carbo-

TABLE 11—High Carbohydrate-Low Fat Diet in Case 6 (Harold G.)

Year	Diet					Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Range of Blood Sugar per Cent	Range of Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbo-hydrate	Protein	Fat	Calories	Total Dextrose							
1923 (onset) to 1932	60	80	200	2,380	113	60	1.9	1% 1/2				
1932, February to June	300	83	78	2,434	400	75	6.0	0	0.095-0.241	0.140-0.380	118-125	5'3" 5/4"
1933, February to December	410	89	80	2,712	460	50	8.5	0	0.060-0.120	0.180-0.220	134-135	5'4" 5/4"

June 1, 1933, until June 1, 1934, the patient has remained on this diet and has averaged 46 units of insulin daily and the urine has remained sugar free. The most recent blood sugar, done in January 1934, was 125 mg per hundred cubic centimeters of blood, and blood cholesterol 142 mg. The patient writes that he has gained several pounds, and that he has considerably more physical endurance than he had on the previous lower carbohydrate higher fat diet.

## COMMENT

From the tables and charts it will be observed that the effectiveness of each unit of insulin per gram of carbohydrate, i. e., insulin effectiveness, increases as the carbohydrate is increased and the fat in the diet is

hydrate which amounted to more than 300 or 400 per cent.

In forty-two cases, or 28 per cent of the total number of cases, the increase of insulin required after the change from a low to a high carbohydrate diet amounted to an increase in insulin of from 20 to 50 per cent, but rarely more than this. In many of these cases such increases in insulin have been temporary, and after the lapse of a year or more it has been possible to decrease the insulin. There are a few patients, however, who show a steadily increasing need for insulin in spite of the continuation of high carbohydrate diets, but these instances are usually cases in which no attempt

TABLE 12—High Carbohydrate-Low Fat Diet in Case 7 (Herbert N.)

Year	Diet					Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Blood Sugar per Cent	Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbo-hydrate	Protein	Fat	Calories	Total Dextrose							
Oct. 1930 to June 1932	80	90	210	2,061	134	110	1.2	0	0.247*	0.269*	100-140	5'7"
June 1932 to Jan. 1934	342	90	80	2,448	390	40	7.0	0	0.183†	0.180†	140-147	5'4" 1/2"

\* Indicates value at one determination at end of period.

† Indicates average values of fourteen different determinations at intervals.

decreased. Generally speaking, this increased effectiveness of insulin is more striking when the carbohydrate of the diet has reached a certain maximal amount, apparently specific for a given individual. This increase of insulin effectiveness is, I believe, maximal when the relation of carbohydrate to fat in the diet is 3 or 4 Gm of carbohydrate to 1 Gm of fat. Not only in this group of ten patients, but also in the remaining 140 cases studied, I have noted that in most patients, after a transfer from diets low in carbohydrate to diets maximally high, the effectiveness of insulin is not fully attained until a certain lower level of fat is achieved. As an instance of this, I shall cite case 2, in which in 1926 after the fat had been lowered 20 Gm, the effectiveness of insulin was increased from 3.9 Gm of carbohydrate per unit of insulin to 6.6.

From the protocols and tables presented, it will also be observed that the absolute amount of insulin required to oxidize increasing amounts of carbohydrate is often augmented but the increase of insulin is in most instances not proportional to the increase of carbo-

has been made to bring about extreme reduction of fat. It is also possible that the effect of low grade chronic infections, such as sinusitis, and the breaking of diet, particularly the overeating of fat, is responsible for the increasing need for insulin. As an example of the temporary need for increased insulin after the patient has been transferred from a low to a high carbohydrate diet, I may cite case 3. This patient in January 1925, on a diet of 80 Gm of carbohydrate, 63 Gm of protein and 97 Gm of fat, averaging 1,441 calories required 47 units of insulin to keep glycosuria at a level of 15 Gm daily. The diet was changed to 200 Gm of carbohydrate, 70 Gm of protein and 85 Gm of fat in April and during this month and the following month the patient required 81 units of insulin daily to maintain a sugar-free urine. After this, the total insulin needs slowly decreased until in October, November and December she required only 46 units a day to keep the urine sugar free on a diet of 255 Gm of carbohydrate, 70 Gm of protein and 65 Gm of fat. The insulin to carbohydrate ratio or dextrose equivalent of insulin had

rised from 23 in January 1925 to 76 in December 1925. Every urine voiding was tested for sugar daily throughout the year.

One of the objections that has been made to the use of the high carbohydrate diet as I have employed it is that it is a diet which, of necessity, provides for normal nutrition and, in some instances, overnutrition. This is, of course, contrary to one of the oldest traditions of diabetic treatment. Undernutrition has for many years been advocated as a method of treatment for diabetes; in fact, by some it has been regarded as one of the fundamental principles of treatment. The assumption that undernutrition was the fundamental principle of diabetic treatment became widespread subsequent to 1914, owing largely to its advocacy by F. M. Allen. Allen and many of his adherents insisted that tolerance for carbohydrate (and also total food tolerance) could be increased by the persistent maintenance of undernutrition in any case of diabetes. The increases of tolerance that followed starvation and subcaloric diets were and still are readily obtainable in any form of diabetes, particularly the milder forms of the disease. In children, however, these increases following undernutrition are comparatively transitory in nature and are invariably followed by a steadily decreasing tolerance.

In children I have noticed that a certain moderate degree of overnutrition is occasionally unavoidable and in most instances is corrected within a year or two without the necessity of curtailing the diet. It is doubtful whether overnutrition or obesity in this group of cases has any permanent harmful effect on the diabetes. Overnutrition is particularly common in girls at the time of puberty. Attempts to correct it by a reducing diet are usually unavailing because so many of these children prefer to eat normally rather than to lose weight. Insulin effectiveness is undoubtedly diminished if overnutrition is allowed to continue over long periods.

#### THE EFFECT OF THE HIGH CARBOHYDRATE DIET ON THE BLOOD SUGAR LEVEL

Although it is not invariably true, the blood sugar level is usually lower after the establishment of the high carbohydrate regimen than when a patient was receiving the low carbohydrate-high fat diet. This observation coincides with that of Rabinowitch.<sup>4</sup> The diurnal variations of blood sugar are less extreme when patients are treated with the high carbohydrate-low fat regimen than when they are treated with other dietary regimens.

*Insulin Reactions (Hypoglycemia)*—These are less frequently observed in patients receiving the higher

TABLE 14—High Carbohydrate-Low Fat Diet in Case 9 (Sylvia L. S.)

Year	Diet				Total Dextrose	Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Range of Blood Sugar per Cent	Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbohydrate	Protein	Fat	Calories								
1927 to 1933 (Nov.)	120	60	1.0	2,110	167	33	5.2	0 to +++	0.170	0.20	103-125	5'-2 1/4"
1933 (Nov.) to May 1934	300	100	90	2,410	260	40	9.0	0 to ++	0.110-0.180	0.227	125-135	

so that in spite of continuous undernutrition a total loss of tolerance eventually takes place. In adults tolerance for food can be increased for much longer periods of time by treatment with undernutrition, but even in these cases a permanent increase is not obtainable. It must therefore be concluded that no permanent increase of food tolerance occurs as the result of undernutrition. Owing to the persistence with which a large group of clinicians still cling to the fallacious theory that undernutrition is a *sine qua non* of diabetic therapy (even after the discovery of insulin), treatment with high carbohydrate diets and insulin has been decried. As the result of my experience during the past ten years with diets high in carbohydrate and normal in calories, I have been convinced that this is the treatment of choice and

carbohydrate diets than when they receive the lower carbohydrate diets. It is my impression that these reactions are also less severe and less prolonged. Whether with low or with high carbohydrate diets, the best method of minimizing and in most instances of excluding insulin reactions is to require a division of the food into five or six feedings a day, particularly the carbohydrate content of the food.

*Blood Cholesterol*—As Rabinowitch<sup>4</sup> has also demonstrated, one of the most striking features of the change from low to high carbohydrate diets has been the invariability with which a preexisting hypercholesterolemia can be reduced to normal blood cholesterol level. With various types of diet other than high carbohydrate, particularly when the fat of the diet con-

TABLE 15—High Carbohydrate-Low Fat Diet in Case 10 (William I.)

Year	Diet				Total Dextrose	Insulin	Grams of Carbohydrate per Unit of Insulin	Urine Sugar	Blood Sugar per Cent	Blood Cholesterol per Cent	Range of Weight Pounds	Range of Height
	Carbohydrate	Protein	Fat	Calories								
1932-1933	150	120	100	2,790	222	65	3.4	0	0.125	0.368	145	5'11"
1933-1934 (May)	350	120	90	2,690	422	40	9.2	0	0.125	0.142	147	

that the diabetic patient so treated enjoys better health with no observable detriment to the fundamental state of his diabetes.

Although an attempt was made to establish normal nutrition in all my insulin-treated cases of diabetes, I have also made an effort to avoid appreciable degrees of overnutrition. It has not always been easy to achieve this goal. The avoidance of overnutrition is desirable in all patients, and particularly in adults past middle age or in patients suffering from cardiovascular disease.

stitutes more than 50 per cent of the calories, there are a few patients who show a persistent hypercholesterolemia for many years. This occurs even in the absence of glycosuria, ketonuria and hyperglycemia. Its persistence is often striking even when the diet contains more grams of carbohydrate than fat. For example, patient 4 maintained a hypercholesterolemia for nearly two years. During the major portion of that time the average diet contained 130 Gm. of carbohydrate, 80 Gm. of protein and 90 Gm. of fat and in all other respects

his diabetes was under ideal control. Within six weeks after the diet was shifted to 250 Gm of carbohydrate, 80 Gm of protein and 80 Gm of fat the blood cholesterol fell to within normal limits and has remained at this level ever since. It will be observed that, although the ratio of total dextrose to fat in the first diet was 2 to 1, hypercholesterinemia continued until the ratio was changed to 3.8 to 1. I am able to cite fifteen other similar examples.

My experience leads me to the conclusion that there are no cases of persistent hypercholesterinemia which cannot be overcome by the administration of a high carbohydrate diet. The requisites for such diets, those which will overcome hypercholesterinemia, are as follows:

- 1 The number of grams of carbohydrate in such diets must bear the ratio of at least 3 and preferably 4 Gm to every 1 Gm of fat.

- 2 The diets must contain adequate calories for the maintenance of normal weight.

It has sometimes happened that after several years of treatment with these normal diets and the ratio of carbohydrate to fat as prescribed is 3 to 1 (or more), hypercholesterinemia has developed, but it has invariably been found that when this occurs the patients have either through carelessness been overeating in fat or undereating in carbohydrate. The same effect is, of course, obtained if patients ignore their urine tests over long periods of time so that glycosuria develops to such an extent that the available carbohydrate and its relation to the fat metabolized brings about a ratio of less than 3 Gm of carbohydrate to 1 Gm of fat in the total metabolic mixture.

Among the advantages of feeding high carbohydrate or normal diets as compared with lower or medium carbohydrate diets which have not so far been referred to are the following:

- 1 The majority of patients insist that they feel better.

- 2 Many of them remark that they possess so much more strength and physical endurance and they also feel that as far as their dietary habits are concerned they are like normal human beings.

- 3 They do not suffer from hunger and are therefore better patients as far as adherence to their dietary regimen is concerned.

#### SUMMARY AND CONCLUSION

- 1 Patients treated with high carbohydrate-low fat diets achieve greater effectiveness of insulin as judged by the ratio of units of insulin to grams of carbohydrate oxidized.

- 2 The administration of such diets overcomes hypercholesterinemia.

- 3 In the majority of instances, blood sugar levels are reduced after the administration of high carbohydrate diets.

- 4 Hyperinsulinism is less common and less severe.

- 5 Complicating conditions such as tuberculosis, gangrene and cardiovascular disease are less common when patients are being treated with the high carbohydrate diet (normal calories).<sup>6</sup>

- 6 After ten years of application of the high carbohydrate diet, the majority of patients show no loss of food tolerance or any other demonstrable retrogression of the diabetes.

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<sup>6</sup> See reprint.

## INSULOGENIC STIMULATION OF SEXUAL DEVELOPMENT

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In spite of the exhaustive study of the pancreas and its hormones during recent years, data on the interrelationship of this organ with other endocrines are discouragingly conflicting. This is especially true with regard to the part played by the islands of Langerhans in the growth and development of the individual.

Bramwell<sup>1</sup> in 1904 and Moorhead<sup>2</sup> in 1920 described infantilism due to pancreatic insufficiency. It is highly probable, however, that their cases were due to general malnutrition and were not directly the result of malfunction of the pancreas.



Fig. 1.—Patient (at left) in a school group of the same age four months before insulin therapy.

Chabamer, Lebert and Lumiere<sup>3</sup> conclude that insulin specifically stimulates growth processes and that accelerated development following its use is not dependent on improved general health. Lereboullet and Nobecourt<sup>3</sup> do not share this view, however. Homans<sup>4</sup> found that pancreatic pathologic changes in diabetes are limited to the beta cells of the islands and thought the alpha cells must have a special function. In American literature, Allen<sup>5</sup> and others have suggested that the islands produce a trophic hormone, but most authors attribute results obtained from the use of insulin to improved nutrition, increased vitamin intake and other such factors. Frank and his co-workers<sup>6</sup> in their

<sup>1</sup> Bramwell B. *Scot. J. & S. J.* 14: 321 1904.

<sup>2</sup> Moorhead T. G. *Dublin J. M. Sc.* 149: 1 [Jan.] 1920.

<sup>3</sup> Quoted by Fleiderbaum.<sup>7</sup>

<sup>4</sup> Homans J. *Proc. Roy. Soc. London series B* 86: 73 1912.

<sup>5</sup> Allen F. M. *J. Metab. Research* 1: 5 1920.

<sup>6</sup> Frank R. T., Goldberger M. A., and Spielman Frank. *Present Endocrine Diagnosis and Therapy J. A. M. A.* 103: 393 (Aug. 11) 1934.

recent rather nihilistic summary of endocrine therapy in gynecology state that they are not convinced that insulin is of any value in that field.

Fleiderbaum<sup>7</sup> has reported two cases of diabetes mellitus in which marked improvement in sexual development and function resulted from insulin therapy. Both patients were males, one an adolescent and the other an adult. He agrees with Allen that the islands produce a trophic hormone in addition to insulin and concludes that commercial insulin does not always con-

actively erectile, and the areolar glands were prominent. No tenderness or muscle resistance could be elicited in the abdomen, but the patient indicated that she had cramping pain in the midline low in the pelvis.

The abdominal pain ceased after a few days, but the breast fullness continued until September 14, when the abdominal pain recurred and the breast signs increased in intensity. At that time it was noted that the fat accumulation was assuming the adult feminine distribution in the pectoral, lower abdominal, perineal, gluteal and femoral regions (fig 3). The facial appearance was that of an adolescent. There was a growth of fine hair over the forearms, in the axillae and on the mons pubis. The labia majora were fat and there was considerable vaginal secretion of the adult type. A satisfactory rectal examination was permitted and revealed the uterus low in the pelvis, normal in position and about the size to be expected in a girl of 11 or 12 years of age. No adnexal masses were detected.

It was presumed that the growth of secondary sexual characteristics and the apparent stimulation of the vaginal epithelium and uterus by estrogenic substance were due to insulogenic acceleration of anterior pituitary activity. The child being somewhat introspective, it was thought best to discontinue the use of insulin to spare her the possible ill effect of precocious menstruation on such an individual.

After withdrawal of the insulin there was no loss of fat, but the breast phenomena promptly disappeared and the pelvic cramping did not recur. Steady gain in height and weight continued, but at a much slower rate. Ten months after insulin was omitted the functional breast tissue could not be dis-

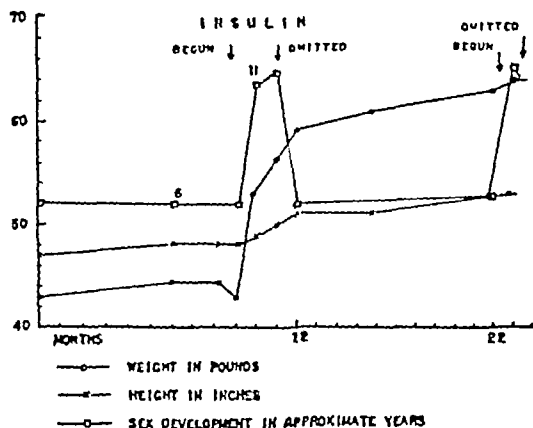


Fig 2—Influence of insulin on height, weight and secondary sexual characteristics.

tain both products of the gland. Fleiderbaum's cases are open to the usual criticism that improved body function, including growth and sex activity, are to be expected in diabetic patients properly treated with insulin. He suggests, however, that infantilism due to failure of the alpha cells without coexisting beta cell atrophy (diabetes) may occur.

The present case of insulogenic acceleration of development is reported because it occurred in a non-diabetic child as a result of the administration of insulin, and because the signs and symptoms of precocity promptly regressed when the use of insulin was discontinued.

#### REPORT OF CASE

A native white girl, aged 8½ years, had been markedly underweight and slightly underheight all her life (fig 1). An only child, she was somewhat neurotic and had a poor appetite. Getting her to take sufficient nourishment had always been a problem to the mother. She had had the usual diseases of childhood without complications or sequelae and had experienced one severe attack of acute pyelitis.

Examination revealed a striking absence of subcutaneous fat and general underdevelopment for her age. Mentally, she was alert and active and was very successful in her school work. Blood count, blood Wassermann reaction, urinalyses, stool examination, Mantoux test and roentgen study of the chest were all essentially normal. Fasting blood sugar was found to be 95 mg per hundred cubic centimeters.

No definite disease entity being discovered, administration of insulin, 5 units daily before breakfast, was begun July 10, 1933, to improve the appetite and increase the food intake. Little result was seen until the dosage of insulin was increased to 10 units daily before breakfast. The mother could not detect any appreciable improvement in appetite, but a remarkable increase in weight and height occurred (fig 2). August 15 the patient complained of pain in both breasts and cramping pain in the lower part of the abdomen. Examination revealed that the mammary glands were enlarged and engorged. The parenchyma appeared as tense, flattened conical disks about 4.5 cm in diameter and quite tender to palpation. The nipples were



Fig 3—The patient eight weeks after institution of insulin therapy. Compare secondary sexual characteristics and facial appearance with figure 1.

tinguished from the mammary fat. The uterus was still low in the pelvis but had decreased one third in size. The adult type of vaginal secretion was not evident, and hair growth had regressed to its former stage.

Aug 5, 1934, insulin was resumed in the former dosage. Within two weeks the patient had gained 2 pounds (0.9 Kg) and the breast phenomena recurred. There was no cramping but she complained of a vaginal discharge which proved to be

typically adult in character. Increased hair growth on the pubis was noted. For the person before mentioned, insulin was discontinued, to be followed by an immediate disappearance of the breast and vaginal signs.

## SUMMARY

Administration of insulin to a poorly developed non-diabetic girl  $8\frac{1}{2}$  years of age resulted in striking acceleration of body growth and sexual development. This was manifested by increase in height and weight, stimulation of the mammary glands, ovaries and uterus, assumption of the adult type of fat distribution, and a growth of fine body hair. Discontinuance of insulin was followed by prompt regression of secondary sexual phenomena. Body growth continued, but at a less rapid rate. Resumption of insulin after a lapse of ten months resulted in prompt reappearance of the sexual phenomena, to regress as soon as insulin was again omitted.

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## THE CASE OF PATRICIA MAGUIRE

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I am publishing the history of the case of Patricia Maguire because of the publicity attendant on it and because of the numerous inquiries concerning the patient. Its principal interest has been the prolonged period of somnolence.

Feb. 5, 1932, Patricia Maguire, a secretary and 26 years old, consulted me because of inability to stay awake. She had had a slight cold four days before. Her tonsils had been removed after several attacks of quinsy many years ago. She had had an uncomplicated, mild influenza in 1918. I had seen her and examined her completely at intervals since May 1930. In the course of these examinations her basal metabolic rate was determined to be normal, her sinuses were found clear by Dr. John Theobald. Urinalysis and blood counts had given normal results. On the last periodic examination, in November 1931, she presented normal conditions and had no complaints.

Her sleepiness, Feb. 5, 1932, consisted of inability to stay awake on elevated trains and drowsiness at work. She came to my office unaccompanied and was very alert. I was unable to detect any abnormalities in a complete examination. In particular there was no weakness of the extremities or the cranial nerves. Her temperature was 98 F and her pulse was 76. I referred her to an ophthalmologist who could detect no abnormalities.

The tendency to sleep increased. She complained of forgetfulness. She was brought to my office, February 15, with diplopia, left external strabismus and ptosis of both upper eyelids. Dr. Palmer Good reported slight contraction of the right visual field and normal vestibular responses. Her temperature, pulse and respiratory rate were normal.

She was sent to bed. Her spinal fluid was clear and under low pressure. It contained 870 cells, all lymphocytes. The Wassermann reaction was negative and the colloidal gold test 0000133320. The Ross-Jones test was faintly positive. The Kahn reaction was negative in the blood. Urinalysis showed no abnormalities. The hemoglobin was 76 per cent, the erythrocytes 4,500,000 and the leukocytes 11,000. February 17 her temperature was 99.4 F. She was irrational. The stupor increased so that she was unable to swallow. She

vomited occasionally, but the vomiting was not projectile. Nasal feeding was instituted on her third day in bed. Blood culture according to Clawson's method<sup>1</sup> yielded short diplococci after five days' incubation. On isolation, most of these were gram positive. Morphologically and culturally they resembled those described by Rosenow in the brains of encephalitis patients. Heavy intracerebral inoculations into rabbits caused stupor and flaccid paralysis of the hind legs after seventy-two hours in three of the five animals inoculated. The brains and cords of these animals showed minute punctate hemorrhages. During an observation of four months after intravenous injections of heavy suspensions of the blood organism, three rabbits showed no abnormalities. I later obtained similar organisms from the blood of two of three patients with acute encephalitis who had either been in St. Louis or had been in contact with St. Louis people at the time of the 1934 epidemic in that city. Cultures of the spinal fluid were grossly contaminated.

February 21 the rectal temperature had risen to 101 and the pulse was 92. February 25 the temperature was 101.6 rectally and the pulse was 100. She had involuntary urinations and defecations. The temperature continued to rise to 104 rectally and the pulse to 120. Vomiting became projectile. The optic disks swelled slightly.

February 27, Dr. Peter Bassoe found the following conditions. The patient was in a deep stupor but responded a little to supra-orbital pressure by drawing the arms and legs up. There was no neck stiffness, and Kernig's sign was negative. The pupils were small and reacted normally. The eye grounds were normal. The wrist, elbow and knee reflexes were normal. There was a slight ankle clonus on both sides. A Babinski sign was present on the right side. The abdominal reflexes were present but weak. Lumbar puncture yielded a clear fluid under definitely increased pressure. He confirmed my diagnosis of acute epidemic encephalitis.

She developed generalized rigidity of the "extrapyramidal" type. Projectile vomiting continued with the fever. This febrile state lasted from Feb. 17 to March 8, 1932. The fever had a gradual rise to 103, where it remained for three weeks and then gradually descended to normal. There were elevations of fever 1 or 2 degrees occasionally for three weeks following the continued fever. As the fever disappeared, the rigidity relaxed. She twitched and jerked at intervals. Any of her extremities would have a short, generalized clonic spasm. These convulsive movements were often marked enough to throw her out of bed. She yawned a great deal and grimaced, holding her mouth pulled up at either side. She would not answer but would draw away from painful stimuli. Convulsive movements of the jaws required the insertion of a gag to protect her tongue and cheeks. She lay for hours with the neck, arms and legs acutely and rigidly flexed. During this time (in the first part of March 1932) the deep reflexes were brisk. The abdominal reflexes were absent. Babinski's sign was positive bilaterally. The eyes remained immobile to light. The swelling of the optic disks receded. During the acutely febrile part of her illness treatment consisted of nursing care, repeated spinal drainages, intravenous injections of 50 per cent dextrose in amounts varying from 50 to 100 cc and sodium cacodylate intravenously.

<sup>1</sup> Traut, E. F. Blood Cultures in Chronic Arthritis. *J. Infect. Dis.* 52: 230-235 (March-April) 1933.

In April 1932 her eyes would follow a light. She swallowed fluids poured into her mouth through the catheter. She did not respond to sound but would be roused to restless movement by noise and would squirm about and groan. A culture of the blood yielded no growth.

A liquid diet affording 2,500 calories and 3,000 cc of fluid was administered through a nasal catheter for two months. It consisted of four codded eggs, 1 pint of milk, one pint of cream, the juice of six oranges, cooked cereal thin custard, vegetable soup and brewers' yeast. After the fever subsided one-half ounce (15 cc) of cod liver oil was added. She gained weight so rapidly that the caloric value had to be reduced.

When swallowing returned the catheter was placed in her mouth. She still drinks in this manner, lying on her back with her head turned to the side.

She had slight elevation of the temperature and pulse for months after the acute febrile period had passed. From July 9 to Sept 7, 1932 she was given subcutaneous injections of a whole killed bacterial suspension made from the organisms found in her blood. The first injection was 10 million organisms and the final dose was one billion. The vaccine was given twice weekly. Neither local nor general effects were noted.

The vomiting relieved by alkalis and milk was often preceded by movements suggesting epigastric pain. The vomiting would be followed by relaxation and rest. Particularly when, Sept 7, 1932, blood was vomited, it was felt that the patient was suffering from peptic ulcer due to brain injury.<sup>2</sup> The vomiting stopped promptly on institution of a modified Sippy ulcer management. The vomiting recurred on discontinuance of the alkalis and milk and again was controlled by ulcer management.

In January 1933 she would protrude her tongue when requested. This was the first definite sign of hearing or understanding. In February 1933 she had a chill and a fever of 105 with pneumonia involving the whole lower lobe of the right lung. She became very cyanotic. She was placed in an oxygen tent and given Felton's antipneumococcus serum types I and II intravenously. She received 40,000 units within twelve hours of the initial chill. Her pulse and respiration stopped while the serum was being given. Epinephrine hypodermically resuscitated her. In the following twelve hours she received 40,000 units. Within seventy-two hours of the onset of pneumonia she had a normal temperature, normal pulse and normal respiratory rate. Auscultation showed resolution. Her convalescence from the pneumonia was uneventful. Anterior Pituitary Liquid (Armour) was given hypodermically on alternate days with a daily oral dose of 2 grains (0.13 Gm) of whole thyroid. Two weeks of this regimen produced no change in the patient.

Blood was drawn from the patient's arm and given intramuscularly in her buttock in doses increasing from 5 cc to 20 cc without altering her condition.

Dr W J Potts transfused 500 cc of blood directly from her healthy stepfather into the patient without effect. The patient was given intravenous and intraspinal injections of serum from two individuals who had had encephalitis eight and ten years ago. The serums were not pooled. In all, 250 cc of these serums was given intraspinally in sixteen injections and 1,050 cc was given intravenously in the same number of injections. An intravenous and an intraspinal injection

was given twice weekly. An amount of spinal fluid was always removed slightly exceeding the amount of serum injected. Such injections were regularly followed by a chill and fever of 102. At the termination of the serum therapy she was more alert and would resist and pull away from painful stimuli.

Ten cc of Pregl's solution of iodine was injected intravenously twice weekly for three weeks without any change in the patient's condition.

Fifteen chills at semiweekly and weekly intervals were induced by intravenous typhoid vaccine. She seemed unchanged after these injections.

Colloidal sulphur (Diasporal) was injected intramuscularly twice weekly for five weeks, 0.15 Gm and 0.3 Gm of neoarsphenamine were given intravenously without apparent effect.

As measured by her ability to utilize 100 Gm of dextrose by mouth, her sugar tolerance was moderately decreased. There was no glycosuria. The figures were 108 mg of dextrose taken starving, 154 mg one-half hour after the dextrose, 192 mg one and one-half hours after the oral sugar, and 150 mg two and one-half hours after the dextrose. Such a disturbance in the carbohydrate metabolism is common to many chronic infections.

She was given fever in a cabinet heated with a large infra-red unit. The fever varied from 101 to 104 F rectally for 136 hours between September 1933 and March 1934. Each treatment lasted four hours. She had three attacks of heat shock while taking the fever treatments. Because of these and because no immediately favorable response to the fever was noted, the hyperpyrexia was discontinued.

Scopolamine,  $\frac{1}{100}$  grain (0.00065 Gm), was given four times daily with improvement in the drooling. It is occasionally given at night for restlessness.

During the last seventeen months there have been signs of returning intelligence. For over a year she has grunted and rolled about when she desires to void. She has been in stupor about 80 per cent of the time from 5 a m to 8 p m. During the night she is apparently in a deep natural sleep. During the day she lies for the most of the time with tensely flexed arms and closed eyes, with her head turned to the side. She drools. If aroused by the entrance of some one she may look at the person and then more firmly flex her arms, make athetoid movements with the thumbs and fingers, hyperextend the left great toe and grimace. The grimace consists of pulling the right corner of her mouth up and pulling the left corner down. Meanwhile she focuses the right eye. The left eye is everted. She rolls about, groaning. The pupils are equal, regular, moderately contracted and respond in accommodation. They do not respond to light. The wrists are flexed and the fingers clench the flexed thumbs. She has recently been awake for eight or ten hours of the day with the eyes open and an alert expression. Excepting for the failure of the pupils to react to light and the ability to move the right eye past the midline to the left, there is no cranial nerve involvement. All the deep reflexes are present and of normal amplitude. The abdominal reflexes are absent. The right plantar response is a normal flexion. The left plantar reflex consists in further extension of the already extended left great toe. The bowels are emptied by a daily enema. She will protrude her tongue and follow a finger with her eyes. She will blink her eyes if a finger is thrust at them. If her arm or leg is rotated and she is directed to hold the extremity still

2. Cushing, Harvey. Peptic Ulcers and the Interbrain. Surg. Gynec. & Obst. 55: 1 (July) 1932.



after twenty rotations, she will stiffen the arm or leg at the proper time without being informed of the number of rotations made. She will grasp a finger or, at times, raise her hand or smile on demand. She will read and follow these commands if written on a slate. When asked how many children various families had when she became ill, she designates the correct number by raised fingers. When told of additions to these families within the last three years she will give the correct new number if asked several days following the time she was informed. She also signaled that her uncle had died two years ago. She has recently held her head up while sitting. She watches people working in her room. She will stop eating to investigate the actions of another person in the room. She nods the head to answer a question in the affirmative. When asked how many of five apples remained after selling two, she raises three fingers. She responds best to her mother's request. She apparently distinguishes her mother from others.

She has a normal appearance and proportions when relaxed. The rectal temperature varies from 98 to 99.6. The pulse is 80 and regular. There has been a gradually developing asymmetry of the legs. The right leg is one-half inch shorter and the right thigh is one inch less in circumference than the left. The patient moves the right leg more than the left. Massage and passive motion have failed to remove this asymmetry. Her hair distribution has not altered. Her state of nutrition can be altered at will by her food intake. Menstruation ceased at the onset of the illness. It returned and has been normal for six months.

#### DIFFERENTIAL DIAGNOSIS

The patient never had neck rigidity or Kernig's sign. The stormy febrile onset, lack of focal symptoms or signs with minimal and quickly disappearing edema of the optic disks have been points against the presumption of cerebral tumor. Her continued improvement is more significant evidence against cerebral neoplasm. Her grimaces and lack of speech suggesting catatonia are accompanied by a pupil practically immobile, right rectus palsy and positive Babinski signs ruling out catatonia, hysteria and malingering. The mode of onset and the nature and grouping of symptoms are of the kind common in epidemic encephalitis. The unusual feature is the long duration of the somnolent stage.

#### SUMMARY

Within a period of three weeks a young, previously healthy woman developed stupor accompanied by fever, leukocytosis and bacteremia. The spinal fluid was clear but showed pleocytosis, increased globulin and an abnormal colloidal gold curve. The febrile stage and the deep stupor lasted three weeks. Various chemicals, vaccines, serums and hyperpyrexia were used. They are not known to have altered the course of the illness. Excepting occasionally scopolamine for sleep, she has had no medication since Feb. 28, 1934. She was given more than 1,000 feedings by nasal catheter without developing aspiration complications.

The patient is very well nourished and has good color. Her muscles are large and strong. She has not spoken or made any purposeful movements except those of defense. She lies inattentive with shut eyes most of the time. The pupils do not react to light or in accommodation. The left great toe is constantly and rigidly hyperextended. She is fed by spoon or a catheter in the mouth.

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## CORONARY ARTERY THROMBOSIS WITH PERICARDIAL EFFUSION

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AND

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Within a short period of six months two cases of pericardial effusion following coronary artery occlusion have been observed. It is thought that this condition may be diagnosed clinically and that it is one which will be found more frequently.

The reported incidence is indeed small. In a review of the etiology of 360 cases of pericarditis, Gerke<sup>1</sup> did not mention coronary artery occlusion. In Levine's monograph<sup>2</sup> on coronary thrombosis a pericardial effusion was encountered in only one patient in a series of 145. This effusion was not suspected during life, but 1,000 cc of pericardial fluid was found at postmortem examination. White<sup>3</sup> in his book on heart disease did not cite coronary artery thrombosis as a cause of pericarditis with effusion. However, in 1932 Camp and White<sup>4</sup> reported their observations in 126 cases of pericardial effusion, and in two cases in which death occurred with evidence of chronic passive congestion, an associated coronary occlusion was found. In the same year Smith and Willis<sup>5</sup> in the postmortem examinations of sixty individuals who had pericarditis with effusion remarked that in two cases there was acute cardiac infarction the result of coronary thrombosis. It will be seen that, although the literature on the subject is small there is evidence that coronary artery thrombosis with pericardial effusion may be found at postmortem but missed during life. The following two patients survived and it is thought that more such cases will be observed if the foregoing facts are kept in mind.

**CASE 1**—An obese, well preserved brewer aged 60, admitted Sept. 21, 1933 and discharged Nov. 19, 1933, had acquired syphilis at the age of 23 years, but after treatment the Wassermann reaction had become negative. Eight years before admission to the hospital he had experienced precordial oppression and dyspnea constantly for several months, since then these complaints had been occasioned by exertion. He was found to have arterial hypertension. Three weeks prior to admission he was suddenly seized with sharp precordial pain radiating to the shoulder associated with extreme dyspnea and sweating. After several days he was again comfortable. However, the symptoms recurred one week before admission with such intensity as to force the patient to bed. He entered the hospital in extreme dyspnea and orthopnea, with cyanotic ashen facies and marmorated skin. The cervical veins were dilated. Fine rales were heard at both bases. The left border of the heart was almost at the anterior axillary line, the right border 2 cm. beyond the sternum. The cardiac rhythm was entirely irregular the rate 140 beats per minute. There were a rough systolic-diastolic murmur and thrill at the aortic area, which became faint at the apex. The liver percussed 2 cm. below the costal margin there was no edema of the feet. The blood pressure was 175 systolic, 65 diastolic. The blood contained 20,000 white blood cells per cubic millimeter of which 84 per cent were polymorphonuclears. The Wassermann reaction was negative.

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<sup>1</sup> Gerke, A. A. Die Aetiology der Perikarditis. Virchows Arch. f. path. Anat. 278:1, 1930.

<sup>2</sup> Levine, S. A. Coronary Thrombosis. Its Various Clinical Features. Medicine 8:245 (Sept.) 1929.

<sup>3</sup> White, P. D. Heart Disease. New York: Macmillan Company, 1931.

<sup>4</sup> Camp, P. D. and White, P. D. Pericardial Effusion. A Clinical Study. Am. J. M. Sc. 184:782 (Dec.) 1932.

<sup>5</sup> Smith, H. L. and Willis, F. A. Pericarditis. III. Pericarditis with Effusion. Arch. Int. Med. 60:192 (Aug.) 1932.



During the next week the condition of the patient continued to be critical. The cardiac rhythm was rapid with frequent periods of auricular fibrillation despite intensive digitalis administration. The blood pressure gradually fell to 118 systolic, 26 diastolic. An x-ray film of the chest (fig. 1 A) showed massive enlargement of the heart shadow, the left border extended to the chest wall the right beyond the midclavicular line. Rapid improvement followed. A week later a loud pericardial rub was present over the entire precordium and this slowly disappeared during the next month. The size of the heart gradually diminished (fig. 1 B) and the patient went on to complete recovery. The cardiac rhythm became regular but the systolic diastolic murmur remained.

The electrocardiogram taken on the first day and for some time thereafter revealed auricular fibrillation, left ventricular preponderance, slurring and low voltage of the QRS group, with occasional ventricular premature beats (extrasystoles). The T waves were inverted in leads I and II. A record about ten days later revealed restoration of regular sinus rhythm.

**CASE 2**—An obese American woman aged 57 whose past history was not remarkable admitted March 8, 1934 and discharged April 3, 1934 was seized with sharp pain over the left chest anteriorly while hurrying up a flight of stairs. She was forced to rest because her chest seemed to be tied in a knot. After several minutes the pain was replaced by soreness except when she bent forward at which time she experienced pain over the precordium radiating upward to the neck. Two days later she became incontinent and vomited; she felt weak and chilly. During the next few days the substernal pain persisted. In addition there was pain in the left axilla and about the scapula especially on breathing. On admission the patient was acutely ill and moderately dyspneic. The temperature was 102 F, the pulse 120 beats per minute, the blood pressure 128 systolic 72 diastolic. Over the left lower lobe were dullness, distant bronchial breathing and voice and moist rales. There was a gallop rhythm at the cardiac apex. The white blood count was 8900 with polymorphonuclears 76 per cent. The basal metabolism was normal. The admission diagnosis was pneumonia possibly associated with acute coronary occlusion. However, an x-ray film of the chest (fig. 2 A) showed distinct enlargement of the heart shadow to the left which raised the suspicion of pericarditis with effusion. This was confirmed by the appearance of a friction rub to the left of the sternum on the second day after admission. After two days this could no longer be heard and a week later the chest film (fig. 2 B)

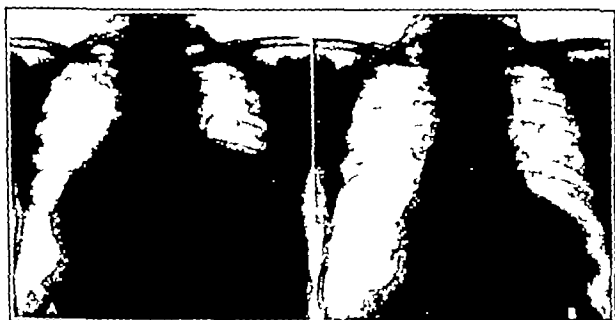


Fig. 1 (case 1)—A, pericardial effusion following coronary thrombosis, Sep. 27, 1933; B, disappearance of pericardial effusion, Nov. 3, 1933.

revealed the heart to be of normal size. During this time the temperature had fallen rapidly and the general condition of the patient had improved. The blood pressure had fallen to 98 systolic 64 diastolic. At no time was digitalis administered. Except for occasional pain in the chest the patient convalesced uneventfully. The cardiac sounds assumed a good quality. At fluoroscopy before discharge no abnormality was observed in the heart or lungs.

The patient was seen again three and a half months later. She complained of precordial pressure following effort and shortness of breath on slight exertion. She was unable to climb stairs at all. Clinically and roentgenographically there was no evidence of cardiac or pulmonary disease. The blood pressure was 128 systolic 80 diastolic.

An electrocardiogram taken the day following admission showed normal sinus rhythm, with a rate about 105 per minute. Left ventricular preponderance was present. The voltage of the QRS waves was low. The record on March 25, 1934, disclosed inverted T waves in leads II and III. In a few days the T waves had practically become upright.

#### COMMENT

The evidence in both cases appears fairly conclusive that the pericardial effusion was due to an acute coronary artery occlusion. In the first case an acute illness was present in a man of 60, with a previous history of



Fig. 2 (case 2)—A, pericardial effusion following coronary thrombosis, March 9, 1934; B, disappearance of pericardial effusion, March 15, 1934.

syphilis but no story or evidence of rheumatic fever or rheumatic heart disease. There was also no reason to consider the diagnosis of tuberculosis. On the other hand, the history was typical of coronary artery thrombosis in a patient with arterial hypertension. The x-ray film and pericardial rub were proof of a pericarditis with effusion.

In the second case, the woman aged 57, the question arose during her hospital stay whether or not the lung signs were those of pneumonia and hence whether the pericarditis with effusion was a complication of the pneumonia. Pain over the chest, even in the precordial region, may be present in a patient suffering from pneumonia. Clinically, however, the patient's course was not that of pneumonia. In fact, a pericardial effusion in a pneumonia<sup>6</sup> patient is commonly associated with an empyema, the patient's condition is grave and the outcome is usually fatal. Our patient never presented such a picture. Further proof that coronary artery disease was the basis of her trouble was observed June 21, 1934, when she returned to the hospital for reexamination. She complained of precordial pressure following the slightest physical exertion. The electrocardiogram corroborated the diagnosis, for it still showed evidence of myocardial damage.

It may be thought that instead of a pericardial effusion a hemopericardium<sup>7</sup> occurred in our cases. This is hard to disprove completely, as the patients survived and paracentesis was not performed during life. However, the course in hemopericardium is usually rapid and fatal.

#### SUMMARY

Pericardial effusion may follow an acute coronary artery occlusion. In two cases reported, both patients recovered.

6. Stone, W. J. Pericarditis as a Complication in Pneumonia. Based on Three Hundred Necropsies. *J. A. M. A.* 73:254 (July 26) 1919.  
7. Olcott, C. T. Rupture of a Coronary Artery. Hemopericardium. *New England J. Med.* 204:760 (April 9) 1931.

In a patient suffering from an acute coronary thrombosis a large area of cardiac dullness should arouse the suspicion of a pericardial effusion, particularly when a pericardial friction rub accompanies this enlarged heart.

The diagnosis of coronary thrombosis with pericardial effusion will be made more frequently if roentgenograms are taken.

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## REPAIR OF BLADDER FISTULAS

CLOSURE IN SEVENTEEN CONSECUTIVE CASES

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ST. LOUIS

This paper contains a report of seventeen consecutive cases of bladder fistula successfully closed together with a discussion of their causative factors, types of injuries sustained and the principles of operative procedure employed.

The following cases were encountered:

- One vesico uterine (fundus)
- Two vesicocervical
- One vesico urethrovaginal
- Three large vesicovaginal, the opening being larger than a half dollar (30 mm)
- Nine small vesicovaginal (quill to finger size)
- One anterior vesical injury (fistula under the symphysis pubis)

Grouping them according to causative factors discloses the disturbing fact that practically all these injuries were sustained by direct trauma, of a more or less preventable character. They may be classified as follows:

- Eight fistulas following hysterectomies
- One following criminal abortion
- One after a cervical amputation
- One following cystocele repair
- Five due to obstetric manipulation
- One following radium for carcinoma of the cervix

These various injuries merit discussion, for after critical examination only two cases can be unequivocally classed as excusable because of the nature of the trauma sustained. One of these involved the delivery of a double monster, in which a cervical injury resulted, the other was a slough following the application of radium to a large cancer. This leaves a residuum of fifteen holes in the bladder that should have been prevented by proper surgical technic. Grouping these fifteen cases reveals that, of the eight fistulas following hysterectomies, four were predicated on a mistaken diagnosis, the uterus having been removed for cancer where no malignant process was found. All eight sustained direct violence to the bladder wall, as urine appeared in the vagina within twenty-four hours following the operation. The criminal abortion fistula was produced by scraping away a portion of the anterior uterine wall with a sharp curet and piercing the bladder with the same instrument. In the cervical amputation and cystocele repair cases the injury was obviously sustained while an attempt was being made to free the bladder from the cervix.

The four remaining obstetric cases included gross negligence by a midwife who deserted a case of breech presentation when she could not deliver the aftercoming

head, and lack of judgment on the part of the physician, who some hours later extracted the dead baby too forcibly for the already badly damaged tissue. The resulting injury left a defect at the base of the bladder through which four fingers could be easily passed. The second obstetric injury was sustained by attempting to pierce the head of a hydrocephalic infant and pushing the scissors through into the bladder cavity. A third childbirth injury was the faulty application of forceps to the head of an unusually large baby and the use of the pubic bones as a fulcrum for a prying extraction. The result was a dead child, separation of the symphysis pubis, a tear into the bladder under the symphysis, and a third degree laceration. The fourth obstetric case again involved the faulty use of forceps, this time tearing out the base of the bladder at the site of the sphincter muscle and stripping away the upper third of the urethra.

While the obstetric cases are no doubt more dramatic in their recital, they comprise the smaller number of fistulas produced and give no more terrifying symptoms to the patient than the prosaically chronicled injuries sustained at operation. Such a recital of facts (fifteen of seventeen cases could be classed as preventable injuries) is not a pleasant task. Admitting that in every operative field accidents will occasionally happen, still the number of failures in this series seems unduly large. Yet these failures form the basis of my paper, for without the trauma there would be no fistula.

Viewing the cases from the standpoint of operative difficulties encountered, I found that the eight fistulas following hysterectomy were all small openings, as might have been expected. These fistulas were complicated mainly by two factors: the nearness of the hole to the ureters, or the inaccessibility of the traumatized area owing to its being pulled high into the vaginal vault by the scar of the fixation. The three large fistulas, regardless of cause, were all low in the bladder, showed marked tendency to incrustation and retraction, and were difficult to close mainly from the standpoint of freeing enough tissue to bring about free mobilization of the structures to be sutured.

The remaining six cases, each in its own peculiar way, brought about problems of closure that cannot be fitted into any one descriptive picture. The general principles of repair about to be mentioned, however, apply in this group as well as the others. In dealing with the entire fistula problem it must be remembered that each operator must bring to his case some modicum of ingenuity and dexterity in the matter of technic, for on these factors the successful outcome in special cases largely depends.

The prevention of fistulas is perhaps not strictly a part of a paper of this character, but in view of the fact that all these cases are traumatic in origin it might not be amiss to suggest that a disposition to proceed with care when the field of operation is not clearly defined will obviate practically all these unfortunate accidents. Should a hole inadvertently be made in the vesical wall, an immediate painstaking repair will almost certainly close the defect.

### METHOD OF CLOSURE

Turning now to the problem of closure, certain basic facts must be established and certain procedures carried out before any operation can be undertaken. First and foremost in this matter is the qualification of the surgeon to carry to his case the necessary patience and

training so obviously needed in this type of work. One of the greatest causes of failure in fistula operations must be attributed to a lack of understanding of the problems involved by the person who first attempts to close the opening. The percentage of bad results mounts rapidly after each attempted closure. Undue haste in operating and a lack of willingness to work out slowly and painstakingly each bit of tissue needed contribute to failure.

The time to close a fistula is at the first sitting, and all vanity and professional squeamishness should be set aside to the end that a case of this kind may get into proper hands from the very beginning and not after an unsuccessful attempt to close has seriously jeopardized the patient's chances for a prompt and complete recovery. A few figures from my series will illustrate this point. Thirteen of seventeen fistulas were closed by one operation. Of these thirteen cases, no previous attempts at closure had been made in ten. Two patients had been unsuccessfully operated on once before and one patient twice. Thus by far the largest number of fistulas closed at one sitting had not previously been subjected to harmful tissue trauma.

Of the four remaining cases, it took two operations to close the fistula in two, although no procedure had antedated my attempted and then final closure, and two patients had more than one operation before coming under my care and each took two sittings before closure was accomplished. To recapitulate, thirteen cases in my hands were primary closures and two operations each were needed in four to seal the opening. The inference is then clear that the surgeon who has the opportunity to officiate at the first repair operation is in the most strategic position to close the defect.

Certain points in the preparation of any case of vesical fistula are so axiomatic that they need not be elaborated on here. Suffice it to say that all ulcerated areas in the genital canal must of necessity be healed before any operative procedure is resorted to, that calcareous deposits should be removed as nearly as possible and that bladder infection should be reduced to a minimum.

The services of a competent urologist are indispensable in the type of work under discussion, for not only must the location of the opening in the bladder be accurately located by cystoscopic examination but its relation to the ureters and the patency of these structures should be ascertained. It is all important to know as much or more of what the intravesical picture shows as it is to locate the external opening properly. No blind operation should ever be attempted.

Having located the opening externally and internally and having carefully planned the procedure, one is now in a position to operate. Again I stress the factor of time. If one must hurry, one should not start. Haste causes failure. In all of my cases with one exception, closure was done from below. The vaginal route for those accustomed to gynecologic procedure is the safest mode of approach, for it not only enables one to free the vaginal scar completely but also permits of wide dissection, which in the end secures a firmer closure and restores the supporting structures to approximately their normal relations. In only one case was it necessary to resort to a paravaginal or so-called Schuchhardt incision. With proper retractors, even high fistulas can usually be satisfactorily reached without creating an additional wound in the pelvic floor.

The secret of success in the closure of vesical fistulas is undoubtedly dependent on many factors, but one or two points have shown themselves to be very much worth while if any uniformly satisfactory results are to be obtained. The first of these is not to freshen the edges of the defect. In most textbooks dealing with fistulas the suggestion is made that after the tract is freed the hard, firm edges of the opening should be carefully cut away. If I were to put only one don't in this paper I should apply it here. Don't cut anything away. Don't sacrifice the least bit of bladder wall. All the tissue is needed that one can get. Free the edges and turn them in, bring the raw surfaces together as near the free margin as possible, but don't cut any portion of the bladder away. By saving all tissue, if a failure should result, the opening will not be any bigger than the original defect and the patient will be no worse off in that respect than before operation. If one freshens the edges, the hole is made larger, and should there be failure to close, any operative procedure that follows will be made just that much harder if not impossible. I fear that many failures can be chalked down to this error of technic, for as operation follows operation in bad cases the opening continues to enlarge, which surely is the worst possible outcome for the patient.

My second point is a plea for free and wide dissection of all possible surrounding tissue. If one wishes to succeed in closures, suturing must be made not only possible but practical. No suture will hold in soft tissue under tension, and the only way to avoid tension is to mobilize structures. To attempt a closure of a fistulous tract with the slightest tension on the suture line because of inadequate preliminary dissection is to court disaster from the start. There must be sufficient bladder wall available not only to allow a closure of the opening but also to permit the placing of one or two rows of supporting sutures. To accomplish this necessitates a thorough understanding of the problem in hand and a willingness to free tissue in all directions. Only by carrying out a well planned and systematic dissection can one mobilize sufficient vesical wall to close the larger or more inaccessible bladder fistulas.

The manner of placing sutures is important in two ways. A pucker should never be caused. If tissue buckles, surface adaptation is interfered with and the results are jeopardized. If working near the ureters, one should place the suture so that it follows the long axis of the tube and does not cross it. In this way if one should get too close to the lumen not as much harm will result. A nonabsorbable suture should never be used in the bladder. If the catgut does not hold, it is almost surely a fault in the operative technic and not the suture material that should carry the blame. In my work I prefer an extra hard fine gut, such as is used for intestinal suturing, and find it very satisfactory. Another important point in the suturing of these wounds is the obliteration of all dead spaces. One must suture the deeper to the more superficial structures or pockets will develop, which may undo the best operative procedure.

#### AFTER-TREATMENT

After the incision has been closed in a satisfactory manner, several additional points in technic are necessary before everything has been done for the patient that makes for success and minimizes failure. An iodoform pack is placed in the vagina along the suture line. This to a degree prevents oozing and aids in holding

the raw surfaces to one another. It has the additional advantage of reducing the bacterial flora to a minimum during the early postoperative period. It should, however, be removed at the end of twenty-four hours, as it may otherwise cause irritation. A catheter is always introduced into the bladder at the end of the operation and fixed there. In all my cases I have sewed this catheter into position by means of a bit of silkworm gut passed through the small labia near the urethra. This serves a double purpose. It not only fixes the catheter but keeps the patient quiet and thus the catheter from moving. If the body is moved it causes pain, so that these patients remain relatively quiet in one position for several days, which accomplishes much. I never use a so-called mushroom catheter but always a straight one, as it can be removed more easily and works just as well. The catheter is allowed to remain in the bladder for at least a week, preferably ten days, although it may be necessary to clip the stitches that hold it fast before this time and substitute taping.

Posture is so important a part of the after-treatment in these cases that a word about it should be said here. One must try to drain away as much urine from the suture line as possible, not as was formerly suggested to keep the bladder incision dry but to prevent even the very slightest pressure on the repaired area. If there is only a tiny bit of constant fluid pressure, seepage may occur. To obviate this one should make the most dependent portion of the bladder that area farthest away from the suture line. In other words, in all posterior fistulas and this means practically all of them the patient should be placed flat on the abdomen, with the head of the bed slightly elevated. This position must be maintained for at least five days, no matter how uncomfortable the patient may be. After this a little lying on the side and gradual turning to the back is allowed, but a minimum of five days of abdominal position is in my opinion essential in all posterior fistulas.

#### NURSING CARE

Lastly, the nursing care of these patients must be not only good but perfect. The drip of the catheter must be under constant observation so that no possible backing up of urine can occur as the result of blockage. Back pressure is fatal to the result. The catheter itself is run down between the patient's legs and out at the foot end of the bed, never over the side. I do this because I want the urine to fall gradually by gravity to the bottle and not by any chance be forced to flow over even a slight elevation. The tube is protected by sand bags, so that the lower limbs have no chance to compress the lumen. It is irrigated once or twice daily with boric acid solution, which serves the double purpose of keeping the catheter clean and allaying vesical irritation.

#### CONCLUSION

The technic I have outlined has given me good results and I trust may prove useful to others. From what has been said it will be seen that success in the closure of bladder fistulas is dependent on a multiplicity of detail, every step of which must be painstakingly carried out. Even with the best technic a certain number of failures will no doubt be recorded, but it should be the aim of the operator to plan an approach to this problem in such a way that the tragedy of persistent failure will be rare indeed.

## OTOSCLEROSIS IN IDENTICAL TWINS

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Otosclerosis is the most important cause for severe deafness coming on in early or middle adult life. The pathology, the clinical picture, the diagnosis and the prognosis of the disease and its relative frequency were accurately described by Bezold, who in 1885 was the first to show that the characteristic clinical picture is due to bony ankylosis of the stapes. The acceptance of these facts however, particularly concerning the frequency of otosclerosis, has been slow, especially in this country where histologic examination of temporal bones was until recently limited to a very few investigators. Seeing is believing, and, as the microscopic study of temporal bones is being carried out more extensively and in more places, the accuracy of the observations of Bezold, Siebenmann and others that otosclerosis is a very common disease is beginning to be appreciated.

Knowledge of the etiology of this very important cause for progressive deafness has advanced but little since Bezold's time. The strong hereditary tendency has from the first suggested that the foci of spongification in the bony capsule of the labyrinth are the result of an inherited change and this view has been enhanced by the recent finding of a characteristic focus of otosclerosis before birth. That the occurrence of otosclerosis invariably follows mendelian laws has not been satisfactorily established, but the hereditary tendency is so striking that one may be justified in assuming that the hereditary factor is necessary for the development of otosclerosis.

The question at once arises: May there not be other extrinsic factors within our control which favor and accelerate the development of this inherited lesion? Pregnancy is just such a factor which in a certain proportion of women with otosclerosis acts apparently as an activator or accelerator of the lesion. That there may be other external factors is suggested by the fact that the progress of deafness in a given case of otosclerosis is not even and regular but is marked by periods of activity when the hearing decreases comparatively rapidly and periods of quiescence when the hearing may remain practically stationary for years. The discovery of these factors is extremely important but extremely difficult, owing to the essential slowness of the development of the process in which many years may elapse between beginning and complete ankylosis of the stapes. Search for possible endocrine imbalance, disturbances in mineral metabolism or dietary deficiency has thus far been negative. Histologic study, while confirming the view that otosclerotic foci have periods of activity and periods of quiescence, has failed to give a clue to the factors causing these periods of activity.

As I<sup>1</sup> pointed out in 1933, otosclerosis occurring in identical twins affords a unique opportunity to study this disease. The hereditary factor in each of a pair of identical twins is exactly equal, so that if otosclerosis develops unequally or develops in one and fails to develop in the other there presumably is some extrinsic or nonhereditary factor responsible for this difference, and by carefully examining the histories of each twin one may be able to uncover the extrinsic

<sup>1</sup> Shambaugh, G. E., Jr. Progressive Deafness in Identical Twins. Arch. Otol. 17: 179 (Feb.) 1933.

etiologic factor present in the one and absent in the other. On the other hand, if otosclerosis always develops simultaneously and runs an identical course in identical twins irrespective of differences in their environment, general health and illnesses, then it must be concluded that heredity is the sole etiologic factor in the development and progress of a case of otosclerosis.

The first report of otosclerosis in identical twins appeared in 1932 in the German literature.<sup>2</sup> The case report was briefly as follows. Two brothers, identical twins, aged 39 years, had experienced very different upbringings. One went abroad as a merchant in his early youth, the other studied and settled down in a small town in middle Germany as a dentist. At the age of 36 both became aware of increasing deafness and tinnitus. The difficulty in hearing increased gradually and symmetrically in both ears. At the time of examination three years later both suffered from a severe deafness. This was found to be due to otosclerosis with primary stapes fixation. The hearing curves of both brothers corresponded almost exactly. In this instance, although the living conditions, climatic influences, environment and occupations were basically different, the development of otosclerosis ran an identical course in the two. The author concludes on the basis of this one observation that the hereditary anlage is the essential and controlling influence in the development of otosclerosis compared to which the outside influences are of subordinate significance.

The second case of otosclerosis in identical twins was reported by Frank H. Rodin<sup>3</sup> in 1933. The history was as follows. Two identical twin sisters aged 15 years, had grown up together and had had the same illnesses at the same time (scarlet fever and whooping cough). At the age of 6 the hearing of both began to decrease gradually until about three years before the examination, when it had become stationary and had not changed since then. Examination revealed essentially normal drum membranes with the tuning fork reactions of conduction deafness and a practically identical hearing defect in the two twins. In this set of identical twins the defect also ran an identical course but, unlike the first set, here the environment, illnesses and general health were also identical, so one cannot conclude that different outside factors might not have altered the course of the disease.

To these two instances of otosclerosis in identical twins I can now add three more, which I have had the opportunity of examining the past year.

1. The first set of identical twins I encountered in an examination of the members of the Washington, D. C., League for the Hard of Hearing carried out in May 1933. Nora and Elizabeth, aged 41, were so much alike in every respect as children that their friends, their teachers and even their father had great difficulty in telling them apart (fig 1). They were the eldest of five children, all daughters. They gave a very unusual family history of deafness in that both parents, all five daughters, and a maternal aunt suffered from progressive deafness. Fortunately I was able to examine the one living parent and two of the daughters in addition to the twins. The results of these examinations were briefly as follows.

The mother of the twins began to notice gradual loss of hearing soon after the age of 8 and this had been progressive, especially the last twenty years. She was profoundly deaf at 68, at the time of examination with a negative Rinne test in both ears and prolonged bone conduction. Both drum membranes were entirely normal except for a slight loss of luster

on one side. The diagnosis was otosclerosis with primary stapes fixation.

The youngest daughter began to notice very gradual loss of hearing at the age of 17, and this has progressed especially the past four years so that at the age of 29 at my examination, there was a moderate defect in hearing with more impairment of the low tones than of the high tones with a negative Rinne test in both ears, and with prolonged bone conduction. Both drum membranes showed moderate thickening, and one of them showed diminution of luster but no retraction. The diagnosis of otosclerosis was made in spite of the drum membrane changes because of the progressive nature and insidious onset of the defect, without attacks of acute tubal occlusion and not benefited by insufflations of the ears.

The other daughter whom I examined had noticed some difficulty in hearing as long as she could remember, but for the past fifteen years this had been progressive. At the age of 37 she was moderately deaf with elevation of the lower tone limit, prolonged bone conduction and negative Rinne test. Both drum



Fig 1—Nora and Elizabeth at the age of 5 years

membranes were quite normal, with a distinct pink glow from the right promontory. The diagnosis was otosclerosis.

The third daughter was not examined but also suffered from progressive deafness. The father died at the age of 58 only slightly deaf, but his trouble had begun insidiously in the forties and had been progressive. A maternal aunt was moderately deaf at the age of 58 and used an earphone. Presumably these three people also had otosclerosis, but without an examination one cannot be certain of this.

The twins, Nora and Elizabeth, aged 41, were the eldest of the five daughters. The twins grew up together, shared the same room, enjoyed equally good health, and had the same illnesses (measles, mumps and whooping cough) at the same time. At the age of 14 both had measles and following this illness Nora noticed a slight defect in hearing which her twin sister Elizabeth did not have. Nora's defect gradually increased, especially over a period of six months at the age of 30, so that she was very much deafer at 41, at the time of examination, than her sister. Elizabeth first began to notice a slight impairment in hearing in one ear (the left) at the age of 30 and this had increased slightly while the hearing in the right ear had remained apparently normal.

<sup>2</sup> Albrecht W. *Ztschr f Hals Nasen und Ohrenh* 29: 55-60, 1932.

<sup>3</sup> Rodin F. H. *Identical Hearing Defect in Identical Twins* *Arch Otol* 17: 179 (Feb.) 1933.

Examination revealed no abnormality of the nose throat or sinuses of either twin. Both drum membranes of both twins were normal, but in Nora's case a distinct pinkish glow from the region of the promontory was visible. Both had had their tonsils removed, and the tonsil fossae were free from lymphoid tissue. Nora showed a marked defect in hearing, being unable to hear the whispered voice in either ear and unable to hear any of the low pitched forks up to and including c (128 double

head colds, Elizabeth had never been subject to colds. Both sisters noticed that during head colds their hearing was temporarily worse.

From this single observation it appears that frequent head colds have an accelerating or activating effect on otosclerotic foci already present as the result of a hereditary Anlage.

2 The second set of identical twins were sisters, aged 52. The family history of deafness was negative except for a paternal uncle who was quite deaf at 35, and his son, who had progressive deafness beginning at the age of 20.

The twins, Antoinette and Hester, grew up together in the same environment and had measles, whooping cough and chickenpox at the same time as children. Both were married, but Antoinette was never pregnant while Hester had one child at the age of 33. At the age of 40 Antoinette began to notice gradual loss of hearing with tinnitus. The defect was progressive and not altered by inflations. At the age of 45 Hester first noticed the gradual onset of progressive deafness soon after the menopause. Her defect had progressed more rapidly than her sister's, so that at 52 at the time of the examination, she was the deafer of the two.

Examination revealed the nose and nasopharynx normal in both. Antoinette had had her tonsils removed seven years before. Hester still had her tonsils which showed only slight evidence of chronic tonsillitis consisting of slight injection and slight enlargement. The drum membranes were normal in Hester except for very slight scarring in one ear, while Antoinette's drum membranes were both slightly scarred but otherwise normal with a suggestion of a pinkish glow from the promontories.

Hester the deafer of the pair heard the whispered voice close to the left ear, not at all on the right. The C<sub>1</sub> fork (32 double vibrations) was not heard in either ear, the C fork (64 double vibrations) was much shortened in the right ear and not heard in the left. The Rinne test was negative in both ears and bone conduction was prolonged (fig 2).

Antoinette heard the whispered voice at 3 feet in the right ear, not at all in the left. The C<sub>1</sub> fork (32 double vibrations) was not heard in either ear, the C fork (64 double vibrations) was moderately shortened in the right ear and not heard in the left. The Rinne test was negative in both ears and bone conduction was prolonged (fig 3).

The diagnosis was otosclerosis with stapes fixation in both twins. In the one the defect came on five years earlier than in the other but had not progressed as rapidly, so that twelve years later the degree of deafness was similar in the two.

vibrations). The Rinne test was negative, the bone conduction prolonged. The diagnosis was otosclerosis with stapes fixation. Elizabeth showed a moderate defect in the left ear, whisper being heard only close to the ear while in the right ear whisper was heard at 6 feet. She was unable to hear the C<sub>1</sub> fork (32 double vibrations) in the left ear and this was moderately shortened in the right ear while the C fork (64 double vibrations) was scarcely heard in the left ear and only slightly shortened in the right. Bone conduction was prolonged and the Rinne test was negative in the left, shortened positive in the right. The diagnosis was otosclerosis with beginning stapes fixation.

There should be no dispute as to this diagnosis, even by those who are unwilling to make a diagnosis of otosclerosis without a family history, for both parents and all the siblings suffered from progressive deafness.

Here then is a pair of identical twins both suffering from classical otosclerosis, in whom the onset and development of the hearing defect were not identical but strikingly different. In the one the loss of hearing began at 14 and at 41 is quite marked in both ears while in the other the onset of deafness was at 30, and at 41 there is a moderate defect in one ear but only a slight beginning defect in the other ear. What factors present in one twin and absent in the other might be responsible for this difference?

The environment was the same for the two until the age of 33 when Elizabeth married, but by this time there was already a marked difference in the hearing. The menstrual histories were identical and there were no pregnancies. Nora (with the poorer hearing) had always had excellent teeth while her sister Elizabeth had had numerous fillings and had developed pyorrhea. This suggests a difference in calcium and phosphorus metabolism, but the one with the evidence of deficiency was the one with the better hearing. The one definite and striking difference in health between the twins was in the tendency to head colds. Nora had always been subject to very frequent and very severe head colds until the age of 33, when she had pneumonia. Since then her colds had been infrequent and mild. Moreover, these colds were particularly severe and frequent at the age of 30 when her deafness had been most rapidly progressive, while during the past eight years, with very few colds, her deafness had increased but little. Contrasted to Nora's history of frequent severe

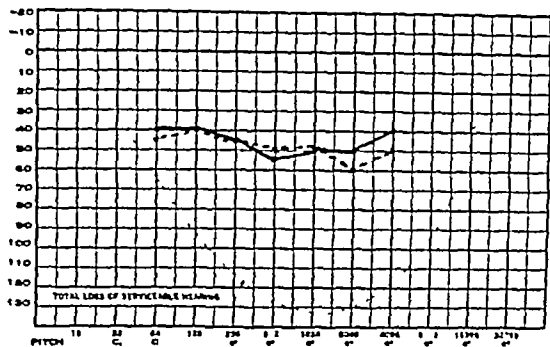


Fig 2—Audiogram of Hester's hearing: solid line right ear, broken line left ear.

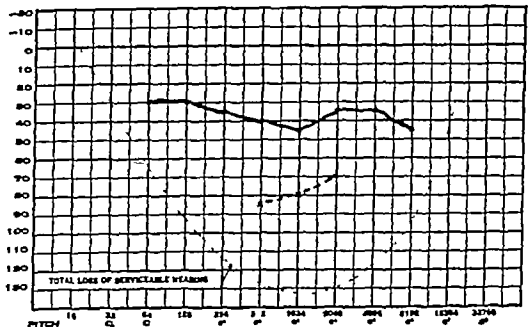


Fig 3—Audiogram of Antoinette's hearing: solid line right ear, broken line left ear. The hearing curves are distinctly different from this patient's twin sister.

What differences can be found in their histories to account for this difference in the development of deafness? Both twins had always enjoyed excellent health. Their menstrual histories were similar except that the menopause came on at 42 in Antoinette compared to 45 in Hester, while Antoinette had never been pregnant and Hester had had one child at 33. Antoinette, the first to lose her hearing, had always been subject to



severe frequent head colds two or three times a year while Hester had never had more than one mild head cold a year lasting only a few days. Both had been subject to sore throats and tonsillitis when younger, but only Antoinette had had her tonsils removed seven years before. Both noticed that the hearing was temporarily worse with head colds or sore throats

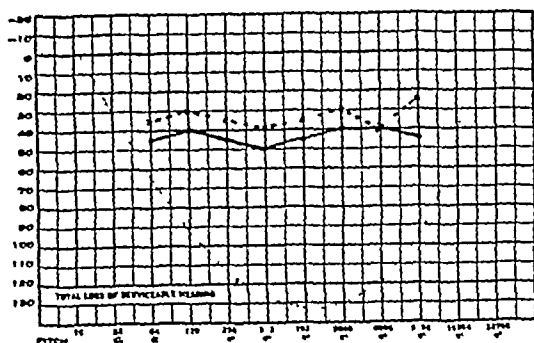


Fig. 4—Audiogram of Sylvia's hearing: solid line right ear broken line left ear

In this set of identical twins with otosclerosis the difference in the onset and development of deafness is not very striking but the earlier onset of deafness in Antoinette corresponds to her frequent severe head colds. Both twins gave a history of tonsil infections in childhood and early adult life but only Antoinette had had her tonsils removed. Might the slower progress of her defect be the result of the tonsillectomy, so that in spite of the earlier onset she now has the better hearing? Since the difference in these twins was not marked, one can only say that the evidence in this case is suggestive that more frequent head colds led to the earlier appearance of deafness in one.

3 The third set of identical twins were sisters aged 25. There was no family history of deafness. Sylvia and Lillian grew up together and both had measles, whooping cough and chickenpox, and both had their tonsils removed as small children. Sylvia first began to notice difficulty in hearing at the age of 17 and this had gradually progressed until at 25 at the time of the examination, she could hear a whisper only at 6 inches in both ears. The C<sub>1</sub> (32 double vibrations) and C (64 double vibrations) forks were not heard in either ear; the Rinne test was negative and bone conduction was prolonged (fig. 4). The left drum membrane was entirely normal, the right was normal except for slightly diminished luster. A pinkish glow was visible from the right promontory. The diagnosis was otosclerosis with stapes fixation.

Lillian did not begin to lose her hearing until 22, but during the past six months, since she became pregnant, this had become considerably worse, so that at the time of examination she could hear a whisper only close to the left ear and at 1 foot from the right ear. The C<sub>1</sub> and C (32 and 64 double vibrations) forks were not heard in either ear; the Rinne test was negative in both ears and bone conduction was prolonged (fig. 5). The right drum membrane was normal with a slight pinkish glow from the promontory, the left drum membrane was normal except for slight thickening and slight loss of luster. The diagnosis was otosclerosis.

Searching for a possible etiologic factor responsible for the earlier onset of deafness in Sylvia, one finds that she had never been as strong as her twin sister and she had always been underweight and particularly susceptible to frequent, severe head colds and sore throats until the past two years, when she has been stronger, has gained weight and has had only one mild head cold each year. Her hearing was always much worse during a head cold. Lillian had never been subject to colds

and when she did have a cold it was mild. She was married at about the time she first began to notice defective hearing, two and a half years ago. She was six months pregnant at the time of examination and since the second month of this pregnancy the hearing had decreased rapidly.

In this third set of identical twins with otosclerosis there was a definite difference in the age of onset of the clinical symptoms. Again there was a marked difference in the susceptibility to head colds, the one who is having many colds becoming deaf first. This further confirms the observation that head colds may constitute an extrinsic controllable factor having an accelerating effect on otosclerosis. It is very interesting that the other previously known extrinsic factor, namely pregnancy, served to accelerate the defect in the twin who did not have head colds, so that her hearing is now as bad as her sister's.

#### COMMENT

If the premise were strictly correct that the hereditaryanlage is exactly equal in a pair of identical twins then one could say with assurance that there are external influences which can affect the age of onset and rate of progress of clinical otosclerosis and this would be saying a great deal. However, there is one disturbing fact that must be taken into account and that is that identical twins develop from the same egg but from different halves of the egg, and their hereditary environment may differ slightly just as the two halves of any person are slightly different. Thus, otosclerosis often begins first in one ear and may occasionally become very advanced in this ear before the onset of progressive deafness in the opposite ear. The difference in the twins may correspond only to the difference in the two ears of any one with otosclerosis. This detracts considerably from the strength of the conclusions. However, the fact that the lesion developed first in every instance, in the twin who was much more susceptible to head colds is at least suggestive evidence that head colds are an activating influence on otosclerosis. Moreover this harmonizes with a clinical observation made many times before, that a large proportion of persons with otosclerosis complain of an increase in

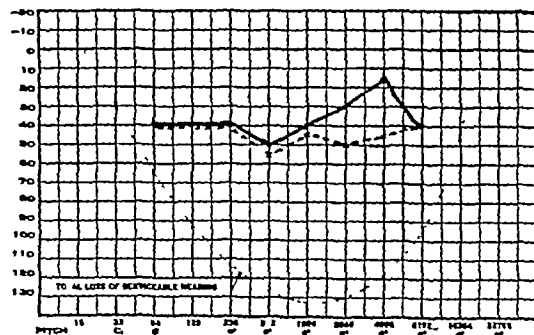


Fig. 5—Audiogram of Lillian's hearing: solid line right ear broken line left ear. Note difference in hearing curves from this patient's twin sister.

their defect during head colds, though usually this increase is only temporary. In the first set reported Lora's hearing defect advanced relatively rapidly during a period filled with many severe head colds; while subsequently, with relative freedom from colds, the process became inactive and stationary.

It can be concluded, on the basis of the observation in identical twins that head colds apparently have a

activating influence on otosclerosis similar to the influence of pregnancy. This conclusion coincides with clinical experience in the majority of patients with otosclerosis. The mechanism of this effect is not known. It does not seem to be due to direct extension of inflammation through the eustachian tubes though this possibility must be considered. Certainly there has not in my experience, been a demonstrable acute tubal occlusion or tubal catarrh that could be benefited by local treatments. The effect may be entirely systemic, by blood stream transmission of toxins. Further observation of otosclerosis in identical twins will confirm or refute these conclusions. Meanwhile, one can feel justified in any reasonable measures to reduce the susceptibility to head colds in persons with otosclerosis.

Bezold advised repeated hearing tests every six months on patients with otosclerosis to ease the mind of the patient who usually suffers from the impression that he perceives progress of the deafness. He further advised reassurances that the disease rarely leads to profound deafness within a few years but that on the other hand a large number of cases become stationary.

In this manner you have done them much more good than if you try to deceive yourself and them as to their future by a series of attempts at treatment extended over a long time. To Bezold's advice I can add that every reasonable effort should be made to decrease head colds in those persons with otosclerosis who are subject to them.

#### SUMMARY

Otosclerosis in identical twins offers a unique opportunity to study the etiology of this common disease. This comparatively rare occurrence has been observed a total of five times. Twice the disease ran an identical course in each twin. Twice the disease began five years earlier in the twin who was more susceptible to head colds. Once the deafness began sixteen years earlier in one twin and here the most likely cause for the striking difference was the much greater susceptibility to head colds, and further the progress of the deafness in this patient was most rapid at a time when she was having many colds and was much slower when she became less susceptible to colds.

122 South Michigan Avenue

**English Sweating Sickness**—After the battle of Bosworth in which Henry VII gained the ascendancy in England, there broke out in the ranks of the conquering army a disease that completely put a stop to the procession of the victorious troops. With disbanded soldiers it was carried into London. The speed of spread can be estimated from the fact that the sickness reached its height in London by September 21, the battle of Bosworth having been fought on August 22. It spread over England rapidly from east to west carried far and wide by the men scattered from the army. In London it killed, within the first week, two lord mayors and six aldermen. It attacked the young and robust, this being one of the points in which it was similar to the Picardy Sweat of which we shall have something to say presently. The mortality of this English sweating sickness was such, according to Holmshed, that 'scarce one amongst an hundred that sickened did escape with life for all in manner as soone as the sweate tooke them or in a short time after yekled up the ghost'. The coronation of Henry was postponed. In Oxford, where Thomas Linacre—who later founded the College of Physicians—was then a student it was so severe that professors and students fled the university which was closed for six weeks. This first outbreak remained entirely in England not even spreading to Scotland or Ireland—Zinsser, Hans Rats, Lice and History, Boston Little Brown & Co 1935.

## STREPTOCOCCIC INFECTION SIMULATING RINGWORM OF THE HANDS AND FEET

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CHICAGO

Prior to the appearance of our paper<sup>1</sup> on ringworm of the hands and feet, the acrodermatoses were usually diagnosed in this country as eczema or dysidrosis. Subsequently, as a result of that paper and of the innumerable papers that have appeared in the medical and lay press since then, physicians and laymen alike have become so ringworm conscious that practically all dermatoses of the extremities are classed as mycotic. So sure are the medical men of their diagnoses that neither a microscopic examination nor a culture is considered necessary to establish the diagnosis. Widespread areas of dermatitis of external origin are likewise considered to be mycotic and are treated as such, with resultant irritation and continuation of the dermatitis.

In 1928 I<sup>2</sup> called attention to the necessity of differentiation of mycotic from nonmycotic lesions. A series of cases was reported presenting lesions that suggested, in appearance the epidermophytoses. No fungus could be demonstrated, however either with the microscope or with the culture tube. External irritants in some, and staphylococci in others were thought to be the etiologic factors in these cases. In 1930 Lehmann<sup>3</sup> reported a series of cases of vesicular eruptions on the hands and feet due to various causes. He was convinced that, regardless of the etiology of the lesions, internal disturbances were of prime importance. Last year Andrews Birkman and Kelly<sup>4</sup> reported a series of fifteen cases of recalcitrant pustular lesions of the palms and soles secondary to focal infection.

Streptococci as a cause of palmar and plantar lesions have not attracted much attention. In 1926 McGlasson<sup>5</sup> reported a series of fifteen recurrent erysipelas cases as a result of streptococcal infection of the legs complicating mycotic infection of the feet. In 1932 Homans,<sup>6</sup> a surgeon reported a series of five cases of streptococcal lymphangitis and cellulitis secondary to epidermophytosis or 'athlete's foot'. He makes no mention of microscopic examination for fungi in these cases. Milian and Katchoura<sup>7</sup> report a case of small spored trichophyton infection, which was complicated by a streptococcal lymphangitis and axillary adenopathy. Barber<sup>8</sup> says that 'streptococcal fissures between the toes are usually secondary to epidermophytosis. They may cause recurrent attacks of lymphangitis of the feet, ankles and legs, the origin of which is often overlooked'. In my own experience this has rarely occurred. I have often wondered why streptococcal infections have not taken place in the ruptured vesicles so commonly encountered in acute epidermophytosis.

Read before the Section on Dermatology and Syphilology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1 Ormsby O S and Mitchell J H Ringworm of Hands and Feet J A M A 67:711 (Sept 2) 1916

2 Mitchell J H Amycotic Dermatoses Simulating Ringworm and Erosio Interdigitalis Blastomycetica Arch Dermat & Syph 19:659 (April) 1929

3 Lehmann C F Acute Vesicular Eruptions of the Hands and Feet Arch Dermat & Syph 21:449 (March) 1930

4 Andrews G C Birkman F W and Kelly R J Recalcitrant Pustular Eruptions of the Palms and Soles Arch Dermat & Syph 29:548 (April) 1934

5 McGlasson I L Recurrent Erysipelas of the Legs with Dermatitis of the Feet Arch Dermat & Syph 14:679 (Dec.) 1926

6 Homans G New England J Med 208:1038 (May 19) 1932

7 Milian G Katchoura V and Gaquiere Bull Soc franc de dermat et syph 41:419 (March) 1934

8 Barber H W Guy's Hosp Rep 81:92 (Jan) 1931



Perhaps Sabouraud<sup>9</sup> has given the reason when he says, in effect, that the streptococcus is never a chance or secondary invader as is the ubiquitous staphylococcus. If the streptococcus is present it is there for business and not as an innocent bystander.

In reporting this small group of only five cases I do not wish to become controversial. Some undoubtedly, in looking at the illustrations will say at once that the lesions are those of impetigo which of course they are.



Fig. 1 (case 1)—Impetiginous erosions on sides of feet. There were vesicular lesions on the soles resembling ringworm vesicles.

My object in calling attention to these cases is to make a plea for the use of the microscope and of the culture tube in order that streptococcal infection, which subsequently may be the cause of death, shall not be mistaken for the relatively harmless epidermophytoses and treated as such.

The etiology of impetigo still seems to be misunderstood in America. Sabouraud<sup>10</sup> says that Unna and Schwenter-Trachsler<sup>11</sup> wrote a book about impetigo without ever having discovered the cause. He says, further, that there is only one impetigo and that that is streptococcal in origin. It is interesting to find that in the latest editions of three English works on dermatology the authors are entirely in accord with the opinion of Sabouraud, whereas in the latest editions of four American works the authors have the erroneous impression that the cause of impetigo may be either the streptococcus or the staphylococcus. Macleod<sup>12</sup> says "Impetigo contagiosa (Tilbury Fox) is the direct result of the inoculation and presence in the superficial layers of the epidermis of the *Streptococcus pyogenes*. The organism may be obtained in pure culture from the serum of a superficial vesicle, provided a suitable technic be employed." Roxburgh<sup>13</sup> says "Impetigo is

a streptococcal infection of the superficial layers of the epidermis resulting in the formation of vesicles which rupture readily, the serum, continuing to exude, then dries up into semitranslucent crusts." Walker<sup>14</sup> says "The disease is caused by streptococcus, and that organism may be obtained in pure culture from the early vesicles in a very large proportion of the cases. In the crusts the staphylococci are abundantly present and streptococci are only occasionally found."

Ormsby<sup>15</sup> on the other hand, says "The disease is a pus infection, the result of the transmission to the skin, through the medium of the finger nail, filthy or otherwise, of an infection of streptococci, staphylococci, or both." Sutton<sup>16</sup> says "Both staphylococci and streptococci have been recovered from the lesions. It is probable that the staphylococcus is the etiologic factor in some cases of the disorder and the streptococcus in others (probably the majority)." Pusey<sup>17</sup> says "The studies of Crocker, Bockhart, Gilchrist, C. J. White, Corlett and others have established the fact that impetigo may be produced by either the common streptococci or staphylococci. It is most frequently produced by both." Andrews<sup>18</sup> says "This is a superficial staphylococcus or streptococcus inflammation of the skin characterized by discrete thin-walled vesicles and bullae which rapidly become pustular and dry, forming loosely adherent golden crusts."

The explanation of this confusion as to etiology lies in the fact that, first the staphylococcus is ubiquitous and a secondary invader, whereas, the streptococcus is neither ubiquitous nor a secondary invader, and,

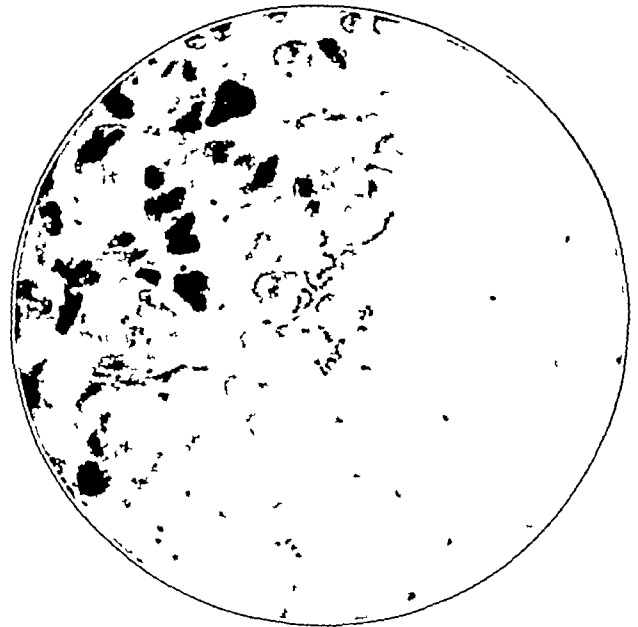


Fig. 2 (case 1)—Chains of streptococci in smears of the serous fluid (Zeiss 1/12—Homal IV).

secondly, the staphylococcus invariably overgrows the streptococcus unless, as Macleod<sup>12</sup> says, "a suitable technic be employed." Sabouraud has devised several

<sup>9</sup> Sabouraud R. *Pyodermites et eczemas*. Paris: Masson & Cie 1928, p. 135. En soi les moeurs de streptocoque semblent assez particulieres. Dans une lesion polymicrobienne staphylo et streptocoque on peut presque assurer d'avance que c'est le streptocoque qui a commene car il est difficile de trouver un cas ou le streptocoque soit venu se surajouter au staphylocoque. Le streptocoque n'est vraiment le second d'aucun alors que le staphylocoque peut etre le second de tous. Mais tout au contraire dans les cas de parasitisme animal qui il s'agit de gale ou de pediculose, presque toujours le streptocoque est le premier qui surviendra. L'impetigo scabieux ou pediculaire revet alors une physiologie speciale parce que ses localisations seront celles de l'affection a laquelle il vient s'ajouter. (The behavior of streptococci appears to be very specific. In a polymicrobial lesion containing both staphylococci and streptococci one can be fairly certain in advance that it is the streptococcus which has been the primary invader, because it is difficult to find a case in which the streptococcus has been secondary to the staphylococcus. The streptococcus is never really secondary to any other organism whereas the staphylococcus may be secondary to all. But on the contrary in animal parasitism such as scabies or pediculosis almost always the streptococcus is the first to arrive. Impetigo of scabies or of pediculosis therefore presents a special picture because the localizations will be those of the disorders to which it is joined.)

<sup>10</sup> *Pyodermites et eczemas*, p. 116.

<sup>11</sup> Unna P. G. and Schwenter-Trachsler (Frau). *Impetigo vulgaris*. Monatsh f. prakt. Dermat. 28: 1899.

<sup>12</sup> Macleod J. M. H. *Diseases of the Skin*, ed. 2. London: H. K. Lewis & Co. Ltd. 1933, p. 297.

<sup>13</sup> Roxburgh A. C. *Common Skin Diseases*. London: H. K. Lewis & Co. Ltd. 1932, p. 119.

<sup>14</sup> Walker Norman and Percival G. H. *An Introduction to Dermatology*, ed. 9. Baltimore: William Wood & Co. 1932, p. 157.

<sup>15</sup> Ormsby O. S. *A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners*, ed. 4. Philadelphia: Lea & Febiger 1934, p. 322.

<sup>16</sup> Sutton R. L. *Diseases of the Skin*, ed. 8. St. Louis: C. V. Mosby Company 1932, p. 354.

<sup>17</sup> Pusey W. A. *Diseases of the Skin*, ed. 4. New York: D. Appleton & Co. 1930, p. 492.

<sup>18</sup> Andrews G. C. *Diseases of the Skin*. Philadelphia: W. B. Saunders Company 1930, p. 524.

methods for the culture of streptococci in the presence of staphylococci. One consists in long strokes of the loop over the agar surface without recharging. At the beginning of the stroke nothing but staphylococcus will be found to grow, whereas at the other end the delicate streptococcus will have an opportunity to develop. Another method consists in the use of crystal violet as



Fig. 3 (case 2)—Impetiginous lesions on the hands. The crusts were preceded by vesicles.

a restraining agent for the staphylococcus. Still another consists in drawing up the serum in a Wright pipet, sealing off and incubating it for seventeen hours. In the tip of the pipet the staphylococcus will not survive the partial anaerobic condition, whereas the streptococcus will, and the first drop from the pipet will be an almost pure culture of streptococcus.

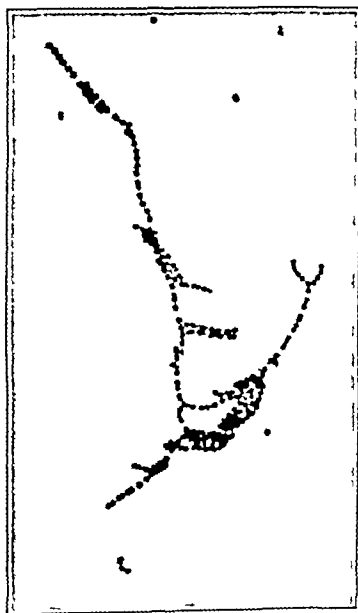


Fig. 4 (case 2)—Original twenty-four hour brain broth culture (Zeiss 17/12—Homal IV).

difficulty in growing streptococci, when found in the vesicle smear, by means of the brain-broth liquid medium.

The behavior of the staphylococcus as a skin invader is entirely different from that of the streptococcus. The habitat of the former is the hair follicle, where it may always be found waiting in the follicular vestibule,

ready to step in at the slightest opportunity, such as that presented by friction or epilation, to exercise its pathogenicity. It is a creamy pus, abscess producer or, if sufficiently virulent, a necrosing core producer. The so-called impetigo of Bockhart is not impetigo but a staphylococcic ostiofolliculitis and is characterized by the formation of a small, superficial lake of creamy pus in the follicular orifice. It frequently coexists with streptococcic impetigo.<sup>19</sup>

The streptococcus, according to Sabouraud, never invades the hair follicle. On the skin it produces a superficial epidermal vesicle, which, before rupture, contains thick, clear, serous fluid, almost free from pus cells but filled with chains of streptococci. As the very superficial vesicle ruptures, the serous fluid continues to be poured out and forms the "stuck-on" crust. Later ecthymatous ulceration may be produced. The organism is an epithelial (impetigo), endothelial (lymphangitis, endocarditis) and mucous membrane ("septic sore throat") pathogen.

The first case to attract my attention occurred in my private practice, May 25, 1933. A matron, aged 19, who had returned several weeks previously from a honeymoon in Bermuda, appeared with lesions on the feet of such severity that she was scarcely able to walk. She had been treated with continuous wet dressings by

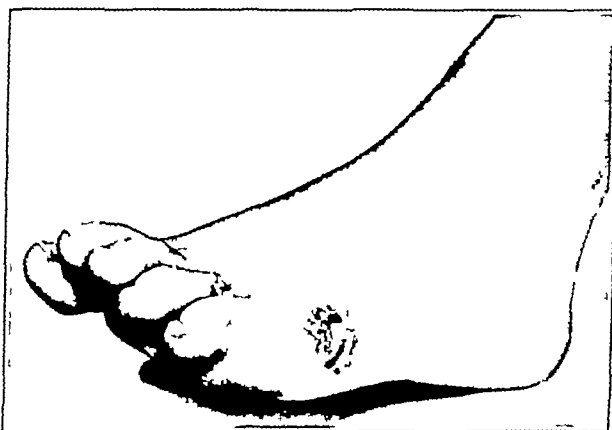


Fig. 5 (case 3)—Vesicular lesions on the side and in the fourth interspace of the left foot.

a more than competent dermatologist for three or four weeks for ringworm, with no success. The patient, the dermatologist and the referring physician agreed that the condition was rapidly becoming worse and that other advice should be sought. According to the patient, however, the diagnosis had remained unchanged. When first seen the conspicuous features of the lesions were the superficial character of the vesicles and the subsequent erosions, which were bathed in a profuse, clear, serous fluid. Microscopically, typical chains of streptococci could be seen in all fields. The brain-broth culture disclosed long chains of hemolytic streptococci. Treatment consisting of aqueous solution of corrosive mercuric chloride and ammoniated mercury ointment healed the infection in one week, without recurrence. No fungus could be found.

The next case was that of a woman, aged 37, who was seen, June 12, 1933, with lesions that had been present on the hands for some weeks. These had begun as small vesicles, which were supposed to be mycotic and had been treated as such with no success by the

<sup>19</sup> Darier. Précis de dermatologie. Paris: Masson et Cie, 1928, p. 205.

family physician. The older and larger lesions were impetiginous, with small solitary vesicles containing clear thick, serous fluid. These were grouped, small, superficial vesicles about the fingers of the right hand, but no typical deep-seated vesicles were present. In the smears were found chains of cocci and in the brain-broth cultures hemolytic streptococci. With twice daily

baths of corrosive mercuric chloride and ammoniated mercury ointment the hands were healed as shown in figure 3 taken one week later. No fungus could be found.

After seeing these two cases I began making routine examinations and cultures for streptococci, and on July 24 I found another case which more closely simulated a fungous infection than any of the four other cases. The patient was a high school girl aged 15 years who had been swimming in the lake. The lesions had first appeared several weeks before in the fourth interspace of the left foot. They next appeared on the ball of the foot and lastly on the outer margin of the foot. The microscopic pictures of the smears and of the

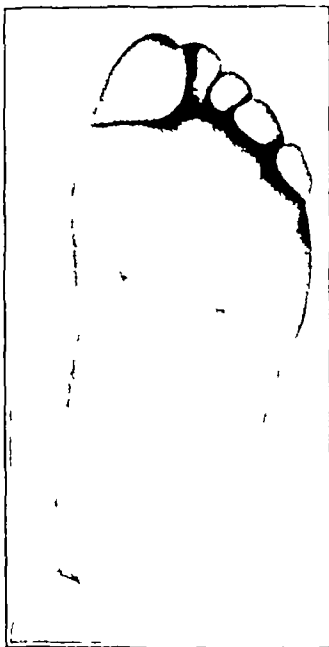


Fig. 6 (case 3)—Vesicular lesions on the sole of the same foot as in figure 5

brain-broth cultures are similar to those of the other cases. Aqueous solution of corrosive mercuric chloride and ammoniated mercury ointment brought about a condition of healing, as shown in figures 5 and 6, taken one week later.

Having seen these three cases I began a constant watch for similar cases, as I was inclined to the belief that I had been overlooking similar cases in the past. Not until April 20, 1934, however, did I find the fourth case of this group. The patient was a college student, aged 21, who lives in a city 400 miles from Chicago. He gave a history of having had dermatitis on the hands more or less continuously for the past year and a half. During that time he had been given three or four roentgen treatments with considerable relief. During the preceding month, however, there had developed severe vesicular and crusted lesions on the hands. Two weeks later, swelling and tenderness developed in the left axilla. There had been much ringworm in the school, and the condition was thought to be mycotic. The patient finally came to the city to consult Dr. Nelson Percy, who in turn referred him to me. At the time of observation there were numerous small superficial vesicles and small yellow crusts. At the base of the dorsum of the right hand was a typical "stuck-on" crust of streptococcic impetigo. The toes were free except for suggestive exfoliation in the right fourth interspace. No fungus could be demonstrated by microscope or by culture. Chains of cocci could be found in all fields with small groups of cocci here and there. The culture contained long chains of hemolytic streptococci slightly

contaminated with hemolytic staphylococci. Treatment consisted of corrosive mercuric chloride soaks daily for one week. At the end of that time the condition was practically healed. Owing to the preexisting dermatitis he was advised to discontinue the mercurial baths and to begin daily baths of potassium permanganate. A letter ten days later reported that the hands were entirely clear.

The fifth patient was a girl aged 15 years, who had been treated for ringworm of the right palm for several weeks. Despite much attention and constant treatment with "ringworm salve," the condition had continued to grow worse. During the week preceding the consultation, which occurred May 23, 1934, some pain and considerable tenderness in the hand had developed. There was also some tenderness, but no redness, along the ulnar side of the flexor surface of the forearm. There were numerous "stuck-on" serous crusts, which had been removed before the photograph (fig. 10) was made. There were also numerous vesicles, the superficial character of which can be seen on the side of the middle finger. All the vesicles were carefully opened and treatment with corrosive mercuric chloride soaks begun. No fungus could be found. The healing was reported as rapid and uneventful.

#### SUMMARY

There is a marked tendency to regard all acrodermatoses as ringworm of the extremities.

There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis.

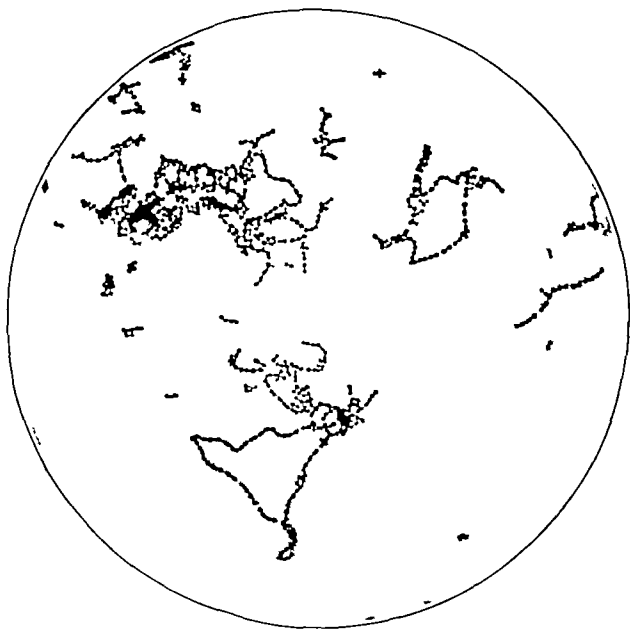


Fig. 7 (case 3)—Original brain broth culture (Zeiss 1/12—Homa IV)

I agree with Sabouraud, Macleod, Walker and Roxburgh that impetigo (Tilbury Fox) is due to the streptococcus, this fact can be proved with ease.

A group of five cases of streptococcic infections (impetigo) of the extremities simulated mycotic infection sufficiently to lead to errors in diagnosis.

The infections were found to yield within one week to baths of corrosive mercuric chloride and weak ammoniated mercury ointment.

25 East Washington Street

## ABSTRACT OF DISCUSSION

DR. GEORGE C. ANDREWS, New York. The paper of Dr. Mitchell is valuable because it throws light on a condition that has not been recognized. It also shows the importance of studying bacteriologically unusual and atypical cases and the importance of not classifying them as eczema or pustular psoriasis or dermatophytosis without adequate reason. In my study of pustular eruptions of the hands and feet that resem-



Fig. 8 (case 4)—Impetiginous lesions on the fingers and right wrist

bled pustular psoriasis but were due to tonsillar infections. I ran across a case similar to Dr. Mitchell's. This patient presented pustular and vesicular lesions, mostly pustular on both palms and soles. There were no lesions between the toes. The cultures and microscopic examinations for fungi were negative. There were no characteristic lesions or any history of psoriasis. The patient said that she had arthritis for six years and infected tonsils. Her hands and feet had been involved for four years and the clinical appearance was somewhat like the lesions on the foot in the picture Dr. Mitchell presented except that they were mostly pustular. Microscopic examinations of cultures from the hands in all instances showed *Streptococcus viridans* much to my great surprise. There were three cultures taken and each of the three showed *Streptococcus viridans* and nothing else. This woman has very large diseased tonsils and she has been told that they should come out. Her reaction to streptococcal toxin vaccine is very strong, in other words, she is apparently allergic to the streptococcus. So far there have been to my knowledge about twenty-four cases which clinically resemble pustular psoriasis of the hands and feet with sterile cultures but no other signs of

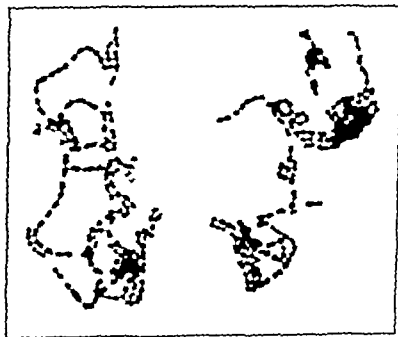


Fig. 9 (case 4)—Brain broth culture (Zeiss 1/12—Homal IV)

psoriasis and these patients all had focal infections. Of these nine have been cured by the removal of the tonsils or the focal infections. I think that there are cases resembling pustular psoriasis which also show streptococci in culture from the lesions on the hands and feet as well as cases of ringworm.

DR. ERWIN P. ZEISLER, Chicago. I should like to call Dr. Mitchell's attention to the work published four years ago by Jordan of Jadassohn's clinic on the occurrence of streptococci in normal skin. Up to this time a number of observers had reported finding streptococci in approximately 15 per cent

of cases from the normal skin. Dr. Jordan reports a series of 150 cases in which cultures were taken of scrapings from the skin with a sterile scalpel from different parts of the body—all normal individuals with no skin lesions and no history of impetigo. Cultures were made on crystal violet bouillon and on ascitic fluid with 1 per cent grape-sugar bouillon. In 148 of 150 cases he reported the positive finding of the streptococcus. I should like to ask Dr. Mitchell how he explains the correlation of these observations with his report here of the streptococcus in these lesions.

DR. MARION B. SULZBERGER, New York. Dr. Mitchell has brought out a point of great importance that there is a tendency to jump at the diagnosis of dermatophytosis and dermatophytid in all eczematous vesicular scaly crusting hand and foot eruptions. I would not today have made the clinical diagnosis of dermatophytid, as far as one can judge by the appearance in a photograph in a single one of the cases which Dr. Mitchell has thrown on the screen. The question of whether such cases are primary infections is one that must be decided. This would differentiate them from dermatophytid in which one does not find the organism as a rule. It is well known that there can be primary infections of the hands and feet with organisms other than fungi. Dr. Zeisler brought up a point that I wish to stress emphatically. I was in Breslau at the time Jordan made these cultures of streptococci. From Jordan's work and from subsequent observations, one is forced

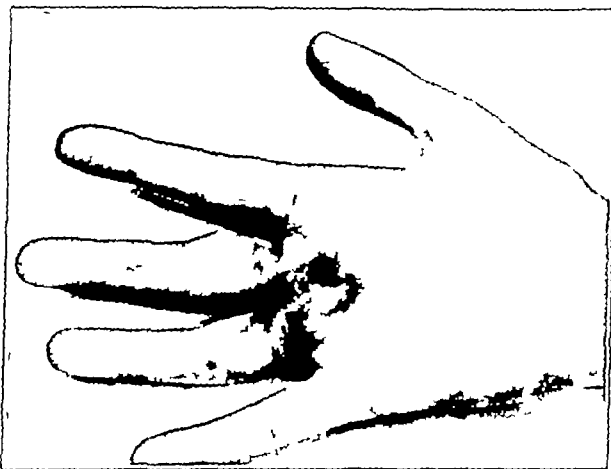


Fig. 10 (case 5)—Vesicular and crusted lesions on the right hand

to the conclusion that the finding of streptococci in skin lesions does not mean that lesions are to be attributed to streptococci. This introduces a dilemma in the question of the etiologic significance of an organism found in a skin lesion. Streptococci, staphylococci, Monilia organisms and in this country probably also organisms of the Trichophyton group are ubiquitous and can be found in practically all skins and in practically all skin lesions if sufficiently delicate methods of culture are used. The finding of these organisms is no proof of their causal role. Therefore as Dr. Mitchell has been hand and footing it about the country for the last year in the bacteriologic and mycologic investigation of these cases others have been following him about more or less figuratively with syringes with bacterial extracts in order to find out whether one could tell by the skin reactions and the immunologic status of these patients which organisms were responsible for the hand and foot lesions. Unfortunately that is not the case. However I think that there may be another immunologic way of finding out which organisms are responsible for these lesions and that is by the therapeutic effect of specific desensitization. In a certain percentage of cases of presumable dermatophytids one gets remarkably good therapeutic effects with desensitization treatment with Trichophyton extracts. In other cases one is forced to employ Monilia extracts. In many others neither of these desensitizations help. I have been trying to work up to a polyvalent extract which will include staphylococci and streptococci eventually and to attempt to desensitize this group of cases provided they are refractory to other therapy by this means.

DR JOHN G. DOWNING Boston About a year ago after being constantly confronted with statements that the persistence of prolonged industrial dermatitis cases was due to a secondary fungus infection I started taking cultures of these persistent cases, employing an expert mycologist for the work. We found no fungi of a pathogenic species in these persistent dermatoses but found plenty of streptococcus organisms. The fungi that we found corresponded to those that we found in studies of the normal skin and the streptococci corresponded in some details, with the difference that those on the normal skin were never of the *Streptococcus hemolyticus* strain.

DR JAMES HERBERT MITCHELL Chicago I am familiar with the work on streptococci in normal skin. There are several papers on the subject in the French literature. I am familiar with those but I didn't think it necessary to mention them as I am dealing with a pathogenic *Streptococcus hemolyticus* and not with a saprophytic streptococcus. Having found *Streptococcus hemolyticus* in a few cases I began to fear I was overlooking the organism in other cases. I had an expert bacteriologist trying to find streptococci in cases in which they did not exist, and at times I was impatient because the organisms were not found. The hemolytic streptococcus is not ubiquitous and is not an innocent bystander. I am merely presenting these cases for your consideration. I agree with Dr Sulzberger that with one exception I didn't regard the cases as mycotic eruptions but five other physicians and dermatologists did regard them as ringworm. That is the point I am trying to make. I don't say that they were not justified in doing so. In my experience neither serum nor anything else is needed because the lesions clear in one week with mercuric chloride baths and ammoniated mercury salves. In regard to the statements Dr Downing made all of these organisms are *Streptococcus hemolyticus*. They may have been just hanging around there as guests but in my opinion they were having something to do with the process.

## Clinical Notes, Suggestions and New Instruments

### A CASE OF PETROSITIS WITH SURGICAL DRAINAGE AND RECOVERY

KARL W. GRUPPE, M.D., UTICA, N. Y.

In the last few years, medical journals have been presenting increasing numbers of reports of research and clinical work on the complication of mastoiditis known as petrositis, or involvement of the apex of the petrous pyramid. This complication hardly recognized prior to the work of Gradenigo<sup>1</sup> reported in 1904 is now receiving the attention it deserves. Diagnostic measures in which history, physical examination and roentgen studies<sup>2</sup> all play major parts have been established and various surgical approaches aimed at drainage of this remote region have been devised and tested. In the future, then a lessening in the incidence of meningitis, brain abscess and chronic otorrhea from this cause may be anticipated only so far as otologists and general practitioners who are often the first to see these cases, will familiarize themselves with the disease and the significant points in its diagnosis.

My object in this paper is to present a case illustrating the complication in question. The symptoms, physical signs and roentgen observations were definite and conform to the established pattern to which unfortunately, not all cases do.

#### REPORT OF CASE

J. S., a Polish woman aged 38 was referred to me by Dr Charles Greene of Utica April 28, 1934. The story was one of gradual onset of left sided earache following a mild head cold. Discomfort increased and on the third day before aid was sought was associated with mastoid pain. No generalized headache, eye pain, vertigo, chills or fever were complained of. The past history revealed nothing of general or local interest.

Examination, April 28, revealed a temperature of 99 F. The left ear drum was red and bulging and intact. No canal wall sag was present but the mastoid tip and antral regions were definitely tender. There were no meningeal signs. Extraocular movements were normal as well as the optic disks. The nose, sinuses, throat and right ear were normal.

A left myringotomy was done, releasing considerable thick pus. The patient was then observed carefully and on the following day was somewhat improved. On the second day, however, the mastoid pain became worse and headache and pain behind and around the left eye were complained of. The temperature rose to 99.8. She was admitted to St. Luke's Hospital April 30, with a tentative diagnosis of mastoiditis with petrous apex involvement, and a simple mastoidectomy was done. The mastoid was very cellular and large and seemed involved by a hemorrhagic process with here and there frank pus pocketed off. Large areas of middle fossa dura and lateral sinus were exposed and appeared healthy. The medial antral surface was then curetted and while work was being done just above the horizontal semicircular canal a thin stream of pus escaped. The



Petrous apexes showing probe in place in the drainage tract. In the original film definite loss of structure in the left apex is more obvious than in this reproduction.

orifice was then widened and the patient was sent back to the division for observation, the wound being left wide open. Culture showed a hemolytic streptococcus.

For about eighteen hours there was definite improvement in headache and eye pain but on the evening of the second post-operative day severe headache developed and a questionable Kernig sign was elicited. Lumbar puncture at this time showed a pressure of 100 mm of water, a negative Pandy test and a cell count of 6 lymphocytes. For one week varying headache and pain over the fifth nerve distribution continued and the patient complained bitterly of aching upper and lower teeth during the last day of this period. The temperature fluctuated between normal and 100.4 and mild leukocytosis was present. Roentgen examination of the petrous apexes showed pneumatized tips with probable disease on the left. The pleas of the patient for extraction of the aching teeth were ignored and she was returned to the operating room. A Kopetzky-Almour drainage was contemplated in the event that the tract could not be followed. This, however, was not necessary as after dissection had been done down to the superior semicircular canal it was possible to work a probe well out into the tip followed by the release of creamy pus. The posterior buttress was then removed and more of the middle fossa floor up to the posterior

<sup>1</sup> Gradenigo Giuseppe Arch f Ohrenh 62:255 1904

<sup>2</sup> Taylor H K Ann Otol Rhin & Laryng 40 367 (June) 1931

canal wall and the middle fossa dura was then elevated to about two thirds of the way to the tip. No extradural pus was found. Silkworm-gut strands were left in place in the probe tract and the patient was returned to the division for further observation.

Following this procedure no labyrinthine signs were noted and save for a temperature flare to 102 on the second post-operative day at which time lumbar puncture was again negative the course was one of gradual improvement. The tract was probed each day and the discharge lessened. The middle ear likewise started to clear, indicating that there was no secondary fistula through the peritubal cells. May 15 Dr Kopetzky, then in Utica attending the state convention kindly consented to see the patient and predicted recovery. May 19 Dr Greene gave a transfusion of 500 cc of blood to combat a secondary anemia. The patient remained afebrile from May 13 until discharge on June 4 and several white counts were normal. Some residual headache was present but easily controlled by acetylsalicylic acid. The wound healed and the middle ear returned to normal and now over an eight months period of observation the headaches have entirely cleared and the patient is gaining and enjoying good health.

## COMMENT

The features of this case are characteristic. The eye pain indicating involvement of the first branch of the fifth nerve, and later the involvement of all three branches as evidenced by the aching teeth, is a sign of great importance. This early eye pain along with the finding of a large pneumatized mastoid and the successful search for a fistulous tract confirmed the diagnosis of apex involvement. The type of mastoid structure is of importance since it is almost entirely with these large cellular types that pneumatization of the tip occurs a prerequisite to true coalescent petrositis. Recent anatomic studies have shown that tip pneumatization occurs in about 30 to 40 per cent of this type of structure. Roentgen study simply confirmed the presence of apical cells. The finding of the fistulous tract indicated deep pus under pressure and because of its escape it was considered safe to observe the patient for a time. In this connection there are undoubtedly many cases of apical involvement which, failing to give classic signs or for some reason passing unrecognized drain themselves through the same tract by which they were infected. Some drain adequately and some go on to meningitis, labyrinthitis, brain abscess formation or the less dramatic chronic discharging ear. Sixth nerve paralysis did not occur in this case and does not in perhaps the majority of cases. Facial paralysis often observed, likewise was not present at least to any marked degree although Dr Kopetzky did feel that a slight paresis was present in this instance.

Operative procedures are of two types the external or subdural approach advocated by Eagleton<sup>3</sup> and others and approaches carried out through the petrous bone itself, of which the Kopetzky-Almour<sup>4</sup> operation has been the most discussed. Frenchner<sup>5</sup> has advised the approach through the arch of the superior semicircular canal and it was this route through which drainage was established in this case, a route too hazardous unless, as occurred here, some form of tract has been established by nature, indicating soft bony structure. The choice of operation has been the subject of much debate but certainly it is generally conceded that in the presence of a fistulous tract its location should determine at least the first attempt at providing adequate drainage. All procedures are fraught with some danger, but no one is as dangerous to life as the policy of prolonged watchful waiting. One point in favor of drainage through the bone itself is that for some time after apparent clearing a potential tract exists which may function as a safety valve should a flare up of pocketed off material occur. Subjecting the patient to a preliminary radical mastoidectomy should give little concern if it is necessary for the provision of drainage. Its performance precedes the Kopetzky-Almour and Eagleton operations but is held unnecessary by Myerson, Rubin and Gilbert,<sup>6</sup> who also advocate the subdural approach.

3 Eagleton W P. *Tr. Am. Laryng. & Otol. Soc.* 1930 p. 338.  
4 Kopetzky S J and Almour Ralph. *Ann. Otol. Rhin. & Laryng.* 996 (Dec.) 1930 40 157 (March) 1931.  
5 Frenchner P. *Acta oto-laryng.* 17 97 1932.  
6 Myerson M C, Rubin H W and Gilbert J G. *Improved Operative Technic for Suppuration of the Petrous Apex Arch. Otolaryng.* 19 699 (June) 1934.

Petrous apex involvement should be borne in mind and the diagnosis considered in cases giving an acute or chronic ear history and presenting any or all of the following symptoms: generalized headache, fifth nerve pain, sixth or seventh nerve palsies, low grade sepsis, labyrinthine irritation, evidence of intracranial complication.

258 Genesee Street

# RELATION OF CYSTIC DUCT OBSTRUCTION TO DEPOSITION OF CALCIUM IN THE HUMAN GALLBLADDER

REPORT OF CASE

ELLIOTT C. CUTLER, M.D., AND ROBERT BOGGS, M.D., BOSTON

The relationship of cystic duct obstruction to the deposition of calcium in stones formed within the gallbladder was demonstrated experimentally by Wilkie<sup>1</sup> in 1928 and elaborated on by the clinical studies of Phemister<sup>2</sup> in 1931. Andrews and Hrdina<sup>3</sup> corroborated this observation, both experimentally and clinically, in 1933. Walsh and Ivy<sup>4</sup> obstructed the cystic duct in four dogs and reported calcium gravel in one post mortem.<sup>5</sup> These authors reported cases in which the calcium content of the stones was consistently very high and in some cases the content approximated totality.

In the routine study of gallbladders in this clinic the following case was called to our attention and we felt that it merited recording since it seems to represent an earlier stage in the deposition of calcium following cystic duct obstruction than those heretofore reported in which detailed analysis was made of the stones.

## REPORT OF CASE

**History.**—A man aged 54 was admitted to the surgical service with a diagnosis of cholecystitis and cholelithiasis.

For the past fifteen to twenty years the patient had had occasional attacks of vague indigestion with no relation to the food or time cycle. During the past three years the pain had become colicky in character and one month previous to admis-



Fig. 1.—A, cholecystogram showing ring shadows in body and neck and minute positive shadows in fundus of gallbladder. B, enlargement of A.

sion he had a severe attack, which kept him in bed for five days. Except for the last attack, when there was a slight subicteroid tinge, there was no jaundice.

From the Surgical Clinic and the Surgical Research Laboratory of the Peter Bent Brigham Hospital.

1 Wilkie A L. *The Bacteriology of Cholecystitis*. Brit. J. Surg. 15: 450 (Jan.) 1928.

2 Phemister D B. *Rewbridge A G and Rudisill Hilmyer Jr. Calcium Carbonate Gallstones and Calcification of the Gallbladder Following Cystic Duct Obstruction*. Ann. Surg. 94: 493 (Oct.) 1931.

3 Andrews Edmund, Dostal L E, and Hrdina Leo. *Etiology of Gallstones*. IV. Arch. Surg. 26: 382 (March) 1933.

4 Walsh E L and Ivy A C. *Observations and Etiology of Gallstones*. Ann. Int. Med. 4: 134 (Aug.) 1930.

5 Fellows working in this laboratory have reported in a personal communication the accidental finding of gravel in the gallbladder and kidneys of a dog with no previous treatment that might account for it.

On admission the temperature was 98 F, the pulse 70 and the respiration rate 20. Blood pressure was 120 systolic, 88 diastolic. Physical examination was negative. The abdomen was soft and pliable with no areas of tenderness or rigidity. No palpable organs or masses were felt. The liver border was at the costal margin.

A cholecystogram following oral administration of dye failed to reveal the gallbladder wall. Distributed linearly from the fundus to the neck were several ring shadows approximately 7 mm in diameter. The fundal area was filled with minute positive shadows none having a greater diameter than 2 mm (fig 1).

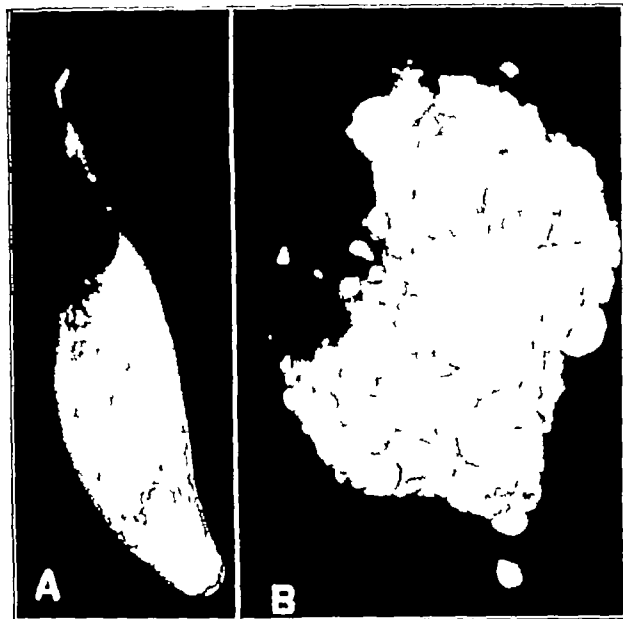


Fig 2—A roentgen appearance of excised gallbladder. Ring shadows are displaced from original positions. B roentgen appearance of contents of excised gallbladder.

**Laboratory Examination**—The urine was clear, with a specific gravity of 1.018, and was negative for albumin, sugar and bile. Microscopic examination showed epithelial debris.

Examination of the blood showed 4,700,000 red blood cells and 6,000 white blood cells, with 90 per cent hemoglobin. The differential count revealed polymorphonuclear leukocytes, 73 per cent, lymphocytes, 25 per cent, monocytes, 2 per cent, basophils 0 and eosinophils, 0.

Cholecystectomy was performed by one of us (E. C. C.), and the common duct was explored. The convalescence was prolonged by the unfortunate occurrence of a small pulmonary embolus on the sixteenth postoperative day and subsequent edema of the left leg for several weeks but was otherwise uneventful.

**Pathologic Report**—The gross specimen consisted of a gallbladder measuring 0.8 by 3.8 by 12 cm. The external surface was covered with a delicate layer of serosa and, except for a rare area of fibrosis, was everywhere smooth and glistening. The wall averaged 3 mm in thickness. The mucosa was a light pinkish gray, and no area of erosion could be seen. The lumen contained 50 cc of an extraordinarily tenacious greenish gray mucoid substance. Embedded in this material were nine large spherical white stones. These had a linear distribution extending from the fundus into the neck. The cystic duct was completely obstructed by a reddish yellow stone of similar size. Throughout the fundal portion were scattered many small whitish stones roughly estimated at 200. The larger stones averaged 7 mm in diameter and the smaller ones 2 mm. The cut surfaces of the stones were reddish brown with radiating crystalline markings. The periphery of all the stones with the exception of a few of the smaller stones and the one in the cystic duct, was formed by a very thin layer of chalky white material. Roentgenograms of the excised gallbladder and of

the contents were similar to those taken before operation (fig 2).

Microscopically, the mucosal elements were well preserved. Numerous papillary projections were seen with a moderate amount of fibrosis in these regions. The wall was thickened and there was a moderate cellular infiltration of all the layers.

**Chemical Report**—Examination of the bile showed calcium 28 mg per hundred cubic centimeters, cholesterol, 750 mg and bile salts, 0.

The large stones showed calcium 36 per cent by weight, bile salts 74 per cent and cholesterol, 89.0 per cent. The small stones showed calcium 24.0 per cent by weight, bile salts 30 per cent and cholesterol, 73.0 per cent.

#### COMMENT

The importance of cystic duct obstruction on the deposition of calcium has been fairly well established both clinically and experimentally.<sup>6</sup> Reconstructing our case in the light of recent work, we have apparently a case of chronic gallbladder disease with the formation of cholesterol-pigment stones. The absence of bile pigments is compatible with the views of Andrews and his co-workers<sup>7</sup> in that the absence of bile salts is an important factor in cholesterol precipitation. Following the formation of stones, one of the larger stones passed into the cystic duct obstructing that orifice and initiating the deposition of calcium the time apparently coinciding with the onset of clinical symptoms. The recent deposition of calcium is further corroborated by the peripheral distribution and the small amount of calcium within the stones themselves.

#### CONCLUSIONS

This case further substantiates the theory that obstruction of the cystic duct initiates the deposition of calcium and seems to represent an early stage in that process.

721 Huntington Avenue

#### CANCER OF THE TRANSVERSE COLON IN A SEVEN YEAR OLD BOY

DANON B. PFEIFFER, M.D. AND J. K. W. WOOD, M.D.  
WILLOW GROVE, PA.

In considering the question of cancer of the colon in children one is dealing with an unusual condition. Although it does occur rather infrequently, one should keep it in mind in the consideration of the diagnosis of some obscure abdominal conditions. The incidence of cancer in persons under the age of 15 years is so low that reported cases are regarded as oddities.<sup>1</sup> Cases of carcinoma of the intestinal tract occurring in young persons must be looked on as extremely uncommon.<sup>2</sup> In considering the incidence of carcinoma of the large bowel in children Philipp<sup>3</sup> stated that 28 per cent of ninety-three cases affected the intestinal tract. In 1914 Redho<sup>4</sup> was able to find but 536 cases of carcinoma during the period of youth in a review of the literature up to that date. Schamoni<sup>5</sup> performed 2,500 necropsies on children in the first ten years of life and found not one case of carcinoma. In a review of 831 cases of cancer by Janusz<sup>6</sup> he recorded only four instances in patients under the age of 20 years. Matzen,<sup>7</sup> in reporting 8,054 cancer cases from Bavaria, detected but seventeen cases during the first two decades of life. In Odessa, Medwedew<sup>8</sup> saw 1,181 cases of cancer in twenty-five years of observation but recorded none in children under the age of 10 years. Wainwright<sup>9</sup> states that, including his case, there are apparently only seven recorded cases of cancer of the colon above the sigmoid in

6. Wilkie,<sup>1</sup> Phemister, Rewbridge and Rudisill;<sup>2</sup> Andrews, Dostal and Hrdina;<sup>3</sup> Andrews, Edmund, Schoenheimer, Rudolf and Hrdina, Leo. *Etiology of Gallstones: Chemical Factors and Role of Gallbladder Arch. Surg.* 25: 796 (Oct.) 1932.  
7. Andrews, Edmund, Dostal, L. E., Goff, M. and Hrdina, Leo. *Mechanism of Cholesterol Gallstone Formation. Ann. Surg.* 96: 615 (Oct.) 1932.

Read before the Philadelphia Pediatric Society, Nov. 13, 1934.  
1. Walker, R. and Daly, J. F. *J. Oklahoma M. A.* 27: 119 (April) 1934.

2. Wakeley, C. P. G. *Lancet* 1: 1017 (May 13) 1933.  
3. Philipp, P. W. *Ztschr. f. Krebsforsch.* 5: 326 1907.  
4. Redho. *Vruch. gaz.* 1914.  
5. Schamoni, H. *Ztschr. f. Krebsforsch.* 22: 24 (Dec.) 1924.  
6. Janusz, *Ztschr. f. Krebsforsch.* 23: 47, 1926.  
7. Matzen, N. *Ztschr. f. Krebsforsch.* 25: 105 1927.  
8. Medwedew, Odessky, M. *J. January* 1927.  
9. Wainwright, J. M. *Atlantic M. J.* 28: 419 (April) 1925.

children His patient was the youngest aged 11 years Chajutin<sup>10</sup> stated that in 1929 the committee for cancer research had under observation 12,179 cases of cancer, but there was no case recorded in a child He then reported a case of carcinoma of the cecum in a girl, aged 14 years Walker and Daly<sup>11</sup> reported a case in a boy aged 5 years Dr James Ewing<sup>12</sup> says "Cancer of the colon in a child of 8 years is very rare. I have personally never seen the disease at that age In my book Neoplastic Diseases, third edition one case is recorded at 3 years, twenty-nine under 16 years of age"

The accompanying table shows all cases of reported carcinoma of the colon above the sigmoid in children under 15 years of age

*Carcinoma of Colon Above the Sigmoid in Children*

Author	Date	Sex	Age	Location
Maydl Ueber den Darmkrebs Viena,	1881	♀	12	Cecum
Wilhelm Brannmüller	1883	♂	13	Cecum
Maydl				
Burger Inaugural Dissertation Mu-	1893	♂	15	Ascending colon
nich				
Mayo-Robson Brit M J 1: 1963	1891	♀	14	Ascending colon
1891				
Nothnagel Encyclopaedia of Practi-				
cal Medicine Philadelphia W B				
Saunders Company	1898	♂	12	Cecum
Ruczyński Prag med Wchnchr				
20 351 1904	1901	♂	13	Splenic flexure
Muralt Arch f Verdauungskr 19:				
1913	1913	♂	13	Ascending colon
Walwright *	1912	♂	11	Splenic flexure
Chajutin <sup>10</sup>	1929	♀	14	Cecum
Walker Daly <sup>11</sup>	1923	♂	5	Cecum
Pfeiffer and Wood	1934	♂	7	Transverse colon

#### REPORT OF CASE

**History**—A boy, aged 7 years had a severe attack of abdominal pain in December 1933 The family physician was called He could find nothing wrong with the child and the pain had ceased This attack of pain lasted about half an hour, there was no vomiting but there was constipation From December



Fig 1—Section through carcinomatous area

until he came under our observation he had attacks of abdominal pain, but as nothing had been found they were not considered of any significance The boy was growing taller but he seemed to be losing weight

When he was brought to the office about 8 p m June 28, 1934, he complained chiefly of swelling of the right testicle His mother said that about three weeks previously he was playing ball with other boys and was hit in the abdomen with

the ball This caused severe pain, which subsided shortly Since that time he had had several attacks of severe abdominal pain lasting a few hours every three or four days There had been no attacks of vomiting That evening when he was getting ready for bed his mother noticed a swelling of the right testicle and then the boy was dressed and brought to the office The bowels had been regular

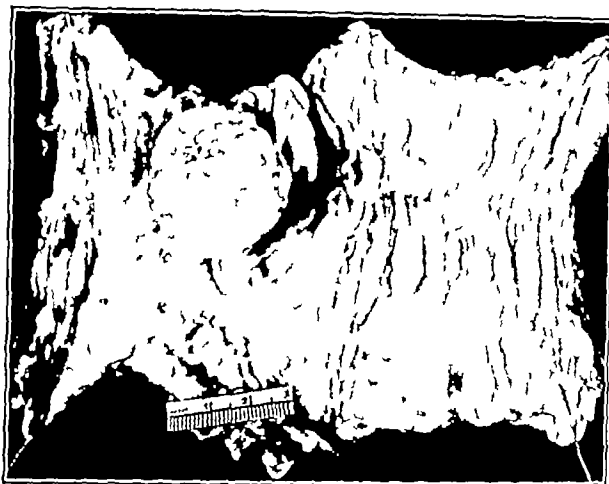


Fig 2—Gross specimen of polyp and infiltrated area immediately beneath

The temperature was 99.2 F, pulse 80 respiration rate 18 The boy was pale and had a rather apprehensive expression The physical examination of the head was negative The tongue was slightly coated and the tonsils were moderately enlarged and cryptic The neck showed no palpable glands The chest lungs and heart were normal On examination of the abdomen there was no distention and peristalsis was apparently normal There was no area of definite tenderness nor were there any palpable masses The right testicle was swollen to about twice its normal size There were no signs of hernia The extremities were normal

The past medical history showed chickenpox and measles The father and mother were living and well Three other children were living and well One brother aged 3 years, had died eight years before as a result of intestinal obstruction due to Meckel's diverticulum and peritonitis

The patient went to school and was in the proper grade for his age

The impression at that time was that the boy had (1) swelling of the right testicle secondary to the trauma of the accident with the ball (2) an incipient abdominal condition with surgical complications

The mother was advised to take the boy home, put him to bed, elevate the scrotum on a pillow and apply epsom salt as a wet dressing to the testicle She was to give the boy a light diet and if there should be any vomiting, to report immediately A dose of magnesia magma was prescribed to be given in the morning for good elimination

The next morning according to a telephone conversation with the mother the boy was comfortable and the swelling in the testicle had disappeared She was advised to give the boy an enema and keep him in bed another day There was a greenish black bowel movement as a result of the enema

That evening, June 29 about 7 p m, the patient was seen at home as he had vomited some food and he had severe abdominal pain The temperature was 99 F, pulse 76, respiration rate 18 On examination of the abdomen there was no distention no definite tenderness or palpable masses, and the peristalsis was present but not overactive The swelling of the testicle had disappeared It was apparent that the boy did not have appendicitis or a Meckel's diverticulum It was felt that the boy had an obscure surgical condition An ice cap was ordered to be applied to the abdomen and a placebo was prescribed

The next morning the boy was seen about 11 o'clock He had had occasional attacks of abdominal pain and had vomited

<sup>10</sup> Chajutin D M Ztschr f Krebsforsch 29 389 1929  
<sup>11</sup> Ewing James Personal communication to the authors



several times during the night. There had been four bowel movements since he had been seen the previous evening. These bowel movements were accompanied by considerable mucus but no blood. The temperature was 99.1 F, pulse 84, respiration rate 18. On examination of the abdomen a sausage-shaped mass about 4 inches long by 2 inches wide was palpated in the middle portion of the left side of the abdomen. This mass was slightly tender. The diagnosis was intussusception or a volvulus.

The boy was transferred to the Abington Memorial Hospital in the service of Dr. Pfeiffer who thought the mass might be fecal impaction and another enema was ordered. Good results were obtained and the mass could not be palpated. The boy felt better. The next morning another enema was given and it was effectual. The boy felt much better. The abdomen was soft and tympanitic with no masses and was not tender. The next day a barium sulphate enema was given. The patient was having severe abdominal cramps. The mass was again palpable but this time near the middle of the upper left quadrant. The temperature was 99.3 F.

A roentgen report of the barium sulphate enema showed that it flowed freely from the rectum in the descending colon about 2 inches above the level of the iliac crest. Here the flow was arrested rather abruptly and the colon above could not be made to fill either by change of posture or under the influence of pressure.

Dr. Pfeiffer recommended operation because of the obstruction.

**Operation.**—A right rectus displacement incision was made. A small amount of clear fluid was present in the abdominal cavity. The mass previously felt was then located and withdrawn through the incision. It was situated in the transverse colon just proximal to its midportion. The distal end of the colon was dilated but empty of fecal matter. The proximal end of the colon was moderately dilated and contained some feces. The lesion itself consisted of a slightly movable mass which was free within the colon but attached to its wall evidently a polyp. It was approximately 1½ inches (3.8 cm.) in diameter. At the base was an evident infiltration of the wall of the colon. The regional mesentery showed a number of small lymph nodes which however seemed translucent and not suggestive of metastasis. The lesion was favorably situated for the Mikulicz procedure and because of the obstruction present this operation was selected. The omentum was separated at a distance from the lesion, the mesentery containing the regional lymph nodes was tied and the entire infected loop with the adherent tissues was brought out through the upper angle of the incision. The wound was closed up to the bowel and the proximal and distal segments of the bowel were severed with cautery between clamps. The wound had previously been protected with petrolatum gauze. Gauze was placed around the bowel and the clamps were enclosed in the dressing. The appendix appeared to be normal. It was not removed. The boy died the next day of alkalosis and failing heart.

The pathologic examination revealed a fibroma showing superficial ulcerations, hemorrhages, extensive round cell infiltration and several fields of misplaced irregularly enlarged and distended intestinal glands which strongly suggest the presence of adenocarcinoma. The pathologist's diagnosis was fibroma with adenocarcinomatous changes.

#### CONCLUSIONS

In a case of recurring cramplike pain without any definite cause the question of intestinal obstruction due to cancer should be thought of at any age and proper studies carried out to check the diagnosis.

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**Distribution of Estrogenic Substance.**—A great deal of evidence has accumulated to show that oestrogenic substances are widely distributed throughout the animal, mineral and vegetable kingdom but their main source of supply is the urine of pregnant women (especially during the last half of gestation), the ovaries (follicular fluid) of all mammals and the placenta of women and animals.—Robinson, A. L. and Datnow, M. M. *The Differential Diagnosis of Pregnancy*, *Lancet* 11 (Jan 5) 1935.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, MD  
CHICAGO

**NOTE.**—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed the series will be published in book form.—En

#### THERAPY OF ARTERIAL THROMBOSIS OF THE EXTREMITIES

OUTLINE BY DR. G. W. SCULPHAM<sup>1</sup>

Even though the essential pathology as well as the etiology of arteriosclerosis obliterans of the extremities and of thrombo-angitis obliterans (affecting chiefly younger persons) are different, the treatment of these two conditions is similar. Applicable in both disorders are the same methods, especially those which attempt to improve the impaired circulation. Diabetic gangrene which is essentially arteriosclerotic gangrene in the patient with diabetes, though it may be also the result of infection, must be differentiated because of the additional systemic treatment required. Intoxications such as lead poisoning and ergotism may result in vascular disease. Polycythemia vera and a less well determined group of infectious diseases result in arterial involvement. These conditions must be treated from an etiologic point of view. Raynaud's disease (qv) falls into the group of functional vasospastic disorders that require separate discussion, the syndrome frequently occurs in scleroderma as well as an idiopathic vascular disease.

Even though involvement of the veins may occur in conjunction with arterial disease and the veins are characteristically involved in thrombo-angitis obliterans, the therapy of vein thrombosis differs from that of artery thrombosis sufficiently to require separate discussion (see therapy of thrombophlebitis).

#### DIAGNOSIS

The diagnosis of vascular disease should be made as early as possible, as the treatment revolves chiefly around the prevention of necrosis or its greatest possible limitation when it actually makes its appearance. Hence one should take seriously the cramplike pain on walking so severe that the patient must stop (intermittent claudication, intermittent lumping, dysbasia angiosclerotica) and due to angiospastic ischemia instead of the necessary reflex dilatation of the working muscle, rather than pass it off as due to flat feet or "rheumatism," as is so frequently done. Such pain may be the precursor of gangrene. It demands investigation of the condition of the blood vessels of the extremity. "Goldflam's test" consists of observing the color of the foot while the recumbent patient raises the extended leg repeatedly. A deathlike pallor of the foot or parts of it is diagnostic. This is likely to be followed by extreme redness when the limb is next permitted to

<sup>1</sup> After a lecture given before the Cook County Hospital Therapeutics Club Nov. 19, 1934.

hang down. Pulsations in the arteries in the affected foot may be absent or greatly diminished. They are looked for especially in the dorsalis pedis artery (first interosseous space) or in the posterior tibial artery (behind the internal malleolus). Even the pulse in the popliteal artery may be poor. Chronic coldness of the extremity or great redness of the extremity when the limb is dependent are also likely to be present. Trophic disorders, such as indolent fissures, ulcers or a withered condition of the skin or impaired nutrition of the nails, are highly suggestive. So is rest pain. Cyanosis and paresthesia or persistent edema announce the imminence of gangrene, the first evidence of which may be one or more hemorrhagic blisters on a hyperemic base. Toes or fingers are nearly always first affected. Appropriate treatment for prevention of trophic disorders and of gangrene is the all important aim of therapy in cases presenting difficulty in walking, vague pains, and coldness of the feet.

#### PROPHYLAXIS

1 *Causal*—As syphilis may be responsible for vascular disease, investigation for its possible presence and appropriate treatment, if syphilis (q v) is discovered, is of importance. The presence of diabetes mellitus requires special therapy (q v). When neither of these conditions is present, one must think of the possibility of focal infection (q v), precipitating or aggravating the conditions, and eliminate infectious foci when found. Neurosis (q v) may be responsible for instability of the vasomotor system. Tobacco is an important contributory factor to a vasospastic tendency. Hence its use must be completely interdicted, as though the patient were anaphylactic to it. As there is a possibility that ergotism might play a role in thrombo-angitis obliterans, most especially of the Russian Jew, it might be advisable to forbid the use of rye bread.

2 *Circulation*—The demands on the defective circulation should be diminished. That exertion is an undoubted predisposing factor is evidenced by the appearance of intermittent claudication and the fact that the condition appears especially in the extremity most used. Hence a threatened limb must be put at rest and in such a position as to favor optimal blood perfusion of the extremity. Standing or walking must be forbidden, and constricting influences, such as garters or tight shoes, carefully shunned.

Exposure to cold may be a determining cause of the onset of gangrene. Hence threatened extremities must be carefully protected against chilling. In extremely cold weather, a predisposed individual should stay indoors. A warm dry climate may prevent a catastrophe.

Prevention of traumatism from corns, callosities or ingrowing toe nails is just as necessary for these patients as for the patient with diabetes (See "foot hygiene" of diabetes mellitus). Cutting of corns or callosities must be performed with complete surgical asepsis, as the beginning of serious trouble is often traceable to infection during such manipulations. Even the smallest injury requires scrupulous asepsis. "The feet should be kept cleaner even than the face." They should be kept dry by means of a sterile dusting powder.

#### TREATMENT

Treatment must take care of cases presenting pain, which may be present with or without lesions, and cases presenting trophic disorders and gangrene.

The treatment should always be proportionate to the degree of disturbance, but, if a mistake is made, it should be in the direction of excessive care rather than apathy, to which many a limb has been sacrificed.

*Pain*—As long as the pain of intermittent claudication is relieved by the prophylactic therapy described, it may suffice. If it does not, or if pain in the toe or the calf becomes constant and independent of locomotion, it should be interpreted as the "trophoprodromal pain," an indication that trophic lesions and even gangrene are imminent and that thorough treatment is required to prevent them. This treatment consists of:

1 Rest in bed or, at least, complete prohibition of walking or standing for a month or two or even a great deal longer to permit development of collateral circulation and until the pain has completely disappeared. It should be followed by extremely gradual return to partial activity.

The position in which the affected limb should be kept when at rest is that which secures as nearly normal a color as possible. This in most of these cases is when the limb is somewhat depressed. When the degree of downward obliquity necessary to produce the optimal circulatory condition has been discovered, this should constitute for the patient his own "horizontal," which should be maintained by arrangement of the bed during periods of rest as well as during sleep. Whenever it appears that the veins stand out too prominently in a leg at this slightly oblique decline, it should be lifted up for a moment to favor return circulation.

#### PRESCRIPTION 1—Concentrated Ringer's Solution

R	Sodium chloride	270.00 Gm
	Dried calcium chloride	20.00 Gm
	Potassium chloride	10.00 Gm
	Water to make	1000.00 cc

Dilute twenty-five times, e. g. add 80 cc (approximately 5 table-spoonfuls) to 2000 cc (half a gallon) of water for daily consumption.

2 *Hydremic plethora* (a) Ringer's solution. The regular and continued daily drinking of from one-half to 1 gallon of Ringer's solution (prescription 1) is probably a rational attempt at improving the circulation in the threatened tissue, a result that could not be secured by mere water drinking, as salt solutions leave the system less readily than that much water. Appearance of even a trace of edema would, of course, set the limit to this treatment.

(b) *Hypertonic saline phlebotomy*. In cases presenting a high hemoglobin and red cell count, one might prefer the slow intravenous injection of from 2 to 5 per cent sodium chloride solution, employing 150 cc for the first injection and 300 cc for all subsequent injections, given three times a week. These injections produce a certain amount of blood destruction, which might possibly be beneficial, and they should be stopped if anemia is produced. Results may not be evident until the treatment has been maintained for several months.

3 *Hyperemia treatment*. When thermic measures are applied in these cases, it must be remembered that high or low temperatures are borne with impunity only by tissues well supplied with blood. Hence the more the circulation of the limb is interfered with, the nearer the neutral point must be the temperature of the application, especially is this true during periods of phlebitis, acute or recent thrombus formation, or when phlegmons are present. While the treatment should be relatively mild, this should be given for fifteen to

forty-five minutes four to six times daily alternating with the postural treatment, so as to maintain the best possible circulatory activity over the greater part of the day and evening

(a) A lamb's wool and flannel bandage covering of the entire affected limb is the mildest degree of this form of therapy and should be employed in all cases unless more active measures are used, and in intervals between these the limb should be guarded by special care against pressure sores at heel, calf or toes

(b) An electric light cradle is a more powerful measure when applied as nearly constantly as possible at the temperature most comfortable to the patient. This may range from 95 to 110 F. A thermostatically controlled cradle is highly desirable, for excessive heat increases the pain. In the absence of a thermostat the patient may be instructed to turn on or off as many lights as are required for the greatest comfort. The part affected by trophic disturbances or gangrene should be carefully protected against any considerable degree of heat

(c) Warm compresses are indicated if the skin is dry, extreme heat being scrupulously avoided

(d) Pyretotherapy (qv) may be used. The therapeutic induction of fever is a valuable form of treatment and is employed particularly in thrombo-angitis obliterans. The most common method is the intravenous injection of foreign protein (typhoid vaccine in gradually increasing doses). During the period of chill there is a generalized vasoconstriction, which can be controlled by the administration of alcohol. Thrombosis has been reported occasionally, probably a result of initial vasoconstriction. Physical measures for the induction of fever are effective and with them the initial vasoconstriction does not occur. The optimal temperature elevation for vasodilatation ranges between 100 and 103 F. Pyretotherapy is a rather severe procedure unsuitable as a general measure in elderly persons or those worn by long continued pain, sleepless nights, infection and toxic absorption from extensive gangrene. It is contraindicated in arteriosclerosis obliterans as well as in diabetes, particularly since fever lessens dextrose utilization

(e) Medicinal vasodilators, such as nitrites, are too transient in their effects to be of any value. Theobromine Sodium Acetate in 0.5 Gm capsules, of which two may be given three times daily after meals, is of value in angiospastic cases, both thrombo-angitis obliterans and arteriosclerosis, but is useless in Raynaud's disease. Iodide might be given in arteriosclerotic cases (qv) for whatever value it may possibly have in this condition

(f) Periarterial sympathectomy of the large (femoral) artery may possibly be of value in cases in which there is a markedly vasospastic element, as in Raynaud's disease. The more diseased the blood vessels, the less is to be expected from this operation

4 Enhancing development of collateral circulation. Most of these methods are contraindicated in the presence of recent extensive thrombosis or gangrene, by the presence of phlegmons, or if they produce or increase pain

(a) Buerger's postural treatment is intended to induce hyperemia. It consists of three periods: (1) elevation for the minimal time to secure blanching of the

foot (from thirty seconds to three minutes), (2) the foot hanging down for one or two minutes beyond the time required for maximal redness, unless pain is produced, when the time must be shortened, (3) the horizontal rest position for three minutes or longer, as required by the patient, so that six or seven repetitions of these cycles, which constitute a "seance," should not be too fatiguing. These seances, which last about an hour, should be alternated with some form of heat treatment for a half to three quarters of an hour and continued well into the evening, one hour's rest being allowed after breakfast and supper and two hours for an afternoon nap

(b) Contrast baths may be applied up to the knee or the elbow, possibly twice a day, starting with immersion in hot water (not above 110 F) for five minutes, following this by a dash of or very brief immersion in cold water (not below 50 F), in alternation several times. The seance is finished by brisk drying after a hot immersion, to insure a good circulatory reaction

(c) Intermittent compression of the main artery of the limb for one minute and releasing for five minutes, to secure reactionary redness, may be employed. These alternations are maintained for an hour and may be carried out manually or by means of the blood pressure cuff with a special cushion over the femoral or brachial artery. This may not be a practical procedure, as it often results in increased pain

(d) Short alternations of positive and negative pressure by means of automatic apparatus advocated and devised by Landis and Gibbon and by Hermann and Reid (passive vascular exercise) is theoretically correct. It was designed as a method of treatment for those

#### PRESCRIPTION 2—Compound Analgesic Capsules

B Extract of hyoscyamus	0.10 Gm
Phenobarbital	0.50 Gm
Acetanilid	1.00 Gm
Acetylsalicylic acid	3.00 Gm

Mix and divide into ten capsules

Label: One every four hours as required for pain

more severe forms of vascular disease in which the simpler measures were not successful. It is to be hoped that expectations will be realized, but its actual value will be established only by further observations

5 Analgesia. Pain not sufficiently relieved by the measures described indicates the use of analgesics. Acetylsalicylic acid (a 0.3 Gm tablet or capsule every two to four hours) is perhaps the least objectionable, unless it produces sweating. If it does, it might be combined with Extract of Hyoscyamus (0.01 Gm per capsule). If it does not suffice to relieve the pain, Acetanilid (0.10 Gm) might be added to it, and, especially at bed time, Phenobarbital (from 0.05 to 0.10 Gm). When all four ingredients are indicated, they may be prescribed in one capsule (prescription 2). Opiates should be avoided if at all possible, but the patient should not be condemned to sleepless nights when a hypodermic injection of Morphine Sulphate (0.015 Gm) can secure sleep. He should not be entrusted with its self administration, however, for fear of engendering the habit. The lavish employment of Codeine Phosphate (0.06 Gm) is hardly justifiable in charity hospitals, because it is inferior to morphine as an analgesic and much more expensive, and here the patient's medicine is under complete control. In private practice it might be preferred because it is less habit producing

The burning pain of trophic ulcers might be relieved by an ointment containing 5 per cent of Procaine and 10 per cent of Ethyl Aminobenzoate (prescription 3). It should be remembered, however, that analgesics discourage repair. Hence their use should be discontinued as soon as possible.

#### PRESCRIPTION 3—Analgesic Ointment

R Procaine hydrochloride	0.15 Gm
Water	enough for solution
Ethyl aminobenzoate	0.30 Gm
Hydrous wool fat	10.00 Gm

Label: Apply directly to raw surface and cover with gauze.

**Trophic Disorders and Gangrene**—Conservatism pays. Early surgical amputation often results in later amputation higher up. Every effort, along the lines previously described, should be made to improve the blood supply of the limb to prevent extension of the process, and to permit time for the development of collateral circulation. The following additional local therapy is required:

(a) Small cutaneous lesions such as fissures or abrasions, require strict surgical cleanliness and are best treated dry by means of dusting with Thymol Iodide. To favor the healing of a fissure surrounded by callosities it should be converted into a shallow wound by causing exfoliation of the thickened epidermis by means of Compound Salicylic Collodion applied twice daily—not including the fissure—and soaking the feet in hot water.

(b) Infection, no matter how slight, as evidenced by redness, pain, swelling or exudation, calls for moist treatment. Warm (95 to 98 F) baths of approximately physiologic solution of sodium chloride should be prescribed for half an hour every other hour, with moist, even wet compresses of the salt solution in the intervals. If there is an infection about or under a toe nail, the latter must be at once cut in such a way as to give free escape to the exudate.

(c) Ulcer, including "perforating ulcer" is best treated by the more or less constant bath of slightly hypertonic (2 per cent) salt solution at 95 to 105 F until infection is controlled. Then baths of an hour's duration suffice, followed by the postural treatment and preceded by the dry thermal measures. For patients who cannot tolerate warm baths or the hanging down posture, an irrigation apparatus that bathes the ulcer in the patient's own "horizontal" posture may secure the desired result.

(d) For gangrene without infection, dry treatment, as by air exposure and boric acid powder under a wire cage dressing, is indicated in addition to the previously prescribed postural and heat therapy. This should be continued in dry gangrene of one or more toes, with a tendency to demarcation, until spontaneous amputation occurs.

Amputation above the knee is often, but not always, demanded when the gangrene is progressive, implicates several toes, including the big toe, creeps up the dorsum of the foot, and ascends beyond the metatarsophalangeal joints.

(e) For gangrene with infection continuous baths are indicated by the appearance of tenderness proximal to the gangrenous digit, with redness or cyanosis of the overlying skin, and even a small amount of pus exuding from this area, for the presence of these phenomena converts the dry gangrene for purposes of

therapy into the moist type. Foci of infection must be promptly opened by as many incisions as required, which can often be done without the necessity of anesthesia, as the part may be quite devoid of sensation. While the accumulation of pus must be prevented at all costs, the postural and heat treatments must now be discontinued because they may favor the extension of the infection.

If, in spite of these measures, the phlegmon extends and symptoms of sepsis appear, amputation above the knee, in the lower or middle third of the thigh, should be performed, and this as early as possible, as soon as it becomes evident that nothing is to be expected from temporizing measures. Delay merely adds to the danger. The operation may be performed under nitrous oxide anesthesia by the circular method, the femur being cut high enough to secure liberal covering of the stump in spite of retraction and a certain amount of sloughing, which must be expected in these cases. Excepting for a few catgut sutures to bring the muscles together, the wound is left fairly open, sterile adhesive plaster strips being used to approximate loosely the edges of the flaps.

## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE GROWTH HORMONE OF THE ANTERIOR PITUITARY

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The earliest description of a hypophyseal disorder, that of acromegaly by Pierre Marie, and its identification with pituitary overactivity by Minkowski, was followed by reference of the reverse condition—dwarfism—to underactivity of the hypophysis by Paltauf. These deductions based essentially on a hypertrophied or diminished pituitary gland were, of course, far from demonstrating the existence in the gland of a specific ferment-like substance needed in some fundamental way before the process of growth could take place in any of the higher animals. The study of the effects of the gland substance itself could alone bring such a demonstration.

#### EXPERIMENTAL PRODUCTION OF DWARFISM

An immense step forward was taken by the experimental production of dwarfism when the gland was removed from young animals.<sup>1</sup> The classic experiments of Aschner, which were done with puppies with littermate controls, showed that an immediate arrest of growth and development was occasioned by the operation. Ablations in the rat first done by Smith followed by Richter and Wislocki,<sup>2</sup> Pencharz and

<sup>1</sup> Aschner B. Demonstration von Hunden nach Exstirpation der Hypophyse. *Wien klin. Wchnschr.* 22:1730, 1909. Ueber die Funktion der Hypophyse. *Arch. f. d. ges. Physiol.* 146:1, 1912. Dandy W. E. and Reichert F. L. Studies on Experimental Hypophysectomy. *Bull. Johns Hopkins Hosp.* 37:1 (July) 1925. Smith P. E. Ablation and Transplantation of the Hypophysis in the Rat. *Anat. Rec.* 32:221, 1926. Disabilities Caused by Hypophysectomy and Their Repair. *J. A. M. A.* 88:158 (Jan. 15) 1927. Hypophysectomy and a Replacement Therapy in the Rat. *Am. J. Anat.* 46:205 (March) 1930.

<sup>2</sup> Richter C. P. and Wislocki C. B. Anatomical and Behavioral Changes Produced in the Rat by Complete and Partial Extirpation of the Pituitary Gland. *Am. J. Physiol.* 96:481 (Nov.) 1930.

Long,<sup>3</sup> Koyama,<sup>4</sup> Thompson,<sup>5</sup> Collip, Selye and Thomson,<sup>6</sup> and a host of others demonstrated an immediate cessation of the daily gains in weight which characterize young animals, in fact, if the hypophysectomy is done on animals approximately 4 weeks of age and weighing from 70 to 100 Gm, the rat is incapable of increasing its body substance thenceforth, not a gram of gain in weight being possible under the best nutritive regimen and hygienic care.<sup>7</sup> Dandy and Reichert have shown incapacity on the part of completely hypophysectomized puppies to increase the shaft length of any long bone, a fact readily ascertained by measurements of the diaphyses in roentgenograms. Should even slight and slow lengthening be seen proof is thereby given of partial rather than complete ablation of the anterior lobe.

#### EXPERIMENTALLY INDUCED GROWTH AND THE PRODUCTION OF GIGANTISM

It was conceivable of course, that the dwarfism following hypophysectomy was a secondary effect, i. e., that it was due to some obscure metabolic upset consequent on loss of the gland rather than the direct outcome of the elimination of a specifically needed substance that could be justifiably called the growth hormone. It was perhaps fortunate then, that experimental evidence of the existence of the growth hormone had been secured in another way—by the production of gigantism in normal animals, a phenomenon that would have been difficult to produce with equal ease in forms other than the rat. In 1921 Evans and Long<sup>8</sup> reported the experimental production of gigantism by long continued daily conveyance to rats of extracts of the anterior pituitaries of bees. They began with daily intraperitoneal injections into a large group of animals 3 weeks of age and just weaned. An equally large group of uninjected animals that were littermate brothers and sisters of the treated ones were observed as controls throughout the experiment. In spite of the manifold disadvantages necessarily attending the treatment (introduction of foreign protein, bacteria and the like), it was evident in a few weeks that the treated animals exceeded their controls in body weight. The disparity between the treated and the untreated animals became more marked in the later epochs of life. This was due, as the growth curves showed, to the steady continuance of growth on the part of the treated animals, whereas the untreated ones showed their customary slowing or "plateau" of growth characteristic of adulthood. In growth hormone tests, advantage is

taken of the fact that the difference in treated and untreated females is greatest when growth hormone is suddenly administered to them at any time after the plateau period has been reached.

Delay in recognition of the hormone was partly due to failure to conceive that it might be incapable of action save through parenteral routes. Thus many of the early experimenters fed the substance, but, early in their work, Evans and Long had accomplished adequate test of the futility of oral dosage by massive treatment in this way. In several instances they contrived to give the sole food supply in the form of fresh anterior lobe substance, which is an excellent nutriment and is relished by the rat but not the slightest traces of growth acceleration could be discovered, there had, nevertheless, been introduced daily into the body prodigiously more of the hormone than that required to act by needle administration. In work on the growth hormone other experimenters have selected unreactive animal forms or, if they used responsive animals and administered the extracts parenterally, they gave the preparation but once or twice a week, only to be met with failure.

The gigantism or accelerated growth that may thus be induced by anterior pituitary extracts in the rat is an extreme one. It is as if one could produce human beings of 10 or 12 feet (305 or 366 cm), whereas the Basel pathologist Rösle<sup>9</sup> has shown that authentic instances of human giants of 9 feet (274 cm) have never been established. Female rats will attain a weight of over 700 Gm, their littermate sisters being under 300 Gm, and males will weigh more than 900 Gm with their controls barely reaching 450 Gm. Roentgenograms or preparations of the osseous system of the giants show that dimensions of approximately one and one-half times the normal may be attained. The giants are not fat but are symmetrically proportioned, larger animals, nor does their chemical<sup>10</sup> makeup deviate markedly from normal.

When the maximum response is reached by dosage at any one level of a particular preparation, multiplying the dose by two or by ten times shows not the slightest effect in increased growth. The limit of the body's capacity to grow has been reached and hence the limit of its capacity to utilize the hormone. At no time has a rate of growth in excess of the most rapid rate known for normal postnatal life been evoked by the growth hormone, nor does a rapid rate continue indefinitely under medication. In from fourteen to eighteen months slowing is evident and one can become convinced that forces other than epiphyseal closure operate in some unknown way to limit growth.

An abrupt fall in weight occurs after cessation of the treatment of animals with the hormone. This fortunately does not affect their skeletons. We have made elaborate measurements of the roentgenograms of such animals showing that they lose not a whit of any skeletal dimension once attained. It would therefore appear that one need never fear that the cessation of growth therapy could be followed by loss of skeletal dimensions.

<sup>9</sup> Rösle R. Wachstum und Altern. *Ergebn d. allg. Path.* 18: 1917.

<sup>10</sup> Wadelin, F. Versuche über die Einwirkung des Wachstumshormons auf die Maus. *Biochem. Ztschr.* 265: 188, 1932. Versuche mit dem Wachstumshormon. *Deutsche med. Wchnschr.* 59: 327 (March 3) 1933. Bierring E. and Nielsen E. The Composition of the Tissues of Albino Rats Treated with Alkaline Anterior Pituitary Extracts. *Biochem. J.* 26: 1015, 1932. Lee, M. O. and Schaffer N. K. Anterior Pituitary Growth Hormone and the Composition of Growth. *J. Nutrition* 7: 337 (March 10) 1934.

<sup>3</sup> Pencharz, R. I. and Long J. A. The Effect of Hypophysectomy on Gestation in the Rat. *Science* 74: 206, 1931.

<sup>4</sup> Koyama R. Experimentelle Untersuchungen über die Wirkung des Vorderlappenextraktes. *Jap. J. M. Sc. Tr.* 6: 41, 1931.

<sup>5</sup> Thompson K. W. A Technique for Hypophysectomy of the Rat. *Endocrinology* 10: 257 (May/June) 1932.

<sup>6</sup> Collip J. B., Selye Hans and Thomson D. L. Beiträge zur Kenntnis der Physiologie des Gehirnanhangs. *Virchows Arch. f. path. Anat.* 290: 23, 1933.

<sup>7</sup> Collip, Selye and Thomson (Gonad Stimulating Hormones in Hypophysectomized Animals. *Nature* 131: 56 [Jan. 14] 1933) have pointed out an apparent capacity for temporary and limited growth on the part of very young animals after hypophysectomy. They report that if the operation is performed in rats 21 days in age and weighing less than 35 Gm, a gain of some 20 to 30 Gm may occur in the period absence of anterior lobe tissue. Since the classic experiments of Camus and Roussy (confirmed by Bailey and Bremer, Smith and others) it has been known that injury to the hypothalamus produces adiposity and it hardly seems necessary to say that if such an injury is inadvertently caused in the course of a hypophysectomy gains in post operative weight due to the adiposity will ensue.

<sup>8</sup> Evans H. M. and Long J. A. The Effect of the Anterior Lobe of the Hypophysis Administered Intraperitoneally on Growth, Maturity and the Estrous Cycles of the Rat. *Anat. Rec.* 21: 61, 1921. Characteristic Effects on Growth, Estrus and Ovulation Induced by the Intraperitoneal Administration of Fresh Anterior Hypophyseal Substance. *ibid.* 23: 19, 1922. Evans H. M. The Function of the Anterior Hypophysis. *Harvey Lectures* 19: 212, 1924.

unusual growth produced by the growth hormone is not referable to so simple an explanation. It remained for Lee and Schaffer,<sup>30</sup> by the ingenious use of the paired feeding method of Mitchell, to show that normal rats under the influence of growth hormone will increase their body substance more than controls given the same food.

The exact mechanism of action of the growth hormone on metabolism remains entirely unknown, but a significant beginning has been made in the analysis of its effects. Since increased tissue building takes place when it is administered, it was perhaps natural to seek evidence of the retention of nitrogen, a fact first demonstrated in the studies of Gaebler<sup>30</sup> and confirmed by Lee and Schaffer. The latter observers express their results by stating that one may speak of the nitrogenous and fat-ash-free tissues as the constituents specifically influenced by the hormone. Gaebler showed that a single injection of a commercial preparation of the growth hormone (antuitrin G) in normal dogs caused an immediate and marked fall in urinary nitrogen (due to decreased urea excretion) which persisted for several days. The decreased nitrogen output would appear to be due without doubt to nitrogen storage in the tissues, for it cannot be attributed to the failure in the absorption of nitrogen (the feces are unchanged in their nitrogen content) or to renal damage (the blood non-protein nitrogen actually falls, as was first shown by Teel and Watkins<sup>31</sup>). Teel and Cushing<sup>31</sup> pointed out that another immediate effect of these growth hormone preparations is the marked increase in water intake and output, the diuresis always follows polydipsia which is primary. Gaebler also observed a great increase in heat production with increased respiratory rate and ventilation rate. Rises of as much as 1.4 degrees in rectal temperature without infection or malaise were observed. The increased heat production was due to increased oxidation of fat, evidenced in a lowering of the respiratory quotient. The large calorogenic response occurs as rapidly as after intravenously administered thyroxine but is not attributable to contamination of the growth extracts with the thyrotropic factor, for this response is also found after thyroparathyroidectomy.

The period of nitrogen storage is often clearly followed by a period of nitrogen loss, so that Gaebler feels that the preliminary effect of the hormone is to increase the "reserve" or "deposit" protein rather than to build this immediately into permanent structures. The striking effect of the hormone on protein catabolism is greatest when this is already high, as it is in adult dogs on a high protein diet with a barely positive or negative nitrogen balance.

The study of Lee and Schaffer showed that treated animals do not possess the characteristic age changes that normal rats exhibit (decreases in the proportion of water, nitrogen, fat-free dry tissue and ash, and increases in the percentage of fat) but retained with considerable exactitude their initial composition in certain chemical constituents. This propulsion of growth in the rat's adult life is therefore associated with the retention of certain juvenile chemical charac-

teristics in the tissue produced, and the question naturally arises as to whether the "youthfulness" of this tissue indicates "youthfulness" of the animal with regard to expectance of a correspondingly longer life span. Should this be the case, there would be at hand a tool for the alteration of what has heretofore been regarded as the most fundamental characteristic of living substance, i. e. its time relationship. It is unfortunate that this has not as yet been tested by studies with statistically valid numbers of animals under the constant influence of the growth hormone as contrasted with untreated controls.<sup>32</sup> As a matter of fact, in spite of the results of the foregoing acute experiments of Lee and Schaffer, workers who have conveyed the growth hormone chronically to animals have noted rather the reverse effect, i. e., a premature senility.

Other studies, such as those of the physiologic performance (for example, fatigability) of such animals have not yet been made.<sup>33</sup> Possible changes in the mental acuity of animals forced to continue maximal growth have not as yet been investigated.

#### EXTRACTION AND CONCENTRATION OF THE GROWTH HORMONE

The growth hormone is probably itself a protein or so closely associated with proteins as to make its separation from protein extremely difficult. The purest forms of it heretofore available when analyzed continue to contain about 16 per cent of nitrogen and to give most of the classic qualitative tests for protein. The physical characteristics of these solutions (e. g., incapacity to pass certain membranes) indicate molecular dimensions of the proteins. Furthermore like some proteins, the hormone is inactivated by certain organic solvents. The hormone is a labile substance in every way, being readily destroyed by strong chemical treatment or high temperature, indeed even by moderate temperatures for any appreciable period of time. For all these reasons, attempted concentration or purification procedures have been attended with many difficulties.

For extracting the hormone from anterior lobe tissue, all workers continue to employ dilute aqueous alkali, the method originally introduced by Evans and Simpson (dilute sodium hydroxide baryta water, dilute ammonium hydroxide, and the like). These extracts are contaminated with the other physiologically active as well as inert materials that are present in this portion of the gland. The hormone, thus readily soluble in dilute alkali water along with many contaminants, is insoluble in the typical organic fat solvents (ether, petroleum ether, benzene, chloroform) but can be shown to be soluble in some of the lower fatty acids (formic and glacial acetic acids).

The problem of preliminary purification resolves itself into separation of the hormone from the greater part of the contaminating protein with which it is associated. Complete protein precipitants throw down the hormone completely, but it is impossible as yet to know whether under these circumstances one is justified in speaking of precipitation of the hormone or only of adsorption of the hormone on the precipitated protein.

30 Gaebler O. H. Some Effects of Anterior Pituitary Extracts on Nitrogen Metabolism, Water Balance and Energy Metabolism. *J. Exper. Med.* 57: 349 (March) 1933. Further Studies of Anterior Pituitary Extracts. *J. Biol. Chem.* 100: xli, xlvii (May) 1933. Effects of Thyroparathyroidectomy and Carbohydrate Intake on the Action of Anterior Pituitary Extracts. *Am. J. Physiol.* 110: 584 (Jan.) 1935.

31 Teel H. M. and Cushing Harvey. Studies in the Physiological Properties of the Growth Promoting Extracts of the Anterior Hypophysis. *Endocrinology* 14: 157 (May-June) 1930.

32 In spite of care the high incidence of infection and death has interfered with such past effort as has been made to test the increased youthfulness of such animals.

33 The statement of Lee and Schaffer of the increased propensity of such animals to undertake muscular effort would appear to be erroneous and attributable to the condition of hunger created by their paired feeding method of work. J. Yoshioka has shown that when food is supplied ad libitum animals under the influence of the growth hormone are actually less disposed to undertake voluntary movement.



The sole advantage of employing these complete protein precipitants would reside, perhaps, in the fact that by the dehydration of such a precipitate the hormone can be obtained as a relatively stable powder. Although this is naturally somewhat more concentrated than desiccated whole anterior lobe substance, a significant gain in purification could not be made in this way. On the other hand, by partial precipitation of the proteins the hormone may be made either to accompany the protein moiety which is precipitated or to remain to a sufficient extent in the supernatant fluid to be recovered from the latter. Precipitation of the hormone with the globulin fraction occurs when it is "salted out" with this fraction by the use of ammonium sulphate or more particularly sodium sulphate. This method has been employed by Tecl<sup>34</sup> VanDyke and Wallen-Lawrence<sup>35</sup> and Bugbee, Simond and Grimes.<sup>36</sup> It separates the hormone not only from much albuminous matter but also from other contaminants, such as the blood pigment, but the "salted out" hormone (e. g. the "phylone" of VanDyke and Wallen-Lawrence) continues to be contaminated not only with much inert protein but also with recognizable amounts of gonadotropic and thyrotropic hormones and traces of the lactogenic substance.

On the other hand the majority of the proteins can be precipitated iso-electrically and although growth hormone is carried down with the precipitate, much of it remains in the supernatant and, with re-solution and repeated iso-electric precipitation the hormone is no longer present in the third or fourth isoprecipitate.<sup>37</sup> The growth hormone may thus be made to leak continuously into such supernatants, from which it should be possible to recover it quantitatively. It can be recovered in a wide variety of ways, best, Collip believes, by selective adsorption with tricalcium phosphate in ammoniacal solution. In this way a preparation called by him the "Q-extract" can be made free from gonadotropic thyrotropic and lactogenic hormones, although traces of the pituitary substance affecting the adrenal cortex are admitted to be present. This preparation is said to be sufficiently concentrated in growth hormone for maximal growth effects to be obtained in test animals by the daily administration of as little as 1 mg. of dry substance. These and preparations made by other investigators that are almost equally concentrated, are undoubtedly as yet extremely impure products, and only further extended and laborious study will lead to the crystallization of the substance properly designated the anterior pituitary growth hormone.

This substance, which may be of practical importance through its crystallization and use in cases of pronounced human undergrowth in childhood, is already of sufficient theoretical importance. Without it no higher animal is capable of increasing its body substance, without it one of the basic phenomena shown by all living things—growth—cannot take place. The detection of the exact chemical nature of the hormone may not be immediately enlightening as to the nature of growth of which so little is known. witness the recent

brilliant elucidations of the chemical structure of the vitamins, which have not thereby explained their physiologic roles. But in the former case, as in the latter, no one will gainsay that significant progress has been won in the power of mankind to exercise over the living organism an ever increasing control.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE. HOWARD A. CARTER, Secretary

### SHORT WAVE DIATHERMY

#### PRELIMINARY REPORT

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Within the past year there has been an enormous sale to the medical profession of a new type of high frequency apparatus. This device has been advertised as a distinct improvement over the old type "long wave" diathermy machine. Used at first for producing general fevers, the appliance is now being sold for the production of local heating effects on the human body.

The method of treatment is known variously as short wave therapy, ultra-short wave therapy, radiotherapy, radiathermy, short wave diathermy, and so on.

The apparatus is roughly somewhat similar to the old type diathermy machine, with the exception that the electric current frequency in cycles is very much higher up to 300 times the frequency employed for diathermy.

The appliance resembles in construction the short radio wave transmitter used in police and amateur radio broadcasting, with the exception that the electrical energy instead of being dispersed from antennas, is confined between condenser plates.

Whereas the current frequency of the ordinary diathermy machine is about one million cycles per second, the current frequencies of these machines vary from ten million cycles per second (30 meter wavelength) to one hundred million cycles per second (3 meter wavelength). If the device produces radio waves of wavelengths between 12 and 30 meters, it is spoken of as a short wave machine, and if it generates wavelengths of from 3 to 12 meters, it is called an ultra-short wave apparatus.

With the ordinary diathermy machine, it is necessary to place metallic electrodes in contact with the skin or mucous membranes. With the short wave machine it is not necessary to make skin contact, insulated metallic condenser plates being placed a half inch or more from the body surface. With ordinary diathermy, heating effects are produced by conduction, whereas, with short wave diathermy, heating is due to dielectric losses in a condenser field.

The medical profession has been extensively circularized with hyperenthusiastic literature extolling the advantages of this new form of therapy. Extravagant therapeutic claims have been put forward, based largely on the writings of Edwin Schleich, a German physician whose assertions have been not only unconfirmed in this country but also partially refuted on the continent. For example, with a co-worker, Haase, he reported a selective lethal action on various micro-organisms *in vitro* with specific wavelengths of short

<sup>34</sup> Tecl H. M. A Method of Purification of Extracts Containing the Growth Promoting Principle of the Anterior Hypophysis. *Science* 60: 405, 1929.

<sup>35</sup> VanDyke H. B. and Wallen-Lawrence Z. On the Growth Promoting Hormone of the Pituitary Body. *J. Pharmacol. & Exper. Therap.* 40: 413 (Dec.) 1930.

<sup>36</sup> Bugbee E. P., Simond A. E. and Grimes H. M. Anterior Pituitary Hormones. *Endocrinology* 15: 41 (Jan. Feb.) 1931.

<sup>37</sup> Evans H. M., Meyer K. and Simpson Miriam E. The Growth and Gonad Stimulating Hormones of the Anterior Hypophysis. *Mem. Univ. Calif.* 11: 18, 1933.



radio waves,<sup>1</sup> whereas Hasche and Leunig<sup>2</sup> exposed cultures of staphylococci and streptococci in distilled water, saline solution, bouillon, milk, and on agar-plates to ultra-short waves of different frequencies and intensities for periods of time up to eight and a half hours, and they observed no inhibitory or destructive effect on the bacteria. They concluded that ultra-short waves exhibit no selective temperature or electromagnetic effects on bacteria *in vitro*.

In addition, Schliephake has made such extraordinary claims as the following: "I have treated many hundreds of furuncles, even large carbuncles, on every possible part of the body, as well as hidradenitis, panaritium, tenosynovitis, etc., and I am able to state that ultra-short wave therapy has not failed in a single case. The average time of cure was four and one half days and no patient required an incision or other operation."<sup>3</sup> Again he writes: "So far I have treated more than twenty-five patients with pulmonary abscesses, suppurating pneumonia, large pleural empyemas. They were all cured without operation, only in the case of one patient was a large puncture made."<sup>3</sup> Even the most credulous physician, who is willing to grant that there is much therapeutic value in short wave therapy, can hardly credit such sweeping conclusions until they are more fully confirmed by other workers. Yet the foregoing statements, and many similar ones are freely quoted in the advertising literature now broadcast to physicians.

To the average physician who has had little time to study it, the short wave diathermy machine presents certain characteristics that are distinctly appealing:

1 He is told that the device is extremely simple to operate. For example, one manufacturer writes that it is "possible for a novice to be properly instructed in a few minutes."

2 He is told that it is no longer necessary for him to fasten metal plates carefully and smoothly to the skin, as with the old diathermy machines, that "the application simply comprises embracing the area to be treated between two pad electrodes in any convenient manner."

3 He is shown pictures that illustrate two rubber pads lying loosely outside the patient's clothing as the treatment is given, and he is told that "the placement of electrodes over the clothing without the necessity of bandages, sandbags, etc., saves considerable time in application and does not require disrobing the patient."

4 He is even advised blandly by one manufacturer that, "since no electrical contact is made, 'arcing' and burns are impossible."

5 He is informed that the time of treatment need be only about one-third that of a diathermy treatment.

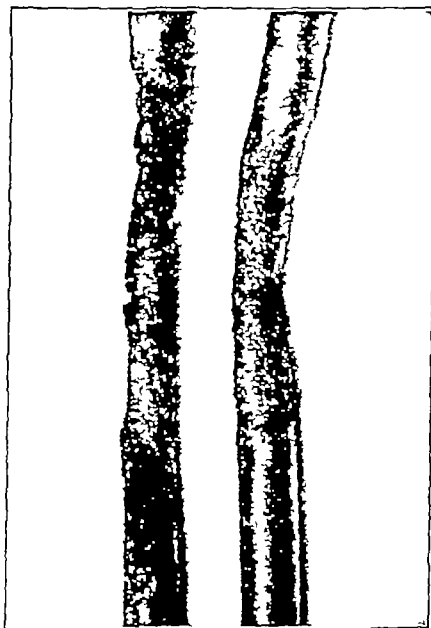
6 He is led to believe that there is a uniform deep heating of the tissues between the two electrodes.

As a matter of fact

1 The apparatus is not entirely safe or simple to operate, and it is, I believe, the consensus among experts in physical therapy that these machines need further perfection and more clinical study. The reputable manufacturers view with alarm the fact that they are forced to rush hastily to the making of these machines in order to protect themselves in a highly com-

petitive field. One engineer, representing a high frequency concern, speaking to a group of physicians, recently made the statement: "We, as manufacturers, have a great deal to learn as regards the construction of short wave equipment."

Two concrete examples of imperfections in manufacture have been noted in hospital clinics. In one instance a short wave machine was being used for treatment, when the rubber insulation on one of the treatment electrodes suddenly burst into flame and slightly burned the patient before the technician could remove it. In another case an ultra-short wave machine was being used to treat a patient when the electrode cables came in contact with each other, after several minutes the cables suddenly flamed at the point of contact (as shown in the illustration), scorching the front of the apparatus and burning the technician's hands when she pulled the cables loose but, fortunately, doing no other damage. It would seem that, even with fairly heavy insulation of cables, a concentration of heat may occur



Apparently well insulated new electrode cables of ultra-short wave machine after they had burst into flame when they simply came in contact with each other during a treatment.

when they touch each other sufficient to cause the rubber covering to burst into flame. One physician reports having a rubber cable burn during a short wave treatment when it came into contact with the edge of a metallic bed.

There is still no agreement as to which wavelength is most satisfactory for therapeutic purposes. At present there is no accurate method of measuring dosage with these devices. Kovacs<sup>4</sup> has stated that "it is evident that short wave local therapy in its present stage offers only a crude mode of regulation and control of dosage."

2 The application of electrodes is not a simple matter. It is stated by the experts in this field that it is necessary to space them extremely accurately at measured distances from the skin surface in order to obtain proper localization of heat. No satisfactory official electrodes have yet been devised. There is

<sup>1</sup> Haase, W. and Schliephake, E. Versuche über den Einfluss kurzer elektrischer Wellen auf das Wachstum von Bakterien. Strahlen therapie 40:133 (March) 1931.

<sup>2</sup> Hasche, E. and Leunig, H. Dosage of Ultrashort Waves. Influence of Intensity and Frequency on Bacteria in Vitro. Strahlen therapie 50:351 (June) 1934.

<sup>3</sup> Schliephake, E. Kurzwellentherapie. Jena: Gustav Fischer, 1932.

<sup>4</sup> Kovacs, Richard. Electrotherapy and the Elements of Light Therapy. ed. 2. Philadelphia: Lea & Febiger, 1935.

great difficulty in avoiding concentration of heat from the cables leading to the electrodes, because the field that is produced by the cables is nearly as powerful as the fields of the electrodes themselves

3 It is most dangerous to attempt to give these treatments through clothing. One reputable manufacturer advises "If you use the electrodes over clothing you are bound to produce perspiration, and will and must get burns." Kovacs<sup>4</sup> writes "The application of electrodes over the clothed body makes a close observation of incipient burns of the skin impossible, it also breeds carelessness in neglecting the elementary rule of close inspection of the parts before and after every treatment."

4 In the condenser field between the electrodes, hot spots occur constantly in areas of moisture. In more than a year's observation of short and ultra-short wave machines, I have observed that, whenever the part becomes heated and perspiration forms there is annoying burning. While this burning is relatively infrequently followed by anything but the mildest of first degree burns of the skin still, the phenomenon is one of the greatest drawbacks to short wave diathermy. Even when every effort is made to keep the skin dry by means of dry towels or dry felt next to the skin, burning sensations are far more common than is the case with ordinary diathermy. In addition, deep tissue burns of severe nature have been reported by several workers. Schmidt<sup>5</sup> reports a severe coagulation of the tissue beneath the skin in one case, with little change in the skin itself. Another investigator reports that, while testing a short wave machine on himself, he received a severe 1½ inch circular burn of the skin "without having felt it at the time of its production." Coulter<sup>6</sup> has reported the observation of skin burns from short wave therapy "entirely comparable in their appearance to those produced by ordinary diathermy." Not only, therefore, is the statement that "burns are impossible" entirely fallacious, but also one may go further and say that, in the absence of actual burns burning sensations are more common than with ordinary diathermy, even when the most careful technic is employed.

5 The fact that it is claimed that less time is necessary to heat the tissues with short radio waves than with ordinary diathermy merely emphasizes the point that these machines may have a greater energy output and hence are potentially more dangerous.

6 There are, to date, very little clinical data to show that short wave therapy has any great advantage over ordinary diathermy. Whereas Schliephake<sup>7</sup> claims superior penetration, Schultze and Rach<sup>7</sup> applied short waves to the pelvis, with electrodes over the symphysis and under the buttocks, measured the temperature in the urine-filled bladder, vagina and rectum with alcohol thermometers, and concluded that a pronounced heat effect could not be recognized in these regions although a noticeable heating of the skin could be ascertained and the patients felt definite sensations of heat.

#### CONCLUSIONS

Before short wave and ultra-short wave diathermy machines are used extensively

1 They should be improved in construction, and the manufacturers should specify definitely the wavelengths of the apparatus and their output in watts

2 Fire hazards should be eliminated

3 An accurate method of measuring dosage should be perfected

4 More data concerning the physiologic effects of the waves they produce should be amassed

5 The idea that the apparatus is simple to operate and that treatment may be given through the clothing should be dispelled

6 The technic of application should be improved so that the danger of burning sensations is lessened

It would seem that with further study by physicists and engineers concerning the proper methods of constructing apparatus and with further clinical investigation by especially skilled physicians in hospital physical therapy clinics, short wave diathermy may prove to be a useful therapeutic agent. But at the present time many of these devices have not been sufficiently perfected, and it must be confessed that knowledge of the exact physiologic effects of these waves is very limited. Extensive employment of these machines at the present time can lead only to unsatisfactory results and may cause condemnation of a method of treatment that might otherwise be found serviceable.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
PAUL NICHOLAS LEECH Secretary

#### AMINOACETIC ACID

Modern treatment of the muscular dystrophies has been based primarily on the assumption of a neurogenic or myoneural origin, this despite the observations of Duchenne,<sup>1</sup> Erb,<sup>2</sup> and Friedrich,<sup>3</sup> which demonstrated definite pathologic localization within the affected muscular tissue per se. Very recently a number of independent workers in the field of muscular metabolism have published studies which lend support to these earlier views.

Brand, Harris, Sandberg and Ringer<sup>4</sup> were first to recognize the relationship of aminoacetic acid (glycine, glycoyl) to the origin of creatinuria, although as early as 1921 Gibson and Martin<sup>5</sup> had demonstrated a greater creatine excretion in animals on diets high in protein, particularly when 55 Gm of a total of 75 Gm of dietary protein was in the form of gelatin<sup>6</sup>.

Beard and Barnes<sup>7</sup> found that, while the individual feeding of all amino acids increased the creatine content of striate muscle in rats, the magnitude of this increase was in no wise proportionate to the respective effect on urinary creatine. In these studies aminoacetic acid (glycine) was shown to have a more pronounced effect on creatine excretion than any other amino acid, while glycoylamine, histidine, valine and a number of others proved much more effectual in elevating the muscular creatine. No relationship to specific dynamic action could be discerned and the authors conclude, as verified by Luck,<sup>8</sup> that creatinine and creatine are not exclusively endogenous but may

1 Duchenne G B (of Boulogne) De l'électrisation localisée ed 2 Paris 1861 (quoted from Beard and Barnes<sup>7</sup>)

2 Erb W Arch f klin Med 34 467 1884 Ztschr f Nerven 1 1 1890 (quoted from Beard and Barnes<sup>7</sup>)

3 Friedrich N Ueber progressive Muskelatrophie Berlin 1873 (quoted from Beard and Barnes<sup>7</sup>)

4 Brand, E, Harris, E M, Sandberg, M and Ringer, A J Studies on the Origin of Creatine, Am J Physiol 90 296 (Oct.) 1929

5 Gibson R B and Martin F T Some Observations on Creatine Formation in a Case of Progressive Pseudohypertrophic Muscular Dystrophy J Biol Chem 49: 319 (Dec.) 1921

6 Gelatin contains approximately 25 per cent of aminoacetic acid  
7 Beard, H H, and Barnes Broda The Influence of Feeding Proteins Amino-Acids and Related Substances upon Creatine Creatinine Metabolism J Biol Chem 94 49 (Nov.) 1931

8 Luck J M Metabolism of Amino Acids J Biol Chem 77 13 (April) 1928

5 Schmidt W H Personal communication to the author

6 Coulter J S Personal communication to the author

7 Schultze R F and Rach W Untersuchungen über die Tiefenerwärmung des menschlichen Organismus in Kurzwellenfeld Arch f Gynak 157: 468 (Aug.) 1934

depend substantially on the exogenous protein of the diet, quantitatively and qualitatively.

Brand and his co-workers,<sup>4</sup> Milhorat, Techner and Thomas,<sup>9</sup> Boothby<sup>10</sup> and Kostakow and Slauck<sup>11</sup> coincide in the observation that, in the progressive and pseudohypertrophic types of muscular dystrophy, the urinary excretion of creatine is considerably augmented and that such individuals excrete ingested creatine practically quantitatively. Conversely, Boothby has shown that in myasthenia gravis the urinary creatine is so scant as to reduce the creatine nitrogen/preformed creatinine nitrogen ratio to the neighborhood of 0.1/1.0, as compared with a like ratio in the muscular dystrophies of from 1/1 to 3/1. Apparently, then, myasthenia gravis is etiologically distinct from muscular dystrophy, not only clinically (age of onset, character, course, localization and so on) but in the nature of the disturbance of intrinsic muscular metabolism as well. Contradictory though these observations may seem, aminoacetic acid has proved of definite and heretofore unequalled benefit in the treatment of diseases of either class. With reference to the different clinical entities that have been described under the general heading of primary muscular dystrophy, it is not inconceivable that with further information it may be shown that they have a common etiologic or chemical basis. The various clinical entities as now referred to may actually be different phases of the same morbid process.

Milhorat and his co-workers<sup>9</sup> treated six cases of muscular dystrophy with aminoacetic acid, three each of the progressive and the pseudohypertrophic types. In these cases, while 5 Gm. of aminoacetic acid daily was sufficient to produce an increased creatinuria, dosage of from 15 to 20 Gm. resulted in an increase varying from 100 to 1,000 per cent over the original quantity of creatine excreted. Following two to three weeks of treatment the creatinuria in these patients fell to the initial control level irrespective of the continuance of aminoacetic acid, and, coincident with these metabolic changes noteworthy clinical improvement was seen in all. (On withdrawal of aminoacetic acid the original metabolic state is said to return within three to four weeks.) Initially, a curious crawling or rumbling sensation appeared in the more affected muscle groups, at times sufficiently severe to prevent sleep. This feeling is reported to diminish soon (from three to four days) after the creatinuria begins to drop to the initial level and to disappear within a few days to a few weeks after that level is reached, provided aminoacetic acid is continued. A significant amelioration of the intense fatigue is then said to ensue, resulting in the desire and ability of the patients to perform movements impossible for a considerable time previously. Finally, improvement is great enough to allow of the resumption of activities long since impossible (climbing stairs, arising from the floor unaided, bicycle riding, and the like). Though all cases are most favorably affected subjectively, the time required to attain given degrees of objective improvement is reported as widely variable with the individual patient. Following cessation of aminoacetic acid therapy, improvement continues until the previously described regressive metabolic changes take place, at which time relapse becomes apparent. Resumption of aminoacetic acid, conversely, brings about an equally prompt remission. This series was controlled by three unrelated cases (one of severe chronic articular rheumatism, one of congenital idiocy and one of amyotrophic lateral sclerosis). In these controls under aminoacetic acid, no increase in creatinuria, no improved feeling of well being, no demonstrable metabolic change, and no increase in ability to retain ingested creatine was noted. In short, the administration of aminoacetic acid to the control group was without any notable effect. The authors conclude that in view of these observations, it cannot be assumed that the action is due to an at present obscure but fundamental role of that amino acid in the physiology of striate muscle. It may

be observed in this connection that there are many observers now convinced that the phosphocreatine content of muscle bears a significant and essential relationship to muscular contraction. Kostakow<sup>12</sup> has verified these reports in part in a series of sixteen cases, in fifteen of which the disease was found to have been inherited as a sex-linked recessive among a familial group of fifty-five individuals studied. He notes further (a) that improvement is inversely proportional to the duration and rate of progression of symptoms (but not to the age of the patient) and directly proportional to the extent to which affected muscles remain capable of action, and (b) that active patients require much more aminoacetic acid than those at rest.

Boothby<sup>13</sup> records twenty-six cases of progressive muscular dystrophy with no deaths or relapses, and a general improvement in the subjective state, but only four of these exhibited any indication of regaining previously lost ability to perform some particular movement. The biochemical phenomena outlined in other studies are verified and it is concluded that with aminoacetic acid the progressive downward course of the disease is at least effectually halted. In myasthenia gravis, however, more extensive investigations are reported, involving a series of forty-seven patients under treatment for periods varying from three to eighteen months. Of these (all of whom received 30 Gm. of aminoacetic acid daily) thirteen have returned to their usual work and may be classed as complete recoveries, nine are greatly improved and able to perform moderate or part time work, seventeen are moderately improved (most of this group having been under treatment but a short time), and one has been lost in the follow up. Of the seven who died, but two showed no improvement in spite of treatment, one died the day following admission, another died of pneumonia, another was a suicide while two forsook treatment after satisfactory initial improvement to die of the disease. Thus but three of forty-three patients (about 7 per cent) receiving optimal treatment died and more than 50 per cent of the entire group are or have been working full or part time for a year or more. Occasional minor relapses are reported in all, but of no appreciable portent or magnitude. The question of the effect of aminoacetic acid on creatinuria in myasthenia gravis is contradictory, however. Boothby<sup>10</sup> and Adams and Power<sup>14</sup> reported an increase under treatment, while Schmitt<sup>15</sup> claimed an equally significant or proportionately greater decrease. Schmitt in his two cases reports practically complete cures obtained in advanced stages irrespective of the conflicting laboratory studies.

Other studies involve the general 'pick-me-up' qualities of aminoacetic acid when it has been employed in a multitude of complaints all centering about the normal individual with "that tired feeling."<sup>16</sup> As expressed by Moersch,<sup>17</sup> Hench<sup>18</sup> and Wilder,<sup>19</sup> the difficulties involved in obtaining critical evidence in such conditions are so involved that extensive studies are necessary before any conclusion may be reached and the Council does not feel that such use can be recommended. It may be cited, though, that Wilder and his son demonstrated on themselves a decrease (average) of better than 50 per cent in the urinary creatine excretion during vigorous exercise after taking aminoacetic acid for one week.

12 Kostakow S. Progressive Muscular Dystrophy, Its Heredity and Its Treatment with Glycine. *Deutsches Arch f klin Med* 176: 455 (July 9) 1934.

13 Boothby, W. M. (footnote 10). Myasthenia Gravis. Effect of Treatment with Glycine and Ephedrine. *Proc. Staff Meet Mayo Clin* 9: 593 (Oct 3) 1934. The Clinical Effect of Glycine in Progressive Muscular Dystrophy in Simple Fatigability and on Normal Controls. *ibid* p. 600.

14 Adams Mildred and Power M. H. Chemical Studies of Patients with Myasthenia Gravis and Progressive Muscular Dystrophy. *Proc. Staff Meet Mayo Clin* 9: 598 (Oct 3) 1934.

15 Schmitt E. O. G. Glycine in the Treatment of Myasthenia Gravis. *Ann Int Med* 7: 948 (Feb.) 1934.

16 Article by Tripoli and Beard (Muscular Dystrophy and Atrophy. *Arch Int Med* 53: 435 [March] 1934) and by Tripoli, McCord and Beard (Muscular Dystrophy, Muscular Atrophy, Myasthenia Gravis and Strabismus. *J A M A* 103: 1595 [Nov 24] 1934) presented additional evidence of the usefulness of aminoacetic acid in the treatment of muscular dystrophy and myasthenia gravis.

17 Moersch F. P. Forms of Myopathy and Related Muscular Affections. *Proc. Staff Meet Mayo Clin* 9: 589 (Oct 3) 1934.

18 Hench P. S. A Consideration of Muscular Pain and Fatigue with a Note on Glycine. Preliminary Comment. *Proc. Staff Meet Mayo Clin* 9: 603 (Oct. 3) 1934.

19 Wilder R. M. General Discussion. *Proc. Staff Meet Mayo Clin* 9: 606 (Oct 3) 1934.

9 Milhorat A. T. Techner Fritz and Thomas Karl. Significance of Creatine in Progressive Muscular Dystrophy and Treatment of This Disease with Glycine. *Proc Soc Exper Biol & Med* 29: 609 (Feb.) 1932.

10 Boothby W. M. Myasthenia Gravis. A Preliminary Report on the Effect of Treatment with Glycine. *Proc Staff Meet Mayo Clin* 7: 557 (Sept 28) 1932.

11 Kostakow S. and Slauck, A. Die Glykollolbehandlung der progressiven Muskeldystrophie. *Deutsche Med Wchnschr* 59: 169 (Feb 3) 1933.

From the many studies reported on aminoacetic acid it is quite apparent that its use in the treatment of myasthenia gravis and muscular dystrophy of either the progressive or the pseudo hypertrophic type offers the patient greater hope than any form of treatment heretofore employed. Its use in other conditions cannot as yet be recommended on the basis of the meager investigations thus far reported. The Council declared aminoacetic acid acceptable for New and Nonofficial Remedies.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES OF WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS IEECH, Secretary

### AMINOACETIC ACID—Glycocol—Glycine— $\text{CH}_2\text{NH}_2\text{COOH}$

**Actions and Uses.**—Observations of a number of workers have shown aminoacetic acid (glycocol, glycine) to exert a significant effect on urinary and muscle creatine in patients the victims of myasthenia gravis, and progressive or pseudo-hypertrophic muscular dystrophy. Coincident with the altered creatine metabolism definite, and in many instances remarkable degrees of clinical improvement or amelioration of symptoms have been reported. In practically every case irrespective of the actual degree of objective improvement noteworthy alteration of the patients' subjective state occurs with significant diminution in the ever present and harassing sensation of fatigue.

While some observations would indicate that aminoacetic acid may exert an action in all forms of fatigue, this work has not been critically controlled and for the present at least its use had best be confined to the three pathologic states enumerated.

**Dosage.**—Aminoacetic acid is administered in an average dosage of from 20 to 30 Gm daily usually in some palatable liquid vehicle such as milk. Some workers have employed ephedrine in  $\frac{1}{10}$  to  $\frac{1}{8}$  gram dosage three or four times daily conjointly with aminoacetic acid. Evidence for or against such use is controversial and the decision must depend on the individual case until more convincing studies are reported.

Aminoacetic acid occurs as a light white odorless crystalline powder possessing a sweetish taste. It is freely soluble in water very slightly soluble in alcohol and practically insoluble in ether. Aminoacetic acid turns brown at about 228°C and melts with decomposition (foaming) at 232-236°C (U S P X method).

Treat separately 2 cc. portions of an aqueous solution of aminoacetic acid (1 in 10) as follows: Add 0.3 cc of diluted hydrochloric acid and 0.3 cc of sodium nitrate solution (1 in 2); a vigorous evolution of gas occurs. Add 1 cc of ferric chloride solution; a deep wine color forms which disappears after addition of excess diluted hydrochloric acid solution and reappears on addition of excess stronger ammonia water. Add 0.1 cc liquefied phenol solution and 5 cc sodium hypochlorite solution (2 per cent active chlorine); a blue color forms.

Ten cc of an aqueous solution (1 in 10) conforms to the U S P X test for heavy metals. Dissolve 3 Gm of aminoacetic acid in from 30 to 40 cc of water and treat according to the U S P X turbidimetric test for chlorides; the turbidity is not more than that produced in a control test made with 0.25 cc of fiftieth normal hydrochloric acid. Dissolve 3 Gm of aminoacetic acid in water and treat according to the U S P X turbidimetric test for sulphates; the turbidity is less than that produced in a control test made with 0.2 cc of fiftieth normal sulphuric acid. Boil 10 cc of an aqueous aminoacetic acid solution (1 in 10) for one minute and set aside two hours; the solution appears as limpid and mobile as before boiling.

Heat about 0.4 Gm of aminoacetic acid accurately weighed for four hours at 100°C; the change in weight is not more than 0.0002 Gm. The ash from 0.4 Gm weighs not more than 0.0004 Gm. Treat from 0.26 to 0.32 Gm of aminoacetic acid accurately weighed according to the procedure for nitrogen determination in Medical War Manual No. 6 Laboratory Methods of United States Army 1919 p. 222; the nitrogen content is not less than 18.4 per cent nor more than 18.8 per cent.

### Aminoacetic Acid-Pfanstiehl—A brand of aminoacetic acid N N R

Manufactured by the Pfanstiehl Chemical Co. Waukegan Ill. No U S patent or trademark.

### ORTAL SODIUM (See THE JOURNAL, March 24, 1934, p. 928)

The following dosage form has been accepted:

Capsules Ortal Sodium 5 grains (0.3 Gm.)

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMOTION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



### WARRANTY SIEVED GREEN BEANS

**Manufacturer.**—The Nielsen Corporation, Ltd., Oakland, Calif.

**Description.**—Sieved green beans prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt.

**Manufacture.**—Succulent green beans are delivered to the plant, immediately washed, and subsequently processed and canned by essentially the same procedure as described for Warranty Sieved Spinach (THE JOURNAL, Feb. 2, 1935, p. 399).

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	93.2
Total solids	6.8
Ash	0.5
Sodium chloride	0.04
Fat (ether extract)	0.1
Protein (N X 6.25)	1.5
Reducing sugars as invert sugar	1.4
Sucrose	0.3
Starch	0.9
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	4.0

**Calories.**—0.2 per gram 6 per ounce

**Vitamins.**—The method of preparation and processing insures the retention in high degree of the natural vitamin values.

**Claims of Manufacturer.**—Specially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving.

### DELICIA OLEOMARGARINE

**Manufacturer.**—John F. Jelke Company, Chicago.

**Description.**—Margarine prepared from refined coconut oil, water, cottonseed oil, cultured milk, salt, monostearyl sodium sulphacetate and sodium benzoate (0.1 per cent).

**Manufacture.**—The method of preparation is essentially the same as that described for Jelke's Good Luck Vegetable Oleo-margarine (THE JOURNAL, July 28, 1934, p. 260).

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	17.6
Ash	3.5
Sodium chloride	3.4
Fat (ether extract)	78.5
Protein (N X 6.25)	0.3

**Calories.**—7.1 per gram 202 per ounce

### THAMES VALLEY ASSORTED DICED VEGETABLES

**Distributor.**—The Yantic Gram & Products Co., Norwich, Conn.

**Packer.**—The Larsen Company, Green Bay, Wis.

**Description.**—Mixture of carrots, potatoes, celery, green beans, cabbage, peas, corn, lima beans, onions, sweet peppers, salt and water prepared by efficient methods for retention in high degree of the natural mineral and vitamin values the same as the accepted Larsen's Veg-All—"A Magic Garden" for Soups, Salads, Vegetable Dishes (THE JOURNAL, Aug. 12, 1933, p. 525).

### DANNY BOY HULLESS POP CORN

**Manufacturer.**—The Albert Dickinson Company, Chicago, and Minneapolis.

**Description.**—Canned popcorn kernels with a proper moisture content for popping. The same as Dickinson's Little Buster Hulless Pop Corn (THE JOURNAL, Sept. 17, 1932, p. 997).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 6, 1935

## OBITUARIES OF PHYSICIANS PUBLISHED IN 1934

During 1934 the number of obituaries of physicians published in THE JOURNAL totaled 3,393, including 162 Canadians. The obituaries of 3,231 physicians of the United States were published, as compared with 3,209 in 1933. The total number includes also 4 each in Puerto Rico and China, 3 in the Philippine Islands, 2 in India and 1 each in Panama, Hawaii, Japan, France, England, Siam, Persia and Cyprus. The obituaries of 73 women physicians were published, as compared with 83 in 1933. Graduates of medical schools in the United States for the fiscal year ended June 30, 1934, numbered 5,038. Deducting the number of physicians whose obituaries were published, there was a net addition to the ranks of the profession for the year of 1,807.

**Ages**—The average age at death of those classified as of the United States was 64.3, as compared with 64.4 in 1933. One physician lived to be 100 years old and 46 others lived to be 90 or more. There were 5 who died under 25 years of age. Twenty-four physicians died between the ages of 25 and 29, 50 between 30 and 34, 68 between 35 and 39, 88 between 40 and 44, 158 between 45 and 49, 297 between 50 and 54, 388 between 55 and 59, 486 between 60 and 64, 495 between 65 and 69, 426 between 70 and 74, 354 between 75 and 79, 249 between 80 and 84, and 142 who were more than 85. More deaths occurred in March than in any other one month.

**Causes**—Heart disease was again the leading cause of death. Some contributory causes are included in the tabulation, as they have been in former years. A report that the cause of death was "chronic nephritis and heart disease," for example, is so published in THE JOURNAL and is recorded on the statistical charts under both diseases. Of the causes of death from heart disease, endocarditis or myocarditis was specified in 326, coronary thrombosis in 137, angina pectoris in 119 and pericarditis in 1. Cerebral hemorrhage was the second most frequent cause reported, with 336

deaths, 16 additional deaths were reported as due to paralysis. Pneumonia was the third most frequent cause, lobar pneumonia having been reported in 248 cases and bronchopneumonia in 72. Fourth on the list was cancer. Of 296 deaths reported as due to cancer, the stomach and liver were affected in 64 cases, the prostate gland in 35, the intestine in 28, the buccal cavity in 4, the female genital organs in 1 and the skin in 1, in 163 cases the part affected was not specified. Arteriosclerosis caused 280 deaths and other diseases of the arteries 2, nephritis 195, of which 33 cases were specified as acute nephritis, uremia 107, embolism and thrombosis, exclusive of coronary thrombosis, 78, diabetes mellitus 66, hypertension 56, tuberculosis of the respiratory system 50, and other forms of tuberculosis 6, diseases of the prostate 40 and other diseases of the genito-urinary system 46, cirrhosis of the liver 32, septicemia 30, influenza and ulcer of the stomach each 25, appendicitis 20, peritonitis and intestinal obstruction 17, gangrene 14, leukemia 13, pernicious anemia 11, cholecystitis, erysipelas and paralysis agitans 10 each, brain tumor, heat prostration and meningitis 9 each, encephalitis and streptococcal infection 8 each, agranulocytic angina and Hodgkin's disease 7 each, asthma, biliary calculi and hernia 6, aneurysm, diverticulitis and mastoiditis 5 each, cellulitis and pleurisy 4 each, chronic bronchitis, empyema, osteomyelitis, otitis media and toxemia 3 each, carbuncle, diphtheria, dysentery, emphysema, esophageal varix, dementia paralytica, other diseases of the nervous system, goiter, Ludwig's angina, myelitis, pellagra, sprue and typhus 2 each. Among other unusual causes of death given for one case each were acute septic arthritis, acute toxic neuritis, alcoholism, Alzheimer's disease, amebic dysentery, anaphylaxis, arsenic poisoning, blackwater fever, cerebral hyperemia, cholangitis, diverticulum of the esophagus, exhaustion and exposure, food poisoning, furuncle, glaucoma, traumatic ileus, Korsakoff's syndrome, Landry's paralysis, malaria, therapeutic malaria, malnutrition, morphine poisoning, multiple myeloma, multiple sclerosis, muscular atrophy, myasthenia gravis, paratyphoid, parotitis, pemphigus, polyneuritis, Raynaud's disease, retrovesical fistula, scarlet fever, sinusitis, thrombo-angitis obliterans and tularemia, typhoid, and x-ray burns.

**Accidental Deaths**—One hundred and forty-one physicians died as the result of accidents in 1934, compared with 158 in the previous year. Automobile accidents accounted for 69 deaths, 6 less than in 1933. In 1934, deaths from falls numbered 35, the second largest number due to accidental causes. Ten deaths were caused by drowning, 6 by shooting, 4 by burns, 3 by overdoses of medicine, and 2 each by gas, airplane accidents and street car accidents. Three physicians died in the *Morro Castle* disaster. One died of carbon monoxide poisoning and 1 of x-ray burns, 1 was crushed by an elevator and in 2 cases the nature of the accident was not specified.

*Suicides and Homicides*—Suicide was the cause of 75 deaths in 1934, 5 more than 1933. Shooting accounted for 44 of these deaths, poison for 9, hanging for 6, gas and cut artery 3 each, jumping and carbolic acid 2 each, strangulation, carbon monoxide and stabbing with a surgical instrument 1 each. In the remaining cases the method was not reported. There were 6 homicides by shooting.

*Positions*—Among the decedents were 174 who were or had been teachers in medical schools, 353 who served in the World War, 31 veterans of the Civil War, and 54 veterans of the Spanish-American War. One hundred and twenty-two had been health officers, 85 members of boards of education, and 50 members of boards of health. There were 48 coroners, 45 mayors of municipalities, 32 members of state legislatures, 21 members of state boards of medical examiners, 19 members of the U. S. Army Medical Corps, 7 of the U. S. Navy Medical Corps, and 9 of the U. S. Public Health Service. Twenty-eight authors, 22 druggists, 16 bank presidents, 15 members of city councils, 11 missionaries, 9 editors, 7 dentists, 7 lawyers, 5 postmasters, 2 clergymen, 2 judges, 2 justices of the peace and 1 lieutenant governor were included.

*Association Officers*—The obituaries published in 1934 of physicians who were or had been officers of the American Medical Association included 2 past presidents, 2 trustees and 9 section officers. Twenty-eight members or former members of the House of Delegates died during the year. Twenty-one presidents or former presidents, 1 president-elect and 5 secretaries of state societies were included among the officials.

#### CALIFORNIA MEDICAL SOCIETY ENDORSES SICKNESS INSURANCE

Following the session of the House of Delegates of the American Medical Association in Chicago in February, a meeting of the house of delegates of the California Medical Association was held in Los Angeles on March 2. A special committee of five, appointed by the house of delegates of the California Medical Association in 1934, submitted a report of a survey of health care in California and a plan for the administration of health insurance. This committee, with an advisory council, had made the survey, which involved a study of medical practice as conducted by physicians, dentists, osteopaths, hospitals and clinics, and a direct study of the health care of the public obtained through 48,000 questionnaires secured from families by field workers and by mail. The cost of the survey was approximately \$80,000, of which some \$25,000 was supplied by the California Medical Association and the remainder through an appropriation by the government.

The committee of five rendered a majority report signed by four members to the effect that health service be furnished on a voluntary basis. In accordance with

the instructions of the California house of delegates given in 1934, the committee prepared a health insurance bill but recommended that it be not adopted. At the same time Dr. Alson R. Kilgore presented a resolution that the California Medical Association establish an organization for the specific purpose of providing means whereby the cost of care of sickness and injury for those of moderate and low incomes may be met by the method of periodic payments in advance, that this organization provide for meeting costs of professional service and hospital care, and that the council of the society perfect a plan of organization for these purposes. Subsequent provisions requested the inclusion in such plans of the free choice of physician, dentist and hospital, and maintenance as far as possible of the traditional patient-physician relationship. It was also requested that the plan be developed so as to operate without profit to any one. After considerable debate, both these reports were referred to a reference committee.

Following this statement, Dr. Rodney A. Yoell presented a minority report recommending that the house of delegates of the California Medical Association endorse the principle of compulsory health insurance, submitting with this recommendation a bill in support of the plan with the idea that this bill be the basis of discussion of the California Medical Association with the senate interim committee of the California legislature. This also was referred to the reference committee.

The council of the California Medical Association submitted to the house of delegates six questions as to the point of view of that body in relationship to medical practice in California and also presented some resolutions, which were referred to a special reference committee. These resolutions concerned the relationship of the medical association to the county hospital, the corporate practice of medicine and compensation for medical service rendered to those on relief. After extended discussion the house of delegates approved submission to the legislature of a bill providing for both compulsory and voluntary sickness insurance, leaving it to the council and legislative committee of the association to work out the proper measures with the legislature.

In considering these actions of the house of delegates of the California Medical Association, it should be realized that there are already before the California state legislature bills legalizing the practice of medicine for profit by corporations and bills providing care in county hospitals in that state to all who apply for admittance regardless of their ability to pay, and that the federal and the state emergency relief administration in that state have been unable to work out a satisfactory plan of medical care for those on relief with organized medicine and the allied professional groups. This state of affairs may have been significant in the action finally taken. However, California seems to have been tending toward a compulsory sickness insurance.

system Much depends on whether or not the medical profession after its conference with representatives of the legislature will be able to develop some system that will be satisfactory to all concerned

The proposed legislation submitted by Dr Rodney Yoell in connection with his individual minority report seems to follow closely the Epstein scheme of health insurance, with the exception that the proposed bill provides for control under a director who must be a physician and a health insurance commission of five, of which two members must be physicians

The action taken does indicate, moreover, that the majority of the house of delegates of the California Medical Association favors a system of sickness insurance including both the compulsory and voluntary forms

### PROLONGED SLEEP AND PATRICIA MAGUIRE

For some time newspapers have been recording the gradual changes that have taken place in a girl, Patricia Maguire who was apparently infected some years ago with epidemic (lethargic) encephalitis and who has since that time been passing through a prolonged period of somnolence<sup>1</sup> In February 1932 she found herself unable to stay awake The tendency to sleep increased Gradually diplopia and other eye changes occurred Eventually the diagnosis of epidemic encephalitis was made No doubt because she had been previously connected with a local newspaper, her case has been regularly discussed in the press of Chicago and from time to time items have been widely republished by newspaper syndicates Incidentally, it is a well established fact that the publication in newspapers or the announcement over the radio of extraordinary cases, particularly when there is a romantic interest, brings to the persons concerned not only a vast correspondence from cranks but also offers of free treatment by innumerable charlatans who wish to advertise themselves, as well as quantities of foods, drugs, physical therapeutic apparatus and gifts in money It is also known that certain types of news suddenly develop extraordinary vogue At present there are being widely publicized in the press cases of "upside down stomachs," cases of absence of bones from the limbs, cases of operations on the heart, and similar extraordinary instances Moreover, the headquarters office of the American Medical Association is actually being besieged at this time with telegrams, telephone messages and letters with regard to the possible exploitation of additional cases

Long periods of somnolence are not altogether extraordinary Some time ago Drs Notkin and Jelliffe<sup>2</sup> summarized the available records of narcolepsies, representing cases not only of encephalitis but also of hypno-

lepsy, multiple sclerosis, cerebral concussions and similar pathologic disturbances The earliest case reported in scientific medical literature was that of Fournier in 1813 Altogether there seem to have been sixty-four cases reported up to 1931 The attacks may last from a few minutes to long periods of time Thus Janet<sup>3</sup> reported a case of sleep lasting five years and associated with a loss of the sense of reality The patient began to have periods of loss of consciousness when she was 14 years old, the first coming on during a religious ceremony At the age of 17 she began to sleep continuously and he observed her regularly until she was 23 years of age During the period when she was asleep she could be aroused briefly to hold conversations, in which it was brought out that she was possessed of the belief that she did not exist At the end of the five year period she began to sit up more frequently and finally she became able to feed herself, dress herself and walk about

Such cases are, however quite different from that of Patricia Maguire In encephalitis there are actual changes in the tissues of the brain associated with the infection, but her case is not unique, because many cases of encephalitis have been reported with long duration some in fact being prolonged to periods much beyond that already passed in the case of Patricia Maguire A careful reading of the report will indicate that as in most such cases there was but a brief period in which the patient was completely somnolent She soon began to respond to questions and more recently has been showing signs of returning intelligence

As is pointed out by Drs Notkin and Jelliffe in the article mentioned previously, it is quite possible in such cases to have a combination of both physical and functional conditions Every case should be analyzed as to the extent to which each of these elements is present Indeed, one case that they described involved a gardener, aged 46, who began to fall asleep in 1921 while talking and eating and who gradually developed epidemic encephalitis He was a patient in various institutions for a period of eleven years, on many occasions having long periods of somnolence He died eleven years after the onset of the disease from a complication of infectious conditions

No doubt there is in the study of these cases and in their discussion in the press both a morbid and a scientific interest The scientific interest is served when the incident is first reported and the facts are made known The morbid interest keeps such patients before the public year after year, together with endeavors to exploit the patient either for his own personal gain or for that of some outside interest During the recent Century of Progress exposition in Chicago, attempts were made for a public exhibition of Patricia Maguire Fortunately a sufficient sense of decency and of good taste prevailed to make this impossible

1 Traut, E. F. The Case of Patricia Maguire, this issue p 1210  
2 Notkin, J. and Jelliffe, S. E. The Narcolepsies: Cryptogenic and Symptomatic Types, Arch. Neurol. & Psychiat. 31: 615 (March) 1934

3 Janet, Pierre. A Case of Sleep Lasting Five Years with Loss of Sense of Reality Arch. Neurol. & Psychiat. 6: 467 (Nov.) 1921



## Current Comment

### ORGANIC LIQUIDS IN HUMAN TISSUES

The identification of organic liquids in human tissues has assumed considerable medicolegal significance. A number of organic fluids of low boiling point are used in dry cleaning, as general solvents, as fire extinguishers, as anesthetics and as therapeutic agents in hookworm disease. Ethyl chloride, ethylene chloride, carbon tetrachloride, chloroform, carbon bisulphide, benzene and diethyl ether are among these substances, each is capable of producing fatal results after drinking or following inhalation of their vapors. The problem confronting the toxicologist or pathologist in cases of death due to poisoning with any of these volatile liquids is to isolate them from the organs and to establish their identity. The usual proof obtained from relying on the sense of smell is unsatisfactory and often misleading. The demand for a method for the isolation from human tissues of easily volatile organic liquids and their identification has been met by Gettler and his co-workers. By a further refinement of a technic that had previously resulted in definite proof of the presence of ethyl alcohol in normal tissues,<sup>1</sup> this group of New York investigators has succeeded in developing the experimental procedure<sup>2</sup> to include the isolation and identification of any low boiling organic liquid (95 C or lower). The method makes use of a specially constructed microdistillation apparatus and a newly devised microrectification flask, which are described in detail by the authors. The isolated volatile liquids are identified by means of the microdetermination of the boiling point. By this technic it is possible to isolate and identify these organic liquids readily, even though the latter may be present in concentrations as low as 0.3 cc in 500 Gm of tissue or even lower. In the case of ether, for example, it has been possible to isolate this liquid when present in concentrations of 0.06 cc in 500 Gm of tissue. The unequivocal results yielded by isolation methods should be of considerable value in medicolegal cases by assisting in the definite establishment of causes of death.

## Medical Economics

### ILLNESS, DEATH AND SICKNESS INSURANCE

The social function of the medical profession is to reduce the suffering from illness and postpone the time of death. The record of the fulfillment of that function is written in the steadily declining morbidity and mortality rates of modern nations and makes, perhaps, the most encouraging page in the history of the last century. Any change in the character of medical service or in the methods of giving it can rightly be tested by the effect of such change on morbidity and mortality rates. This is a test that the advocates of sickness insurance have always dodged. Their exhaustive writings give little hint of the movements in the amount of sickness or the number of deaths in relation to

population under sickness insurance systems. It is with the greatest difficulty that such facts are extracted from even the official reports of institutions and governments operating sickness insurance societies.

It is notoriously difficult to compare vital statistics of various countries. The large number of unmeasurable and not comparable elements that enter into such statistics cannot but affect any such comparisons. However, there are some facts so striking in their contrast that even though all these uncertain and imponderable elements are admitted as throwing doubt on the absolute accuracy of the results, the evidence is still too strong to be controverted.

Very few studies of the amount of sickness among industrial employees have been made in the United States. Still fewer of these present their figures in such a form as to permit anything like a fair comparison with conditions under insurance systems. Some of the methods of collecting statistics under sickness insurance tend to reduce the amount of recorded morbidity, which is always the number of days during which the patient is certified as incapable of work and therefore entitled to cash relief. There is usually a "waiting period" of from three to five days before cash payment begins. Such short time illnesses are not recorded under insurance, although they are often counted in the studies of American conditions. There is also a limit to the length of time that cash relief is granted—usually about twenty-six weeks. Any days in excess of this period are also excluded from the computations of days of sickness under insurance. Against this it is urged by the advocates of insurance that a certain amount of malingering by those who wish cash relief is inevitably included.

There are no morbidity statistics extending over a sufficient number of years in the United States to determine whether the average amount of individual illness is increasing or decreasing under the system of medical care practiced in this country. It is known that the mortality rate is steadily decreasing and that the rate of decrease has been most rapid in such diseases as typhoid, smallpox, tuberculosis, malaria and similar illnesses in which the period of disablement is apt to be very long. It is also known that each death from one of these diseases is usually accompanied by from five to ten survivals, ordinarily after an extended illness. It would seem, therefore, that the reduction in the death rate from these diseases must be accompanied by a reduction from five to ten times as great in the morbidity.

The United States Department of Commerce has published comparative mortality statistics for various nations.<sup>1</sup> The significant thing about this study of mortality rates is that they show a continuous and fairly regular decline in all modern nations and that there is no definite correlation between the rate of decline in insurance and noninsurance countries or in the period before and after the introduction of insurance in any one country. The progress of scientific medicine and public health sanitation, higher wages and improved housing have reduced death rates in all modern countries, although nowhere can the introduction of sickness insurance be definitely shown to have influenced the rate of this reduction.

There are at least three different ways in which morbidity statistics are collected that may form the basis of comparison, although in none of these are the conditions of collection and compilation sufficiently uniform in different countries to insure any absolute accuracy of comparison. These three, which will be used in this discussion, are

- 1 Percentage of persons reporting disabling sickness annually
- 2 Average days of disability of individuals in complete coverage.
- 3 Average days of disability of individuals disabled

Most of the statistics gathered in the United States are for industrial establishments having some form of cash benefits. This at once makes difficult a comparison of private and insur-

<sup>1</sup> Gettler, A. O., Niederl, J. B. and Benedetti Pilcher, A. A. *J. Am. Chem. Soc.* 54: 1476, 1932. Alcohol in Normal Tissues. *Current Comment* *J. A. M. A.* 83: 2144 (June 11) 1932.

<sup>2</sup> Gettler, A. O., and Siegel, Henry. Isolation from Human Tissues of Easily Volatile Organic Liquids and Their Identification, *Arch. Path.* 10: 208 (Feb.) 1935.

<sup>1</sup> Mortality Statistics 1927, United States Department of Commerce 1930 p. 33.

ance medical practice, exaggerates the amount of illness and leads to a steady increase in the amount of recorded illness. The United States Public Health Service has compiled a table showing "frequency of specified disease groups which caused disability for eight consecutive days or longer in a group of male industrial workers employed in different industries for the years 1921 to 1928"<sup>2</sup> In 1921 the number of cases per thousand men was 9.9. By 1928 it had risen to 11.34.

The nearest comparison that can be obtained with conditions under insurance in Germany is from the statistics of over fourteen million members of the local sickness societies (*Ortskrankenkassen*)<sup>3</sup> Here the "waiting period" is only three, instead of eight, days, which would manifestly increase the number of sicknesses. But the difference is too great to be accounted for by this, as the number of disabling sicknesses per hundred members was 584, or 584 per thousand, which is more than five times as great as in the United States under a system of private insurance that had already increased morbidity more than 20 per cent. If the utmost liberality is used in interpreting the difference in the number of disabling illnesses it is certain that the morbidity of employees, measured by the number of cases of disabling sickness per employee, appears to be at least twice as great in Germany under compulsory insurance as in the United States under private insurance.

Other statistics, offering some possibility of comparison on the basis of private practice in the United States are those collected by the Committee on the Costs of Medical Care.<sup>4</sup> These included the entire population of the group studied from birth to old age. Among this group "the average disability was 164 days per illness involving any disability." Since the percentage of disabling illness is greatest in infancy and old age<sup>5</sup> and the figure of 164 days includes all illness of whatever duration, while insurance statistics exclude those with less duration than the "waiting period" before cash benefits are given and those extending beyond the period of cash payment, this figure is manifestly much too high for fair comparison with insurance morbidity. The same criticism applies to comparison with the statement that "there were 71 days of disability per person in the population during the survey year."<sup>6</sup> When only the adult population of working age is considered, the "number of days in bed per person" varies with age from 18 to 33 annually.<sup>7</sup> This would seem to be the most suitable figure to compare with insurance morbidity.

In Germany the average days of disabling sickness to each hundred insured was 1,381.6, or 138 days per member. This is about five or six times as long as for adults in the United States and nearly twice the average disability period for the entire population as estimated by the Committee on the Costs of Medical Care. It may be accepted as at least the basis of a comparison of the average efficiency of private versus insurance medical practice in reducing the period of recovery from serious illness.

The comparison with the average duration of disabling illness among those suffering such illness is even more striking. In England under insurance the "average duration of claims within the year" (for incapacity to work) in 1927 was 4.2 weeks, about 29 days for men. For married women it was 5.6, nearly 40 days and for unmarried women, 7.3 weeks, or about 51 days.<sup>8</sup> These figures do not include illnesses of less than four days, and all days beyond twenty-six weeks in any one case are excluded from the totals, on which the average is calculated. Some idea of the effect of the latter exclusion is obtained by

adding the number of weeks for which "disablement benefit" is paid. (This disablement benefit is a lower benefit given in case of duration of illness beyond twenty-six weeks.) In 1921 the "weeks of claim to each 100 members" under regular insurance benefit was 67 for men, and for "disablement benefit" 38 weeks, or a total of 105 weeks, or 735 days. This gives an average of 7.35 days disability per insured person, about the same as the apparent average in the United States.

However, by 1927 under insurance this rate had increased to a total of 168 weeks per hundred men, or 1176 days per insured man, annually. The rate of increase for women was far greater. The government actuary says that, comparing 1927 with 1921, the claims of men have risen by 41 per cent, of unmarried women by 60 per cent, and of married women by 102 per cent.<sup>9</sup>

In Germany the average duration of illness with incapacity for work among all those so incapacitated in 1885 was 141 days for both men and women. By 1925 the duration of illness had increased to 225 days for men and 28 days for women.<sup>10</sup> Detailed figures separating the sexes are not available for later years, but by 1931 the annual average for the total for both men and women was 287 days.<sup>11</sup>

In other words if one is to assume that medical service is to be measured by its success in reducing the suffering due to illness among industrial workers in the lower wage class, these figures would seem to show that the medical service given in the United States is at least from two to four times as effective as that in countries with sickness insurance.

Of course such a comparison is by no means wholly justifiable. Differences in age groups, in general social conditions, in wages, in general make up of populations, and in numerous other directions make any such absolute comparison impossible of accurate statistical statement. However, the difference is far too great to be accounted for by any of these elements. The one outstanding element present in Germany and England and absent in the United States is the method of giving medical service through insurance in the European countries and the method of private practice in the United States. The conclusion would seem to be justified that the major part of the increased days of recorded sickness is to be largely accounted for by the introduction of sickness insurance.

It may be responded at once that a large portion of this difference is due to the fact that the practicing physician in the insurance systems of Germany and England is required to certify to illness and that therefore this great increase in the amount of illness is largely accounted for by malingering. Physicians in these countries, who are the only ones capable of judging the character of the illness deny this. They admit that there is a certain amount of malingering but insist that a large proportion of this increase is due to the destruction of the will to get well by the encouragement which insurance offers to the creation and extension of disease. In other words, insurance creates a mass of disease and then aggravates this by an inefficient medical service.

It is a fair and just conclusion from all evidence available that the population in the United States which certain interests propose to include in any system of sickness insurance have today less sickness per person and recover from illness in a shorter time than those who are provided medical care through sickness insurance systems abroad. Moreover, the morbidity in the United States appears to be steadily declining, while it is increasing under sickness insurance systems. These facts are the only valid tests of the quality of medical service and justify the statement that private practice in this country is now supplying a service far superior to that which would be given under compulsory sickness insurance.

<sup>2</sup> Brundage, D. K. *Sickness Among Industrial Employees*. Pub Health Rep. 45: 109 (Jan. 17) 1930.

<sup>3</sup> Statistik des Deutschen Reichs Band 389 Die Krankenversicherung im Jahre 1929 p. 39.

<sup>4</sup> Falk, Klem and Sinai. *The Incidences of Illness* publication 26 p. 79.

<sup>5</sup> Falk, Klem and Sinai. *The Incidences of Illness* publication 26 p. 276.

<sup>6</sup> Ibid. p. 79.

<sup>7</sup> Ibid. p. 276.

<sup>8</sup> Report by Government Actuary on an Examination of the Sickness and Disablement Experience of a Group of Approved Societies in the period 1921-1927. National Health Insurance, London 1930 p. 7 (Cmd. 3548).

<sup>9</sup> Report by Government Actuary on an Examination of the Sickness and Disablement Experience of a Group of Approved Societies in the period 1921-1927. National Health Insurance, London 1930 p. 5 (Cmd. 3548).

<sup>10</sup> Goldman-Grotjahn. *Benefits of German Sickness Insurance* 1928 p. 61.

<sup>11</sup> *Deutsches Ärzteblatt* 1: 81 (July 15) 1933.

## Association News

### ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty First Annual Meeting Held in Chicago Feb 18 and 19 1935

DR RAY LYMAN WILBUR, Stanford University, Calif.,  
in the Chair

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 18—MORNING

#### Report of the Council on Medical Education and Hospitals

DR RAY LYMAN WILBUR, Stanford University, Calif. This  
appeared in full in THE JOURNAL March 30, page 1064

#### Should the Number of Professional Students Be Restricted?

RAYMOND WALTERS, LITT D Cincinnati This article  
appeared in full in THE JOURNAL, March 30, page 1051

#### DISCUSSION

DR HAROLD RAPINS, Albany, N Y The number of medical students selected for training each year is influenced by three major factors the demand of the public for practicing physicians, the total facilities of the medical schools for training such physicians, and the supply of students In the forty years between 1890 and 1930, while the population of this country increased only 95 per cent the enrolment in secondary schools increased 1,520 per cent, and their graduates 1,360 per cent During the same period the student body of colleges and professional schools increased 660 per cent, with a rise of 770 per cent in college graduates The enrolment in colleges and universities has increased seven times, and in secondary schools fifteen times as rapidly as the population Just when this pressure of excessive numbers from below began to operate, it is difficult to determine However, it could not have been very great before 1926-1927 The fact that in that year there were over 20,000 multiple applications indicates a growing feeling on the part of the 8,500 eligible applicants that entering a medical school was no longer an easy matter Since 6,009 of these 8,500 applicants were actually enrolled that year the percentage of applicants who were rejected was only 29 The increasing percentage of applicants rejected in the succeeding years is shown as follows In 1926-1927 the number of applicants was 8,500, and 29 per cent were rejected In 1932-1933 the number of applicants was 12,128 and 45 per cent were rejected From 1926 to 1933 the enrolment has increased from 6,009 to 6,595 an increase of 586, or 97 per cent The increase in enrolment has, on the whole, been permitted more for economic reasons rather than because there were adequate facilities for the training of that number of students In view of the fact that there is an apparently constant excess of approximately 100 per cent in the number of eligible applicants, this number can no longer serve as an effective guide for determining the number of students to be trained The present load is approximately 6,500 a year, and there is evidence that this is in excess of the number which the schools can properly handle The survey of medical schools should throw valuable light on the capacity of each school when the element of economic pressure is eliminated A fourth way to determine the number of students to be trained is by ascertaining how much "raw material" in the form of competent students the country yields This is difficult However, some light is thrown on the problem by the action of medical faculties in refusing to graduate a certain percentage of the students accepted In spite of the increasing requirements for admission to medical schools, promulgated between 1910 and 1920, and the increasing number of eligible applicants for admission to medical schools between 1920 and the present time, the total percentage of graduates in proportion to the total number of students is almost constant—approximately 22 Of 548 freshmen of the class which entered in 1911, 22.65 per cent failed to graduate,

while of 6,457 students entering in 1930, 23.1 per cent failed to graduate The fact that throughout this period there was almost a constant loss of 15 per cent before the beginning of the second year suggests that in the majority of these cases students were admitted who failed to demonstrate the ability to carry their studies to completion Since, of the 6,457 students who were selected for the class of 1930 from 13,569 eligible applicants, 14.2 per cent failed to complete the first year satisfactorily and 23.1 per cent failed to graduate, the conclusion appears inescapable that in spite of high standards of entrance and vigorous competition the country did not in that year produce as many satisfactory students as the number admitted for training It is reasonable to believe that a loss of 23.1 per cent under these selective conditions means that there are not enough qualified applicants and consequently that too high a proportion of unsuitable material is being accepted It is my opinion that this competitive selection has done more than raising preliminary educational requirements to speed up and intensify the intellectual pace of the medical undergraduate How far this reduction in numbers should be carried can best be determined when the report of the survey is before the committee There is already substantial evidence that some schools in this country are no longer maintaining proper educational standards and that other schools have temporarily lowered their standards by taking more students than they can properly train In the final registration of medical schools, each school should be registered for a maximum of freshmen commensurate with its facilities Such a limitation on each recognized medical school, plus the elimination of any schools no longer able to maintain proper educational standards, will go far to decrease the total number of students to a figure roughly equivalent to the number of qualified students the country can produce As a tentative estimate, it is suggested that by these means the total number of freshmen admitted each year in the future throughout the country would be approximately two thirds of those admitted at the present time On the other hand, the resultant decrease in the number of those admitted who fail to complete their studies should diminish the loss in time money and energy resulting from the present percentage of failures Perhaps from 75 to 80 per cent of the present number would graduate

DR WALTER L. BIERRING, Des Moines, Iowa The interesting survey by President Walters emphasizes that the oversupply of graduates in the different professions is a challenge to the educational forces at this time Comparing them with the graduates in medicine, it would seem that there are other professions in which this problem gives perhaps more concern than ours Attention should be directed to certain factors bearing on this question It is quite evident that within a generation, probably by 1960, there will be a balance of birth and death rates Again, by that time, or at least by 1980, the ratio will be about 1 to 690 It requires no special actuarial philosophy to determine how that will affect medical practice I think the element that perhaps is not considered is the distribution of physicians, which certainly is a factor in the practice of medicine, more marked than in the practice of law or other professions The study that is now being made by the Bureau of Medical Economics of the American Medical Association is going to give some information which will be most valuable, that there are communities where the ratio can be much larger and still furnish adequate medical care It should also be remembered that there is a strong tendency toward extending medical service in many directions It has been well mentioned that in engineering there is a marked extension into many fields of activity, so in medicine It is hoped that there may be other opportunities for medical service that will, to a certain extent, solve this problem There is also no question that in the regulation of specialism a certain part of the solution will be found, and that again the training of that general practitioner or family doctor who will probably carry on 85 per cent of the service required will be different He will have a better educational background, which will bring out that quality of service to which President Walters referred Certainly, these are the directions for the immediate future in the development of a higher grade of practicing physician, the limitation of specialism and perhaps a better study of the distribution of physicians, which will bring the solution, to a certain extent

### The History of Medical Licensure

DR HENRY E. SIGERIST, Baltimore This article appeared in full in THE JOURNAL, March 30, page 1057

#### DISCUSSION

DR IRVING S. CUTTER, Chicago I shall attempt to add but a few words to Dr Sigerist's scholarly paper in relation to medical licensure in America. The reason for the first move in New York State in 1760 is found in the preamble of the law that was passed, namely, that the community was overrun with quacks and charlatans. The preamble states that there were something like sixty practitioners of medicine or gentlemen of the faculty, as they were called in the city and not more than five or six had been bred physicians, and by that phrase was meant had graduated from some reputable medical school. Strangely enough, the New York committee that conducted the examination contained no medical men. They were men who were the aldermen or clerks of committees of the city government, and any one of the judges could be members. So generous was the supply of quacks throughout the colonies that Samuel Sterns, a physician who practiced also in Massachusetts and Vermont whose sister, by the way, was the wife of the astronomer Herschel, said he made a canvass of the physicians with whom he came in contact in Massachusetts and Vermont and could find only three out of some forty or fifty who possessed any copy of Rush's work, Birtinns botany, Cullom's nosology, the London Pharmacopoeia or Lewis's Materia Medica, from which he concludes that there is a very great dearth of medical knowledge in the state. When N. S. Davis wrote the delightful story about medical education that was published in Chicago just eighty-five years ago, he made a plea that medical licensure might be utterly divorced from medical teaching. He felt that medical licensure in this sense would have a check on medical teaching, largely because of the tremendous number of low grade medical schools then in the country. For many years before and after 1844 a diploma from any sort of medical school admitted to medical practice. It wasn't until the nineties that there were even twelve states that required a separate examination. In some states, all that was necessary was to file a certificate from a medical society or a medical school or from a practitioner of medicine that the individual was of good moral character. There was no other certification required. In the early nineties, Reginald Fitz, to whom we owe so much in our knowledge of appendicitis, wrote a series of articles that were published in the *Boston Medical and Surgical Journal*, giving the history of medical licensure in America. Chasing down from that I ran across some items in *Northwest Medicine* in the early nineties giving a series of questions and answers of successful candidates before state board examinations as conducted at that time. I am going to read two or three of them. "What is scrofula?" "The scrofulous diathesis is a peculiar, greasy exudation from the axilla or inside the thighs, possibly behind the ears. It has a sour, fetid and strong smell." "What are the symptoms of cardiac dilatation?" "A feeling of water in the bowels, loss of flesh. The treatment is to put the patient on a milk diet, give rectal enema and pepsinical food, also a nerve tonic to build up the system." Of course, the tremendous improvement between those days and the present days needs no emphasis, but lest the present members of the state boards have an undue pride of possession in their achievements, I must relate a story told by one of our graduates. He called on a state board in a neighboring state not long ago and found the chairman of the board engrossing in a large book death certificates, enumerating the causes of death. When the student asked about his position in the examination, without giving a categorical answer he said to the student, "Darn these doctors anyway. They can't write. Just look at this death certificate." And there written plainly, indeed, were the words "Bacillus aerogenes capsulatus." The student said, "Why, that is clear. That is Bacillus aerogenes-capsulatus, that is gas bacillus." "Oh, sure," he said, and down went as the cause of death 'gastritis'."

### The Larger Social Aspects of Medical Education

DR. WILLARD C. RAPPLEYE, New York The sweeping changes in economic and social affairs in this country and the increasing influence and power of the government to regulate every phase of activity and policy are bound to have an impor-

tant influence on the role that the medical profession is to play in the present and future social order. The functions to be performed by the profession and the demands that may be made on it will have far reaching effects on the character of medical education.

The primary purpose of medical education is to provide the community with properly trained personnel to carry out an adequate program of medical service. Medical care has always been a function of society. The forms that it has taken have followed closely the shifting changes in the social structure. Specialization, for example, was well recognized in Egypt in 2500 B. C. Codes governing medical practice have existed from the days of Hammurabi, whose code in 2250 B. C. prescribed the conditions under which physicians practiced and a schedule of fees they might charge. Long before the Christian era, physicians in Greece were employed by the state. In the Middle Ages the education of the physician and the methods of protecting the public from untrained practitioners were established on a basis that has seen little change for 800 years.

Even the economic and social factors of medical care with which we are so much concerned at the moment had their beginnings in antiquity. In ancient Rome, mutual aid associations existed and regulations were made for the conduct of practice and the financial arrangements of the physicians. From the very beginning two important economic aspects of medical care were recognized, namely, the uneven distribution of the financial burden of sickness and the unpredictability of its character or severity for the individual. Many devices were created to spread the financial risks involved in sickness, but the first attempt to formulate a solution on a national basis was made in the French convention of 1794. Following this a great number of societies were organized in an endeavor to provide group protection. In his imperial message to the reichstag in 1881, Bismarck outlined the responsibility of the government in relation to this whole problem. Out of his message grew the compulsory sickness insurance program of Germany, which became effective in 1883. Most leading countries of the world have now adopted some form of collective protection for sickness.

In every country in which provisions for sickness insurance have been made the programs have been identified with the political institutions of the country. It is probably more because of this fact than any other that there is great hesitancy on the part of medical leaders to sponsor and support programs for sickness insurance here. There is a lack of confidence on the part of many people in the local political institutions as they exist in many of our communities. The real problem is to create methods of delivering medical services of a high quality to the entire population and to devise programs by which the quality of that care may be continued. The danger in most schemes developed by lay and political groups is that the quality of medical care is gradually sacrificed for nominal performance and mediocrity. This has been the experience in most countries of the world. A sound program of medical care for the country cannot be maintained by graduating and licensing an excess number of physicians. An oversupply of physicians leads to unnecessary services, to a lowered quality of care, and to excessive costs because the individuals are not able to judge their needs in such a highly technical field as medicine. The Council on Medical Education and Hospitals, the Association of American Medical Colleges and the Federation of State Medical Boards are now engaged in a study of the larger objectives of medical education and a reclassification of medical schools in an effort to improve the quality of training and to bring about a further elevation of the level of practice. The great need of the country is for better not more, physicians and for opportunities for those in practice and those who are qualified to specialize to prepare themselves adequately for their responsibilities to the public.

The public is confused by the large number of doctors who claim to be specialists whereas in reality there is a real shortage of properly trained experts in the various fields to meet the needs. Opportunities and facilities are quite inadequate for the training of a sufficient number of properly qualified specialists, although the number of hospitals in which such training may be given is sufficient if educational supervision and direction can be secured.

There are indications that there will soon be developments in graduate medical education that will be as far reaching and

vital to the public welfare as that which has been witnessed in undergraduate training, the last two or three decades. Perhaps the most important factor in all these programs is the mobilization of hospital and clinical facilities, which will make the resources of these various institutions available. The extensive hospital facilities of high quality found in every section of the country offer a unique opportunity and responsibility in the field of graduate education, which at the moment is the weakest link in the medical program of the country. If wisdom is to be utilized in the formulation of a program of medical service for the country, that program must not be planned and governed only from the economic aspects or on the basis of the present economic crisis alone. Not only must a well considered program for the future provide for the distribution of the economic burden of sickness and for the preservation of a high quality of medical care, but it must also create the opportunities and incentive to attract increasing numbers of superior students to enter the career of medicine.

Most of the propaganda in this country on the social aspects of medicine have been governed largely by the experiences in Europe where sickness insurance was really a political accident and was given its direction of development before the knowledge and facilities necessary for modern medical services existed. It probably is true that most of our population when employed do not need sickness insurance for the usual illnesses and the services of a general practitioner which are the basic features of the European plans of social medicine. The large economic hazard is for hospital care of which a larger proportion of professional services are those of specialists. The cost of hospital care is a large item in the total cost of medical services, but the burden from this source falls on less than 5 per cent of the population. The costs of hospital services are the largest and most unpredictable features of medical care. A plan for the adequate support of the hospitals of the country and the reasonable compensation of physicians on their staffs for the professional care of the indigent patients in their wards and outpatient services and the employment of physicians to care for the indigents in their homes for whose care the community must assume responsibility would go a long way to solve the economic factors of medical care in this country.

Not only does the hospital represent a base of operations for all forms of community medical service but it has a type of organization that can readily be amplified to include cooperation in home nursing and home medical service through its outpatient service and other channels and it also has the most satisfactory type of organization to preserve high standards of professional performance. The 126,261 physicians now on the staffs of the hospitals represent a large army of doctors who are organized and for the most part ready to participate in a broad community health service and to carry on graduate medical education. Considering the entire problem of sickness, the adequate financing of hospital services alone, through funds from taxation, so called hospital insurance, philanthropy and earnings, and the amplification of the present functions of such institutions would largely solve the most pressing economic problems of medical service in this country. There is little doubt that the country is entering a new phase of national policy characterized by collectivism, cooperative enterprise and an increasing degree of governmental control and planning. It is not necessary that an accurate prediction should be made of the exact forms which medical services of the future are to assume. I believe however that a sound training in the fundamental biologic sciences must continue to be the basic preparation of the student because the principles of those sciences undoubtedly will form the foundation of medical practice, preventive medicine and public health work of the future. The training should emphasize however that the methods by which these principles are to be applied in meeting the needs of individuals in the community are likely to be modified in the future. Students must be prepared psychologically and with a certain amount of special information to meet the shifting social and economic phases of medical care. It is the responsibility of physicians to mobilize their knowledge and skills so that the rich heritage from past generations may be utilized to the fullest benefit of contemporary society.

(To be continued)

## MEDICAL BROADCASTS

### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be as follows:

April 11 Sickness Insurance R. G. Ireland, M.D.  
April 18 Catarrh W. W. Bauer, M.D.  
April 25 May Day or All Year Round? W. W. Bauer, M.D.

### National Broadcasting System

The American Medical Association broadcasts under the title 'Your Health' on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

April 9 Crying for the Moon W. W. Bauer, M.D.  
April 16 Meeting a Challenge W. W. Bauer, M.D.  
April 23 Sudden Death Morris Fishbein, M.D.

## Medical News

(PHYSICIANS WILL CONFERR A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ARKANSAS

**State Medical Meeting at Fort Smith**—The sixtieth annual session of the Arkansas Medical Society will be held at Fort Smith April 16-17 with headquarters at the Goldman Hotel, under the presidency of Dr. Fergus O. Mahony, Little Rock. The program will include the following physicians:

Walter L. Biering, Des Moines, president American Medical Association  
The Functions of the American Medical Association  
Samuel E. Thompson, Kerrville, Texas, Diagnostic Problems in Diseases of the Lungs  
William B. Grayson, Little Rock, The Problem of Malaria  
Arthur C. Sullivan, Hot Springs, National Park, Use and Abuse of Digitalis  
Harvey D. Wood, Fayetteville, Vaginal Hysterectomy with the Original Pryor Clamp  
J. H. Eugene Rosamond, Memphis, Tenn., Appendicitis in Childhood  
Lucian H. Landry, New Orleans, Cicatricial Stenosis of the Esophagus  
Lee Vallette, Parmerley, Little Rock, Fractures About the Elbow  
Eugene M. Smith, Hot Springs, National Park, Underwater Therapy in the Treatment of Chronic Arthritis (motion picture)  
Merlin J. Kilbury, Little Rock, A Review of 300 Cases of Breast Tumors  
Paul A. O'Leary, Rochester, Minn., Types of Neurosyphilis Benefited by Malaria Therapy  
Ralph Bowen, Oklahoma City, Practical Management of the Asthmatic Child  
Ralph A. Reis, Chicago, Recent Advances in Gynecology  
Herbert Fay II, Jones and Thomas, Dyer, Brown, Little Rock, Further Studies in Prostatic Resection  
Frank P. Hardy, Center Hill, Hysteria in General Practice  
Howard A. Dishongh, Little Rock, Undulant Fever  
Robert H. Hood, Russellville, Management of Pertussis  
George V. Brindley, Temple, Texas, Cancer of the Rectum, Factors Affecting Its Cure (motion picture)  
John M. Smith, Russellville, Golliter (motion picture)  
Ernest Earl White, Little Rock, Bands and Rings  
Oscar J. T. Johnston, Batesville, Femoral Hernia with Unusual Contents  
Matt S. Dibrell, Van Buren, Malaria  
Pat Murphy, Little Rock, Vertigo

An evening session will be addressed by Dr. Biering on "The Doctor and Plans for Economic Security," and Mrs. Rogers N. Herbert, Nashville, Tenn., president Woman's Auxiliary, American Medical Association, "The Woman's Auxiliary and the Medical Profession."

### COLORADO

**Bills Introduced**—H. 634 proposes to require all applicants for licenses to practice any form of the healing art before presenting themselves to their respective professional boards for examination to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology, to be given by an impartial board of examiners in the basic sciences. The members of the board of examiners in the basic sciences are to be selected because of their knowledge of the basic sciences and each member is to be on the faculty of the University of Colorado, the Colorado State Agricultural College, the Colorado School of Mines or some other institution of learning in the state of equal rank. No member of the board is to be engaged in the practice of the healing art during his term of membership. H. 949 proposes to reorganize and consolidate the public

health agencies of the state and counties by establishing a state department of health, county boards of health and local health districts. H 668 proposes to create a board of examiners of drugless physicians and to regulate the practice of drugless physicians. "Drugless Physicians' practice" is defined as "the Science locating and removing interference with nerve transmission, and freeing the Human body of abnormal conditions, and the employment and practice of Physio-Therapy, Electro-Therapy, Naturopathy, and Hydro-Therapy, Neuropathy, Mechano-Therapy [sic], Manipulation and such other drugless practice including Hygienic and Sanitary measures necessary to such practice." Such licenses are not to be permitted to practice surgery or to administer drugs, but they are to be permitted to make and sign birth and death certificates.

### DELAWARE

**Bill Passed**—Substitute for House 310 has passed the House. It purports on its face to amend the law requiring the payment of certain occupational taxes. It requires that before a person engages in any "service" occupation listed in the bill he apply to the clerk of the peace for a license to do so and pay an annual fee of \$10.50. The bill then provides that "every individual who shall procure a service occupation license shall be authorized and empowered during the term for which such license was granted, to exercise and carry on such service occupation." Before a physician or an osteopath may procure this occupational license he must be "qualified under the law of the State to practice." A chiropractor, however, need not be qualified under the laws of the state to practice before applying to the clerk of the peace for an occupational license, but when he obtains his occupational license, without proving in any way his moral fitness or other qualifications, he seems under this bill to be fully authorized to practice, so long as the occupational license is in force.

### DISTRICT OF COLUMBIA

**University News**—Elmer V. McCollum, Ph.D., professor of biochemistry, Johns Hopkins University School of Hygiene and Public Health, Baltimore, delivered the fourth lecture in the Smith-Reed-Russell series at George Washington University School of Medicine, March 5, his subject was "The Role of the Vitamins in Relation to the Bodily Resistance to the Infectious Diseases."

**Medical Bills in Congress**—S 2013 has been reported to the Senate, directing the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art in the District of Columbia to Dr. Pak Chue Chan (S Rept. 390). S 2153 has been reported to the Senate, providing for the prevention of blindness in infants born in the District of Columbia (S Rept. 391).

### ILLINOIS

**Bills Introduced**—H 676, to amend the workmen's compensation act, proposes that an employee suffering a hernia as a result of an industrial accident have the right to choose either suitable mechanical correction or surgical treatment. If he chooses mechanical correction, he is to be permitted to decide what mechanical appliance and service shall be furnished him and the employer must furnish the appliances during the employee's lifetime. However, within ninety days after the employee has selected mechanical appliances he is to be permitted to revoke his selection and elect, at his employer's expense, to submit to surgery. H 692, to amend the medical practice act, proposes, in effect, to require the department of registration and education to appoint a committee of osteopaths to examine the medical practitioners who practice osteopathy and the medical practitioners who practice both osteopathy and medicine in all of its branches.

### Chicago

**Northwestern Faculty Presents Program**—Members of the faculty of Northwestern University School of Medicine presented the program before the Chicago Medical Society, March 27. Drs. Merritt Paul Starr discussed "Studies of the Thyrotropic Pituitary Hormone," Michael L. Mason, "Immediate Treatment of Injuries," M. Herbert Barker, "The Blood Cyanates in Cyanate Therapy of Hypertension," and Charles Marshall Davison, "An Evaluation of the Relative Merits of Cholecystectomy versus Cholecystostomy."

**Corporate Practice of Medicine Illegal**—A corporation cannot legally practice medicine in Illinois, even though it assumes to do so through physician-employees according to the decision of Judge M. L. McKinley, of the Superior Court, Cook County, March 22 in the case of *People of the State of*

*Illinois, by Otto Kerner, Attorney General, v. United Medical Service, Inc.* The United Medical Service, Inc., has been holding itself out to the public as undertaking through the agency of physician-employees to give medical service. The attorney general instituted suit to require it to show its authority for doing so. Judge McKinley's decision holds that the activities of the corporation are illegal. He entered a judgment ousting the corporation from "the franchise, occupation and business" of engaging in the diagnosis and treatment of human ailments. The corporation will appeal to the Supreme Court of Illinois. Pending the determination of the appeal, the judgment of ouster will stand suspended.

**Judge Holland Imposes Minimum Sentence on Quacks**—The Illinois State Department of Registration and Education has been conducting an investigation of some alleged quacks with regard to violations of the state medical practice act. Among those investigated were:

Doe J. B. Adams, 162 North State Street  
Dr. George Leo Curran, 334 South Clark Street  
Mrs. Mary Dunn, 233 West Adams Street  
Mrs. Rose Parker, 2531 West Monroe Street  
Madame J. B. Colay, 2937 Ellis Avenue  
Rev. Frederick J. Harris, 3014 Lake Park Avenue who it is reported said "I've healed many a person with cancer and tumors or diabetes or paralysis after the doctors gave up hope for them."  
James P. O'Donovan, 1203 North Dearborn Street  
Yogi Roy, 2110 North Clark Street  
Dr. Robert A. De Isle, unlicensed chiropractor who is said to have been fined \$150 in San Diego, Calif. in 1925 and placed on probation for one year on a charge of practicing medicine without a license.

The investigation has resulted in the trial and conviction for practicing medicine without a license of James P. O'Donovan, Frank H. Vloek and Yogi D. Roy, each of whom was assessed a fine of \$100 and costs. The futility of endeavoring to stop quack practices by imposing the minimum penalties provided by law was expressed in an editorial in the *Chicago Tribune* March 26, in part, as follows:

Recently Municipal Judge Eugene J. Holland completed the trials of three quack doctors brought before him by the state department of registration and education and imposed upon them the minimum penalties provided for practicing medicine without a license—fines of \$100 each.

After pronouncing the minimum sentences (which the defendants are appealing) Judge Holland had the temerity to praise his own findings as deterrents to the continued illegal practice of medicine. They were no such thing. The publicity given the activities of the three fakers may have warned the public against them but the judge had nothing to do with that.

His fines merely have the effect of declaring the state in on the illegal and shameful profits of the trio. They smack of the hypocritical practice which some communities have of fining their prostitutes and gamblers at regular intervals thus collecting an extralegal license fee on illegal business.

### IOWA

**Personal**—Dr. Walter A. Sternberg, Mount Pleasant, has been appointed a member of the state board of health, succeeding Dr. Nathaniel M. McKitterick, Burlington, resigned.

**Bill Introduced**—H 428 proposes to create a state board of eugenics which may on the application of the patient or his guardian authorize sexual sterilization if there are "reasons to believe that reproduction or further reproduction would produce offspring which because of physical or mental unfitness would become a burden or menace to the State."

**Society News**—At a meeting of the Southwestern Iowa Postgraduate Society in Shenandoah, February 13, speakers were Drs. H. Winnett Orr, Lincoln, Neb., on "Diagnosis of Rare Back Injuries," Arbor D. Munger, Lincoln, "Problems in Prostatic Disease" and Erwin J. Gottsch, Shenandoah, "True Surgery of Gas Gangrene Infection."—Dr. Emil Novak, Baltimore, addressed a special meeting of the Des Moines Academy of Medicine and the Polk County Medical Society March 14 on "The Endocrine Aspects of Sterility." Speakers before the society, February 26, included Drs. Harry C. Willett on "Verruca—and a Review of the Therapy," Harry A. Collins "Postoperative Atelectasis" and David M. Blum, "Food Allergy in Relation to Migraine and Abdominal Symptoms."

### KANSAS

**Society Changes Name**—At a meeting in Norton, in February, the name of the Decatur-Norton County Medical Society was changed to the Northwest Kansas Medical Society. Dr. Charles F. Taylor, Norton, newly elected president discussed diagnosis of tuberculosis. Two papers were presented by Dr. Charles O. Giese, Colorado Springs, Colo., on "Pneumothorax in Lobar Pneumonia" and "Primary Carcinoma of the Lung." Tuberculosis was also discussed by Dr. Philip Cohn, Norton.

**Society News**—At a meeting of the Wyandotte County Medical Society March 6, Drs. Paul M. Krall and Fred E.



Angle, Kansas City, discussed electrocardiography in myocarditis and arrhythmias, respectively — Dr Thomas G Orr, Kansas City Mo, discussed "Treatment of Intestinal Peritonitis" before the Sedgwick County Medical Society, March 5

## LOUISIANA

**Tuberculosis Institute** — Sponsored by the Tuberculosis and Public Health Association of Louisiana and the Tuberculosis Committee of New Orleans, a tuberculosis institute was held March 29, in New Orleans. In the evening the session was combined with a special meeting of the Orleans Parish Medical Society, speakers were Drs J. Arthur Myers, Minneapolis and 'The Evolution of Tuberculosis in the Human Body' and Gunnar Nyström, professor of surgery, University of Uppsala, Sweden, pulmonary embolism

## MAINE

**Bill Introduced** — H 1772 proposes to prohibit the sale or other distribution of any cosmetic preparation not registered with the department of health and welfare in accordance with the department's regulations. The department is to be authorized to refuse to register any cosmetic preparation which in its judgment contains injurious substances in such amounts as to be poisonous, injurious or detrimental to the person

**Bill Passed** — S 651 a redraft of S 241, has passed the house, proposing to amend the medical practice act by authorizing the revocation of the license of any licentiate who (1) has been convicted, either within or without the state, of any crime involving moral turpitude or of any crime in the practice of his profession (2) has been guilty of fraudulent or unprofessional conduct in the practice of his profession (3) is addicted to the use of narcotics or (4) has used advertising which the board of medical examiners considers to be deceptive, misleading, extravagant, improbable or unethical

**Society News** — At a meeting of the Kennebec County Medical Association in Augusta February 21, speakers were Herbert E. Locke, attorney, Augusta, and W. T. Bovie, Ph.D., Colby College, Waterville, their papers were entitled 'Some Practical Aspects of Medical Jurisprudence' and 'Debt of Science to the Physician,' respectively — The Knox County Medical Society was addressed, recently, by Drs Howard L. Apollonio, Camden, on 'Fracture of the Femur,' C. Harold Jameson, Camden 'Polycystic Kidney Disease,' and Edwin W. Gehring, Portland, president, Maine Medical Association, 'Birth Control and Disease Prevention' — Dr Louis E. Phaneuf, Boston discussed cervical cesarean section before the Cumberland Medical Society, Portland, February 28.

## MARYLAND

**Bill Passed** — H 145 has passed the house and the senate, proposing to prohibit the retail sale and distribution of barbitol and other hypnotic and somnifacient drugs except on the prescription of a licensed physician, dentist or veterinarian. The drugs mentioned are to include barbituric acid, sulphonethylmethane (trional), sulphonmethane (sulphonol), diethylsulphon diethylmethane (tetronal), paraldehyde, and chloral or chloral hydrate or chlorbutanol

**Bills Introduced** — H 536 proposes to authorize the sexual sterilization of incurable idiots, imbeciles or morons. H 547, to amend the osteopathic practice act, proposes to permit osteopaths to make and sign death certificates. H 560 to amend the workmen's compensation act, proposes to define 'injury' and 'personal injury' [which is compensable under the act] to 'include, in addition to injury by accident occupational diseases, and any disease growing out of, incident to, or proximately caused by, the employment'

## MICHIGAN

**Outbreak of Streptococcic Sore Throat** — About twenty-five cases of streptococcic sore throat with one death were recently reported in Bronson. On investigation, several cows in the herd supplying the milk in question were found to have mastitis. According to the state medical journal an encapsulated organism corresponding in every way to *Streptococcus epidemicus* was isolated from the milk. The organism is of human origin. It was not recovered from the throats of patients, but, the journal states, there seems to be abundant evidence to conclude that the outbreak was milk borne and caused by the hemolytic *Streptococcus epidemicus*. The milk was not pasteurized.

**Bills Introduced** — S 289 proposes to bring within the purview of the narcotic drug act barbituric acid derivatives and compounds, sulphonethylmethane (trional), sulphonmethane (sulphonol), diethylsulphon diethylmethane (tetronal), carb-

mal, paraldehyde and chloral or chloral hydrate or chlorbutanol. H 252 proposes to prohibit the employment of any person, in a state hospital for a period longer than an average of nine hours a day, or fifty-four hours in any week, or more than ten hours in any one day. H 381 proposes to grant charitable and governmental hospitals treating persons injured through the fault of others liens on all rights of action, claims, judgments, compromises or settlements accruing to the injured persons by reason of their injuries. H 393, to amend the workmen's compensation act, proposes, in effect, to make occupational diseases compensable. H 401, to amend the workmen's compensation act, proposes to forbid physicians to receive for services and expenses in any case arising under the act fees in excess of 10 per cent of the amount of compensation allowed the injured workman. However, in cases in which the compensation allowed does not exceed \$500, physicians fees may not exceed 20 per cent. H 428, to amend the workmen's compensation act, proposes that all hernias arising out of and in the course of employment shall be conclusively presumed to be accidental and that the employee be entitled to compensation for twenty weeks. If an employee accepts an operation tendered by the employer and the operation is unsuccessful, the employee is to be entitled to receive compensation as for other disability. H 427, to amend the workmen's compensation act, proposes that during the first ninety days after an industrial injury the employer is to furnish necessary medical, surgical and hospital services and medicines to the injured employee. After the expiration of that time the compensation board is to be authorized to direct the employer to furnish additional medical, surgical and hospital services. S 281, to amend the osteopathic practice act, proposes (1) to dub the Michigan State Osteopathic Association 'the Michigan State Osteopathic Association of Physicians and Surgeons', (2) to permit the secretary of the board of osteopathic examiners to receive such salary as may be fixed by the board and to employ such assistants and investigators as he deems necessary, (3) to raise the examination fee required of applicants for licenses to practice osteopathy to \$35, and the fee required of applicants for licenses on the basis of reciprocity to \$75, (4) to require osteopathic licentiates to register annually with the board and to pay an annual fee of \$10, (5) to make it a condition precedent to annual registration that the licentiate has attended at least one of the two-day "education programs" as conducted by the "Michigan Osteopathic Association of Physicians and Surgeons" and (6) to provide additional grounds for the revocation of licenses

## MINNESOTA

**Bills Introduced** — S 1319 and H 1408 propose to authorize the county board of any county to provide for the hospitalization, in hospitals within the county or elsewhere within the state, of indigent persons afflicted with a malady, deformity or ailment of a nature which can probably be remedied by hospitalization. H 890, to amend the workmen's compensation act, proposes to make poisoning by carbon monoxide fumes or its sequelae compensable

**Dr Blumenthal Will Give Vander Horck Lecture** — The second annual Vander Horck Lecture of the Minnesota Dermatological Society will be delivered, April 18, by Dr Franz Blumenthal, research professor of dermatology, University of Michigan Medical School, Ann Arbor. His subject will be 'The Paradoxical Influence of the Sun's Rays on Cancer, Causative and Curative'. These lectures were initiated last year in memory of Dr Max P. Vander Horck, who died in 1911.

## NEW HAMPSHIRE

**Personal** — Dr Arthur W. Hopkins, West Swanzey, was guest of honor at a dinner given by the town board of education, teachers and other citizens, January 29, in recognition of his twenty-five years of service on the board — Dr Robert B. Kerr, Manchester, was recently appointed a member of the state board of public welfare

**Society News** — Dr Carleton R. Metcalf, Concord secretary, New Hampshire Medical Society, addressed the Sullivan County Medical Society, Claremont, recently, on sickness insurance — James A. Hamilton, Hanover, chairman of the State Hospital Superintendents' Club, addressed the Merrimack County Medical Society, Concord, January 2, on hospital insurance — Dr Francis M. Rackemann, Boston, addressed the Belknap County Medical Society, Laconia, February 19, on cause and treatment of asthma and eczema — At a special meeting, February 19, the Nashua Medical Society approved the action of the House of Delegates of the American Medical Association in opposing compulsory health insurance



## NEW JERSEY

**Bill Introduced**—S 313 proposes to require the board of medical examiners to examine any applicant for a license to practice medicine who (1) has attended four full courses of lectures for four years in a medical college in good standing, (2) has completed an internship of eighteen months in an approved hospital in the state and (3) has served at least fifteen years as a resident member of the staff of an approved hospital in the state

## NEW YORK

**Testimonial to Dr Ruhland**—Civic, business professional and educational organizations of Syracuse united in giving a testimonial dinner to Dr George C Ruhland health commissioner of Syracuse for the past ten years, February 18 previous to his departure to become health officer of Washington D C Dr Thomas Parran Jr, state health officer, Albany, was the principal speaker

**Bills Introduced**—A 2332 and S 1851, to amend the law requiring the medical inspection of all pupils attending public schools, proposes to require such inspection of every child of compulsory school age S 1816 and A 2325 propose to accord to charitable and governmental hospitals treating persons injured through the fault of others liens on all claims rights of action judgments, settlements or compromises accruing to the injured persons by reason of their injuries

**Society News**—Dr Roger Anderson Scitelle addressed the Schenectady County Medical Society, Schenectady January 18 on treatment of fractures of the lower extremities—Dr Margaret Warwick, Buffalo, addressed the Wyoming County Medical Society at Greene Sanitarium Castle January 8 on benign and malignant tumors—Dr Luther Fiske Warren Brooklyn addressed the Suffolk County Medical Society, Patchogue, January 30 on 'Differential Diagnosis Between Coronary Disease and Other Conditions'—The New York State Association of Public Health Laboratories will hold its nineteenth annual meeting at the Syracuse Memorial Hospital Syracuse, April 29—Dr Roy B Henline, New York, addressed the Broome County Medical Society, Binghamton, March 5, on urinary infection—Drs Edward C Hughes Syracuse, and James K. Quigley, Rochester addressed the Onondaga Medical Society, Syracuse March 5, on 'Hystero-tubography—An Aid in the Diagnosis and Treatment of Sterility' and 'Maternal Mortality,' respectively—Dr Samuel W Hartwell, Buffalo, addressed the Medical Society of the County of Westchester, March 19, on 'Foundations of Mental Health'—Dr Alfred W Adson, Rochester, Minn addressed the Rochester Academy of Medicine, March 7, on 'Intraspinal Tumors, Symptoms Diagnostic Procedures and Surgical Management'—Dr Cyrus C Sturgis, Ann Arbor, Mich, was the speaker, February 7, on treatment of the anemias

## New York City

**Medical School Name Changed**—The council of New York University at a meeting February 25 approved the change in name of the medical school of the university from New York University, University and Bellevue Hospital Medical College, to New York University College of Medicine

**Seventh Harvey Lecture**—The seventh lecture of the current series of the Harvey Society will be delivered by Dr Francis G Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, Conn, April 18 at the New York Academy of Medicine His subject will be "Pneumothorax in the Treatment of Pneumonia"

**Nobel Prize Dinner**—Drs George H Whipple, Rochester, George R Minot and William P Murphy, Boston, winners of the Nobel Prize in Medicine in 1934 and Harold C Urey, Ph D, winner of the prize in chemistry, will be honor guests at a dinner at the Waldorf-Astoria, April 9 arranged by a committee of physicians and other civic and social leaders Dr Foster Kennedy will be toastmaster and other speakers and guests of honor will include

Dr Willard C Rappleye dean Columbia University College of Physicians and Surgeons  
Dr Eugene H Pool president New York Academy of Medicine  
Dr Arthur J Bedell Albany, president Medical Society of the State of New York  
Dr John A Hartwell director New York Academy of Medicine  
Dr William S Ladd associate dean Cornell University Medical School  
Dr Alan M Chesney dean Johns Hopkins University School of Medicine Baltimore  
Dr Milton C Winternitz dean Yale University School of Medicine New Haven Conn  
Dr David L Edsall dean Harvard University Medical School Boston

George J Ryan, president of the board of education, is chairman of the committee Reservations may be made in Room 594, the Waldorf-Astoria Ladies are invited and seats are \$6 per person

## OHIO

**Bills Introduced**—H 358 proposes to create a board of electrotherapy and to regulate the practice of electrotherapy, defined by the bill as 'the use of any electrical, manual, thermal or mechanical measures for the treatment of disease and shall include the performing of minor surgery and the administration and use of antiseptics and anesthetics' Such a licensee, however, is not to be permitted to use the unqualified title 'doctor' 'Dr.' 'M D,' 'physician' or 'surgeon' H 479, to amend the workmen's compensation act proposes to provide compensation for any disability caused by illness or disease arising out of and which is caused by the employment." H 495 proposes to compensate and to supply medical, nursing and hospital services to public work relief employees who are injured in the course of their employment.

## OREGON

**Professor Fraenkel in Portland**—Dr Ludwig Fraenkel professor and head of the department of gynecology and obstetrics University of Breslau Germany, gave a three day course of lectures and clinics in Portland, February 4-6 under the auspices of the University of Oregon Medical School and the Portland Academy of Medicine

**Alumni Meeting at Portland**—Dr Harold Brunn, San Francisco was the featured speaker at the twenty second annual meeting of the alumni association of the University of Oregon Medical School Portland March 4-6 Dr Brunn made two addresses, on "Pelvic Appendicitis" and "Lung Abscess" Clinics were held each morning at Multnomah County Hospital Officers elected were Drs Earl D DuBois, Portland, president, Arthur C Jones Portland Harvey A Woods Ashland Webster K. Ross La Grande Christen F Quelli Jr, Tacoma, vice presidents Harry S Irvine Portland treasurer, and Birchard A Van Loan Portland, secretary, reelected

## PENNSYLVANIA

**Society News**—Dr James H Corwin Washington, addressed the Washington County Medical Society March 13, on "Osteolytic Sarcoma of the Leg"—Dr John R Moore, Philadelphia, addressed the Lehigh County Medical Society, Allentown in March, on 'Fractures of the Upper End of the Femur'

**Personal**—The board of managers and the staff of Reading Hospital, Reading gave a testimonial dinner at the Berkshire Country Club March 20 to Drs Irvin H Hartman and Christopher H Shearer on the occasion of their retirement from the hospital staff and in memory of the late Dr Ira G Shoemaker Dr George W Overholser Reading, was toastmaster Responses were made by Mr J Heber Parker, president of the board of trustees, Drs Robert M Alexander, Howard U Miller, Charles P Henry Frank G Runyon all of Reading and Drs W Wayne Babcock Arthur C Morgan and Alfred Stengel all of Philadelphia

## Philadelphia

**Medical College News**—Wilfred W Fry president of N W Ayer and Son was elected president of the board of trustees of Jefferson Medical College recently, to succeed the late Alva B Johnson Mr Fry has been a member of the board since 1931

**Personal**—Dr Charles H Frazier, professor of surgery University of Pennsylvania School of Medicine, recently delivered the Mutter Lecture at the College of Physicians of Philadelphia Dr Frazier's term of service at the school will terminate in July 1937—Dr Daniel J McCarthy was recently appointed medical director of the Municipal Court to succeed the late Dr John Montgomery Baldy Dr Baldwin L Keyes was appointed consulting psychiatrist to the court Both will serve without salaries or fees it was said

**Judge Rules No Compensation for Care of Ward Patient**—Judge Frederick A Marx sitting in the Orphans Court, March 22 ruled that unless there is an express agreement a hospital staff surgeon operating on a ward patient is not entitled to extra compensation A member of the staff of a Philadelphia hospital presented a bill against the estate of a man on whom he operated in June 1934 The hospital had presented its bill and received payment Judge Marx decided that the surgeon was acting "in line of duty" and the estate was not liable for the claim The estate amounted to \$9,364

**Society News**—At a meeting of the Philadelphia Urological Society, February 25, speakers included Drs Orville C King, on 'Spinal Anesthesia in Urologic Surgery. A Review of 500 Cases', Max M Strumma and Martin J Costello, 'Bacteriophages in Urinary Infections'.—Dr Priscilla White Boston, among others, addressed the Metabolic Association of Philadelphia February 15, on 'The Child Diabetic'.—Dr Edward Rose, among others, addressed the Philadelphia Pediatric Society February 12, on Treatment of Hyperthyroidism in Children and Young Adolescents'.—The Philadelphia County Medical Society devoted its meeting March 13 to discussion of 'Periodic Health Examination and Its Importance' by Drs Francis Ashley Fought Rudolph Bloom Thomas M McMillan, Edward J G Beardsley and Abraham I Rubenstein.—Among speakers before the Philadelphia Academy of Surgery March 4 Drs John O Bower and Nathan Ralph Goldsmith, presented a paper on 'Drainage versus Drainage and Appendectomy in Acute Appendicitis with Diffuse Peritonitis' and Drs Isidor S Ravidin and George M Dorrance, 'Is Enterostomy of Value in the Treatment of Peritonitis?'.—Dr Horace J Williams among others addressed the Philadelphia Laryngological Society March 5 on 'Otitis Media in Measles'.

#### Pittsburgh

**Society News**—Speakers at the meeting of the Allegheny County Medical Society March 19 were Drs Hiram D Ritchie, on 'Transurethral Removal of the Prostate Gland', George J Kastlin, 'Early Recognition of Blood Dyscrasias by the General Practitioner', Lester Hollander, 'Observations Concerning the Hinton Test' and Henry T Price report of the year's work of the Allegheny County Emergency Child Health Committee.—Dr Samuel S Allen Jr addressed the Pittsburgh Neurological Society March 18 on 'Intracranial Tumors: Diagnosis and Treatment'.

#### RHODE ISLAND

**Bill Introduced**—H 714 to amend the laws relating to the practice of osteopathy proposes that a certificate to practice osteopathy shall confer upon the holder thereof the same rights and privileges and the same duties and obligations as the certificate to practice medicine and that "all government regulations concerning public health shall apply equally to doctors of osteopathy and osteopathic organizations as to doctors of medicine and medical organizations".

#### TENNESSEE

**Personal**—Dr James M Smyth Camden was appointed health officer of Benton County January 7.—Dr John Y O Daniel, Dayton, has resigned as health officer of Rhea County to go to Union County in the same capacity.—Dr Torja J Bratten, Woodbury, has been named health officer of Cannon County.—Dr John A Steward has been appointed chief of staff at Erlanger Hospital and Dr William D Anderson, at Children's Hospital, Chattanooga.—Dr James H S Morrison, Cumberland Gap has been made chief medical officer of the Veterans' Administration Facility at Johnson City, succeeding Dr Samuel C Nieman, who was transferred to Shreveport, La.—Dr Frank W Watson, Union City, was honor guest at a dinner March 14, attended by 110 friends celebrating his completion of fifty years in the practice of medicine. Dr Watson is a former president and secretary of the Obion County Medical Society.

**State Medical Meeting at Nashville**—The one hundred and second annual session of the Tennessee State Medical Association will be held in Nashville, April 9-11 with headquarters at the Noel Hotel and under the presidency of Dr John O Manier Nashville. Guest speakers will be Drs Henry Kennon Dunham Cincinnati, Lay Martin Baltimore, Alexander J Kotkis St Louis, Austin A Hayden, Chicago. Among Tennessee physicians listed on a tentative program are

Dr Lucius C Sanders Memphis Physical Reactions to Functional Disorders  
Dr Jesse Lawrence Cochran Jackson Botulism  
Dr Gideon W Stone Knoxville Version Its Indications and Advantages  
Dr Charles Roberts Thomas Chattanooga Some Neurologic Manifestations of Hypertension  
Dr John B Haskins Chattanooga Extraperitoneal Pathology with Intraperitoneal Symptoms  
Dr Milton Smith Lewis Nashville Management of the Occipito posterior Position

The Tennessee State Pediatric Association will meet April 8 with Drs Philip F Barbour Louisville Ky and J Norman Henry, Philadelphia, as guests. The Tennessee Academy of

Ophthalmology and Otolaryngology also will meet, April 8, with Dr Walter S Lawrence, professor of roentgenology, University of Tennessee College of Medicine, Memphis, as guest speaker, on "Results of X-Ray and Radium Treatment in Certain Diseases of the Eye".

#### UTAH

**Bill Enacted**—H 211 has become a law, repealing the laws regulating the sale, distribution or possession of narcotic drugs and enacting what apparently is the uniform narcotic drug act. The term 'narcotic drug,' as used in this law includes coca leaves opium cannabis and every substance neither chemically nor physically distinguishable from them. A physician or a dentist, acting in good faith and in the course of his professional practice only, may prescribe administer and dispense narcotic drugs or he may cause them to be administered by a nurse or intern under his direction and supervision. Physicians and dentists are to keep a record of narcotic drugs received by them and a record of all such drugs administered, dispensed or professionally used by them otherwise than by prescription.

#### WASHINGTON

**Annual Surgical Clinic**—The Puget Sound Surgical Society held its annual surgical clinic and banquet in Seattle, March 23. Dr Verne C Hunt Los Angeles, conducted clinics at the King County Hospital during the day, and the banquet was held at the Ramier Club in the evening. Dr Hunt spoke on 'The Opportunities in Surgery' and Dr Kenneth L Partlow, Olympia, 'Modern Conception of Medical Costs in Washington'.

#### WISCONSIN

**Bill Introduced**—A 517 proposes to amend that section of the medical practice act forbidding any person not possessing a license to practice medicine and surgery osteopathy or osteopathy and surgery to use any title or designation which represents him 'as a doctor in any branch of treating the sick' by permitting a licensed chiropractor to use the title of 'Doctor of Chiropractic,' or "D C".

#### CANAL ZONE

**Society News**—Dr Littleton O Keen Balboa was elected president of the Medical Association of the Isthmian Canal Zone recently, Dr Joseph R Darnall Ancon, vice president, and Dr James S Simmons, Balboa Heights secretary. Speakers at the scientific session were Drs Arthur J Redland Cristobal on "Spinal Anesthesia", Frederick H Thorne Cristobal, 'Cataract Extraction,' and Walter F Heine Cristobal, 'Relapsing Fever'.

#### GENERAL

**Society for Clinical Investigation**—The annual meeting of the American Society of Clinical Investigation will be held in Atlantic City May 6 instead of May 8, as listed in the column "Coming Meetings" in THE JOURNAL, March 30, page 1190.

**Society News**—The American Heart Association will hold its eleventh scientific session at the Hotel Claridge Atlantic City June 6. The program will be devoted to various phases of cardiovascular disease.—At the recent annual meeting of the Clinical Society of Genito-Urinary Surgeons in Cleveland February 22 Dr John H Cunningham Jr Boston, was elected president. Dr Frank Hinman, San Francisco vice president and Dr Henry G Bugbee, New York, secretary.

**News of Epidemics**—Closing of schools because of scarlet fever was reported in Elmore Ohio Elderton, Pa, and Avilla Ind., among other places.—Measles was reported to be widespread in Pennsylvania. Two thousand pupils were reported absent from Scranton schools February 25, principally because of measles. 1,501 cases occurred in Altoona during February. Newspapers reported March 21, that Michigan had had 12,222 cases since the first of the year and 3,447 during the week ended March 16. In Kansas the state health department listed 1,492 cases during the week ended February 23.—Three hundred homes were quarantined in Reading Pa during the last two weeks of February, principally because of mumps. The Reading Eagle reported, March 1. Eighty cases were reported in Portland Ore, for the week ended March 9.

**American Students in Italian Schools**—Dr Harold L Rypins Albany N Y chairman of a committee on foreign medical students representing the Council on Medical Education and Hospitals of the American Medical Association the Association of American Medical Colleges the Federation of State Medical Boards of the United States the National Board

of Medical Examiners and the Board of Regents of the University of the State of New York, issues a warning to American students who go to Italy to study medicine without approval from authorities in this country. The Royal Italian consul general has informed Dr Rybins that several students have gone to Italy in the past year without approval and have been refused admission to Italian schools, in accordance with an agreement entered into Aug 3 1933 by Dr Rybins, representing the New York State Board of Medical Examiners and the Federation of State Medical Boards of the United States. Some of the applicants had only high school diplomas. Prospective students are therefore warned not to go to Italy in expectation of studying medicine without obtaining authorization from the Italian consul general.

**Medical Bills in Congress—Changes in Status** S 883 has passed the Senate directing the retirement of acting assistant surgeons of the United States Public Health Service at the age of 64 years. S 2024 has passed the Senate, authorizing the President to designate Col William L Keller, Medical Corps U S Army on his retirement from the active list as consultant in surgery at the United States Army Medical Center. **Bills Introduced** H R 6984 introduced by Representative Welch California, proposes to confer on certain persons who served in the Quartermaster Corps or under the jurisdiction of the Quartermaster General during the War with Spain the Philippine Insurrection or the China Relief Expedition the benefits of hospitalization and the privileges of the soldiers' homes. H R 6995, introduced by Representative Smith Washington proposes to reenact all laws granting pensions to veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, their widows and dependents that were in effect on March 19, 1933. H R 7122, introduced by Representative Dunn, Pennsylvania, proposes that the federal government shall grant pensions to certain blind persons in the United States. H R 7133, introduced by Representative Werner, South Dakota, proposes to authorize the erection of an addition to the existing veterans administration facility at Hot Springs South Dakota.

**Changes in Status of Licensure**—At a recent meeting of the California Board of Medical Examiners in Los Angeles, the following actions were taken:

Dr Stanley Boller Los Angeles found guilty February 6 of narcotic dereliction placed on probation for five years during which time he shall not apply for or have a federal narcotic permit or have narcotics in his possession.

Dr Brandon A T Bowlin Pasadena found guilty February 6 of narcotic dereliction and placed on probation for three years during which time he shall not have or apply for a federal narcotic permit or have narcotics in his possession.

Dr Ethel L Leonard Los Angeles found guilty February 6 of narcotic dereliction and placed on probation for five years during which time she shall not have or apply for a federal narcotic permit or have narcotics in her possession.

Dr Louise Patterson Santa Monica found guilty February 7 of a charge of using a fictitious name in her practice and her license to practice in California suspended for two years.

Dr William T Schwabland South Pasadena found guilty February 6 of using a fictitious name and his license to practice in California suspended for one year.

At a meeting of the Missouri State Board of Health, Dec 17 1934 the following action was taken:

Dr Milo E Hartman Kansas City license revoked because of his dishonorable and unprofessional conduct and because of his unfitness to practice medicine and surgery in the state of Missouri.

The Minnesota State Board of Medical Examiners recently took the following action:

Dr James O Cavanaugh, Chanhassen license revoked February 9 because of a conviction of violating the Harrison Narcotic Act.

Dr Clayton Eugene May Winona license revoked February 9 because of conviction of a felony and a crime involving moral turpitude.

The Virginia State Board of Medical Examiners recently reported the following actions:

Dr Chester Arthur Hutchinson, Appalachia license revoked for unprofessional conduct and moral turpitude.

Dr John Easterly Sproles whose last address was Bristol Va license revoked for violation of the narcotic laws.

The department of public welfare of the state of Nebraska reports the following revocation of license:

Dr Louis N Smernoff license revoked as of Dec 18 1934 for having performed an illegal operation. His present address is not known.

## FOREIGN

**Prize for Essay on X-Rays**—The David Anderson Berry Gold Medal with a sum of money amounting to about £100 will be awarded in July by the Royal Society of Edinburgh to the person who in the opinion of the council has recently produced the best work on the nature of X-rays in their therapeutic effect on disease in human beings. The secretary of the society is James H Ashworth, D Sc 22 George Street Edinburgh 2.

**International Hospital Meeting**—The fourth International Hospital Congress will be held in Rome, May 5-12. Following are the subjects of discussion announced: the hospital as a link in a systematic public health service, equipment and technical appliances of the hospital, function and protection of the hospital in times of national calamity, and importance of each main group of the hospital staff with regard to the relations of the hospital to the community. The congress will be preceded by a study trip through Milan, Turin, Genoa, Florence and Piesole. Details of the congress may be obtained from the headquarters of the International Hospital Association, Cantonal Hospital, Iuzerne, Switzerland.

**Fifteenth International Physiological Congress**—Plans for the fifteenth International Physiological Congress to be held in Leningrad and Moscow, August 9-18, have been announced. The congress will meet first in Leningrad, August 9-17, go to Moscow overnight and hold its final sessions in Moscow, August 18. Prof Ivan P Pavlov, Leningrad, is president of the congress committee. An American delegation will sail from New York July 25 on the S S *Berengaria*. A stop will be made in London, where members may attend the International Neurological Congress, July 29-31, if they wish. Various tours to other parts of Russia have been arranged, of which details may be obtained from Intourist, Inc., 545 Fifth Avenue New York. Information concerning the program may be obtained from the Organization Committee, International Physiological Congress, Main P O Box 13, Leningrad, U S S R.

**Society News**—An All-Russian Congress for Physical Therapy will be held in Odessa August 22-25, with the following subjects for discussion: physical therapy in relation to allergy, acute infectious diseases, sequelae of injuries and the vegetative nervous system, and short wave therapy. The third International Air Ambulance Congress will be held in Brussels Belgium, June 11-16. The first congress was held in Paris in 1929 and the second in Madrid in 1931. The International Association for Prevention of Blindness held a general assembly in London April 5 during the Congress of the Ophthalmological Society of the United Kingdom, with discussions of international classification of the causes of blindness and hereditary diseases of the eye ending in blindness. The World Federation of Education Associations will be held August 10-17, in Oxford England. The German Roentgen Society has erected a memorial tablet to Wilhelm Konrad Roentgen, discoverer of the roentgen ray, on Roentgen Road in the Engdine where he spent his vacations. The National Association for Prevention of Tuberculosis of England will hold its twenty-first annual conference at Southport, June 27-29. The subject for discussion will be 'The Responsibility of the Nation Toward the Child in Respect of Tuberculosis.'

## Deaths in Other Countries

**John James Rickard Macleod**, co-winner of the Nobel Prize in Medicine in 1923 and since 1928 regius professor of physiology at the University of Aberdeen, Scotland, died, March 17, at his home in Aberdeen, aged 58. Dr Macleod was born in Cluny near Dunkeld, Scotland Sept. 6, 1876. On graduating from the University of Aberdeen Faculty of Medicine in 1898 he was awarded the Anderson Traveling Scholarship and from 1898 to 1899 he studied at the Physiological Institute of Leipzig University. He was appointed a demonstrator of physiology at the London Hospital Medical School in 1900 and in 1902 lecturer in biochemistry. In 1902 he obtained a diploma in public health from Cambridge University. He was appointed professor of physiology at the Western Reserve University, Cleveland, in 1903, which position he held until 1918, then he was professor of physiology and associate dean at the University of Toronto Faculty of Medicine serving until 1928, when he was invited to become regius professor at his alma mater. He received honorary degrees from the universities of Toronto, Aberdeen, Western Reserve, Pennsylvania and Jefferson Medical College. He was president of the American Physiological Society in 1922 and in 1925 president of the Royal Canadian Institute. He was a member of scientific societies in the United States, Canada and Great Britain and a corresponding member of German and Italian societies. From 1929 to 1933 he was a member of the Medical Research Council of Great Britain. Dr Macleod was the author of a long list of publications on physiologic subjects, especially carbohydrate metabolism, lactic acid in the blood and the control of breathing. The work for which he was most widely known was done in association with Banting and others in the development of insulin for which he and Banting were awarded the Nobel Prize in physiology and medicine in 1923. He was awarded the Cameron Prize of the University of Edinburgh in the same year.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 16, 1935

#### The Workmen's Compensation Acts Prolong Disability

The report of a committee appointed by the British Medical Association to consider the treatment of fractures has been reviewed in a previous letter. An appendix on "Nonmedical Factors of Prolonged Disability" was not included and because of its importance, requires a special notice. While disclaiming that a purely medical committee can have an intimate acquaintance with all aspects of the fracture problem, the committee felt that some reference was necessary to the nonmedical factors that militate against return to work. The committee points out that the workmen's compensation acts in many cases play a powerful part in prolonging disability and delaying return to work and on occasion in converting the workman into a permanent invalid. The committee freely admits that the acts are humane and beneficial. That legislation in other countries has been based on them shows that the ideas conceived in this country are sound. But the acts contain no provision for the rehabilitation of the man after injury and place no liability on him to prove that he has sought and obtained efficient treatment, while the type of monetary benefits granted under the acts are often positively harmful to the man. Three methods are adopted by employers for insuring against the liabilities imposed on them by the workmen's compensation acts: (1) through insurance companies, (2) by mutual associations of groups of employers, and (3) by individual employers. Under the first method the insurance company is not concerned with the man's recovery as such but with the settlement of his claim as speedily as possible. Measures such as those recommended by the committee to reduce the periods of incapacity in general will not necessarily be welcomed by the companies, as they must eventually involve a reduction of revenue through lowering of premiums. On the other hand, the second and third methods have not this disadvantage. The economic advantage of the insurers is implicit in the recovery and ultimate welfare of the disabled man. For this reason mutual associations and self-insured employers often find it advisable to employ their own medical officer to supervise the injured workman. An admirable scheme, recognized under the compensation acts, is under the control of a board composed partly of employers and partly of workmen. It allows for the provision of unbiased medical referees whose opinion is final and is accepted without litigation by all parties. It also arranges for lump sum payments and pensions.

#### LIGHT WORK

One of the main difficulties is the return of the convalescent man to work suitable for his physical condition. A man convalescent from a fractured leg will not be unfit for ordinary work one day and fit for it the next. There must be a period when he becomes fit for light work and when he would be materially benefited by it. Large employers should earmark certain forms of occupation suitable for convalescent men. But in the present industrial conditions there are almost insuperable obstacles to the provision of such light work apart from large employers. With so much unemployment today there often appears a tendency to nurse invalidity as an alternative means of subsistence.

#### LUMP SUM PAYMENTS

The compensation acts provide for weekly payments but also give the employer the right to commute by paying the redemption value, which is a sum fixed by the act. The

employer and the workman can also agree to a lump sum, subject to the approval of the court. The lump sum form of compensation is responsible for much prolongation of disability. The prospect that a sum considerably larger than any he has been accustomed to handle may eventually be obtained if the applicant is persistent and patient enough is sufficient in many cases to deter him from seeking or even desiring to recover completely. Further, to return to work before the settlement of the claim would probably result in diminution of the amount of the lump sum. Touts from solicitors actually wait on the victims of accidents to promote litigation. It is not surprising that, until the compensation claim is settled, the workman's attention is focused on his financial prospects rather than on his restoration to full activity. The lump sum compensation should be reserved for the permanently incapacitated who have arrived at their minimum disability.

#### DELAYS IN SETTLEMENT

While many cases are being short-circuited by being dealt with by a medical referee, prolonged delay in settlement occurs in others. As delay has a most harmful effect on the mentality of the claimant, cases should be dealt with expeditiously. This could be done by means of a court of independent and expert medical assessors. Many cases offer no difficulty from the purely medical point of view.

#### Report on Mental Hospitals

The annual report of the London County Council on mental hospitals and on mental deficiency states that while the population of the administrative county of London is decreasing as the result of migration to the outer ring of Greater London there is every indication that the number of mental patients for which the council is responsible will increase for some years. This is explained by the fact that the migrants are largely young persons, which produces an increase in the average age of the remaining population, and by the increasing longevity of the population generally. Hence there is an increasing proportion of persons suffering from decay of their mental powers. In January 1934 the council had to provide accommodations for 21,813 mental patients. Some important remarks are made in the report on occupational therapy. Not until a few years ago was there any organized attempt to encourage the patients to occupy themselves in the domestic work of the hospital, in farm work or in the workshops. Recognition of the value of such occupation has led to the appointment in each of the large mental hospitals of a woman occupations officer and of a male officer in one hospital. It has been found that this innovation is a valuable aid in the difficult task of awakening interest in self-centered or listless patients and may lead to a mental improvement of which there were no previous signs. The possibility of extending occupation therapy is therefore under consideration.

#### The Sterilization of Women

At the Section of Obstetrics and Gynecology of the Royal Society of Medicine, an important discussion took place on the sterilization of women, including the indications, technique and legal position.

#### INDICATIONS FOR STERILIZATION

Mr Victor Lack mentioned five classes of disease in which sterilization was justifiable. 1. Chronic progressive general diseases that ran a downhill course, such as chronic rheumatic endocarditis, chronic nephritis, diabetes and disseminated sclerosis. Here pregnancy was a risk to life, though in some instances it might be possible to allow the patient to have one or two children. 2. Chronic diseases with a theoretical possibility of recovery, such as tuberculosis and hyperthyroidism.

3 Mental diseases, including epilepsy Sterilization was justifiable in a patient who had had puerperal insanity without obvious cause, also in patients with a bad family history who habitually produced defective children 4 Repeated cesarean section and repeated severe toxemia 5 Hereditary diseases, such as hemophilia and acholuric jaundice

#### VOLUNTARY CLINIC STERILIZATION

Dr C P Blacker, secretary of the Eugenes Society, said that 45 per cent of the children of mental defectives were defective or retarded He advocated voluntary sterilization, as the disadvantages of compulsory sterilization outweighed the advantages In Germany, unforeseen complications had arisen from the latter

The legal position was presented by a lawyer Mr Cecil Binney Any operation performed in the interests of the patient's health or life was permissible, but apart from this sterilization might be regarded as an offense and a person's consent was no defense against the charge of maiming With regard to lunatics and mental defectives the sterilization of persons who could not give consent and did not properly understand what was being proposed would be a still greater crime Sterilization for reasons of health was always lawful for eugenic reasons, probably unlawful in lunatics always unlawful unless for health reasons

#### TECHNIC OF STERILIZATION

Mr V B Green-Armistage demonstrated on the screen what he considered to be the best method of temporary sterilization He mobilized the terminal inch of the fallopian tubes and with fine catgut buried the tube in a slit in the broad ligament The technic was simple and bloodless but care had to be taken that the vascular supply of the end of the tube was not disturbed and that no tension existed The advantage of the method was that in the event of remarriage or altered conditions the buried end could be freed again In many instances this was followed by pregnancy For permanent sterilization he demonstrated a method that he devised many years ago, of much use to the eugenicist as it involved only a few days in bed and no risk or pain He opened the uterovesical pouch through the vagina, retracted the bladder and brought the uterus down He then excised the cornual end of each tube sewed the cut edges, and closed the vaginal incision

Mr Aleck Bourne brought forward a simple technic which he had recently developed He cauterized the uterine openings of the tubes with a diathermy electrode, which was curved so as to follow the lateral wall of the uterus After some initial failures he could now get both tubes occluded as shown by the use of iodized oil The operation was quick and safe and could be done under gas in two minutes

#### Library of Orthopedic Surgery

In Liverpool, Hugh Owen Thomas laid a large part of the foundation of modern orthopedic surgery and his nephew and pupil Robert Jones followed him The Liverpool Medical Institution has decided to commemorate their work by forming a Hugh Owen Thomas and Robert Jones Library of Orthopedic Surgery, in which it is hoped that every phase of this subject will be represented An appeal has been made for contributions of books and articles on the subject These will form a nucleus of what it is hoped will become a complete orthopedic library in which the student, the postgraduate, the practitioner and the surgeon may learn all that is being done in this branch

#### Refugees from the German Persecution

Lord Rutherford who presides over the Academic Assistance Council formed for the help of Jewish and other scientists and scholars driven from Germany by the Nazi persecution, has

reviewed in the *Times* a pamphlet entitled "A Crisis in the University World," published by the council It is an impressive record of the work done in the last two years Of 650 scientists and scholars who have left Germany, 248 have already been reestablished in permanent positions Facilities for continuing their studies or research in universities and other institutions have been provided for 336 of the remainder Thus almost all have been retained within the university sphere, a magnificent demonstration of support for the principle of the preservation of learning In only a few instances could universities use their funds for this purpose Almost all the money has been raised by funds established by emergency academic committees in Europe and the United States A gratifying aspect of the work is that substantial support has been received both from Jewish and from non-Jewish sources In particular university teachers and graduates have given generously Lord Rutherford points out that the problem is neither in fact nor in implication a Jewish one alone and that it involves a principle demanding the support of all who believe in the freedom and security of learning The difficult problem still remains to transfer the 366 temporarily placed scholars into more permanent positions Many of them are engaged in subjects such as philosophy or the classics in which the field of absorption is more limited than in the natural sciences A majority of them are younger men and women without the international reputation that made it easier to assist their senior colleagues Yet it is the younger group because of its potentialities for future research that most deserves reestablishment The financial requirements of this work are small in proportion to its importance One man of vision and generosity could end this crisis in university history

#### PARIS

(From Our Regular Correspondent)

March 1, 1935

#### Deficit in Social Insurance Budget

In an article by Dr G Fischer in the Dec 23 1934, *Concours medical* one sees that 'all is not gold that glitters' in the social insurance question in France Although in force scarcely four years there have already been a large number of changes in the original law and many more are in prospect As the author of the article states, there are many squeaks to be heard in the machine indicating that the plan is not as easy to carry out as seemed to be the case when its authors with the best of motives in view, first proposed the plan, shortly after the World War Aside from the complaints on the part of the medical profession there is much discontent among the beneficiaries on account of the complicated 'paper work' as it used to be termed in the U S Army, or 'paperasserie,' as the French call the many blanks to be filled out by the bureaucrats In addition, there is a multiplicity of procedure and loss of time incidental to the proper functioning of such an organization in a population of more than forty million people

From the beginning of the operation of the law in the fall of 1930 to the end of 1933 the total receipts paid by all those who were assured against illness maternity old age and death were about \$840,000,000 The government was obliged to add \$205,000,000 making a total of over a billion dollars

On the disbursement side \$185,000,000 was paid out by the agencies (Caisses de repartition) to those who were injured or ill, or to maternity cases Another distribution agency (Caisse de garantie) paid \$94,000,000 to those (above the age of 60) who were entitled to old age pensions Finally, the costs of administration amounted to \$45,000,000

The total payments thus (to the end of 1933) amounted to \$330,000,000 This does not include \$630,000,000 placed in the Central Deposit Office as a reserve fund

Of the \$45,000,000 listed as expenses of management, the central bureaus in charge took 59.40 per cent, while the agencies which have the responsibility of carrying out the law received only 40.6 per cent. According to Dr. Fischer, this indicates a faulty organization, and as a result all the agencies that come in contact with the insured find their funds in a deplorable state of deficit. In order to carry on their work, some of these primary centers of distribution have been obliged to borrow from the central depositories at a 4.5 per cent rate of interest in order to meet the claims of the insured who are directly under their supervision. When the law was first studied, the management costs were arbitrarily placed at 35 per cent. A survey made by the International Bureau of Labor showed even at that time (1928) that one must estimate the cost of administration to be 8 per cent of the receipts for the first five years, followed by a gradual decrease to 5 per cent. In Germany these charges vary between 7.58 and 11 per cent. In Rumania and Austria they are 7 per cent; in Sweden 9 per cent; in Switzerland 8.45 per cent; in Denmark 11 per cent and in Italy 20 per cent.

After all deductions are made in France, only a sum equal to between 40 and 50 per cent of the original amount paid in by the worker and his employer remain for settlement of claims. This amount ought to be between 80 and 85 per cent, a figure that exists in Germany, Czechoslovakia and Poland and still permits placing some of the funds in the reserves. Hence when one considers that only a sum equal to about 45 per cent of the total collected is available for distribution, it means that payment for maternity cases is quite inadequate, and for those who are obliged to be operated on the amount allowed is ridiculous.

The question that now presents itself in France is: How can such a state of affairs be improved? In order to meet the costs of management, the minister of labor stated before the French house of representatives that first, it will be necessary to fix the cost of administration at 7.5 per cent of the amount collected as premiums. Secondly, there have been organized in France recently a large number of private companies, termed "mutualités." Although their operations are under the supervision of the government, they fulfill all the objectives of state social insurance in insuring against illness, injury, maternity costs and old age. Instead of equal contributions, as in state insurance, by the employer and the employee, only the latter pays a premium. The scheme is purely voluntary and has grown so rapidly in importance that it has become a menace to the social insurance law of the government.

Eight million, or 65 per cent of those now eligible to insurance under the French social insurance law are now paying additional premiums voluntarily to these "mutualités." Recently an additional competitor, in the form of "benevolent associations" has appeared on the field, which will again add to the number of those who want voluntary insurance as a supplementary source of indemnity, aside from their obligatory state insurance. One of the congressmen, Mr. Dorman is of the opinion that the rapid increase in the number of adherents to these voluntary insurance societies shows that vast economies could be made in the management of the government insurance so that larger sums could be paid to those who are obligatorily insured.

Another critic of the social (state) insurance law maintains that one of the chief complaints is that it is too bureaucratic and that an effort should be made to have a more flexible, more rational and more live organization. He has even proposed that the management of the state insurance plan shall be placed in the hands of the private organizations such as the "mutualités" represent.

A defect in the French law is that payments for sickness cease at the end of six months, hence only those who suffer from ailments of relatively short duration can be cared for

That is, it covers only cases in which there are many loopholes for fraud to occur. How about syphilis, cancer, tuberculosis and similar chronic diseases, which need care for years? The result is that nearly two thirds of those who claim sickness indemnity are left uncared for. This includes 80,000 cases of tuberculosis and 5,000 cases of cancer, without counting cases of syphilis. Such an interval of six months during which indemnities are paid for illness ought to be modified. The minister of labor, whose department takes care of social insurance proposed on Nov. 29, 1934, certain changes in the law, which include allowances for women from the beginning of a pregnancy, also that the wives and children of those called for military service should receive support in the form of allowances, and, finally, a simpler method of making payments for premiums. At present one buys special stamps. Under the new proposals these premiums could be paid by the employer in the form of checks. Also the classification should be abandoned of those who must be insured in order to avoid cases in which a worker has not paid his full dues and thus loses his right to any indemnity.

#### Prof. Henri Hartmann Honored

Prof. Henri Hartmann of Paris has just been elected vice president of the Academy of Medicine. This is one of the highest honors that can be bestowed on a member.

Professor Hartmann has been a guest of the American Surgical Association and his work is familiar to all surgeons who visit Paris. Although past the age of 70, he is still active as the director of the large cancer service at one of the largest hospitals here.

#### Suppression of Advertising in Radio Programs

The majority of radio stations in France are owned by the government and every owner of a wireless set is obliged to pay an annual fee, varying in amount according to the size of the set. There have been so many protests by these taxpayers against paying the state to be told which soap is the best or which alcoholic appetizer created the healthiest appetite that the Department of Posts and Telegraphs has ordered all advertising and paid publicity to be suppressed in the programs broadcast by the stations controlled by the government. The chief complaints were that such publicity was sandwiched in between songs or at the end of concerts, which form the chief portion of French radio programs. There may be times when American listeners would covet a holiday in France to get out of earshot of commercial announcements.

#### Origin of the Follicle Stimulating Factor in the Urine of Pregnancy

Two interesting cases have been reported in the October 1934 issue of *Gynecologie et obstetrique* by Reeb, Nerson and Klein of Strasbourg. During the last few years, the diagnosis of the presence of a hydatidiform mole has been diagnosed by the presence in the urine during pregnancy of a marked increase (from ten to 100 times more than during a normal pregnancy) of the follicle stimulating factor; hence it is necessary only to inject a quantity of urine from ten to fifty times less into rabbits than in the case of a normal pregnancy. Recently cases have been reported, which are quoted, in which the amount of the follicle stimulating factor in the urine in cases of hydatidiform mole was not above the normal amount or was entirely absent.

This brings up the question as to whether this hormone has its origin during pregnancy in the hypophysis or is a product of the activity of the placenta. In the first case reported by Reeb, Nerson and Klein, the patient was a primipara, aged 26, seen in the fourth month of pregnancy. The presence of a



hydridiform mole was suspected. A total of 15 cc of urine was injected at intervals during three days into a young rabbit weighing 1,600 Gm. The rabbit was killed seventy hours after the first injection. There was a marked positive reaction in both ovaries. On the strength of this result and a negative roentgenogram a diagnosis of hydridiform mole was made and the uterus evacuated. A fetus 14 cm in length with hydranmios and an apparently normal placenta was found. The microscopic study, however, of the placental villi revealed a picture like that seen in a true hydridiform mole with the exception that there was an absence of vessels in the villi and of vesicular cells.

In the second case a multipara, aged 41 was seen during the fifth month of pregnancy because of frequent hemorrhages. A hydridiform mole being suspected, 0.6 cc of the urine was injected at intervals during three days into a young rabbit weighing 1,800 Gm. The rabbit was killed sixty-four hours after the first injection and showed a marked positive reaction in both ovaries. On account of this result and a negative roentgenogram a vaginal hysterotomy was performed and a dead fetus 16 cm long delivered. Aside from discrete hemorrhages in the placenta the latter appeared normal microscopically. However, the microscopic examination revealed as in the first case, a marked proliferation of the cells covering the villi, with many mitoses. The interruption of pregnancy in both cases was justified by the hemorrhages, the negative roentgenogram and the markedly positive Aschheim-Zondek test indicative of hydridiform mole. In both cases the villi showed the active cellular proliferation seen in hydridiform mole, and for this reason the authors believe that these placental changes in the presence of ordinary pregnancies and in the absence of a hydridiform mole are responsible for the marked increase in the follicle stimulating factor in the urine.

#### Surgical Treatment of Gastric and Duodenal Ulcers

At the Oct. 28, 1934, meeting of the Royal Society of Medicine of Ghent, Finsterer of Vienna stated that subtotal resection of the stomach is the operation of choice in gastric and duodenal ulcer. In 363 such cases there were thirteen deaths, a mortality of 3.5 per cent.

In 920 operations for duodenal ulcer there were thirty-two deaths, a mortality of 3.4 per cent. These favorable results are in part due to the use of splanchnic anesthesia and to the method of anastomosis (Hofmeister-Finsterer technic). In 95.8 per cent of the cases of gastric ulcer, complete cure followed resection. The same was true of 94.6 per cent of the duodenal ulcer cases. Diarrhea following subtotal resection has been observed in only six cases and even here the diarrhea was of short duration. Finsterer has never seen a postoperative secondary or pernicious anemia. In cases of gastric or duodenal ulcer perforation, the intervention consists merely in closure of the perforation by suture.

In 273 resections for gastric ulcer, microscopic examination revealed the presence of cancer in sixty-three or 23.1 per cent. The prognosis in these cases is unfavorable. Eleven of twenty-six cases of this kind had a fatal outcome within five years. Jejunal ulcers following gastro-enterostomy should always be operated on radically. The operation should include removal of the anastomotic area ulcer-bearing area of the duodenum and two thirds or even three fourths of the stomach. Of 168 such operations for jejunal ulcer the outcome was fatal in nineteen, a mortality of 11.3 per cent. Operation should not be delayed in cases of gastrojejunal fistula lest the patient die of starvation. One should operate only if there are strict indications. If one has decided, however, to operate, only radical measures should be considered.

#### Automobile Accidents in Paris

Visitors to France will not be astonished to learn of the large number of deaths and more or less serious injuries which the chief of police of Paris has included in his annual report for 1934. In a city like Paris, where motorcycle police and speed laws are practically unknown, one is not surprised to find that for the year ended July 1, 1934, 28,000 persons were either killed or more or less severely injured, 9,000 of these accidents were to people crossing the streets, 10,000 to occupants of automobiles and 800 to policemen. A laudable effort has been made to mark crossings for pedestrians, which ought to be respected by automobilists, but a number of accidents were the result of persons being injured while traversing these crossings.

#### Experimental Sarcoma Following Injection of Thorium Dioxide

Professor Roussy, director of the new Cancer Institute, and his associates Oberling and Guérin reported some experimental work on sarcoma at the Dec. 18, 1934 meeting of the Academy of Medicine. One cc of a solution composed of equal parts of thorium dioxide sol and physiologic solution of sodium chloride was injected every three or four days either into the peritoneal cavity (series A) or into the subcutaneous tissue (series B) of the abdominal wall of fifty white mice. Five such injections were given in the interval from June 27 to July 11, 1933. Thirty-five animals dying of various intercurrent conditions during the first ten months are not included in either series. The other fifteen died between the tenth and the seventeenth month after the injections. Eight of these fifteen presented either peritoneal or subcutaneous sarcoma.

In the first series four out of ten mice in which thorium dioxide sol had been injected into the peritoneal cavity presented sarcomas that were typical on microscopic examination. In addition to an ascites there was a tumor mass, as large as a walnut at times free, at others pedunculated or forming a compact mass with adjacent viscera. In addition to a principal tumor there were smaller masses on the surface of the intestine, omentum or mesentery. The microscopic picture was that of a fibrosarcoma with numerous mitoses indicative of marked cellular activity, with evidence of invasion of the liver, pancreas, stomach, abdominal wall and diaphragm. The smaller nodules were apparently primary and not metastases. These sarcomas are found where the solution is most apt to accumulate in the upper and lower abdominal regions.

In the second series the solution had been injected into the subcutaneous tissue of the abdominal wall. Four of the five mice thus injected presented typical sarcomas the size of a prune within three or four months after the injections were begun. The sarcomas invaded the entire thickness of the abdominal wall and may ulcerate to such an extent that a perforation results, with hernial protrusion of the small intestine. On microscopic examination these abdominal wall experimental sarcomas show the structure of fibrosarcoma with cellular polymorphism and numerous mitoses. No visceral or lymph node metastases were ever observed. A transplantation of the sarcomas of the second series was attempted and was successful in five of fifty mice, killing four of the five mice in from three to four months. The results of a second transplantation from these four mice is still being studied.

The malignancy of these experimentally produced sarcomas is shown not only by their histologic characters but by the ability to transplant them. The only difficult point is to explain the absence of metastases, but this is often lacking in some forms of malignant neoplasms. The authors believe that these observations will prove important because they demonstrate that the use of other substances than the coal tar derivatives can result in the experimental production of malignant growths.



## BERLIN

(From Our Regular Correspondent)

Feb 4, 1935

### Reorganization of the University Instructors

Soon after the beginning of the new regime in Germany, it was announced that far-reaching changes in the personnel and the mode of instruction at the universities would be made. First came a law concerning the 'emeritization' and transference of university teachers. Previously the appointment of university instructors was subject to the laws of the various *lander* but now the reich has taken over the right. The age for retirement has been placed uniformly at 65 whereas formerly in Prussia it was 68 while in Bavaria there was no limit. The internist Prof. Friedrich von Müller performed until recently the duties of his professorship and his clinic although considerably past 70. The professors are not however pensioned but 'emeritized,' which signifies that they continue to receive their salary undiminished (but none of the tuition money paid by students), whereas under the pension system they had received a pension that was much less than their salary. However, if the interests of the university demand it, 'emeritization' in a given case may be postponed by way of exception.

The second important change brought about by the law was to abolish the ruling that fully established university instructors could not be transferred to another institution against their will. Now, at least during the operation of this law from Dec 13, 1934 to Dec 31, 1937 they may be transferred without their consent to a similar chair in another German university. A professor, instead of being transferred, may be "emeritized" if the reorganization makes it seem desirable to eliminate a chair or to combine one chair with another. It is planned to allow the various universities gradually to specialize in certain fields, for example, protestant theology might be particularly developed in Marburg, and mathematics and the natural sciences in Göttingen.

Furthermore, suitable rectors, or presidents for the administration of universities in the spirit of national socialism may be appointed. One of the first aims is to confirm the führer principle in the universities, in which the rector becomes, as it were, the confidential adviser of the minister.

Further significant changes concern the mode of appointing university instructors, through which as is openly stated, a profound influence will be exerted over the intellectual life and the organization of the whole university system. Until recently the new appointees were, as a rule, selected from lists proposed by the faculties. These lists played an important part, being always much discussed and if the ministry appointed any one whose name was not on the list, it frequently awakened a storm of indignation in the faculty concerned. Now a change has come about, so that in all appointments the university commission of the national-socialist party has a voice, advising the ministries in their selection of candidates and exerting a controlling influence in the final choice. This has been emphatically stressed by the head of this commission, Professor Wirz, dermatologist, of Munich. In a short time thirty-four appointments have been made on the basis of this method. In some German *länder* the distinction between "ordinary" and "extraordinary" professors has been abolished. The main problem now is to apply principles of selection to the university instructors. A reform of the methods of appointment will not, however, suffice.

In keeping with this attitude is the new plan of habilitation (valid for the whole reich), which means provision for the testing and approval of the oncoming generation of instructors. A sharp distinction will henceforth be made between habilitation and *dozentur* or the acquisition of the right to teach in a

German university. The "privatdozent," who gave to the German university a peculiar cast, has dropped out. In place of the privatdozent there are now two titles: a new academic degree, 'Dr. habil,' for which every person with a doctor's title conferred by a university faculty is eligible but which does not grant the right to teach. This title is conferred as a purely academic procedure without reference to the need of new instructors. For the acquisition of this advanced doctor's degree a habilitation paper of scientific value and a scientific discussion before the faculty are required. The rector is invited to be present. If the rector and the faculty are convinced that 'the applicant is able to discuss questions pertaining to his specialty in a satisfactory manner,' the committee on instruction, if it agrees, authorizes the faculty to grant the request for habilitation. Thereupon the applicant receives the aforementioned title of Dr. habil. In addition to scientific requisites, a questionnaire as to the Aryan origin of the applicant and his wife are demanded.

The second chapter, which concerns the *dozentur*, or the actual acquisition of the *venia legendi*, presents some entirely new aspects. The same general qualifications hold for a dozent, or instructor, as for a public official. The minister of public instruction refers the applicants, who of course must hold the degree of Dr. habil, to a suitable faculty. The candidate must first submit to a public three-day teaching test the subjects for which the faculty must choose from three subjects proposed by the applicant. The rector and the representatives of the instructors and the students are present during the test. The rector sends a report on the test to the department of public instruction. Then the applicant reports for service in the work camp and to the Dozentenakademie, or academy of instructors (THE JOURNAL, Dec 16, 1933, p. 1980). A report on this work service is likewise sent to the department of public instruction. That department, with the cooperation of the federal minister of science, decides on the granting of the *venia legendi*. The question as to whether there is a need of university instructors plays a decisive part in the decision. The *venia legendi*, as granted, applies to all the universities of the German reich, whereas formerly it applied only to the university at which the test was held. However, removal to another university can be effected only with the consent of the minister, but a removal may be ordered by the minister without the consent of the candidate. The minister may also withdraw or restrict the *venia legendi*, if it seems desirable in the interest of the university. Those who had previously passed their habilitation test are immediately recognized as "dozenten," or instructors, and have the title of Dr. habil. This title is applicable also to those who no longer are teaching at a German university, provided they have previously been habilitated.

It is interesting to note what the university commission of the national-socialist party, which will exert an important influence on further developments, has said about university instructors. Professor Reiter, president of the federal board of health has emphasized that it is the duty of the physician of the Third Reich to provide not only for the care of the public health but also for the training of the German people in a type of "thinking, feeling and doing" which will bring credit to the race from which they are sprung. The primary precondition is a biologically directed selection of university instructors and students. The decisive factors concern not only the intellectual performance but also the aptitudes, the adjustments and the world views. Any possible reactionary tendencies will be overcome. At present there is not sufficient good material to draw from in the filling of vacancies in the universities. It will require from five to six years of special training before an ideal university instructor will be available. Not until then shall we have the type of physician that is needed.

### The Reform of Medical Instruction

The next goal is the reform of the course in medicine. It is expected that the necessary reforms can be introduced in the fall of 1935. It is, says Professor Wirz, the task of national socialism to create a new type of physician and a new medical profession. The old Virchow ideal of physician who considers the healing of the individual his sole task is today outmoded. The individual person stands no longer in the foreground but rather the people and the race in its entirety. The new training at the university must produce this type of physician. When the final provisions of the reforms have been announced, they will be described in detail.

### The Official German Medical Report of the World War

The official German sanitary report of the World War 1914-1918, as prepared by the Heeres-Sanitäts Inspektion des Reichswehrministeriums has begun to be published. Volume III, which has just appeared, gives a survey of the number of persons killed, wounded and the victims of disease among the participants in the war. The number of medically treated wounds and illnesses amounts to more than 27,000,000. The details of the survey are based on the utilization of the huge mass of statistics contained in the official lists of the dead, and in the medical reports of the troops and the hospitals of the army in the field and the army of occupation. From September 1918 on, however, the reports are incomplete because of the revolutionary disturbances.

The total number of war participants in the army (exclusive of the marine and the protective forces in the colonies), up to the end of July 1918 was 13,100,000, or, if the 1900 levy, which had been called to the colors, is included, 13,300,000. During the four years of the war the average number of effectives in the army in the field and in the army of occupation was 6,372,000. Up to Dec. 31, 1933 (that is, including delayed reports), the total number of persons killed in action and dying from all causes is placed at 2,036,897. Of this number, 1,900,876 were killed or died during the war or during the border struggles in the east, 34,836 in the navy, and 1,185 in the colonies. In addition, 100,000 were reported missing, being presumably dead. The loss of human life is increased in one sense by the resulting diminution of births which for the present territory of the Reich is placed at 3,000,000 and at 3,500,000 for the prewar territory.

The number of persons totally blind as the result of war injuries was 2,734. The army in the field had 4,814,557 wounded men during the four years of the war.

### Warning Against the Use of Dinitrophenol

On the basis of observations in other countries—particularly the United States—the federal bureau of health has called urgent attention to the dangers that may be associated with the use of dinitrophenol by persons unfamiliar with its properties. Dinitrophenol and preparations containing this substance, if used at all, should be used experimentally and only under constant observation in clinics and hospitals, especial care being taken to determine the therapeutic dosage on the basis of the body weight. The federal bureau of health will, if necessary, adopt requisite measures for the prevention of damage to the health of the population. Thus far, according to the best information obtainable, dinitrophenol is little used in Germany.

### Coronary Infarcts

For years it has been known that coronary occlusion produces typical changes in the electrocardiogram. Professor Büchner and Dr. Haager studied fifty cases with the aid of Professor Weber of Bad Nauheim. The coronary arteries are connected with one another by such numerous anastomoses that only a sudden and total blocking can lead to an infarct. The blood flow through the coronary arteries according to

the research of Professor Rein, is entirely dependent on the heart performance and is controlled by the vagus. The infarct arises usually when an arteriosclerotic coronary vessel becomes thrombosed, which commonly takes place at night when the circulation has become retarded. The preferred site is the anterior branch, whereby the anterior wall of the heart, the apex and the ventral portion of the septum become infarcted. The second preferred site is the right coronary artery and leads to the infarction of the right ventricle and the posterior wall of the left ventricle. The infarction often penetrates the whole heart. Sometimes a rupture may occur. Disseminated fibrous areas are the residues of an old coronary insufficiency. If for the coronaries there is a discrepancy between heart performance and blood supply, an acute coronary insufficiency develops which clinically often takes the form of angina pectoris. If death ensues, necropsy reveals in such a case multiple disseminated necroses over the heart. Often in aortic insufficiency the coronary circulation is damaged to such an extent by the back flow during diastole and by the low blood pressure that angina pectoris may develop.

Professor Weber spoke on the same subject. One may note in the electrocardiogram the following departures from normal: (1) lengthening of the first ventricular complex, (2) flattening, or even downward deflection of the T wave, and (3) the so-called coronary wave. The current emanating from the stimulated muscle is biphasic. If the current is led off separately from the base and the apex of the heart, the base will give an upward deflection and the apex a downward deflection. If the current is led off from the base and the apex at the same time, one gets an electrocardiogram in which the upward directed current of the base (wave S) is brought down by the initial action of the apex. In wave T the action of the base again predominates, since it begins earlier and continues longer than the action of the apex. The negative deflection of the space between waves S and T is caused by an impaired myocardium. Likewise in an attack of hypoglycemia this portion of the electrocardiographic curve becomes negative and the result is the same whether mechanical or chemical disturbances prevent the necessary amount of oxygen from reaching the myocardium. It is important that the various leads show different changes depending on the site of the infarct. For example infarcts of the posterior wall are characterized by changes in the third lead. The so-called coronary wave presents itself particularly in the presence of a recent infarct. In the first and second leads one observes infarct changes in the anterior wall; in the second and third leads one notes changes in the posterior wall—infarct changes located in the base. The negative interspace between the S and the T waves does not justify any definite conclusions as to thrombosis and infarct but is often due to the action of a coronary insufficiency. Recent coronary thrombosis causes a marked drop in the T wave. It is more difficult to interpret the negative ST space in the first ventricular complex, which must result from injuries of the myocardium of various kinds. Oxygen deficiency accentuates the manifestations in the electrocardiogram. The experimental production of various degrees of oxygen deficiency constitutes an important test of heart functioning.

### A Clearing House for Scientific Congresses

In the scientific congresses of the past there has been a certain lack of continuity. For this reason a central body that aims to aid in the organization of all German medical congresses and if feasible, of international congresses, has been created. The headquarters of this central body will be in Berlin, in the Langenbeck-Virchow Haus, where the Deutsche Gesellschaft für Chirurgie and the Berliner Medizinische Gesellschaft are likewise located. Heretofore the personnel of

the committees in charge of the organization of a given congress and of all the arrangements changed with every session of the congress. The purpose of the new central body is to serve as a clearing house of information and thus to prevent the collective positive and negative experience of the organizers of congresses from being lost.

### VIENNA

(From Our Regular Correspondent)

Feb. 2 1935

#### Regulations Concerning Narcotics and Industrial Poisons

In December 1934 the minister of public health issued new regulations governing the use of narcotics and of industrial poisons. The regulations replaced dated back to 1918. The new regulations cover poisonous substances used not only for therapeutic but also for industrial purposes and they designate particularly the substances used as narcotics. The new regulations are of especial interest to physicians since they must be taken into account in the writing of prescriptions. Under narcotics are listed crude opium, prepared opium, opium for smoking, medicinal opium and its derivatives: morphine, heroin (diacetylmorphine), paramorfan, genomorphine, dilaudid, dicodid, eucodal, acedicon, also coca leaves and derivatives: crude cocaine, ecgonine, cannabis, thebaine and benzylmorphine. All preparations, esters or salts containing any of the enumerated narcotics are to be regarded as narcotics within the meaning of these regulations even though prepared synthetically, diluted or adulterated. Tropicocaine is no longer to be regarded as a narcotic. With regard to the poisons that are in use in the industries, the crafts, agricultural pursuits, forestry and in the homes, no new provisions were promulgated although attention was called to substances that contain poison and are injurious to health if not handled properly or taken internally. To this class belong ether, ammonia, lyes, plant protectors containing barium, benzene, chromic acid, for batteries, creolin, phenol, compound solution of cresol, tobacco extract, and others. Narcotics may no longer be sent through the mail so that physicians' samples must now be delivered by messengers. Physicians, veterinarians and dentists who require narcotics in the practice of medicine must keep a record of their purchases and must state how the substances were used so that government inspectors who examine their books will understand at once to what uses the narcotics were put. The prescribing of narcotics is prohibited in the form of medicated tablets containing more than 30 per cent in powder form or more than 15 per cent in solution of any of the following substances: morphine, heroin, paramorfan, genomorphine, dilaudid, dicodid, acedicon, eucodal, cocaine, thebaine, benzylmorphine or ecgonine. Cocaine in pure substance may be prescribed only for physicians for use in medicine. In prescribing narcotics, the physician must record the following matters on the prescription blank: the kind of drug and the quantity; in the case of powders the amount of the single dose; the directions for taking; the name of the patient, and his own signature together with stamp. Prescriptions for cocaine and cannabis preparations may be used but once and may not be refilled. The law deals also with codeine (methyilmorphine) and ethylmorphine hydrochloride which are put in the same category as narcotics so far as their production, their importation and exportation and the wholesale trade are concerned. Physicians having their own pharmacy need observe only the ordinary restrictions in the dispensing of drugs belonging to this group.

#### New Treatment for Injured Joints

At one of the recent sessions of the Vienna Medical Society, Dr. Kraus of the Surgical Clinic demonstrated a new method of treating the so frequent distortions of joints. In the past

two groups of distortions have been distinguished: the mild and the severe type. The former have usually been given little or no treatment. In the second group, fixation over a considerable period was employed, various kinds of bandages being used, particularly the plaster cast, which played an important part. Subsequent examinations in the many cases reaching the second emergency station of the Vienna General Hospital, and of 1,843 sport devotees who came to the sport consultation center of the second clinic, gave the surprising result that a *restitutio ad integrum* is not secured by any method. Particularly after the use of plaster casts, one finds frequently marked vulnerability of the joints, a tendency to recurrence, loose joints, swelling, and pain. Complete cures and a shortening of the period of recovery which is of so great social importance, were rare. It was observed repeatedly that untreated patients who applied the necessary energy to overcome the severe pain and made immediate use of the injured joints recovered most rapidly and with the best results. Likewise subsequent examinations of lacerated ligaments yielded similar results. It is well known among the working classes that cold applications effect a diminution of pain. Further researches in this direction have shown that cold anesthesia applied to the skin (ethyl chloride) produces a far reaching desensitization of the ligamentary apparatus of the joints and that active movements during the period of anesthesia will release a blocked joint painlessly and usually completely.

From this observation it is possible to deduce two important principles. Anesthesia of the sensitive area over a joint exerts an analgesic effect in lesions of the ligamentary apparatus and a single interruption of the pain and of the muscle block will usually restore the disturbed function. On the basis of these considerations and observations, therefore, the following procedure was devised. After roentgenologic verification of the diagnosis, the pain point of the injured joint is determined and ethyl chloride is applied. The period of freedom from pain is lengthened by application of a cold producing mixture (alcohol-ether-acetone-camphor). Then the patient is required to make active movements, which are continued for from ten to twenty minutes. Often a second and a third application of anesthesia is necessary. The patient is instructed to use at home compresses dipped in a 70 per cent alcohol solution and, at the same time to hold the joint over steam. This may be repeated from three to six times during the day. In several cases two or three treatments after the method described are necessary in order to obtain a complete restoration of working capacity and ability to participate in sports. Thus far fifty cases have been treated by this method, namely, thirty-eight sprung joints, four medial lateral ligaments, six fingers and two distortions of the spinal column. In none of the cases was any injury of the skin observed but it is well to oil the skin in advance. Patients who limped badly previously could leave the ambulatorium walking normally in spite of the distortion. It must, however, be emphasized that not all cases can be treated in this manner. A considerable number of severe cases require a plaster cast, injections into the ligamentary apparatus or an operative intervention. But it is certain that the method described in many cases of this so important injury will bring a significant improvement in the therapy and a considerable shortening of the duration of the disorder.

#### Professor Finsterer Succeeds Professor Schnitzler

Professor Finsterer has been chosen to fill the vacancy in the surgical department of the second largest Vienna hospital. He has acquired a reputation by reason of his method for abdominal operations under local or spinal anesthesia, in fact, it is no exaggeration to speak of the Finsterer school in Vienna. He is 59 years old. His training was obtained in the Vienna clinics.

## Marriages

LAMAR L LANCASTER, Bartow, Fla, to Miss Mildred Alberta Dunn of Bogalusa, La, at Tallahassee Fla, March 18

HUNTER L GREGORY, Stockton, Calif to Mrs Dorothy De Graff Weaver of San Francisco February 1

OSCAR McLAUGHLIN of Rocky Hill Ohio, to Mrs Carrie Davis Eisman of Gallipolis, January 20

BERNARD VIENER to Miss Rebecca Cohen, both of Harrisburg, Pa, at Philadelphia March 17

MURIEL McFLIN CASE Wallingford, Conn, to Mr Arthur R Downer of Hamden March 16

ROBERT E HARPIS, Brooklyn, to Miss Dorothy Clair Hussie of New York February 9

ROBERT J SEMONS, Carey, Ohio, to Miss Dorothy Kemper of Cincinnati February 25

POWELL W JOYNER to Miss Dorothy Marion Dunn both of Enfield, N C March 9

HOWARD C MOLOY to Miss Elizabeth Ewart Metzger, both of New York, March 2

SALL A SCHWARTZ to Miss Helen Judith Skinder both of New York March 16

## Deaths

**Horace David Arnold**, Boston, Harvard University Medical School, Boston, 1889 member of the House of Delegates of the American Medical Association 1908-1913, and member of the Council on Medical Education 1913-1923 member of the Massachusetts Medical Society and the American Clinical and Climatological Association past president of the Suffolk District Medical Society at one time instructor and professor of clinical medicine Tufts College Medical School dean of the Harvard University Medical School Courses for Graduates 1912-1916 and later director, during the World War was assigned to duty at the surgeon general's office in Washington later serving as supervisor of medical education of the army division, formerly member and president of the National Board of Medical Examiners, and member of the State Board of Registration in Medicine, at various times on the staffs of the Boston Dispensary and the Boston City Hospital aged 72 died March 11 at his home in Waltham

**Julius John Valentine** of New York Columbia University College of Physicians and Surgeons New York 1905 professor of urology, New York Polyclinic Medical School and Hospital, member of the Associated Anesthetists of the United States and Canada and the American Urological Association fellow of the American College of Surgeons served during the World War on the staff of the Morrisania City Hospital, was recently decorated by the government of Venezuela for services rendered to that country past president of the Pan American Medical Association aged 52 died March 11 in the New York Orthopedic Hospital of pneumonia, following an operation

**George Hoyt Bigelow** of Boston Harvard University Medical School, Boston, 1916, health commissioner of Massachusetts, 1925-1933 and director of the division of communicable diseases, state department of health, 1924-1925 served during the World War, past president of the American Society for the Control of Cancer since 1934 director of the Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary director of industrial medicine and hygiene Antioch College, Yellow Springs Ohio 1921-1922 and director of the Cornell Clinic New York 1922-1924 aged 44 was found dead, March 23 in a reservoir in Framingham

**George A Carpenter** of Fargo, N D, Minnesota Hospital College, Minneapolis 1885 formerly councilor of the first district and past president of the North Dakota State Medical Association fellow of the American College of Surgeons served during the World War, at one time county health officer for six years member of the school board member of insanity board county board of health on the advisory board of St John's Hospital member of the staff of the Florence Crittenton Home aged 72 died February 23 as the result of chronic arthritis and heart disease

**Harry Austin Sifton** of Milwaukee University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886 fellow of the American College of Surgeons formerly pro-

fessor of clinical surgery Wisconsin College of Physicians and Surgeons, chief of staff of Milwaukee Hospital for sixteen years consulting surgeon to Columbia Hospital and Johnston Emergency Hospital aged 67, died, February 27 in Phoenix, Ariz, of coronary sclerosis

**Arthur Alfred Pratte** of Keene, N H, School of Medicine and Surgery of Montreal, Que Canada 1893 member of the New England Otological and Laryngological Society, past president and secretary of the Cheshire County Medical Society, chairman of the city board of health formerly school physician and city health officer, on the staff of the Elliot Community Hospital aged 65, died February 4 of coronary thrombosis

**James Monroe Witt**, Waco Texas Tulane University of Louisiana Medical Department New Orleans, 1885, member of the State Medical Association of Texas, past president of the McLennan County Medical Society member of the state board of medical examiners on the staffs of the Central Texas Baptist Sanitarium and the Providence Sanitarium, aged 84, died February 22, of bronchopneumonia and bilateral pyelonephritis

**Ira Groff Shoemaker** of Reading Pa Medico-Chirurgical College of Philadelphia, 1891, past president of the Medical Society of the State of Pennsylvania and formerly councilor of the third district past president and secretary of the Berks County Medical Society at one time member of the school board aged 65 for many years on the staff of the Reading Hospital where he died, February 28 of ruptured duodenal ulcer

**William Hamilton Miller** Little Rock Ark. Arkansas Industrial University Medical Department Little Rock 1888, Bellevue Hospital Medical College New York 1889, member of the Arkansas Medical Society emeritus professor of obstetrics University of Arkansas School of Medicine member of the staffs of the Baptist State Hospital and St Vincent's Infirmary aged 67 died, January 23 of coronary thrombosis

**Louis Joseph Cassano**, New York Fordham University School of Medicine New York 1921 member of the Medical Society of the State of New York aged 37 on the staffs of the Columbus and Fordham hospitals New York, and St Joseph's Hospital Yonkers where he died March 1 of acute mastoiditis cavernous sinus thrombosis and meningitis

**David Michael Roberts** of Major M C U S Army, Fort Bragg N C Medical College of Ohio Cincinnati, 1895 served in the Federal Service as a contract surgeon from 1898 to 1903 served during the World War entered the medical corps of the U S Army as a major in 1920 aged 62, died February 27 in Kona Hawaii of coronary disease

**Oscar Mitchell Unger**, Pawtucket R I, University of Michigan Medical School Ann Arbor 1915 member of the Rhode Island Medical Society member of the New England Roentgen Ray Society on the staff of the Notre Dame Hospital Central Falls aged 44 died suddenly February 20, in the Memorial Hospital of cerebral hemorrhage

**John G W Westerhoff** of Carleton Neb Medical Department of Omaha University 1899 past president of the Thayer County Medical Society served during the World War formerly member of the state legislature and board of education aged 64 died February 23 in St Elizabeth's Hospital Lincoln of heart disease and diabetes mellitus

**Leslie Alonzo Purifoy** of El Dorado Ark Rush Medical College Chicago 1930 past president and secretary of the Union County Medical Society on the staffs of the Henry C. Rosamond Memorial Hospital and the Warner Brown Hospital, aged 30 died February 1 of coronary embolus as the result of injuries received in an automobile accident.

**Melvin Samuel Rosenthal** of Baltimore College of Physicians and Surgeons, Baltimore 1891 professor of dermatology, University of Maryland School of Medicine fellow of the American College of Surgeons aged 65 on the staffs of the Mercy Hospital and the Sinai Hospital where he died February 16 of carcinoma of the rectum

**Jane W M Skolfield**, Salt Lake City Denver and Gross College of Medicine Denver 1907 member of the Utah State Medical Association vice president of the board of directors of the Utah State Industrial School Ogden on the staff of the Latter Day Saints Children's Hospital aged 68, died, February 11, of chronic myocarditis

**Robert Alexander Walker** of Menominee, Mich University of Bishop College Faculty of Medicine, Montreal Que., Canada 1895 past president of the Menominee County Medical Society fellow of the American College of Surgeons on the staff of St Joseph's Hospital aged 63, was found dead March 1 of cerebral hemorrhage

**James Joseph Norton** Westfield Mass New York University, University and Bellevue Hospital Medical College, 1908 member of the Massachusetts Medical Society and the New England Obstetrical and Gynecological Society on the staff of the Noble Hospital aged 50, died January 19 in St Francis Hospital, Hartford Conn of epithelioma with metastasis to the liver

**Joseph Wheeler Smith Jr** Major U S Army, retired Eugene, Ore Long Island College Hospital Brooklyn 1913 served during the World War was appointed a first lieutenant in the medical corps of the U S Army in 1918 and in 1920 was made a captain and in 1929 a major was retired in 1934 aged 44, died, January 28

**Murray A Russell** Washington D C Georgetown University School of Medicine, Washington 1906 at one time associate clinical professor of surgery at his alma mater fellow of the American College of Surgeons formerly consulting surgeon to St Elizabeths Hospital (Psychiatric Department) aged 53, died, February 19

**Lewis Clinton Day** Elmira N Y University of Vermont College of Medicine Burlington 1904 formerly physician in the Indian Service health officer of the town of Elmira for many years on the staff of the State Reformatory aged 57, died March 1, in St Josephs Hospital of carcinoma of the stomach

**Frederick McNaughton Robertson**, Bristol, N H Harvard University Medical School Boston, 1901 member of the New Hampshire Medical Society served during the World War on the staffs of the Margaret Pillsbury Hospital, Concord and the Franklin (N H) Hospital aged 58 died January 26

**Ernest Lackner**, Chicago Bennett College of Eclectic Medicine and Surgery Chicago 1872 past president of the Southside branch of the Chicago Medical Society for many years on the staffs of the Michael Reese and Grant hospitals, aged 83, died, March 14 of carcinoma of the gallbladder

**George Harvey Guth**, Staten Island N Y University of Pennsylvania Department of Medicine Philadelphia 1903 served during the World War acting assistant surgeon U S Public Health Service aged 64 died February 16 in the U S Marine Hospital of carcinoma of the intestine

**John Clarence Kepler** Kirkville Iowa Keokuk Medical College College of Physicians and Surgeons 1905 past president of the Wapello County Medical Society aged 57 on the staff of St Joseph Hospital Ottumwa where he died February 17, of cerebral hemorrhage

**Charles Plummer Buzzell** Cleveland N D University of Vermont College of Medicine, Burlington 1892 past president of the Stutsman County Medical Society aged 67 died February 15, in the Bismarck (N D) Hospital of cholecystitis, hepatitis and hemiplegia

**Edward Simon Murphy** Dixon Ill Rush Medical College, Chicago, 1897 fellow of the American College of Surgeons, past president of the Illinois Tuberculosis Association on the staff of Dixon Public Hospital, aged 64 died March 22, of cerebral hemorrhage

**Cyril Herman Burger**, Winnipeg Manit Canada L.R.C.P. L.R.C.S., Edinburgh and L.F.P.S. Glasgow 1899 member of the Radiological Society of North America aged 66, died, February 27, in the Winnipeg General Hospital of carcinoma of the stomach

**John Davis Dabney Ware** Baltimore University of Virginia Department of Medicine, Charlottesville 1929 member of the Medical Society of Virginia resident physician to the Johns Hopkins Hospital, aged 31 died suddenly February 23 of heart disease

**Otho H Williams Ragan**, Hagerstown Md University of Maryland School of Medicine Baltimore 1874 fellow of the American College of Surgeons formerly on the staff of the Washington County Hospital, aged 81, died, January 15, of pneumonia

**James Lundie Barton**, Memphis Tenn Vanderbilt University School of Medicine Nashville 1895 member of the Tennessee State Medical Association, past president of the Memphis and Shelby County Medical Society aged 67, died January 6

**Harry Seltzer Meily**, Carlisle Pa Hahnemann Medical College and Hospital of Philadelphia 1898 member of the Medical Society of the State of Pennsylvania on the staff of the Carlisle Hospital aged 81 died February 24 of angina pectoris

**Donald Raymund Smith**, Eldridge Calif, Cooper Medical College, San Francisco, 1899 formerly superintendent of the Mendocino State Hospital, Talmage assistant superintendent of the Sonoma State Home aged 60, died suddenly, of heart disease

**Claude Wellington Batdorf**, Harrisburg, Pa, University of Pennsylvania School of Medicine Philadelphia 1911, member of the Medical Society of the State of Pennsylvania on the staff of the Harrisburg Polyclinic aged 47 died, January 21

**Raphael Nassar Joseph**, Middleboro, Mass., Georgetown University School of Medicine, Washington, D C, 1933, house physician to the Lakeville State Sanatorium, aged 26 died, March 2 of lobar pneumonia and pneumococcal meningitis

**Stacy Barcroft Dimond** Albany, Ill, State University of Iowa College of Medicine, Iowa City, 1889, also a druggist, aged 71 died, March 8 in the Jane Lamb Hospital Clinton Iowa of pulmonary embolus following an appendectomy

**Benjamin Franklin Elfrink** Chenoa, Ill, Rush Medical College Chicago, 1902 past president of the Livingston County Medical Society at one time mayor, formerly president of the school board, aged 60 died, March 12, of nephritis

**Milton D Norris** Eldersburg, Md, College of Physicians and Surgeons Baltimore, 1892, past president of the Carroll County Medical Society, veteran of the Spanish-American War aged 63 died February 17, of heart disease

**Josephine Walter**, New York Woman's Medical College of the New York Infirmary for Women and Children New York, 1882 member of the Medical Society of the State of New York aged 84 died February 26, of pneumonia

**Otis Bush Mallow**, Hines, Ill, Medical College of Ohio Cincinnati 1901 served during the World War chief of the diagnostic center Veterans Administration Facility, aged 59, died, March 10, of a self inflicted bullet wound

**Harry Clifford Antle**, Chickasha, Okla, University Medical College of Kansas City, 1904 member of the Oklahoma State Medical Association, served during the World War, aged 52, died February 7, of hepatic cirrhosis

**George Clayton Zimmerman**, Philadelphia Hahnemann Medical College and Hospital of Philadelphia, 1933 member of the staffs of St Luke's Hospital and the Children's Hospital aged 33, died, February 21, of lymphosarcoma

**François de Borgia Bergeron**, Fall River, Mass School of Medicine and Surgery of Montreal, Que., Canada, 1894, on the staff of St Anne's Hospital aged 64 died, February 27 of coronary thrombosis and arteriosclerosis

**Charles Dudley Underhill**, Staunton, Va, Harvard University Medical School, Boston, 1888 veteran of the Spanish-American War aged 68, died, January 5, in the King's Daughters Hospital, of bronchopneumonia

**Lucy Appleton**, Central Falls, R I, Boston University School of Medicine, 1887 formerly on the staff of the Massachusetts Memorial Hospitals, Boston, aged 86, died, February 23, of chronic myocarditis and endocarditis

**Carl Kaiser Wagener** Pittsburgh University of Pittsburgh School of Medicine, 1910, member of the American Academy of Pediatrics, served during the World War aged 51, died, February 26, of heart disease

**John F Reilly**, Rensselaer, N Y Albany (N Y) Medical College, 1883, formerly health officer of Rensselaer consulting obstetrician to St Peter's Hospital, Albany, aged 71, died, March 3, of coronary thrombosis

**Benjamin Franklin Roe**, Chetopa, Kan University Medical College of Kansas City, 1908 member of the Kansas Medical Society, president of the board of education, aged 63, died February 17, of angina pectoris

**Frank Eugene Andrews**, Adrian, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878, member of the Michigan State Medical Society, formerly mayor, aged 77 died January 20

**Adolph W Lakemeyer**, Chicago Rush Medical College Chicago 1902, aged 62 for many years on the staff of the Norwegian-American Hospital where he died, March 12, of a self inflicted bullet wound

**William Melvin Ramsay**, Jonesboro, Tenn Vanderbilt University School of Medicine, Nashville, 1887 aged 75 died February 14, in a hospital at Greeneville, of senile gangrene and hypostatic pneumonia

**Charles August Riemcke**, Yakima Wash State University of Iowa College of Medicine Iowa City, 1909 member of the Washington State Medical Association, aged 52 died January 21

**Philip Ross Watkins**, Mena, Ark., Vanderbilt University School of Medicine, Nashville, Tenn., 1893, member of the Arkansas Medical Society, aged 69, died, February 24, of pneumonia.

**Charles Adrian Julian** ♂ Greensboro, N. C., Louisville (Ky.) Medical College, 1888, aged 68, on the staff of the Wesley Long Hospital, where he died, February 15, of pneumonia.

**Edwin Lamar Nichols**, Raleigh, N. C., Medical College of the State of South Carolina Charleston, 1934, aged 25, intern at the Rex Hospital where he died, March 4, of septicemia.

**Thomas Ellis Tucker**, Monroeville Ala., University of Alabama School of Medicine 1920, formerly health officer of Houston County, aged 43, died Dec. 19, 1934, in a hospital at Selma.

**John Parker Dickson**, Keokuk Iowa, State University of Iowa College of Medicine Iowa City, 1888, also a pharmacist, aged 73, died February 1, of hypertrophy of the prostate and uremia.

**Powhatan Stanley Schenck**, Norfolk Va., College of Physicians and Surgeons Baltimore, 1881, formerly director of public welfare and health commissioner, aged 71, died January 24.

**George Arnold Woodcock**, Cottonwood, Idaho, College of Physician and Surgeons of Chicago 1894, member of the Idaho State Medical Association, aged 64, died Dec. 20, 1934.

**H. S. Copeland**, Dresden Tenn., University of Tennessee Medical Department, Nashville, 1893, formerly bank president, aged 66, died January 28, in St. Thomas Hospital, Nashville.

**Amos Charles Fey** ♂ Galesburg Ill., Northwestern University Medical School Chicago 1925, aged 34, on the staff of St. Mary's Hospital, where he died March 3, of pneumonia.

**Charles S. Means**, Wilson, Pa., Jefferson Medical College of Philadelphia 1883, formerly on the staff of St. Agnes Hospital, Philadelphia, aged 72, died February 19, of uremia.

**Edward Kenneth Wolff**, Media Pa., Temple University School of Medicine, Philadelphia 1910, on the staff of the Media Hospital, aged 50, died March 1, of heart disease.

**James Archibald McNiven**, Aberdeen Wash., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891, aged 80, died, February 4, of cerebral hemorrhage.

**Charles L. Allen**, Cosby, Mo., Central Medical College of St. Joseph, 1898, member of the Missouri State Medical Association, aged 61, died, Dec. 8, 1934, of arteriosclerosis.

**Charles D. Napier**, Blenheim, S. C., Medical College of South Carolina Charleston 1898, member of the South Carolina Medical Association, aged 58, died January 7.

**Alexander Vernon Webster**, Vancouver B. C., Canada McGill University Faculty of Medicine Montreal Que. 1912, aged 50, died February 14, of coronary sclerosis.

**William Crawford Mackintosh**, San Francisco, Cooper Medical College San Francisco 1910, fellow of the American College of Surgeons, aged 50, died January 10.

**Jay Frederick Pitts**, Chicago, National Medical University Chicago, 1904, aged 56, died February 12, in the Westlake Hospital, Melrose Park, Ill., of heart disease.

**Lee W. Wheeler**, Kite Ga., University of Georgia Medical Department Augusta 1900, aged 64, died January 14, in a hospital at Dublin, of valvular heart disease.

**Lee J. Knerr**, Philadelphia, Hahnemann Medical College of Philadelphia, 1880, aged 77, died February 17, of gastric hemorrhage and carcinoma of the prostate.

**Malcolm Storer** ♂ Boston, Harvard University Medical School, Boston, 1889, formerly instructor in gynecology at his alma mater, aged 72, died, January 2.

**Wilbert Shallenberger**, Chicago, Barnes Medical College St. Louis, 1901, Illinois Medical College Chicago 1902, aged 60, died, March 17, of carcinomatosis.

**William Cornelius Pressly**, Troy, Tenn., University of the City of New York Medical Department 1889, aged 77, died, February 18, of arteriosclerosis.

**Karl Elmer Ochs** ♂ Cleveland, Western Reserve University Medical Department, Cleveland 1904, aged 54, died suddenly, February 5, of heart disease.

**Christopher C. Banta**, Coal Mo., University of Nashville (Tenn.) Medical Department, 1888, aged 68, died Dec. 2, 1934, of carcinoma of the sigmoid.

**Daniel Webster Dorman**, Boston, College of Physicians and Surgeons, Boston 1893, aged 70, died, January 27, of myocarditis and arteriosclerosis.

**Benjamin Anthony Robinson**, Sayreville, N. J., University of the City of New York Medical Department, 1892, aged 72, died Dec. 8, 1934.

**Leonard Melvin Pulsifer**, Davis, Calif., University of the City of New York Medical Department, 1888, aged 66, died, January 5, of heart disease.

**Henry John Brewer**, Brooklyn, Long Island College Hospital, Brooklyn, 1880, Civil War veteran, formerly coroner, aged 88, died, January 9.

**William Hendricks**, Chicago, Keokuk (Iowa) Medical College, 1891, aged 86, died March 14, of chronic myocarditis and acute nephritis.

**James A. Humphrey**, Martha Okla., Missouri Medical College, St. Louis 1890, aged 70, died February 17, of hypertension and myocarditis.

**Erwin R. Wright**, Philadelphia, Detroit Medical College 1885, aged 76, died February 2, in the Presbyterian Hospital of bronchopneumonia.

**William Whipper Purnell**, Berkeley Calif., Howard University College of Medicine, Washington D. C., 1893, aged 65, died January 2.

**Thomas Hayne Wedaman**, Johnston S. C., University of Maryland School of Medicine Baltimore 1909, aged 52, died, suddenly, January 9.

**Walter Keene Prichard** ♂ Cloverdale Ind., Miami Medical College Cleveland, 1882, aged 75, died February 8, of phlegmonous erysipelas.

**Emil Bernhardt Quade**, Wausau Wis., Bennett College of Eclectic Medicine and Surgery, Chicago 1901, aged 57, died January 31.

**Joseph Edward Duxbury**, Central Falls, R. I., University of the City of New York Medical Department 1891, aged 67, died in January.

**Edward Franklin Stevens**, Seattle, Medical School of Maine Portland 1887, aged 87, died February 12, of chronic myocarditis.

**Robert Murphy Freeman**, Dallas Texas, Baylor University College of Medicine Dallas 1907, aged 72, died, January 20.

**Lydia Estelle Kynett Parmele**, Glendale Calif., American Medical Missionary College Chicago 1900, aged 69, died, January 7.

**Andronique Lafond**, Parisville Que., Canada, Laval University Faculty of Medicine, Quebec 1908, aged 60, died, January 8.

**James L. Alexander**, Hartsville Tenn., Vanderbilt University School of Medicine Nashville 1881, aged 83, died January 7.

**Adam J. Dundore**, Philadelphia, Jefferson Medical College of Philadelphia 1866, aged 92, died February 21, of arteriosclerosis.

**Warren Linwood Earnest**, Winfield Ala., Memphis (Tenn.) Hospital Medical College, 1904, aged 64, died, January 25.

**John Kelley Wood**, Brownsville Ky., University of Louisville (Ky.) Medical Department, 1905, aged 54, died, February 4.

**Gustav J. Racek**, Pasadena Calif., Chicago Medical College, 1884, aged 74, died January 7, of arteriosclerotic heart disease.

**Hershell M. Earle**, Berry Ky., Kentucky School of Medicine Louisville, 1898, aged 72, died, February 16, of angina pectoris.

**John R. Perry**, Atlanta Ga., Georgia College of Eclectic Medicine and Surgery Atlanta 1892, aged 80, died, January 24.

**Samuel T. Reeves**, Fort Madison Iowa, Milwaukee Medical College 1908, aged 58, died in February, of heart disease.

**F. W. Macartney**, Gaspé, Que., Canada, McGill University Faculty of Medicine Montreal 1896, died February 13.

**Anthony Oaks**, Preston, Ont., Canada, University of Toronto Faculty of Medicine, 1888, aged 72, died January 18.

**Chester Edward Logan**, Largo Fla., Memphis (Tenn.) Hospital Medical College 1882, aged 75, died January 11.

**Harry McElwee**, Long Beach Calif., Medical College of Ohio Cincinnati 1882, aged 73, died, January 17.

**William G. Eaves**, Bremond Texas, (licensed in Texas under the Act of 1907), died Dec. 25, 1934.

**Tracy R. Clark**, Clovis, Calif., Missouri Medical College St. Louis 1880, aged 80, died, January 28.



## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### BEER AND GLYCOSURIA

To the Editor—A few months ago I examined about thirty applicants for a job on some construction work. Several specimens of urine examined showed a reducing substance with Fehling's solution and two gave a typical reaction for sugar. Asked if they had been drinking beer they answered in the affirmative. The weather was very hot and one man stated that he drank nine glasses of beer during the day or that afternoon before he was examined. What percentage of sugar is contained in beer and what type? Is an excess of beer liable to cause a reaction as above?

J. C. DRAKE, M.D., Kerman, Calif.

ANSWER—Carbohydrate as such is present in beer chiefly as maltose and dextrins. The dextrose equivalent of beer including the sugar derived from protein, glycerin, lactic acid and so on is about 12 Gm. to the 8 ounce glass. In addition to this however, each glass of beer contains about 60 calories in the form of alcohol. Thus the 9 glasses of beer that one man drank would represent 108 Gm. of carbohydrate or 432 calories plus 540 calories from alcohol, a total of almost 1000 extra calories for the day. Although alcohol does not go to form sugar, it spares sugar taken in the diet so that the available carbohydrate in that person might then be high enough to cause glycosuria.

### TACHYCARDIA WITH INFECTION

To the Editor—A white girl aged 15, height 63 inches (160 cm), weight 127 pounds (57.6 kg.) seen in September, complained of general lassitude, easy fatigue, attacks of rapid heart beat associated with pain over the right parietal region and intermittent fever. The family and general past history is negative until the winter of 1932 when the patient first complained of weakness, fatigue and recurrent attacks of pain in the right lower quadrant. These symptoms recurred until in March 1933 a chronically inflamed appendix containing fecoliths was removed. On the third postoperative day a pulse of 140 was recorded without apparent cause. This subsided and convalescence was normal. The attacks of pain in the right lower quadrant have not reappeared but the paroxysmal attacks of tachycardia continue to reappear at intervals of four to six weeks. There is no apparent predisposing factor. Fever usually accompanies these attacks varying from 99 to 100.4 F. The patient feels weak and exhausted. The tachycardia usually subsides spontaneously, the pulse rate rarely going below 90 per minute however. The elevation of temperature usually persists for several days. Dull pain in the right parietal region frequently but not always accompanies the tachycardia. The appetite is fair, digestion seems normal and the bowels act well as do the kidneys. The mentality is a little above the average. Menstruation is regular and of normal amounts and the menstrual cycle bears no relation to the attacks of tachycardia. The patient is well developed and well nourished. The throat is clean. There is slight cloudiness of the right maxillary sinus but there are no subjective signs. The chest and lungs are normal. The heart sounds are normal, the area of cardiac dullness is not increased and no murmurs are present. Abdominal examination is negative except for a well healed right rectus scar. The spleen is not palpable. The reflexes are normal. There is no edema of the extremities. The following laboratory work has been done: basal metabolic rate normal (plus 10), white blood count 8,900 (temperature normal) and 11,000 (temperature 99.5), polymorphonuclears 68 per cent, small lymphocytes 22 per cent, large lymphocytes 6 per cent, mononuclear cells 10 per cent, red blood cells 5,100,000 per cubic millimeter, hemoglobin 90 per cent, agglutination for Brucella abortus typhoid and paratyphus A and B all negative, tuberculin tests with 0.0002 mg. and 0.005 mg. both negative, catheterized specimen of urine negative both chemically and microscopically, fluoroscopy of heart and lungs negative. In view of these results would you kindly suggest further lines of attack in this case and possible diagnoses that may assist in helping this patient? Please omit name.

M. D. Ohio

ANSWER—The presence of fever and leukocytosis in the attacks described strongly suggests an infectious etiology. The initiation of the attacks following an appendectomy suggests the abdominal cavity as a source of the infection. An infection about the appendix may be carried upward behind the ascending colon and produce metastatic foci about the liver, gallbladder or subphrenic area. It may proceed behind the peritoneum to the region of the right kidney. The lymph channels along the mesenteric root may carry the infection upward to the right side of the abdomen, and the course may proceed upward behind the descending colon to the spleen and left portion of the liver. The bases of the lungs should be investigated for evidence of infection extending upward through the diaphragm.

Metastatic infection is not infrequently found in the pelvis.

This explanation would presuppose a low grade nonsuppurative adenitis from which, at intervals, a sufficient dose of toxin is discharged to produce the attacks described. The continued

presence of the infection would account well for the general lassitude and easy fatigue and continuously rapid pulse.

Such a low grade infection need not necessarily be located in the abdomen or pelvis. It would seem most probable in this case because of the condition of the appendix, but such an infection may occur about the hilar lymph glands or even in the sinuses of the skull.

The parietal headache suggests the latter possibility, although the headache might easily be explained as a toxic manifestation.

Paroxysmal tachycardia may be fairly well ruled out because of the occurrence of fever and leukocytosis. In addition, the rate is rather low for such an abnormal rhythm.

The treatment has not been detailed, but it would seem logical, if the case is considered an infection, to insist on a prolonged period of rest in bed. The program should be pursued until the attacks fail to appear at the usual time interval. This would mean at least six weeks and might have to be prolonged over a period of months.

### PHYSICAL EFFICIENCY TESTS

To the Editor—I am interested in tests of physical efficiency but have not been able to find in examination that results in an adequate expression of an adult's actual physical state. The tests ordinarily used by educators—Roger's, Pignet's, Taylor's, Dreyer's, Martin's and Sargent's—all seem to be based on questionable empiricism or are actually fanciful. The cardiovascular performance and nonperformance tests are inconsistent when used in a large group of men or women. I should appreciate references and a statement of the accepted medical evaluation of such tests. Please omit name.

M. D. Maine

ANSWER—A dependable index of health and physical efficiency would be valuable, and numerous efforts have been made to develop tests for this purpose. Most of the tests proposed, some of which have been widely used and called physical efficiency tests, are based on the effects of changes in posture or a specified amount of exercise on the pulse rate, blood pressure and respiration. Actually, what these tests measure is only the reaction of the cardiovascular system to a given amount of effort at a particular time. Physical efficiency is dependent on much more than this. Although differences between the results of these tests can be demonstrated in selected groups of subjects, the variability of results produced in individual cases by unimportant and transitory factors, such as nervousness, excitement and fatigue, is so great as to make the tests of little value in individual diagnosis or in the estimation of individual physical efficiency. Critical analyses of certain of these tests are contained in the following:

Brittingham, W. H. and White, P. D. Cardiac Function Tests. *THE JOURNAL*, Dec. 2, 1922, p. 1901.

Seham, Max and Egerer, Seham, Grete. Physiology and Exercise. An Investigation of Cardiovascular Tests in Normal Children with Tuberculosis and Valvular Heart Disease. *Am J Dis Child* 26: 554 [Dec.] 1923.

Cripps, L. D. The Application of the Air Force Physical Efficiency Tests to Men and Women. Special Report Series No. 84. Medical Research Council, London, 1924.

Hanbly, W. D., Pembry, M. S. and Warner, E. C. The Physical Fitness of Men Assessed by Various Methods. *Guy's Hosp Rep* 75: 388 [Oct.] 1925.

### STRICTURES OF CERVIX

To the Editor—I am encountering an unusually large number of complete cervical atresias. In most of these cases cauterization has been done elsewhere but some are of congenital origin. The treatment that I have been carrying out has been to dilate the cervix thoroughly and then place a Chamber's pessary in the canal and leave it there for about six weeks. My results are far from satisfactory. Will you please outline treatment used in the larger clinics. Please omit name and address.

M. D. Georgia

ANSWER—Strictures of the cervical canal, especially partial strictures, are more common than is generally realized. In young women the most frequent causes are infection and instrumentation. The most common infection responsible for stricture is gonorrhea. The most frequent instrumental manipulations that lead to atresia of the cervix are incorrect applications of the electrical cautery and curets and cervical dilators used for dilation and curettement of the uterus. Operations on the cervix also result in strictures in many cases, and occasionally tumors and fibroids block the cervical canal. In older women cervical strictures are usually due to changes that result from old age, the use of radium and carcinoma. Of course, radium and cancer may also produce strictures in younger women.

The most common symptoms of strictures of the cervix are leukorrhea, the passage of tarry blood during menstruation and dysmenorrhea. Not infrequently, pyometra results from a cervical block. As Curtis (*THE JOURNAL*, March 12, 1932, p. 861)



emphasizes, "the otherwise inexplicable sudden appearance of profuse purulent vaginal discharge in a woman beyond the menopause is pathognomonic evidence of cervical stricture."

Prophylactically, strictures may be avoided by the careful use of the electrical cautery, cervical dilators and uterine curets. Women who have had intra-uterine and intracervical radium should be checked up at frequent intervals and their cervixes should be gently probed to try to prevent, but more particularly to detect, strictures. A probe should be used especially if there is a profuse discharge after the insertion of radium into the uterus or cervix.

As noted in the query, dilation of the cervix even when followed by the use of a pessary in the cervical canal does not satisfactorily overcome all cervical strictures unless the obstruction is at the external os. If too forcible attempts are made to break down strictures, new ones may be formed which are worse than the original ones. If complete strictures in young women cannot be satisfactorily overcome by means of Hegar dilators, they may be relieved by a Schroeder or Sturndorf operation. However great care must be used to see that a sufficiently patulous cervical canal is left, otherwise new strictures may form. If the strictures produce symptoms in older women the entire cervix may be amputated or a vaginal or abdominal hysterectomy performed.

#### PERSPIRATION OF FEET

*To the Editor*—I should like to know a good treatment for the prevention of excess perspiration of the feet in children. Some children have very excessive perspiration of their feet with a disagreeable odor so that their socks have to be changed sometimes two or three times a day. I am speaking of cases in which there is no associated ringworm and the child is perfectly normal in all other respects. I have treated these by soaking every night in a weak solution of formaldehyde but would be glad to hear of a more effective and less disagreeable treatment.

G. L. JOHNSON, M.D., Englewood, N. J.

**ANSWER**—The following are effective procedures in the prevention of excessive perspiration and disagreeable odors of the feet in children:

Observe absolute cleanliness.

Bathe the feet once daily for about ten minutes in any of the following solutions: (a) 1,400 potassium permanganate; (b) compound solution of cresol three teaspoonfuls to one gallon of warm water; (c) alum one teaspoonful to one pint of water.

Use one of the following antiseptic dusting foot powders freely twice daily: (a) from 1 to 2 per cent salicylic acid in powdered boric acid or (b) from 1 to 2 per cent salicylic acid in equal parts of zinc oxide and talcum. These powders may also be used without the salicylic acid.

Have the shoes large and loose, to increase ventilation. Alternate the shoes daily, airing the used ones.

Change the socks daily.

If these measures fail to control excessive sweating, a strong astringent may be used in addition, such as a 25 per cent aluminum chloride solution, dabbed on the affected parts every third day and allowed to dry.

Roentgen therapy is the best and most satisfactory remedy in obstinate cases.

#### EFFECTS OF METHANE

*To the Editor*—Eight Negroes have just recently come under my care who claim that they have a bronchitis as a result of being exposed to marsh gas or methane while working in a cofferdam in June 1933. Physical and roentgen examinations show no acute lesions yet they complain of shortness of breath and some have a slight cough. Complete laboratory work has not been completed to rule out other conditions. Kindly let me know what effect if any marsh gas or methane has on the eyes and respiratory tract. It has been my understanding that marsh gas in a sufficient amount of air would not produce any irritation or damage to the respiratory tract. Will you kindly give me any information in regard to the effects that marsh gas might have on the lungs? Kindly omit name.

M. D. Mississippi

**ANSWER**—It is not within reason to believe that exposure in June 1933 to ordinary gas irritants would have produced a bronchitis and other respiratory tract involvement persisting until October or November 1934. Pure methane is without known direct irritant action on the respiratory tract or eyes. It becomes necessary to believe that if any such action was induced, other gases must have coexisted with the methane. It is not unusual for hydrogen sulphide, carbon bisulphide or other sulphur compounds, or other irritants that are not sulphur compounds to be present along with methane. If such substances actually were present, irritation of the eyes, respiratory tract and so on is an expectancy, but continuation for more than a year without earlier complaint is open to suspi-

cion. Investigation should be directed to more recent exposures. It is presumable that cofferdam work is wet and consequently that no gross amounts of dust were produced. If, to the contrary, gross exposure to siliceous dusts was provided, the possibility of dusty lung disease exists. However, any such disorder may be ruled out by appropriate roentgen examination, which appears already to have been made.

#### TREATMENT OF SYPHILIS

*To the Editor*—I have a patient, a man, aged 25, who in September 1933 had a suggestive penile lesion. Within three weeks the blood Wassermann reaction was four plus. Treatment was immediately started: a course of eight intravenous injections of nearsphenamine (0.6 Gm.) being alternated with eight injections of iodobismutol (2 cc.) intramuscularly. Both were given at weekly intervals and no rest periods were allowed between courses. He has now had four courses of nearsphenamine and three of the bismuth compound and is on his fourth of the bismuth compound. His spinal fluid was found to be negative serologically in February 1934. A blood Wassermann test in June showed Kahn negative, no fixation of complement in noncholesterolized antigen and an unsatisfactory test with cholesterolized antigen. A blood test on October 6 showed Kahn negative, noncholesterolized antigen negative, fixation of complement in cholesterolized antigen two plus. The original blood test confirmed was four plus in all three tests. The patient shows no sign of any physical impairment on complete examination including a thorough neurologic examination. I have intended to complete the fourth bismuth course and give him one more course of nearsphenamine and then take his blood test in three months. Would you say that this treatment is adequate or should I persist until the cholesterolized antigen shows no fixation? What is the significance of the one positive test with this antigen and the two negative Kahn and noncholesterolized? I have another patient, a young married woman whose husband contracted syphilis in 1930 and married her in June 1932. In October 1933, on a routine examination, a four plus Wassermann reaction was found although the only sign was an unexplained dizziness. Her spinal fluid was found to be negative in December 1933. She has received the same treatment as the foregoing male patient except that the nearsphenamine dose had to be lowered because of severe reactions. Her blood test on October 20 was three plus in all three tests. She still shows no clinical evidence of syphilis and there is no more dizziness. Once again is the treatment adequate and how much longer do you estimate treatment will be necessary? How much treatment is necessary before a persistently positive Wassermann reaction may be taken as only evidence of the patient being Wassermann fast? If published, please omit name and town. M. D. New York.

**ANSWER**—The diagnosis of suggestive genital lesions should be made with the dark field, preferably before the blood Wassermann reaction has become positive, as it has been repeatedly shown that treatment begun in the seronegative stage offers the patient the best chance for an early cure. The treatment as outlined has been adequate and according to modern standards which advise continuous rather than intermittent treatment in early syphilis. In all probability the next Wassermann report will show a complete reversal in the cholesterolized antigen. The vagaries of the serologic reports in syphilis are difficult to account for. The cholesterolized antigen, being the more sensitive of the two, is apt to remain positive longer. The interpretation of the Wassermann and Kahn tests should be correlated with the physical observations, and experience has shown the fallacy of placing too great reliance on a single negative test.

In the second case treatment has been adequate but again it is difficult to estimate how much longer treatment will be necessary. There are no exact standards or criteria available that can be used as evidence of the patient being considered Wassermann fast. The inquirer should be congratulated on his ability to administer the large amount of treatment given these patients without straining their physical or financial endurance too much.

#### ENDOCRINE GLANDS AND DIABETES

*To the Editor*—I wish to inquire as to the relationship of the other endocrine glands to diabetes mellitus. In advanced cases in which the blood sugar is controlled with difficulty with insulin, are there any benefits to be gained by the administration of other gland products, e. g., parathormone? I would appreciate a summary of the literature. Please omit name and address.

M. D. Ohio.

**ANSWER**—This is a question at present rather difficult to answer. It has been found that the anterior pituitary secretes a diabetogenic principle which is antagonistic to insulin (the pituitary raises the blood sugar, while insulin lowers it). Based on the observation that estrogenic principles (theelin, Amniotin and so on) suppress the secretion of gonadotropic substances by the pituitary, estrogenic substance has been administered to pancreatectomized animals to see whether secretion of the diabetogenic principle might also be reduced (and the blood sugar thereby decreased). This has been found to be the case (Barnes, Regan and Nelson, *THE JOURNAL*, Sept. 16, 1933,

p 926) However, such use of estrogenic substance in clinical cases would be restricted by its effects on the secondary reproductive organs in both female and male. If estrogenic substance should be otherwise indicated in a patient with refractory diabetes, it might be tried. In some cases in which overactivity of the pituitary is suspected, radiation therapy of this organ has been tried but this treatment entails a large element of danger in that selective suppression of only one of the many factors produced by the pituitary would be impossible. Amenorrhea and disturbances of fat metabolism have followed such therapy. In addition of course structures of the central nervous system would be affected to an indeterminate extent.

Recent investigators (Barnes, Scott, Ferrill and Rogoff, *Proc Soc Exper Biol & Med* 31:524 [Feb] 1934) have also implicated the suprarenal medulla in the control of blood sugar (epinephrine, as is well known, raises the blood sugar). Although a reciprocal interrelationship of the suprarenal and the parathyroid glands has been demonstrated (Rogoff, *Science* Oct 5 1934 p 319), the relationship of the latter phenomenon to the blood sugar level is unknown. Administration of parathyroid extract clinically in diabetes such as the inquirer suggests certainly has no sound basis in experimental physiology. Possible clinical applications of these observations are not known.

An extensive series of articles on glandular physiology and therapy, in which all these questions will be authoritatively discussed is now being published in *THE JOURNAL* under the auspices of the Council on Pharmacy and Chemistry.

#### ENCEPHALITIS AFTER ARSPHENAMINE

To the Editor—I wonder whether you can help me in arriving at a possible diagnosis for the following complication of arsenotherapy. A white woman, aged 26, a secundipara whose past medical history and family history are of no importance and who smokes a pack of cigarettes a day and drinks beer occasionally came to the outpatient department with an extensive roseola of secondary syphilis of one week's duration with mucous patches in the throat on the umbilicus and on the labia. The primary sore was on the labia. She had a generalized adenopathy and a four plus Wassermann reaction. Neurologic examination at this time showed nothing abnormal. Treatment was started immediately, 0.1 Gm. of neoarsphenamine being given intravenously. It so happened that the needle slipped out of the vein and only part of the solution was administered the first day, making the initial dose 0.1 Gm. One week later she was given 0.15 Gm. of neoarsphenamine. Two days after this her physician sent her into the hospital because of a severe Herxheimer reaction manifesting itself by extreme swelling of the labia. She was admitted September 29 and we were contemplating discharging her October 1 because the reaction had subsided in the usual manner. However, 0.3 Gm. of neoarsphenamine was administered and the following morning an extensive scarlatinoid rash developed which my associates and I called an eighth day arsenical reaction. We kept her in the hospital in order to observe the skin reaction and it began to clear up two days after its appearance. On the fourth day after the 0.3 Gm. of neoarsphenamine the patient became drowsy, was very noisy when aroused, vomited, refused to eat and became quite irrational. Although there were no convulsions at any time her body and limbs often trembled considerably. There was no loss of sphincter control. Associated with this there was a fever varying from 99 to 103 and a pulse rate varying from 100 to 120. The stupor and delirium became worse from day to day over a period of four days. There was no real coma at any time. Neurologic examination showed the pupils slightly contracted, reacting normally to light and in accommodation and lateral nystagmus. There was no cranial nerve involvement. The deep tendon reflexes were markedly increased and ankle clonus was present. Babinski's sign was negative. The optic disk showed no signs of pressure. Spinal fluid examination showed a cell count of 20 leukocytes per cubic centimeter, the spinal fluid Wassermann reaction was positive in all concentrations, the colloidal gold test gave a second zone reaction, the globulin test was positive. At the first sign of her stupor she was treated with 1 cc. of 1:1000 epinephrine hydrochloride intramuscularly every four hours and 1 Gm. of sodium thiosulphate intravenously every twenty-four hours. She began to improve on the fifth day following the onset of her stupor and she made an uneventful recovery and was discharged October 15, seven teen days after admission and eleven days after the onset of the stupor. The only diagnosis of her reaction that offered itself to us was that of a hemorrhagic encephalitis. Could such a diagnosis be justified on such observations? What conditions would offer themselves for a differential diagnosis? With a history of such a reaction is one justified in employing arsenotherapy on this patient at some future time or should one avoid arsenicals and use only the heavy metals? Kindly omit name.

M.D. Pennsylvania

ANSWER.—Encephalitis following the administration of arsenophenamine has been described and seems to be established. It is difficult to suggest any other explanation for the symptoms and their sequence in this case. Under these circumstances the use of arsenicals seems to be contraindicated. In view of the strongly positive signs of invasion of the central nervous system, the possibility should be considered of inducing fever by inoculation with malaria or otherwise as a prophylactic measure. Thorough treatment with the heavy metals should unquestionably

#### MIGRAINE WITH HYPERTHYROIDISM

To the Editor—I should be glad to have assistance and a diagnosis of this case. M. J. W., a white man, aged 36, complains of feeling all day and tires on the slightest exertion. There has been a long-standing history of severe headaches relieved only by hypodermic injections of morphine, one-fourth grain (0.016 Gm.). They occur from six to twelve times a year. The patient is 5 feet 7½ inches (170 cm.) tall and weighs 142 pounds (64 kg.). He has lost about 10 pounds (4.5 kg.) over the course of five years. He sleeps well, does not cough, has no increase in temperature and has no pains except during the attacks of migraine. The rate of the heart is 90 times normally on slight exertion, such as jumping up and down lightly fifteen times on one foot; the pulse increases to 130. It is a little slow in returning to its normal range, 90. The blood pressure is 110 systolic, 80 diastolic. The tongue is heavily coated constantly. The bowel function is normal (no laxatives needed). The basal metabolic rate is plus 17. The Wassermann reaction is negative, hemoglobin is 85; there is no leukocytosis. The patient is used to taking four cups of coffee daily in addition to three or four glasses of alcohol. He smokes on the average a package of cigarettes a day (uses alcohol slightly). There are no foci of infection. The tonsils were removed in 1928. Roentgen examination of the teeth discloses no abscesses. Eye examination reveals that glasses are not necessary. The patient reports that for years he has felt it necessary to drive him with stimulants to do his work, which is largely mental, with an ordinary amount of physical activity. Any suggestions you may offer in helping me to come to a diagnosis will be appreciated. Please omit name.

M.D. Kentucky

ANSWER.—The impression obtained from this case report is that in addition to the migraine the patient has a mild hyperthyroidism of the type often associated with adenomatous goiter, continued over a long period. The points in favor of this impression are the loss in weight, the easy fatigability, the tachycardia, the slightly elevated basal metabolic rate and the inability to sleep well. The increased cardiac liability, or even myocardial impairment as indicated by the decreased exercise tolerance, might well be the cardiac manifestations of a long-continued thyrotoxicosis of mild grade, although the pulse pressure is not increased.

Other features of thyrotoxicosis which if present would confirm the diagnosis are increased tolerance to cold, decreased tolerance to heat, moist warm hands, fine tremor and a tendency to perspiration.

The absence of fever and the maintenance of a normal hemoglobin level are compatible and would discredit the possibility of a chronic infection such as tuberculosis as a likely cause for the illness.

In view of the migraine, the possibility of an anxiety neurosis with chronic mental fatigue and sympathetic instability should be considered. Such a condition might conceivably produce the symptoms and signs described but should not be difficult to differentiate from hyperthyroidism. If this cannot be done satisfactorily, the effect should be observed of a program of increased rest and correction of the faulty habits mentioned.

#### ENCEPHALITIS TUMOR OR HYPOLYCEMIA

To the Editor—A woman, aged 26, married with no children, began to be troubled six months ago with a progressive lethargy during which there occurred attacks of vomiting. The outstanding symptom is yawning and inability to remain awake although between attacks the patient is extremely well and symptom free. Her past history is negative with the exception of a hypothyroid condition (basal rate minus 26 six months ago) which was corrected by the administration of one-half grain (0.3 Gm.) of thyroid and 5 grains (0.3 Gm.) of ovarian extract three times a day. After six months time her basal rate was plus 6. She does not complain of headache or abdominal distress nor is there tenderness elicited at any point in the abdomen. Her fasting blood sugar was 90. Owing to the extreme lowness this was questioned but a blood sugar tolerance test proved that there was a hypoglycemia which is probably due to a hyperinsulinism. The carbon dioxide combining power was 14. The blood chlorides were 400 and blood urea 14. On the administration of 300 cc. of a 20 per cent dextrose solution the lethargy was completely controlled as was the vomiting. This appears to be a case which can be held symptom free on the administration of dextrose intravenously although sugars by mouth apparently have no effect. Could you advise to the possibilities of a diagnosis as urinalysis, blood count and roentgen examination of the skull are also negative? As the patient is in the hospital at the present time I would appreciate an early response. Please omit name and address.

M.D. Delaware

ANSWER.—Despite the low blood sugar in this case, the general picture does not suggest hyperinsulinism. Patients with a spontaneous hypoglycemia are almost always relieved by taking dextrose by mouth, vomiting is not a characteristic symptom, and blood chlorides are not reduced. It is possible that the effect obtained by the intravenous injection of dextrose may have been due to its action as a hypertonic solution. The complaints are somewhat suggestive of encephalitis or tumor, even though a positive diagnosis may not be possible at the present time. Stramonium leaf or opium may be tried.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written (Group B candidates)* The examination will be held in various cities throughout the country April 29 *Oral (Group A and Group B candidates)* New York June 10 Sec Dr C Guy Lane 416 Marlborough St Boston

AMERICAN BOARD OF OBSTETRICS AND GYNCOLOGY *Final oral and clinical examination (Group A and Group B candidates)* Atlantic City N J June 10 *Application lists close* May 1 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY Philadelphia June 8 and New York, June 10 *Applications must be filed before* April 10 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Atlantic City N J June 10 and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Philadelphia June 7-8 Sec Dr Walter Freeman 1726 Eye St N W Washington D C

AMERICAN BOARD OF RADIOLOGY San Francisco May 10 12 and Atlantic City N J June 8 10 Sec Dr Byrl R Kirklin Mayo Clinic Rochester Minn

ARKANSAS *Basic Science* Little Rock May 6 Sec Mr Louis E Cebauer 701 Main St Little Rock *Regular* Little Rock May 14 Sec Dr A S Buchanan Prescott *Final* Little Rock May 14 Sec Dr L I Marshall 820 W 14th St Little Rock

CALIFORNIA *Reciprocity* San Francisco May 15 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

ILLINOIS Chicago April 9 11 Superintendent of Registration Department of Registration and Education Mr Eugene R Schwartz Springfield

MINNESOTA Minneapolis April 16-18 Sec Dr E J Fugberg 350 St Peter St St Paul

NATIONAL BOARD OF MEDICAL EXAMINERS The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

NEBRASKA *Basic Science* Omaha May 7 8 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

NEVADA Carson City May 6 Sec Dr Edward F Harmer Carson City

NEW MEXICO Santa Fe April 8 9 Sec Dr I C Cornish Jr 221 W Central Ave Albuquerque

OREGON *Basic Science* Portland May 18 Sec Mr Charles D Byrne University of Oregon Eugene

### Connecticut November Examination

Dr Thomas P Murdock secretary Connecticut Medical Examining Board, reports the written examination held in Hartford Nov 13-14, 1934 The examination covered 7 subjects and included 70 questions An average of 75 per cent was required to pass Thirty-two candidates were examined 27 of whom passed and 5 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1932)	84 1	77 3
Yale University School of Medicine	(1932)	84 1	77
George Washington University School of Medicine	(1934)	78 2*	77
Georgetown University School of Medicine	(1934)	80 5*	78 2*
University of Kansas School of Medicine	(1933)	83 6	75
Johns Hopkins University School of Medicine	(1932)	75	75
University of Maryland School of Medicine and College of Physicians and Surgeons	(1933)	75 1	79 5*
Boston University School of Medicine	(1934)	75*	75
Tufts College Medical School	(1933)	75	75
77 1 (1934) 75* 76 9* 77 1* 77 2* 79 6 81 6*	(1933)	75	75
Creighton University School of Medicine	(1933)	75	75
Columbia University College of Physicians and Surgeons	(1923)	80 1	75
(1932) 83 4	(1934)	77*	82 4*
Long Island College of Medicine	(1934)	73 8	73 8
New York University University and Bellevue Hospital Medical College	(1933)	77 3	77 3
Syracuse University College of Medicine	(1934)	81 8	75*
Marquette University School of Medicine	(1933)	75*	75*
McGill University Faculty of Medicine	(1933)	75*	75*
School	FAILED	Year Grad	Per Cent
Georgetown University School of Medicine	(1932)	66 9	66 9
Boston University School of Medicine	(1933)	70	70
Tufts College Medical School	(1934)	71 8	71 8
Laval University Faculty of Medicine	(1933)	62 5	62 5
Osteopath†		67	67

Twenty physicians passed the oral examination held in Hartford November 27 for endorsement applicants The following schools were represented

School	PASSED	Year Grad	Endorsement of
Yale University School of Medicine	(1923)*	(1924)	New York
(1928) Indiana (1931) (1932)* (1933 2) N B M Ex			
George Washington University School of Medicine	(1931)		New York
Baltimore Medical College	(1904)		Mass
Johns Hopkins University School of Medicine	(1929)		N Carolina
University of Maryland School of Medicine and College of Physicians and Surgeons	(1931)*		Maryland

Tufts College Medical School	(1933) N B M Ex
Detroit College of Medicine and Surgery	(1915)* Michigan
Columbia Univ College of Physicians and Surgeons	(1899)* New York
(1927) N B M Ex	
Long Island College Hospital	(1929) New York
University of Buffalo School of Medicine	(1931)* N B M Ex
University of Oregon Medical School	(1930) N B M Ex
Vanderbilt University School of Medicine	(1909) New York
University of Virginia Department of Medicine	(1927)* N B M Ex
* License has not been issued	
† Examined in surgery only	

### Texas November Report

Dr T J Crowe secretary, Texas State Board of Medical Examiners reports the written examination held in Galveston, Nov 20 22 1934 The examination covered 12 subjects and included 120 questions An average of 75 per cent was required to pass Twelve candidates were examined all of whom passed. Thirty nine applicants were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
Louisiana State University Medical Center	(1934)	86 4	
Harvard University Medical School	(1929)	88	
University of Oklahoma School of Medicine	(1934)	87 9	90 2
Jefferson Medical College of Philadelphia	(1930)	85 3	
Harvar University College of Medicine	(1934)	87 5	
University of Texas School of Medicine	(1934)	86 1	
Albert I Ludwig University Medizinische Fakultät Frei			
Burg Baden (Germany)	(1932)*	80 3	
Regia Università di Napoli Facoltà di Medicina e			
Chirurgia	(1923)* 79 9	(1925)	76 6
Kiev Medical Institute	(1923)*	87 1	
Osteopath†		9 3	

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Physicians and Surgeons Arkansas	(1911)		Arkansas
University of Colorado School of Medicine (1919) (1931)	(1933)		Colorado
Georgia College of Eclectic Medicine and Surgery	(1911)		Georgia
University of Illinois College of Medicine	(1934)		Illinois
Central College of Physicians and Surgeons Indiana	(1903)		Indiana
University of Kansas School of Medicine	(1912)		Kansas
Louisiana State University Medical Center	(1934)		Louisiana
Tulane Univ of Louisiana School of Medicine (1921)	(1925)		Louisiana
Tufts College Medical School	(1915)		New York
University of Michigan Medical School	(1925)		Michigan
(1931) Minnesota	(1912)		Mississippi
Mississippi Medical College	(1893)		Missouri
Emory Medical College Missouri	(1933)		Missouri
Washington University School of Medicine	(1933)		Nebraska
Creighton University School of Medicine	(1907)		New York
Cornell University Medical College	(1899)		Ohio
Miami Medical College Ohio	(1926)		Oklahoma
University of Oklahoma School of Medicine	(1925)		N Dakota
University of Pennsylvania School of Medicine	(1908)		Louisiana
Memphis Hospital Medical College (1905) Oklahoma	(1932)		Tennessee
University of Tennessee College of Medicine (1931)	(1900)		Louisiana
University of the South Medical Department Tennessee	(1933)		Virginia
University of Virginia Department of Medicine	(1925)		Wisconsin
Marquette University School of Medicine	(1929)		Maryland
University of Western Ontario Medical School	(1929)		Maryland
Osteopath† Iowa Kansas 2 Michigan Missouri 3 Oklahoma West			

\* Verification of graduation in process  
† Licensed to practice medicine and surgery

### Indiana Reciprocity Report

Dr William R Davidson secretary, Indiana State Board of Medical Registration and Examination, reports 32 physicians licensed by reciprocity during 1934 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George Washington University School of Medicine	(1931)		Maryland
Emory University School of Medicine	(1929)		Georgia
University of Georgia Medical Department	(1924)		Georgia
Northwestern University Medical School	(1929)		Ohio
(1932) California	(1929)		S Dakota
Rush Medical College	(1929)		S Dakota
School of Medicine of the Division of the Biological Sciences	(1932)		Michigan
University of Illinois College of Medicine	(1929)		California
State University of Iowa College of Medicine (1927)	(1932)		Iowa
University of Kansas School of Medicine	(1926)		Kansas
University of Louisville School of Medicine	(1932)		Mississippi
(1931) (1932 2) (1933) Kentucky	(1932)		Michigan
Detroit College of Medicine and Surgery	(1929)		
University of Michigan Medical School	(1930 2) (1931) (1932) Michigan		
New York University University and Bellevue Hos	(1929)		Iowa
pital Medical College	(1924)		New York
Syracuse University College of Medicine	(1893)		Ohio
Eclectic Medical Institute Ohio	(1933)		Ohio
Ohio State University College of Medicine (1932)	(1933)		Ohio
University of Cincinnati College of Medicine (1929)	(1932)		Penna
Jefferson Medical College of Philadelphia	(1929)		Penna
University of Pittsburgh School of Medicine	(1931)		Tennessee
University of Tennessee College of Medicine			

## Book Notices

**The Compleat Pediatrician. Practical Diagnostic Therapeutic and Preventive Pediatrics for the Use of Medical Students Internes General Practitioners and Pediatricians.** By Willburt C. Davison M.A. D.Sc. M.D. Professor of Pediatrics, Duke University School of Medicine. Adaptation of the Title Page of The Compleat Angler by Izaak Walton 1613 (cloth Price \$3.75, Various pagination Durham N.C. Duke University Press 1934)

This author has audited pediatrics. He has published his statement in the form of a modified thesaurus, encyclopedia, index and telephone directory combined. The material within the individual chapters is arranged alphabetically. Each subject is a serially numbered section with black faced title, all caps subtitles, first letter caps for subdivisions, lower case letters for supporting material, and daggers, dashes and asterisks to designate the frequency of a symptom or disease besides small black faced material numbered and lettered subheads, tabulations, prescriptions and recipes. The chapters include first a short but explicit road map type of description telling how to use the book. Then follow chapters on symptoms and signs, diseases, differential diagnosis and treatment, preventive measures, administration of fluids and blood, feeding and special diets, drugs and prescriptions and finally laboratory methods. The pages are not numbered. For greater facility in using the book as a rapid fire reference work, the author has wisely chosen to number the sections. The last section is numbered 1957 although there are not 1957 sections in the book. For instance, the chapter on symptoms has sections 1-79, diagnosis and treatment 100-900, prevention 1300-1390, fluids 1401-1425, diets 1501-1595, drugs 1601-1773, laboratory methods 1801-1957. However, the preface and introduction are designated pages 1 to 1. There are innumerable cross references.

The scope of pediatrics has been ingenuously reduced to mathematics. The author says that there are 307 conditions of which only 100 are important. Of these thirty seven which cause 56 per cent of the deaths in children can be prevented. The sixty-three responsible for 21 per cent of pediatric deaths respond to adequate therapy. He insists that every doctor can diagnose and treat successfully the sixty three curable as well as twenty of the thirty-seven preventable. The other 207, causing 23 per cent of the deaths, can be diagnosed but since the patient succumbs or recovers regardless of therapy, he feels that they may be disregarded.

From this analysis it is readily seen that the author has nailed down the pinpoints of pediatrics. The chapters on symptoms and diagnosis contain the essential facts, but the tabulations are too brief and staccato to give a picture of disease. The student cannot learn pediatrics for the first time from this kind of work. Nevertheless, the sections on treatment, fluids, diets, prescribing and laboratory methods are invaluable. The author has succeeded in his intention to concentrate all the facts and helps in pediatrics in an extremely simple way so that his comparatively tiny work might well be used as a rapid reference work in the office and as a great help in the bag. The cover is light colored cloth and should be covered with oilcloth as it will not stand the mussy hands that will constantly thumb its pages.

The author has gone to Izaak Walton for the inspiration of his title and the appearance of his title page. He must have had a lot of fun compiling this cross index pediatricus. There is nothing else like it in English.

**Principles in the Treatment of Inflammation.** By T. E. Hammond F.R.C.S. Assistant Surgeon, The Royal Infirmary, Cardiff. Cloth Price 10/6. Pp. 208. London: H. K. Lewis & Company Ltd. 1934.

The thesis of this book is just the opposite of the theses so generally and fulsomely exploited at 'commencement day' orations. These lead the medical neophyte to believe that the 'wonderful' progress of medicine has made him master over disease and that he is now entering on a victorious career of curing human ills. This book by a World War military surgeon and seasoned clinician might be recommended as a good antidote to the dangerous cocksureness thus engendered. Hammond points out that physicians do not understand it all, that disease generally arises we know not why, and that

much depends on the patient's 'constitution,' a matter about which little is known. "In few diseases has treatment been more irrational than in inflammations. Inflamed fingers are still immersed in antiseptic solutions, though few believe that these have any action and some even think that they do harm. But few are prepared to say so, as it is felt that, where the work of Lister is concerned, this amounts to blasphemy. The practitioner is too often governed by the feeling that he must do something. He is afraid that his reputation is at stake if the case comes to the postmortem room without something having been done for some one may suggest that the patient would have lived had an incision been made. It is apt to be forgotten that an incision at the wrong time jeopardizes many a life for it flares up the disease and takes away the patient's only chance. Had nature been left alone, the life might have been saved. Resistance is the most important factor in the cure of bacterial disease. There is a definite risk in incising before pus has formed. Curettage of sinuses is being abandoned as the results are so poor. In incomplete abortion a foreign body is beneficially removed by curettage of the uterus. Otherwise the operation is simply a money-making stunt.

It may be necessary to remove the tonsils and adenoids if they obstruct respiration or if they are full of pus. Otherwise it should be kept in mind that tonsils and adenoids become enlarged only when the resistance factor is impaired. It is much better to direct treatment toward the cause of their enlargement. It is just as rational to attempt to cure gout by removing a uratic deposit as it is to try to cure a patient of chronic bacterial disease by removing the affected organ.

Today ability to operate is being confused with the practice of surgery. A thoughtful perusal of this book, dedicated to the Battalion Medical Officers of the Great War, possibly not without a certain amount of grim humor, would go a long way toward making surgery more rational and safer.

The author laments that he can discover in recent work so little of value at the bedside of the patient. 'Scientists forget that they are working on animals in whom disease is artificially induced. Before it started the constitution was sound and the resistance factor was adequate. When this is the case recovery takes place as soon as the exciting cause ceases to act. If scientists want a disordered constitution on which to experiment, why do they not go to sick animals. There are any number of these.

When scientists can put right animals in whom disease has appeared as in man, we know not why, the medical profession will listen more eagerly to their claim.

Much of our failure today, no doubt, is due to the fact that research workers have left the bedside of the patient and are now content to work in laboratories.

**The Pneumonokonioses (Silicosis). Bibliography and Laws.** By George G. Davis M.D. Associate Clinical Professor of Surgery, Rush Medical College, University of Chicago. Ella V. Salmousen, Medical Reference Librarian, The John Crerar Library, Chicago, and Joseph L. Earlywine, Attorney at Law, Chicago. With a foreword by E. R. Le Count M.D. Professor and Chairman, Department of Pathology, Rush Medical College, University of Chicago. Cloth Price \$7.50. Pp. 482. Chicago: Industrial Medicine Inc. 1934.

Agricola in 1556 referred to dusts in his 'De re metallica', likewise, late in December 1933 Sappington commented on the problems of dust in relation to disease. In the intervening 377 years at least 2,766 other publications were made, related directly or indirectly to the influence of dusts on living organisms. The citation of these hundreds of publications with many types of cross references, together with a large section devoted to compensation laws, make up the contents of this large publication. By its authors it is described as 'a reference book designed for the permanent convenience of physicians, surgeons, lawyers, industrial executives, librarians, journalists, engineers, trade association officials, student and research workers.' The amount of labor expended manifestly was enormous—perhaps out of proportion to the extent to which the book will be applied. For the industrial hygienist, whether physician, engineer or other public health worker, the book provides both a historical background and the most recent concepts as to the significance of the various types of dusts in human economy. For attorneys connected with the adjudication of claims for dusty lung diseases, it will furnish data on almost any conceivable aspect of such disorders. Librarians will be saved many hours of compilation work through the presence of the book on

their shelves. For the average practitioner who does not delve into medical history and who may not be concerned with dusty lung diseases, it holds no promise of great usefulness. A thorough reading of the book alone will in no wise equip a physician either to recognize or to control silicosis or any other form of pneumoconiosis. The volume is what it purports to be—a pure bibliography, with citations of compensation laws. At the outset it gets off to a bad start through the language of its title. Although silicosis is the chief form of pneumoconiosis, it is improper to imply, as the title does that silicosis is the pneumoconiosis or vice versa. Such ambiguities naturally are the outgrowth of the compilation of highly technical materials jointly by a professor of surgery, a medical librarian and an attorney at law.

**Prolapsus du rectum. Etude clinique traitement résultats éloignés.** Par Carrasco. L'Esface du Professeur Hartmann. Paper. Price 35 francs. Pp 106 with 41 illustrations. Paris. Masson & Cie 1934.

This monograph, by a former assistant of Professor Hartmann, reviews the subject of prolapse of the rectum from the year 1903 when Lenormant's thesis on the same subject was published. The work is well printed and illustrated and has a large bibliography. The various types of prolapse and the pathologic and anatomic factors favoring their origin are those commonly accepted and described in all textbooks. A great variety of methods of treatment are described and illustrated, and in many instances mortality figures and end results are given. Unless one had had considerable personal experience in selection of the method of treatment the variety of suggestions would be confusing. Cauterization, injection of sclerosing substances, methods of excision and suspension and plastic operations on the perineum are all considered under operative treatment. Many case reports illustrate the methods used. The conclusions of the author are excellent and are the only truly authoritative matter in the monograph. He emphasizes the fact that prolapse of the rectum in children is generally of the mucosa alone and will heal itself spontaneously in most instances if conservative management is adopted with particular attention to proper elimination and diet. In adults however conservative management usually fails and more radical measures are necessary. Proper selection of measures depends naturally on the type of prolapse, the etiologic factors in existence and the condition of the patient. Here one may choose from many operations. The multiplicity of methods indicates that not all is well with the results. For intussusception of the sigmoid into and through the rectum some type of abdominal suspension and obliteration of the culdesac is necessary. In mucosal prolapse or true prolapse of the rectum the method described by Delorme and Rehn has given excellent results. However the choice of many types of excision of mucosa suspension of the bowel or plastics on the perineum are given. The monograph makes itself an excellent book of reference on the subject.

**Diseases of the Rectum and Colon and Their Surgical Treatment.** By J. P. Lockhart Mummery. FRCS. MA. MB. Senior Surgeon to St. Marks Hospital for Cancer, Fistula and Other Diseases of the Rectum etc. Second edition. Cloth. Price \$10. Pp 605 with 250 illustrations. Baltimore. William Wood & Company 1934.

During the eleven years that elapsed since the last edition of this work knowledge of the diseases of the rectum and colon has shown extensive advances, particularly in the field of pathogenesis and treatment of various lesions of this portion of the alimentary tract. Hence a large part of the book had to be entirely rewritten, several new chapters have been added, one of them dealing with precancerous conditions. The arrangement of the subjects described has been altered in such a manner that the first part of the book is devoted to diseases of the rectum and anus while diseases of the colon have been placed in the second part. A new feature consists of photographic reproductions of operations. The advantage of such illustrations over schematic drawings is subject to discussion. The book represents mainly a record of the author's own experience and this fact must be kept in mind when noting that certain lesions are not mentioned at all or are described in an inadequate manner. For instance, an American reader will miss chapters on amebic dysentery and lymphogranuloma inguinale among fluids used for injections of hemorrhoids,

quinine urea and sodium morrhuate are not mentioned, recent advances in the surgery of the cancer of the large intestine, e. g., the use of vaccine for prevention of postoperative peritonitis, as well as new technical details, did not receive due consideration. However, such omissions are comparatively slight and do not detract from the value of this authoritative work which is profusely illustrated and contains a wealth of valuable material, presented in lucid sequence and a concise manner by a man with a large experience in this field.

**Strümpell Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten für Studierende und Ärzte. Bände I II.** Von Dr. med. et phil. C. Seyfarth a. o. Professor (für Innere Medizin) an der Universität Leipzig. Thirty first and thirty second edition. Paper. Price 48 marks. Pp 880 with 191 illustrations. 980 with 275 illustrations. Berlin. F. C. W. Vogel 1934.

Since the death of Adolf Strümpell in 1925, this most popular German textbook of internal medicine has been edited and revised by his former co-worker Seyfarth. It seems that the old "Strümpell" has lost nothing of its popularity, as seven new editions were necessary after Strümpell's death. The thirty first and thirty-second editions contain a few newly written chapters and others partially rewritten and brought abreast of the latest state of our knowledge. Among them may be mentioned Bang's disease and tularemia, with special emphasis and reference to the bacteriologic examination, and hypertension and hypotension in which the futility and also the dangers of some therapeutic measures are stressed. There is a brief chapter on Buerger's disease. In the treatment of peptic ulcer alkalis and atropine still maintain their important place. Excellent therapeutic results are reported by the author with the feeding experiments through the permanent duodenal tube in more than 300 cases of peptic ulcer. Osteitis fibrosa (Recklinghausen) and osteitis deformans (Paget) are taken up as strictly separate diseases the former being due to parathyroid disorder and characterized by the disturbance in the calcium metabolism while the latter is of unknown etiology without any disturbance of calcium metabolism and not influenced by parathyroidectomy. The chapters on psychoneurosis, hysteria and neurasthenia are fully revised and thoroughly discussed. The last chapter deals with intoxications. In order perhaps to make a modern German textbook of internal medicine complete this chapter contains a section on war gas poisoning with a classification of the poisonous gases used during the last war and a thorough description of the symptoms and therapeutic measures.

**The Heart Visible. A Clinical Study in Cardiovascular Roentgenology in Health and Disease.** By J. Polevski. M.D. Attending Physician and Cardiologist, Newark Beth Israel Hospital. Cloth. Price \$5. Pp 101 with 122 illustrations. Philadelphia. F. A. Davis Company 1934.

This small volume intended by the author for the roentgenologist, cardiologist and clinician has in it much of value and fills a definite hiatus in the American literature. It offers an intelligent compendium for the cardiologist or clinician who finds it inconvenient to consult the foreign textbooks or review the extensive scattered literature in English. Dr. Polevski covers the details of the normal and abnormal roentgen observations of the heart, pericardium and great vessels. He also explains clearly the technical procedures involved in making a comprehensive roentgen examination of the heart and great vessels. He has an adequate conception of what can be elicited by this method and a proper deference to the importance of correlations with clinical examinations. The material that he offers is sound, but in several instances one might take exception to the views propounded. The terms "mitral" and "aortic" heart are used loosely. It is not advantageous to divide all abnormal heart contours into these two types, as the author himself admits. Too much significance is attached to the small heart especially in view of the fact that true hypoplasia is a relatively rare condition. A certain looseness of expression that leads to such description as the unexpanded lungs of infancy and fatty infiltration of the myocardium is to be deplored. Exception can be taken to the author's explanation of a decrease in inspiratory size of failing hearts as partly due to the compressing effects of the expanding lung on the heart. The ideas expressed by the author that the darkness of the shadow of the syphilitic aorta is due in part to atheromatosis of wall and that erosions caused by aneurysm simulate the spine of caries

cannot be accepted without qualification. However, these minor faults do not detract from the general excellence of the book. It would have been better if the illustrations had been negatives and not positives, but they are relevant and are adequate for the text.

**Infantile Paralysis.** By George Draper M.D. Associate Professor of Clinical Medicine College of Physicians and Surgeons Columbia University. Cloth Price \$2. 1p. 167 with 24 illustrations. New York & London: D. Appleton (Century Company) Inc. 1935.

The author of this book is well known for his splendid contributions to the study of constitution and its relation to disease. Few other medical authors are better qualified by virtue of medical training and philosophic background to present to the intelligent lay public a short and comprehensive discussion of a subject so diverse in its manifestations. This is not an ordinary treatment of the subject but a scholarly and dispassionate presentation filled with useful scientific information about the disease and punctuated with enough philosophical reflection so that the reader not only learns but gains a certain amount of reassurance. The author has anticipated the numerous questions which the lay reader will want to know concerning the nature of the disease, its prevention and what can be done after the disease is contracted. Any treatise written by this author without consideration of aspects of inherent susceptibility would be to the reader's loss. However, this subject is clearly presented in his discussion of individual susceptibility. Here he considers that mysterious property possessed in varying degrees by every individual, the presence of which endows resistance and the absence of which invites infection. In the final chapter on the outlook and the healing Dr. Draper gives a lucid exposition to the usual questions asked by the parents of a child afflicted with the disease. The book is highly recommended to the public as an authoritative and scholarly account of infantile paralysis as well as a textbook that will meet needs of parents whose children have become afflicted.

**Fundamentals of Dairy Science.** By Associates of Lore A. Rogers in the Research Laboratories of the Bureau of Dairy Industry, United States Department of Agriculture. American Chemical Society Monograph Series. Second edition. Cloth Price \$6. Pp. 616 with illustrations. New York: Book Department Reinhold Publishing Corporation. 1935.

This scientific and technological monograph prepared by present or former members of the staff of the Research Laboratories of the Bureau of Dairy Industry and published under the auspices of the American Chemical Society presents to advanced students and research workers a well digested survey of more important knowledge in the field of dairy science: basic data, fundamental observations and unbiased discussions of research. The subject matter is arranged so as to bring together topics of similar scientific classification rather than under the usual headings of specific dairy products: part I being devoted to the constituents of milk, part II to the physical chemistry of milk and milk products, part III to the microbiology of milk and milk products and part IV to the nutritional value of milk and milk products, and the physiology of milk secretion. The monograph should stimulate and guide and facilitate research along those lines in dairy science which need most development to maintain a proper balance of knowledge in the whole field. To each chapter is appended a list of important references to the literature. This work will be a valuable addition to the reference libraries of all interested in the present scientific status of dairy science.

**Die Serum  $\beta$ -Lysine und die antibakterielle Immunität gegen die davon beeinflussten Mikroben.** Von Professor Dr. Alfred Petersson. Karolinisches Institut Stockholm. Paper Price 5 marks. Pp. 75. Jena: Gustav Fischer. 1934.

This monograph deals with bactericidal substances in serum that differ from the bacteriolysins mainly in being more resistant to heat. The author who has done a great deal of work on these substances, calls them serum- $\beta$ -lysins to distinguish them from the less heat resistant lysins which he calls serum- $\alpha$ -lysins. The properties of the serum- $\beta$ -lysins, the bacteria that are susceptible to their action, and the immunity against some of these bacteria are discussed. The monograph will interest all those who are working with the bactericidal actions of the blood and its components. The literature in question is reviewed thoroughly.

**Cataract: Its Etiology and Treatment.** By Clyde A. Clapp M.D. F.A.C.S. Associate Professor of Ophthalmology, Johns Hopkins University. Cloth Price \$4. 1p. 254 with 92 illustrations. Philadelphia: Lea & Febiger. 1934.

The author has assembled the pertinent facts pertaining to the lens and arranged the material in a logical sequence. Dr. Ida Mann has written the first and second chapters, on the development and comparative anatomy of the lens. The foregoing, with the material on anatomy, growth, physiology, chemistry and anomalies, are contained in the first seven chapters (about one fourth) of the book. The remaining eighteen chapters deal with cataracts. The author in turn writes of the pathogenesis of all cataracts and discusses congenital, traumatic, secondary, complicated and senile cataracts. He outlines but gives little credence to the nonoperative treatment of cataracts. The remainder of the book except for chapter XVI which is on couching and is of historical interest and the last two chapters, on dislocations of the lens and on aphakia with its treatment deals with the various types of cataract operations as well as the preparation for the operation and the postoperative care. He has included the electrodiaphane method of Lacarrere. There are numerous illustrations of the various methods of suturing. In the chapter on anesthesia he gives the various methods for producing akinesia, but the technique for this important procedure is too brief. In the preface the author states that a complete bibliography has not been attempted. The work is distinct and significant and one can readily agree with Dr. Wilmer, who in his foreword wrote: "Dr. Clapp has succeeded admirably in a very difficult task of placing between these covers a vast amount of interesting and useful information. It should be welcomed by students and by practitioners of ophthalmology."

**Tests for Respiratory Efficiency.** By Alan Moncrieff. Medical Research Council Special Report Series No. 198. Paper Price 1s. Pp. 62 with 7 illustrations. London: His Majesty's Stationery Office. 1934.

The demand for clinical and laboratory methods for quantitative evaluation of functional efficiency of organs or systems is in ever increasing demand. Both surgeon and physician desire to assess the degree of impairment with which they have to deal. In this monograph the author sets forth in a concise manner the various methods employed in testing respiratory efficiency. He concludes that no one test can be relied on and that in order to gain a useful estimate of respiratory function the patient's vital capacity, ventilating efficiency and expiratory force must all be studied. The author does not settle the question but his work is critical and stimulating. It will be read with interest by all those interested in estimating the efficiency of the respiratory apparatus. The report will be of special interest to those engaged in insurance work and those concerned with passing on the medical qualifications of individuals in occupations involving strain on the respiratory systems as aviators, deep sea divers, and athletes engaging in competitive sports.

**F. J. Shepherd—Surgeon. His Life and Times.** By William Boyman Howell. Cloth Price \$3.50. Pp. 351 with illustrations. Toronto & Vancouver: J. M. Dent & Sons Ltd. 1934.

About Dr. Shepherd as a central figure Dr. Howell has constructed in an interesting manner the story of medical practice and institutions in Montreal during the period from 1869 to 1929. With the substitution of different names, the same narrative might be applied to the course of medical affairs in other cities of Canada and in numerous ones in the United States. At the beginning of this period, medical schools in America were inferior to those in Europe and the teachers were usually general practitioners who expected their positions to aid them in their private business. Among these teachers were some talented and determined young men who like Dr. Shepherd continuously worked for the gradual betterment of medical education and medical institutions. Dr. Shepherd was an enthusiastic teacher of anatomy for more than thirty years. Like him most of the surgeons of the last quarter of the nineteenth century came up through anatomy. These younger men were the ones who accepted and applied antiseptic and aseptic methods and they had the courage and skill to extend the field of operative surgery to the internal cavities of the body. Dr. Shepherd's birth and early life in the country gave him an



opportunity to develop a love for natural beauty and a fondness for fishing. The former shows in his interest in art and in his large private collection of critically selected pictures. He traveled extensively and was an active participant in medical societies at home and abroad. Dr. Howell has performed a valuable service in outlining so well the trend in America of medical matters during the last quarter of the nineteenth and the first quarter of the twentieth century and in giving such a satisfactory glimpse of conditions and persons in Europe at the same time. He has been fortunate in having as his central figure a man who so well exemplified what was best among his contemporaries. The volume closes with a list of the writings of Dr. Shepherd and an excellent index.

**Poliomyelitis. A Handbook for Physicians and Medical Students Based on a Study of the 1931 Epidemic in New York City.** By John F. Landon, M.D., Attending Physician, Willard Parker Hospital, New York, N.Y., and Lawrence W. Smith, M.D., Pathologist, Willard Parker Hospital, New York, N.Y. With a section on the Orthopedic After Care of the Disease. By Harry deN. Hough, Jr., M.D., F.A.C.S., F.A.A.O.S., Attending Orthopedic Surgeon, Shriner's Hospital for Crippled Children, Springfield, Mass. Cloth, Price \$3. Pp. 275 with 18 illustrations. New York: Macmillan Company, 1934.

The aim of this book is to present a short treatise on the subject of poliomyelitis chiefly for the physician in practice. While a number of textbooks are available on this subject few works present the modern developments of the knowledge of this disease in such a comprehensive and compact form. The data presented are recent and carefully evaluated with the background of an exceptionally large clinical and pathologic experience in the epidemic of poliomyelitis that occurred in New York City in 1931. The book treats almost every phase of the subject in a scholarly and impartial manner. The chapter on pathology is particularly lucid and is based on the data obtained from nearly 100 postmortem examinations. The text is well illustrated and contains a valuable list of current bibliographic references. The modern aspects of treatment such as serum therapy, the use of respirator and after care are carefully evaluated from a practical point of view. The appendices on nursing care, aseptic technique and methods of serotherapy are a valuable addition. The book is highly recommended to the practitioner and student of medicine as a concise and practical handbook on the subject of poliomyelitis.

**On Serological Tests for Syphilis with Very Small Amounts of Patient's Serum.** By E. J. Wyler, M.C., M.D., Reports on Public Health and Medical Subjects No. 74, Ministry of Health Paper. Price 6d. Pp. 20 with 3 illustrations. London: His Majesty's Stationery Office, 1934.

In this bulletin the author who is chief serologist in the Ministry of Health, gives technical details for performing the Wassermann test as previously described by the same author, the Kahn test, the Meinicke test and the recently reported Rosenthal method, by using minute amounts of serum. Microtechnics are desirable in the case of infants from whom it is often difficult to obtain amounts of blood sufficient for regular tests. The bulletin should be of interest to laboratory workers.

**The Practitioners Library of Medicine and Surgery. Volume VII. Pediatrics.** [George Blumer, supervising editor.] Cloth, Price \$10. Pp. 1211 with illustrations. New York & London: D. Appleton-Century Company, Inc., 1935.

Since pediatrics is essentially internal medicine as applied to the child, much of the material in this book duplicates information already made available in some of the previous volumes of this excellent system. However, the approach to each of the subjects is made from a special point of view and the studies are necessarily chosen from the field concerned. The volume is therefore a most useful one and constitutes virtually a textbook on pediatrics written particularly with the general practitioner in mind. The various chapters concern the development of the child and its hygiene, nutrition and diets and thereafter a consideration of the diseases of the child classified according to the body system and organs, proceeding then to discussions of the various infectious diseases, and concluding with poisoning and worm infestation. This volume more than previous contributions, lacks adequate illustration. It is, however, excellent in its discussions and quite up to date. The classic outlines of Osler are followed in the systematic approach to the various topics. Each of the chapters is supplemented by bibliographic notes.

**An Atlas of Infant Behavior. A Systematic Delineation of the Forms and Early Growth of Human Behavior Patterns.** By Arnold Gesell, Ph.D., M.D., Sc.D., Director of the Clinic of Child Development and Professor of Child Hygiene in Yale University. Volume I, Normative Series. In collaboration with Helen Thompson, Ph.D., and Catherine Strunk Amatruda, M.D. Volume II, Naturalistic Series. In collaboration with Alice Virginia Kellner, Ph.D., Frances Lillian Diggs, M.D., and Jessie Jarvis Carlson, Ph.D. Leather. Price \$25 per set of 2 volumes. 1 p. 921 with 3200 illustrations. New Haven: Yale University Press, 1934.

The authors of this work have charted the behavior of the infant with some 3,000 photographs. Thus they indicate his various postures, his use of his senses, his relationships to his environment and the gradual growth of his compliance with social custom and manner. For the purpose a photographic dome was prepared especially equipped with the necessary materials. It thus becomes possible for physicians, psychologists, biologists and others to study in the minutest detail the development of the infant physically and mentally.

The second volume concerns the natural day of an infant under conditions in the home, giving in the minutest detail the steps involved in spoon feeding and breast feeding, also the use of the bottle and the cup, the bath, the baby's play, and its progress in walking, growth and in other ways. The interested professions will find many uses for this material.

## Miscellany

### NUMBER AND GEOGRAPHIC LOCATION OF NEGRO PHYSICIANS IN THE UNITED STATES

JULIAN H. LEWIS, PH.D., M.D.  
CHICAGO

For a special purpose I recently accumulated the names, geographic location, medical school and year of graduation for the Negro physicians practicing in the United States in 1932. The facts were obtained from the most recent directory of the American Medical Association and from graduation lists from the various universities. The resulting data, when compared with similar information for the general population, present some interesting similarities and contrasts.

Nearly 12 million people, or about 10 per cent of the population in the United States are classified as Negroes, whereas only 4,000 or 2.5 per cent of the licensed physicians in the

TABLE 1—Number and Percentage of Negro and White Population and Physicians in the United States in 1932 and Population per Physician

	Physicians		Population		Population per Physician
	Number	Per Cent	Number	Per Cent	
Negro	3,985	2.5	11,900,613	9.7	9,883
White	152,545	97.5	110,886,903	90.3	721
Total	156,530	100.0	122,787,516	100.0	785

country are Negroes. There is one Negro physician for each 3,000 Negroes based on the 1930 census data as compared with a ratio of 785 persons per physician for the United States as a whole.

The Negro physicians are unevenly distributed throughout the country as compared with the Negro population. Although the Southern states contain more than 85 per cent of the Negro population, scarcely 60 per cent of the licensed Negro physicians practice medicine in this area. The ten Northern states with 30,000 or more Negroes have only 18 per cent of the Negro population but nearly 40 per cent of the Negro physicians.

From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.



The ratio of Negro population per physician is 3,824 in the Southern states but there is considerable variance among them. Mississippi has one Negro physician to each 14,000 Negroes. This is followed by ratios of approximately 9,600 for South Carolina, 8,000 each for North Carolina and Alabama, 6,700 for Louisiana and 5,500 for Georgia. In contrast the following Southern states show larger proportionate numbers of

TABLE 2—*Negro Population, Negro Physicians and Population per Physician According to Geographic Areas and in Cities with More Than 50,000 Negro Population in 1932*

	Negro Population 1930	Negro Physicians 1932	Population per Physician
Seventeen Southern states	9,629,813	2,501	3,824
Ten Northern states with 30,000 or more Negro population	2,171,827	1,382	1,571
Twenty-two other states	10,961,103	1,022	1,077
Total	11,990,916	4,483	2,680
Cities with 50,000 or more Negro population	1,877,993	1,329	1,413

Georgia, Mississippi, Alabama, North Carolina, Texas, South Carolina, Louisiana, Virginia, Arkansas, Tennessee, Florida, Maryland, Missouri, Kentucky, District of Columbia, West Virginia, Oklahoma, Pennsylvania, New York, Illinois, Ohio, New Jersey, Michigan, Indiana, California, Kansas, Massachusetts, Brooklyn and New York, Chicago, Philadelphia, Baltimore, Washington D. C., New Orleans, Detroit, Birmingham, Memphis, St. Louis, Atlanta, Cleveland, Pittsburgh, Richmond.

Negro physicians among the Negro population. The ratio of Negro population per physician is 1,500 for Tennessee, 1,000 for Missouri, and less than 500 for the District of Columbia.

Among the ten Northern states with 30,000 or more Negroes the ratio of Negro population per physician averages about 1,600 to 1. Illinois leads with 332 Negro doctors and is the only state with a ratio of less than 1,000 Negro population per physician. The states of Pennsylvania and New York show much less concentration of Negro physicians with ratios of

TABLE 3—*Negro Population, Negro Physicians and Population per Physician in Seventeen Southern States, 1932*

State	Negro Population 1930	Negro Physicians 1932	Population per Physician
Georgia	1,071,125	185	5,492
Mississippi	1,009,118	71	14,221
Alabama	914,834	116	8,145
North Carolina	918,647	114	7,882
Texas	854,964	215	3,977
South Carolina	603,681	83	7,262
Louisiana	776,326	116	6,692
Virginia	650,165	185	3,514
Arkansas	478,462	101	4,732
Tennessee	411,646	108	3,801
Florida	431,828	109	3,962
Maryland	276,379	111	2,490
Missouri	233,840	216	1,082
Kentucky	266,040	111	2,391
Oklahoma	172,198	87	1,979
District of Columbia	112,065	271	413
West Virginia	114,893	63	1,824
Total	9,629,813	2,501	3,824

2,552 and 2,281 respectively. The four states, Pennsylvania, Ohio, New York, and Illinois contain about 2,000,000 Negroes and 900 Negro physicians. The states of Georgia, Mississippi, Alabama, and North Carolina contain twice as large a Negro population and but half as many Negro physicians.

There is a concentration of Negro physicians in large cities both in the North and in the South, regardless of whether there is a proportionately large Negro population. The three cities in the United States with more than 200,000 Negro population are New York, Chicago, and Philadelphia with ratios respectively of 2,200, 800 and 2,100 Negroes per physician. Next in line as to Negro population are Baltimore, Washington D. C., and New Orleans, generally regarded as Southern cities with ratios respectively of 1,700, 500 and 2,400

Partly because of the location of Howard University, Washington, D. C. has nearly twice as many Negro physicians as New York, although it has scarcely one-third as large a Negro population. Likewise, Nashville, Tenn., with 40,000 Negroes, the home of Meharry Medical College, has seventy-seven Negro physicians, although New Orleans, with a Negro population of 130,000 reported fifty Negro physicians in 1932.

A number of large Northern cities with very limited Negro populations report ratios of less than 1,000 Negro population per physician. Among these cities are Los Angeles, Oakland, Calif., Denver, Portland, Ore., Spokane, Wash., Buffalo, Erie and Scranton, Pa., and Milwaukee.

Most of the 4,000 Negro physicians practicing in 1932 were graduates of Southern medical schools. Of the total, 69 per cent came from Meharry Medical College and Howard University. Another 11 per cent were from various Southern medical schools, most of which are now out of existence.

TABLE 4—*Negro Population, Negro Physicians and Population per Physician in Ten Northern States Having 30,000 or More Negro Population in 1930*

State	Negro Population, 1930	Negro Physicians, 1932	Population per Physician
Pennsylvania	431,217	169	2,552
New York	412,814	181	2,281
Illinois	328,912	332	991
Ohio	109,164	208	1,485
New Jersey	298,118	170	1,753
Michigan	169,413	117	1,448
Indiana	111,182	79	1,417
California	81,018	75	1,081
Kansas	66,344	35	1,896
Massachusetts	32,365	47	1,114
Total	2,171,827	1,382	1,571

Northern medical schools graduated 14 per cent and for 6 per cent the names of the institutions were not determined from the study.

From the available data certain general statements appear to be justified concerning the number and location of Negro physicians. There are about one-fourth as many Negro physicians for the population as total physicians for the total population. If the Negro population were dependent exclusively on the services of Negro physicians, it would be impossible for them to receive adequate medical care.

TABLE 5—*Negro Physicians in Fourteen Cities Having Over 50,000 Negro Population*

City	Population	Physicians	Ratio
Brooklyn and New York	341,269	151	2,260
Chicago	233,903	287	815
Philadelphia	210,599	104	2,111
Baltimore	142,100	80	1,776
Washington D. C.	132,068	271	487
New Orleans	129,032	53	2,445
Detroit	120,066	68	1,769
Birmingham Ala.	99,077	28	3,538
Memphis, Tenn.	90,500	70	1,293
St. Louis	83,580	54	1,532
Atlanta Ga.	80,075	51	1,570
Cleveland	71,899	50	1,438
Pittsburgh	64,963	21	3,092
Richmond, Va.	62,366	27	2,308
Total	1,877,793	1,329	1,413

Negro physicians tend to concentrate in the large cities, regardless of whether there is a proportionate concentration of Negro population. This is true for both Northern and Southern cities, although there are many more Negro doctors proportionately in the Northern states and cities. The ratio of Negro physicians to population is lower in every state and city than the ratio of total physicians to total population.

**Medicolegal**

**Malpractice Res Ipsa Loquitur, Admissibility of Evidence as to Indemnity Insurance**—The defendant-physician operated on the plaintiff, removing a fibroid tumor and a diseased appendix. The operation was successful and the patient obtained the desired relief. At some time subsequent to the recovery of consciousness, however, a large blister was found on the chest of the plaintiff, for which injury she sued the defendant. The trial court gave judgment for the plaintiff, and the defendant appealed to the Supreme Court of Montana.

The defendant contended, among other things, that the complaint contained only general allegations of negligence whereas it should have set forth the specific acts or omissions on which recovery was sought. The plaintiff said the court sought to avail herself of the doctrine of *res ipsa loquitur* and in a case in which that doctrine is applicable general allegations of negligence are sufficient. The doctrine of *res ipsa loquitur* continued the court while not applicable to the ordinary malpractice case is applicable to the present case for the reasons given in *Brown v. Shorthidge* 98 Calif App 352 277 P 134.

This is not the ordinary case where the practitioner is sought to be charged with liability for alleged improper treatment of some bodily ailment or infirmity. He was employed to remove the adenoids from the plaintiff's throat and there is neither claim nor proof that he did not successfully remove them. His negligence if any was in failing to take due care to avoid injury to the undiseased parts in the vicinity of which the operation was performed and while it may be true that had the operation upon the adenoids been unsuccessful and disappointing no inference of negligence or want of skill would arise therefrom it does not follow that this rule applies with the same force to an injury done by him to sound and undiseased parts of the plaintiff's person which he was not called upon to treat and did not pretend to treat.

Where the rule is applicable, it operates to establish a *prima facie* case for the plaintiff which if unexplained, carries the question of negligence to the jury.

The evidence in this case established the fact of the burn but did not explain just how or when it was inflicted. Under the rule of *res ipsa loquitur* continued the court the circumstances proved by the plaintiff were such as to point by fair and reasonable inference to the conclusion that the defendant was guilty of negligence. They were sufficient to take the case out of the realm of conjecture and to support a finding by the jury that the defendant was guilty of negligence. The evidence offered by the defendant tended to rebut the inference arising from the *prima facie* case established by the plaintiff but such evidence was not so overwhelming as to cause the presumption of negligence to fade away in the face of contrary facts or point to freedom from negligence with such certainty as to preclude any other reasonable hypothesis.

The defendant vigorously urged that the counsel for the plaintiff was guilty of reversible misconduct in injecting into the case a statement that the defendant was insured. The injection of the insurance issue into damage actions has been repeatedly condemned said the court. The general rule on the subject is discussed in an annotation to the case of *Stehouwer v. Lewis* 74 A. L. R., 849, as follows:

The rule is almost universally recognized that in actions for personal injuries or death the fact that the defendant is protected by indemnity insurance against liability for damages cannot directly or indirectly be injected into the case by evidence argument or remarks so as to influence the jury and the violation thereof is ordinarily held to be reversible error.

The general rule however, is subject to the important exception that statements as to insurance protection of a defendant may properly be admitted as a part of a statement which may be fairly construed as an acknowledgment of a responsibility for the wrong charged against him. The present case does not come within the exception, so the general rule applies. In injecting the matter of insurance therefore the counsel for the plaintiff erred and thereby prejudiced the defendant's cause. The judgment of the trial court was reversed and the cause remanded for a new trial.—*Onault v. O'Rourke* (Mont) 33 P (2d) 330.

**Society Proceedings****COMING MEETINGS**

Alabama Medical Association of the State of Mobile, April 16-18.  
Dr D L Cannon 519 Dexter Avenue Montgomery Secretary  
American Association for the Study of Neoplastic Diseases Baltimore,  
April 18-20 Dr Eugene R Whitmore 2139 Wyoming Avenue N. W.,  
Washington D C Secretary  
American Association of Anatomists St Louis April 18-20 Dr George  
W Corner University of Rochester School of Medicine Rochester  
N Y Secretary  
American Association of Pathologists and Bacteriologists New York,  
April 18-19 Dr Howard T Karsner 2085 Adelbert Road Cleveland  
Secretary  
American Association of the History of Medicine Atlantic City May 6  
Dr Edward J G Beardsley 1919 Spruce Street Philadelphia  
Secretary  
American Association on Mental Deficiency Chicago April 25-27 Dr  
Groves B Smith Beverly Farms Godfrey Ill Secretary  
American Bronchoscopic Society Toronto Canada June 1 Dr Lyman  
Richards 319 Longwood Drive Boston Secretary  
American College of Physicians Philadelphia April 29 May 3 Dr  
E R Loveland 133 South 36th Street Philadelphia Executive  
Secretary  
American Dermatological Association White Sulphur Springs W. Va.  
May 2-4 Dr William H Guy 500 Penn Avenue Pittsburgh  
Secretary  
American Gynecological Society Hot Springs Va May 27-29 Dr Otto  
H Schwarz 630 South Kingshighway St Louis Secretary  
American Laryngological Association Toronto Canada May 29-31 Dr  
William V Mullin 2020 East 93d Street Cleveland Secretary  
American Otological Society Toronto Canada May 27-29 Dr Thomas  
J Harris 104 East 40th Street New York Secretary  
American Pediatric Society Cleveland May 2-4 Dr Hugh McCulloch  
325 North Euclid Avenue St Louis Secretary  
American Physiological Society Detroit April 10-13 Dr Frank C Mann  
Mayo Clinic Rochester Minn Secretary  
American Psychiatric Association Washington D C May 13-17 Dr  
William C Sandy State Education Building Harrisburg Pa.  
Secretary  
American Society for Clinical Investigation Atlantic City May 4  
Dr H L Blumgart 330 Brookline Avenue Boston Secretary  
American Society for Experimental Pathology Detroit April 10-13 Dr  
Shields Warren 195 Pilgrim Road Boston Secretary  
American Society for Pharmacology and Experimental Therapeutics  
Detroit April 10-13 Dr E M K Geiling 710 N Washington  
Street Baltimore Secretary  
American Society of Biological Chemistry Detroit April 10-13 Dr  
H A Mattill State University of Iowa Iowa City Secretary  
Arizona State Medical Association Phoenix, April 25-27 Dr D F  
Harbridge 15 East Monroe Street Phoenix Secretary  
Arkansas Medical Society Fort Smith April 15-17 Dr W R  
Brooksher 602 Garrison Avenue Fort Smith Secretary  
Association of American Physicians, Atlantic City May 7-8 Dr James  
H Means Massachusetts General Hospital Boston Secretary  
California Medical Association Yosemite May 13-16 Dr F C  
Warnshuis 450 Sutter Street San Francisco Secretary  
Connecticut State Medical Society New Haven May 22-23 Dr C W  
Comfort Jr 27 Elm Street New Haven Secretary  
District of Columbia Medical Society of the Washington May 1  
Dr C B Conklin 1718 M Street N.W. Washington Secretary  
Federation of American Societies for Experimental Biology Detroit,  
April 10-13 Dr H A Mattill State University of Iowa Iowa City  
Secretary  
Florida Medical Association Ocala May 13-15 Dr Shaler Richardson  
111 West Adams Street Jacksonville Secretary  
Georgia Medical Association of Atlanta May 7-10 Dr Allen H Buncie  
139 Forrest Avenue N.E. Atlanta Secretary  
Illinois State Medical Society Rockford May 21-23 Dr Harold M  
Camp Lahl Building, Monmouth Secretary  
Iowa State Medical Society Davenport May 8-10 Dr Robert L Parker  
3510 Sixth Avenue Des Moines Secretary  
Kansas Medical Society Salina May 8-10 Mr Clarence Munns,  
Stormont Building Topeka Executive Secretary  
Louisiana State Medical Society New Orleans April 29 May 1 Dr  
P T Talbot 1430 Tulane Avenue New Orleans Secretary  
Maryland Medical and Chirurgical Faculty of Baltimore April 23-24  
Dr Walter Dent Wise 1211 Cathedral Street Baltimore Secretary  
Mississippi State Medical Association Biloxi May 14-16 Dr T M  
Dye McWilliams Building Clarksdale Secretary  
Missouri State Medical Association Excelsior Springs May 6-9 Dr  
E J Goodwin 634 North Grand Boulevard St. Louis Secretary  
National Association of Private Psychiatric Hospitals Washington D C  
June 1 Dr James M O'Neill St Vincent's Retreat Harrison N. Y.  
Secretary  
Nebraska State Medical Association Omaha May 14-16 Dr R B  
Adams Center McKinley Building Lincoln Secretary  
New Hampshire Medical Society Manchester May 7-8 Dr Carleton R.  
Metcalf 5 South State Street Concord Secretary  
New Jersey Medical Society of Atlantic City April 30 May 2 Dr  
J B Morrison 66 Milford Avenue Newark Secretary  
New York Medical Society of the State of Albany May 13-15 Dr  
Daniel S Dougherty 2 East 103d Street New York Secretary  
North Carolina Medical Society of the State of Pinehurst May 6-8  
Dr L B McBrayer Southern Pines Secretary  
North Dakota State Medical Association Minot May 27-28 Dr Albert  
W Skelsey 205 Broadway Fargo Secretary  
Oklahoma State Medical Association, Oklahoma City May 13-15 Dr L.  
S Willour 203 Ainsworth Building McAlester Secretary  
South Carolina Medical Association Florence April 23-25 Dr E A  
Hines Seneca Secretary  
South Dakota State Medical Association Pierre May 13-15 Dr John  
F D Cook Langford Secretary  
Tennessee State Medical Association Nashville April 9-11 Dr H H  
Shoulders 706 Church Street Nashville Secretary  
Texas State Medical Association of Dallas, May 13-16 Dr Holman  
Taylor 208 Medical Arts Building Fort Worth Secretary  
West Virginia State Medical Association, Wheeling May 6-8 Mr Joe  
W Savage Public Library Building Charleston Executive Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk ( ) are abstracted below.

### American J Obstetrics and Gynecology, St Louis

29 1154 (Jan.) 1915

- Hormones in Relation to Reproduction C R Moore Chicago p 1  
Fetal Mortality in Different Types of Toxemia A J H Tillman and B P Watson New York p 19  
Analysis of One Hundred and Twenty Seven Cases of Eclampsia Treated by Modified Stroganoff Method C H Peckham Baltimore p 27  
Studies of Hepatic Function IV Hepatic Function During Pregnancy A Cantarow H Stuckert and F Gartman Philadelphia p 36  
Labor in the Cardiac Patient Report of Occurrence of Coronary Occlusion in Pregnancy and Labor R A Reis and J F Frankenthal Jr Chicago p 44  
Management of Pregnant Women with Heart Disease J E Fitzgerald Chicago p 53  
Heart Disease Complicating Pregnancy Clinical Study W Schuman Baltimore p 64  
Embryonal Carcinoma of Ovary (Disgerminoma) S A Wolfe and S Kaminester Brooklyn p 71  
Effect of Cigaret Smoking During Pregnancy on Fetal Heart Rate L W Sontag and R F Wallace Yellow Springs Ohio p 77  
Ovarian Follicular Hormone Effects on Ovaries F Allen and A W Diddle New Haven Conn p 83  
Value of Irradiation in Treatment of Ovarian Carcinoma J H Harris and F L Payne Philadelphia p 88  
Pharmacologic Study of Uterine Fistula of Unanesthetized Rabbit I Pituitrin G L Weinstein and M H Friedman Philadelphia p 93  
Comparative Study of Lipiodol Injection and Air Insufflation in Sterility B Rabiner Brooklyn p 100  
Is the Lower Uterine Segment Exclusively a Clinical Phenomenon? H Acosta Sison Manila P I p 106  
Teratoma of Bladder F E Keene and P Tompkins Philadelphia p 109  
Use of Follutein in Dysmenorrhea W H Browne Chicago p 113  
Sexual Excitability as Related to Menstrual Cycle in Monkey Josephine Ball and C G Hartman Baltimore p 117  
Ovarian Response in Monkeys (Macacus Rhesus) to Injections of Antuitrin S C E Johnson New Haven Conn p 120  
Simultaneous Bilateral Tubal Pregnancy S L Siegler Brooklyn p 122  
Localized Traumatic Cyanosis in the New Born J H Telfair and J A Gaines New York p 125  
Septicemia in the New Born W B Mount Montclair N J p 126  
Endometriosis Chronic Bartholinitis and Ovarian Cyst C E Galloway Evanston Ill p 128  
Device for Rupturing Membranes D A Bickel South Bend Ind p 130

**Hormones in Relation to Reproduction**—To explain the relation of the hormones to reproduction, Moore discusses (1) the double functional potentiality of the sex glands, (2) the control of the essential accessory reproductive organs the non-essential characteristics and to some extent the psychic behavior by the homologous sex hormone and the absence of an effect from the heterologous sex hormone (3) the threshold of effectiveness of hormones, (4) the lack of effect of gonad hormones on the gonads themselves (5) the absence in the gonads of the power of self regulation, and (6) the principle that hypophyseal activity is modified by the gonad hormones (there is a reciprocal interaction between the gonads and the pituitary). The author believes that sufficient detail has been presented to indicate that many of the phenomena of reproduction are interpretable on the basis of the working hypothesis presented. This type of explanation has been of service in his laboratory in suggesting lines of experimental attack on several problems. He anticipates, however that many other factors will be found to enter into the mechanisms of control of the phenomena discussed and admits that several facts are difficult to fit into the scheme suggested. He states that with an increase of present knowledge and the evaluation of factual information there is little doubt that understanding of the mechanisms of control will advance. It is probable that other endocrine glands

will have to be placed in the chain of events as a necessary link, but until the interpretations are clear, working hypotheses will have a place.

**Pregnancy and Heart Disease**—Fitzgerald reports on the management of pregnancy in 126 cases in which there was no reasonable doubt as to the presence of organic heart disease. Of the 126 cases, 107 presented mitral disease and sixty one of these showed evidence of stenosis. The patients were all examined at frequent intervals during their pregnancies. Whenever a patient was unable to do her ordinary activities without dyspnea or fatigue whenever she had difficulty in lying down without more than one pillow under her head and whenever she developed a cough even with no other symptoms, she was immediately hospitalized. If at routine examination the pulse was more than 100 when at rest or if any irregularity developed she was hospitalized even if symptoms were absent. To protect the patients from the development of such conditions they were required to spend two hours of each day at complete rest. Digitalis was never given during pregnancy while the patient was at home. In the hospital when the symptoms were of great importance the advice of the physician in charge of the heart clinic was requested. These patients were hospitalized for a few days before they went into labor when indicated. By this method of hospitalization at the first sign of significant evidence of myocardial stress the author was enabled to carry the entire group through pregnancy without alarming symptoms. Treatment during labor was simple. In labor as well as during pregnancy, no distinction was made between the various types of heart lesion other than as a matter of record. The routine sedative used was one-fourth grain (0.016 Gm) of morphine and  $\frac{1}{160}$  grain (0.0004 Gm) of scopolamine hypodermically. This was given in primigravidas as soon as the cervix was dilated 3 cm, and in multigravidas as soon as labor had definitely begun. The dose was repeated after four hours if it seemed advisable. In the second stage if progress was rapid the normal process was not interfered with. If at any time after the cervix was completely dilated progress was slowed or there developed any symptoms of cardiac distress delivery was accomplished by forceps under ether. These patients when once in labor made satisfactory and frequently rapid progress. In the primigravidas the longest labor was twenty-nine hours, the shortest labor was six hours and the average was ten hours and fifty minutes. The multiparas had an average labor of five hours and forty minutes, the extremes being three hours and ten minutes and eight hours and fifty minutes. Under this management 126 patients have delivered 189 babies. Two patients aborted spontaneously before five months. Three nonviable premature babies including one pair of twins, were born. Eleven patients went into labor prematurely, but after their babies had become viable. Two of these babies failed to survive. One full-term normally delivered infant developed pneumonia and died. No patient died during pregnancy or labor. One died six weeks post partum from an acute bacterial endocarditis, which developed after labor. One died nine months post partum at the age of 45. No patient was delivered by cesarean section, because of the heart condition.

**Cigaret Smoking and the Fetal Heart Rate**—Sontag and Wallace made a study of the fetal heart rate, before and after maternal smoking, eighty-one times on five patients. The average fetal heart rate for five minutes before smoking was  $144.0 \pm 0.14$ . The average fetal heart rate for the eighth to the twelfth minute after a cigaret was lighted and smoking begun was  $149.0 \pm 0.13$ . The average increase in the rate was  $5.0 \pm 0.19$  beats. Since the difference in rates before and after smoking is more than twenty-five times the probable error of the difference the effect of smoking is actual. Of the five patients, four showed an increase in the fetal heart rate after smoking while the fifth showed a decrease. The four showing increases were habitual smokers who inhaled the smoke. The patient showing a decrease had never smoked before, did not inhale, and expelled the smoke from her mouth as quickly as possible. There were occasional negative trials in each of the four patients showing an increase. These occurred for the most part at times when the fetal heart rate during the control period was above its average. The increase in the fetal heart

rate appears to be due to the passage of the toxic products of tobacco smoke into the fetal circulation, where they affect the fetal heart rate in the same way in which the adult heart rate is affected. Since the toxic effects of tobacco on young children and of nicotine contained in mother's milk on nurslings have been reported a careful study of the new born offspring of mothers who smoke heavily during pregnancy is indicated. Evidence of injurious effects of smoking during pregnancy may be overlooked.

**Iodized Poppy-Seed Oil Injection and Air Insufflation in Sterility**—Rabbiner points out that a review of the literature indicates that routine injections of iodized poppy-seed oil are not harmless and that as a diagnostic method it carries a morbidity and mortality even though small. The use of these injections in cases of sterility is unwise until a complete history, a careful bimanual examination, an endocrine survey, air insufflation tests, study of the vaginal chemistry, and investigation of cervical disorder and of the fertility of the male have been made. Operations on the tubes should be postponed for several months after the injections. In sterility cases in which one tube is occluded or both tubes show partial occlusion, as demonstrated by air insufflation the injections of the oil should be used cautiously since complete occlusion may result and thus defeat the primary objective. Air insufflation yields the desired information regarding the condition of the tubes, without harm and subsequent sequels. This has been the author's experience in a large number of cases. The contention that the oil may remain in the peritoneal cavity for a year or more and result in serious pathologic changes has been verified by personal experience and the publications of others. Misinterpretation is not unlikely in the reading of salpingograms by the inexperienced; errors are few after trans uterine insufflation.

### American Journal of Pathology, Boston

11 1184 (Jan.) 1935

- Pathology of Parathyroid Gland in Hyperparathyroidism. Study of Twenty Five Cases. B. Castleman and T. B. Mallory. Boston—p. 1.  
Enlargement of Parathyroid Glands in Renal Disease. A. M. Pappenheimer and S. I. Wilens. New York—p. 71.  
Atypical Amyloid Disease. D. Perla and H. Cross. New York—p. 93.  
\*Subacute Lymphatic Leukemia. Histogenetic Study of Case with Three Biopsies. J. Stasney and H. Downey. Minneapolis—p. 113.  
\*Hepato-Adrenal Necrosis with Intranuclear Inclusion Bodies. Report of Case. C. M. Hass. Boston—p. 127.  
\*Myocardial Lesions in Subacute Bacterial Endocarditis. O. Saphir. Chicago—p. 143.  
Hepatic Infarction. H. Lund, H. L. Stewart and M. M. Tisher. Philadelphia—p. 157.  
Annular Pancreas. Report of Case with Simple Method for Visualizing the Duct System. J. B. McNaught and A. J. Cox. San Francisco—p. 179.

**Subacute Lymphatic Leukemia**—Stasney and Downey observed a case of lymphatic leukemia in which the biopsy of a lymph node from the earlier stage of the leukemic involvement revealed a marked hyperplasia of the reticulum. At the same time in the peripheral blood there were a number of large reticulo endothelial cells in addition to immature lymphocytes. In many instances these reticulo endothelial cells showed a nucleus with a rather dense chromatin structure resembling a nucleus of a lymphocyte. In a later stage at the second biopsy the medullary portion was packed with a dense mass of large immature lymphocytes, while the cortical region showed more or less well preserved germ centers. The subsequent disappearance of the large reticulo-endothelial cells from the peripheral blood was also noted. Therefore the first involvement of the leukemic process seems to begin with a diffuse proliferation of the reticulum. It was noted that the chromatin structure became more condensed. Numerous transitional forms from reticulo endothelial cells to large lymphocytes were found in the imprint preparations and in the peripheral blood from the earlier stages which later disappeared. In a later stage the medullary portion was entirely replaced by a dense mass of large cells with basophilic cytoplasm. It was only in the cortical region that a few more or less well preserved follicles were retained. Simultaneously in the peripheral blood there was a marked increase of immature lymphocytes. This indicates that in the lymphoid tissue the mesenchymal syncytium is rather uniformly distributed and that lymphocytopoiesis is

not restricted to the germinal centers or to preformed germ center cells. The evidence of extramedullary myelopoiesis in the medulla, as well as in germinal centers, the marked monocytic production in cases of leukemic reticulo-endotheliosis and finally the transformation of the mesenchymal syncytial cells into lymphocytes indicate the embryonic hematopoietic potency of the syncytial reticulum cells.

**Hepato-Adrenal Necrosis with Intranuclear Inclusion Bodies**—Hass witnessed intranuclear inclusion bodies in the parenchymal cells of the liver and adrenals of a 2 weeks old premature infant (seven months) in whom the chief pathologic changes were a widespread necrosis of the liver and focal cortical necrosis of the adrenals. He assumes that the unique lesions must have been produced by a filtrable virus.

**Myocardial Lesions in Subacute Bacterial Endocarditis**—Saphir examined the myocardium of thirty five hearts of patients dying from subacute bacterial endocarditis. Sections from various portions of both ventricles were embedded in paraffin and stained with hematoxylin-eosin. The Gram Weigert and the Van Gieson stains were also used. Frozen sections were often cut and stained with sudan III to demonstrate the presence of fat. In some instances serial sections were cut from a whole block and stained with hematoxylin-eosin. The prussian blue reaction was employed to determine the presence of iron containing pigment. Grossly the myocardium almost invariably was softer than normal, its cut surface was of a boiled appearance and the architecture was obscured. Just beneath the endocardium many minute yellowish streaks were often observed which occasionally were arranged in the form of tiger stripes. These were particularly evident in the papillary muscles of both ventricles. In some hearts the myocardium was traversed by grayish yellow and grayish red streaks and had a peculiar speckled appearance. Occasionally circumscribed minute yellow nodules or larger, soft yellow areas were encountered which were surrounded by hemorrhagic zones. Only in one case could an embolus be demonstrated grossly in the coronary artery. The aortic valve in this heart was almost completely destroyed and all three cusps were practically replaced by large soft grayish red vegetations. Mycotic aneurysms were found in the sinus of Valsalva corresponding to the left and posterior aortic cusps. The distal portion of the circumflex branch of the coronary artery at the point of origin of the ramus marginis obtusi was occluded by an embolus which was reddish gray soft and similar in every respect to the vegetations on the aortic valve. In six hearts petechial hemorrhages were encountered. More commonly the subendocardial layer was involved but occasionally the myocardium in an area at a distance from the endocardium was affected.

### American Journal of Psychiatry, New York

91 725 968 (Jan.) 1935

- Etiology of Manic Depressive Syndromes with Especial Reference to Their Occurrence in Twins. A. J. Rosanoff, Leva M. Handy and Isabel Rosanoff Plesset. Los Angeles—p. 725.  
Depression and Mental Disease in New York State. H. M. Pollock. Albany, N. Y.—p. 763.  
Psychiatry and Problems of Delinquency. M. S. Gregory. New York—p. 773.  
Clinical Study of Inmates Sentenced to Sing Sing Prison for First Degree Murder. A. T. Baker, Briarcliff Manor, N. Y.—p. 783.  
Ward Personnel in Mental Hospitals. G. H. Stevenson. London, Ont.—p. 791.  
Influence of Size of Family on Characteristics of the Mentally Deficient. Survey of Twenty Thousand Four Hundred and Seventy Three Retarded Children in Public Schools of Massachusetts. A. A. Dayton. Boston—p. 799.  
Objective Determination of Factors Underlying Mental Health. W. Line and J. D. M. Criffin. Toronto—p. 833.  
Chronic Postencephalitis in Juvenile Delinquents. M. Molitch. Jamesburg, N. J.—p. 843.  
Study of Discipline in Penal and Correctional Institution. C. R. F. Beall. Atlanta, Ga.—p. 863.  
Treatment of Problem Children in Psychiatric Hospital. H. W. Potter. New York—p. 869.  
Significance of Blood Groups in Inoculation Malaria. I. M. Derby. Brooklyn—p. 881.  
Sexual Sterilization. Four Years Experience in Alberta. C. A. Baragar. Edmonton, Alta. G. A. Davidson. Ponoka, Alta. W. J. McAllister. Edmonton, Alta. and D. L. McCullough. Red Deer, Alta.—p. 897.  
Association Motor Investigation of Psychoneuroses. C. H. Barnacle. F. C. Ebaugh and F. Lemere. Denver—p. 925.

**Am J Roentgenol & Rad Therapy, Springfield, Ill**

73:1 148 (Jan) 1935

- \*Visualization of Suprasellar Tumors by Encephalography Report of Nine Cases W B Hamby Buffalo and W J Gardner Cleveland —p 1
- Roentgen Studies on Late of Calcium in Bones of Retained Dead Rabbit Fetuses Evaluation of Decalcification as Roentgenographic Diagnostic Criterion of Death of Fetus in Utero J W Lawlah and P C Hodges Chicago —p 10
- Roentgenographic Study of Gastrointestinal Motility in Rachitic Rats R S Harris and J W M Bunker Cambridge Mass —p 25
- Benign Stricture of Stomach and Esophagus J Sagel Minneapolis —p 31
- Congenital Diaphragmatic Hernia Case Report J Friedman Montreal —p 36
- Fracture of Anterior Superior Spine of Hum in One Case and Anterior Inferior in Another Case I Weitzner New York —p 39
- Technic and Results of Irradiation in Carcinoma of Breast Review of Eleven Hundred and Twenty Nine Private Cases C E Pfahler and J H Vastine Philadelphia —p 41
- \*Dosage and Technic in Treatment of Carcinoma of Uterine Fundus with Radium H H Bowing and R F Fricke Rochester Minn —p 50
- Pigmented Moles and Their Treatment H I Anderson and C A Simpson Washington D C —p 54
- Relative Value of Surgery Radium and Roentgen Therapy in Carcinoma of Breast J Levin New York —p 59
- Roentgen Treatment of Carcinomas W B Fisor Baltimore —p 71
- \*Preliminary Study of Effect of Artificial Fever on Hopeless Tumor Cases S I Warren Rochester N Y —p 75
- Dangers of Roentgenoscopy and Methods of Protection Against Them III Protective Power of Barium Filled Stomach F I I Cilley E T Leddy and B R Kirklin Rochester Minn —p 88

**Visualization of Suprasellar Tumors by Encephalography**—Hamby and Gardner discuss the encephalographic characteristics in nine cases of tumors of the suprasellar region: four craniopharyngiomas, two suprasellar meningiomas, two gliomas of the optic chiasm and one arachnoid cyst. The characteristic observations in these tumors are obliteration of the cisterna chiasmatis, diminution of the frontal cerebral sub-arachnoid spaces and more or less encroachment on the ventricular system. The different types of tumor appear to present some differential features. The craniopharyngiomas showed in addition to the general features in anterior-inferior filling defect in the third ventricle and more or less obstruction of the foramina of Monro with resulting hydrocephalus. The meningiomas showed in addition to the general features, outlining of the superior border of the tumor with less compression of the third ventricle. Filling defects were noted in the floors of the anterior horns of the lateral ventricles. The gliomas of the optic chiasm await further observations for the establishment of a clear conception of their characteristics. The increased size of the infundibulochiasmal shadow in a normal cisterna chiasmatis, in a patient having a syndrome indicative of chiasmal damage, seems suggestive of a chiasmal glioma. The outline of a normal chiasmal cistern on the encephalogram excludes the possibility of a surgical lesion in this region.

**Benign Stricture of Stomach and Esophagus**—Sagel cites two cases that show strictures of both the stomach and the esophagus due to ingestion of alkalis. While benign stricture of the stomach and esophagus is a relatively rare condition, it should be thought of when esophageal and gastric lesions do not show changes characteristic of other diseases. A concomitant lesion in the esophagus and the stomach is suggestive of benign stricture. A history of the swallowing of corrosive material is of course of prime importance in establishing the diagnosis. The author enumerates observations which he believes will aid in the diagnosis and differentiation of this condition from other esophageal and gastric lesions.

**Treatment of Carcinoma of Uterine Fundus with Radium**—The basic principle of the present technic of Bowing and Fricke for the treatment of carcinoma of the uterine fundus consists of intensive application by the broken dose method and the use of simple applicators which are gamma-ray tubes containing 50 millicuries of radon, as the unit of treatment. This permits wide choice so that treatment can be individualized. As the lesion cannot be accurately outlined their purpose is adequate homogeneous irradiation of the uterine canal, including the cervix when involved, supported by vaginal irradiation. Radium element needles are employed in cases of metastasis

to the vaginal wall, and surface packs are used if the inguinal lymph nodes are involved. Treatments with x-rays are given following the course of radium treatments, especially in inoperable cases and in those in which the lesions are of a high grade of malignancy. The whole problem is mainly surgical, although when operation is contraindicated many lesions may be satisfactorily arrested or apparently "cured" by careful irradiation. In inoperable conditions, palliation is usually secured by limited treatments.

**Study of Effect of Artificial Fever in Hopeless Tumor Cases**—Warren states that there is in vitro (and some in vivo) experimental evidence suggesting a definite "thermal death time" for transplantable animal tumors at high febrile temperatures. There is a distribution of heat by the circulating blood in the febrile state so that the internal organs and tumors in animals, and presumably in man, reach and can be maintained at any predetermined temperature level. This is usually nearly equal to the rectal temperature. On this basis, thirty-two hopeless advanced human cases of different types of malignant disease were treated by generalized fever therapy and a combination of fever therapy at 41.5 C (106.7 F) and high voltage roentgen therapy. In cases treated previously by high voltage roentgen therapy and in untreated cases, fever therapy seems to have a definite destructive effect on the tumor cells. The amount of destruction and its duration varies from case to case. Further work on this aspect of the treatment of malignant disease seems to be warranted in the hope of obtaining an additional aid in the treatment of this malady. No results approaching cure have yet been obtained by this procedure. In all cases but three, after the fever treatment there was immediate improvement in the general condition, lasting various periods of time (from one to six months), with gain in weight and strength and with shrinkage of tumor masses of various amounts and duration. Evidence of return of growth of the tumor process in all patients occurred at various intervals and rates. It was the clinical opinion of those concerned that because of the rapid growth of the tumors and the condition of the patient the probable length of life was restricted (from one to three months).

**American Journal of Syphilis and Neurology, St Louis**

10:1 160 (Jan) 1935

- Clinical Syphilitic Nephropathies Study of New Cases and Survey of Reported Cases G Herrmann and W L Marr Galveston Texas —p 1
- Transmission of Syphilis by Blood Transfusion H W Jones T K Rathmell and C Wagner Philadelphia —p 30
- \*Leukocytes in Early Acute Experimental Syphilis in Rabbits L Lowenstein Nashville Tenn —p 39
- Citochol Reaction for Diagnosis of Syphilis Comparison with Kahn and Wassermann Reactions K Deissler Rochester, Minn and A B Baker Minneapolis —p 48
- Unilateral Amyotrophy Its Diagnostic Importance for Cerebral Localization N W Winkelman and A Silverstein Philadelphia —p 58
- \*Comparative Estimation of Cerebrospinal Fluid from Cisternal and Lumbar Punctures in Syphilitic Patients K A Moskvin L M Markuss and V N Vassilieva Kharkov Ukraine U S S R —p 77
- Juvenile Parietic Neurosyphilis Studies VI Physical Complications Stigmas and Endocrinopathies W C Menninger Topeka Kan —p 88

**Leukocytes in Syphilis in Rabbits**—Lowenstein noticed an increase in the number of phagocytic mononuclear cells in early acute experimental syphilis in the rabbit. Qualitatively these cells showed evidence of increased physiologic and phagocytic activity. There was also a decrease in the number of lymphocytes. The degree of increase in the large phagocytic mononuclear cells paralleled the degree of activity at the site of the testicular lesions. No significant changes were observed in the total number of leukocytes or in the other leukocytic elements of the blood, while gross testicular lesions were present.

**Comparison of Cerebrospinal Fluid from Cisternal and Lumbar Punctures in Syphilis**—From the comparative study of cisternal and lumbar fluids in syphilis Moskvin and his associates conclude that 1 While one is performing the Wassermann test it is necessary to use 1 cc. of the fluid as the initial maximal quantity, carrying out the test quantitatively with the amounts 1.05 and 0.1 cc. 2 The employment of various methods of extract dilution helps to carry out a

more exact estimation of the Wassermann test variations in the cisternal and spinal portions. The Wassermann reaction does not differ greatly in either portion, but the variance is usually observed within the limits of two-plus. The positiveness of the colloidal and protein tests and lymphocytosis is more marked in the lumbar portion. The difference is the least pronounced in the benzoin test. 3 In the cerebral forms of syphilis the cisternal fluid does not differ significantly from that of the lumbar region. 4 In the cerebrospinal fluid diagnosis of syphilis the principal part is the examination of the lumbar fluid. Yet the examination of cisternal fluid is an extremely valuable adjunct to it; it is necessary (1) for the study of pathologic dynamics of the spinal fluid when frequent examinations of the lumbar fluid are impossible owing to meningism, (2) in cases in which the lumbar puncture is contraindicated and (3) in cases in which the spinal fluid cannot be obtained by lumbar puncture.

### Annals of Surgery, Philadelphia

101 659-818 (Feb.) 1935

- \*Problem of Draining Abdominal Cavity in Cases of General Peritonitis. M. G. Breitman. Moscow. U. S. S. R.—p. 662.
- Surgical Management of Chronic Subdural Hematoma. C. H. Frazier. Philadelphia—p. 671.
- Spinal Anesthesia. Report of Fifteen Hundred Cases. O. C. King. Philadelphia—p. 690.
- Use and Abuse of Spinal Anesthesia. J. P. North. Philadelphia—p. 702.
- Jejunostomy with Jejunal Alimentation. J. A. Wolfer. Chicago—p. 708.
- Leiomyoma of Small Intestine. E. J. Klopp and B. I. Crawford. Philadelphia—p. 726.
- \*Submucous Lipomas of Intestinal Tract as Cause of Intestinal Obstruction. J. D. Kirshbaum. Chicago—p. 734.
- Acute Tuberculous Appendicitis. E. M. Driscoll and R. Zollinger. Boston—p. 740.
- Cystine Nephrolithiasis. Report of Two Cases. L. Herman and W. E. Lee. Philadelphia—p. 746.
- \*Treatment of Recurrent Incisional Hernia by Flaps of Anterior Sheath of Rectus. N. S. Rothschild. Philadelphia—p. 754.
- Fibrosarcoma of Extremities. E. M. Dick. New York—p. 759.
- Arteriography in Gangrene of Extremities by Use of Thorium Dioxide (Stabilized). Study Based on Twenty Seven Cases. J. R. Veal and Elizabeth M. McFetridge. New Orleans—p. 766.
- Compressed Fractures of Vertebrae. D. P. Willard. Philadelphia—p. 776.

**Draining the Abdominal Cavity in Peritonitis.**—Breitman believes that the removal of exudate may be achieved in a sufficient measure, avoiding the dangers and complications connected with drainage, in the following manner. After the usual manipulations within the abdominal cavity in cases of acute peritonitis, the gastrocolic omentum, if it has not been destroyed by some inflammatory process, is spread over the intestinal loops, the drainage tube is wrapped in gauze and laid on the omentum, and the abdominal wall is sutured by layers with the exception of the lower end of the wound which serves as an outlet for the drainage tube. A sufficiently thick bandage is applied so that it will absorb the exudate discharged through the drainage tube. On the next day the wet top layers of the bandage are changed. Applied in this manner the drainage tube is not located amid the intestinal loops, being isolated from the latter by the omentum. Consequently it is hoped that there will be neither adhesions of the intestinal loops nor injury to the intestinal walls due to the action of the tube. The author is of the opinion that under this arrangement a sufficient discharge of exudate is possible because the bandage quickly becomes wet during the first hours after the operation, so that it becomes necessary to reinforce it. On the next day the upper layers of the bandage, which are changed, are saturated with exudate. The author employed the foregoing procedure in six cases of general peritonitis of different origin: one of peritonitis caused by perforation of a duodenal ulcer, two of appendicitis with peritonitis, two of peritonitis caused by volvulus of the cecum, and one of peritonitis caused by volvulus of the sigmoid flexure. The drainage tubes were removed on the fifth to the seventh day. Five of the patients recovered and one died on the sixth day with symptoms of postoperative pneumonia. The author does not consider the method a panacea for the treatment of peritonitis but the method is the working hypothesis of a practical surgeon, which deserves a certain amount of attention and should be verified on a larger amount of material.

**Submucous Lipomas of Intestinal Tract.**—In 5,754 consecutive necropsies performed at the Cook County Hospital, Kirshbaum states that nine cases of lipoma of the gastrointestinal tract were found. While in seven cases the lipoma was merely an incidental observation and measured from 1 to 3 cm. in diameter, in two of the cases the tumor proved to be of grave significance. In one of these two cases the lipoma became sequestered, mobilized and lodged in the lower ileum, occluding the lumen. The second tumor induced an intussusception of the lower 8 inches of the ileum into the cecum. Both cases resulted in death, and necropsy disclosed a diffuse peritonitis. Lipomas were the second most frequent type of benign tumors of the gastrointestinal tract encountered in the 5,754 necropsies. Of the nine cases reported, eight were of the submucous type and one was subserous. The diagnosis of submucous lipoma of the intestinal tract is almost never made during life.

**Treatment of Recurrent Incisional Hernia.**—Rothschild submits a procedure for recurrent incisional hernial flaps of the anterior sheath of the rectus. The first step consists of an adequate exposure of the sac of the hernia and the anterior sheaths of the right and left rectus muscles. The sac should be opened in all cases in which the contents cannot be reduced, which permits the severance of adhesions of the omentum to the sac and the exploring of the upper part of the abdomen. The sac is then excised and its edges are sutured. When the contents of the sac are reducible, the sac may be reduced in size by the inversion method of Haynes. The second step consists in the clearing of the anterior sheath of the rectus of all adipose tissue. The longitudinal and transverse diameters of the hernial orifice are measured. Markings are made on the anterior sheaths of the rectus muscles to designate the length of the flaps desired. Markings are also made to designate the width of each flap, so that when the flaps are sutured together they will cover the hernial orifice without undue tension. The flaps are raised and hinged along their medial border. They are then sutured by a continuous stitch. The upper and lower edges are sutured by interrupted stitches to the remaining portion of the anterior sheath of the rectus. Redundant skin is removed. Stab wounds are made at the lowest level and drains are inserted at these points. The wound is then closed. When the hernia is the result of an upper right rectus incision the flap of the left rectus sheath will necessarily be larger than the flap obtained from the right side, while in hernia occurring in the midline the flaps will be of the same size. Adequate drainage should be established because of the extensive dissection of the skin and subcutaneous fat. Abdominal distention should be avoided. To lessen the distention or to avoid it in the upper portion of the abdominal cavity, the author uses the Jutte tube immediately after the operation. It remains in place four or five days whether distention is present or not. These patients are kept flat on their backs with but one pillow to elevate their heads for a period of four weeks.

### Archives of Otolaryngology, Chicago

21 1130 (Jan.) 1935

- Cancer of Larynx. Observations in Two Hundred Consecutive Cases. G. Tucker. Philadelphia—p. 1.
- Hay Fever Among Japanese. H. J. Hara. Los Angeles—p. 9.
- Aural Manifestations of Lipoid Granulomatosis (Xanthomatosis) of the Skull. F. L. Federer, H. G. Poncher and N. D. Fabricant. Chicago—p. 27.
- So-Called Mucoid Cysts of Nose. Report of Three Cases. A. F. Laszlo. New York—p. 41.
- \*Structure of Secondary Nodule of Tonsil. Preliminary Report. F. J. Novak Jr. Chicago—p. 53.
- Conservative Surgical Treatment of Hypertrophic Rhinitis. H. V. Dutrow. Dayton, Ohio—p. 59.
- Revelations of Detailed Diet Histories Obtained in Practice of Ophthalmology and Otolaryngology. Comparison with Accepted Dietary Standards. R. M. Moose. San Bernardino, Calif.—p. 64.
- Reinfection of Wound Following Mastoidectomy. A. A. Schwartz. New York—p. 71.
- Progress in Otolaryngology. Functional Examination of Hearing. R. Sonnenschein and V. Leskin. Chicago—p. 76.

**Structure of Secondary Nodule of Tonsil.**—Novak found that whereas the reticular fibers branch, anastomose and ramify with no regularity of pattern throughout the tonsil with the exception of those areas in the immediate vicinity of the secondary nodule here they assume a pattern that is constant and regular. The fibers are fairly thick and are arranged more



or less parallel to one another in two or three rows. In sections stained with hematoxylin and eosin it is readily seen that the small dark staining lymphocytes which are packed in sharply parallel rows at the periphery of the nodule correspond to the arrangement to the concentric and parallel arrangement of the supporting fibers in this part. This arrangement does not obtain round the entire periphery in some of the nodules. Some of them show a dispersion of the fibers at one pole. It is at this point that one frequently observes minute blood vessels in cross section just outside the nodule. In one section a small vessel cut tangentially was seen to be entering the interior of the nodule. These vessels are difficult to demonstrate except by silver impregnation. The arrangement of the reticular framework within the nodule differs from that of the rest of the tonsil in that the fibers do not seem to interlace as much as they do elsewhere. Moreover the fibers are thin and even in several sections are difficult to trace for any distance. The arrangement is far looser and there are wide spaces that in counterstained preparations are seen to be packed with various cells. The cellular content of the nodule is shown by differential staining consists of lymphocytes of various size and maturity. There are many reticular cells the nuclei of which alone stand out definitely as the cytoplasm has no limiting cell boundary but forms part of a true syncytium. Mast cells and an occasional plasma cell are found.

### Archives of Pathology, Chicago

10 1138 (Jan.) 1935

- Plastic Studies in Abnormal Renal Architecture. III. Agglomerular Nephrons of Terminal Hemorrhagic Bright's Disease. J. Oliver and Ann Seaward Luey Brooklyn—p. 1
- Experimental Color Change in Fish. W. Saphir Chicago—p. 24
- \*Compensatory Hypertrophy of Remaining Kidney After Nephrectomy Following Transplantation of Its Ureter into Duodenum. J. I. Bollman and F. C. Mann Rochester Minn—p. 28
- Ligation of Common Bile Duct in Cat. H. I. Stewart and M. M. Lieber Philadelphia—p. 34
- Focal Calcification of the Brain and Dura of Hydrocephalic Idiot Child. G. Rukstnat Chicago—p. 47
- Experimental Siderosis. I. V. Menkin Boston—p. 53
- \*Id. II. Iron Containing Pigment in Absence of Breakdown of Hemoglobin. V. Menkin and S. M. Talmadge Boston—p. 61
- Effects of Artificially Induced Lymphopenia in Cancer Resistant and Cancer Susceptible Rats. M. F. Guyer, F. E. Mohs and E. M. Shebesta Madison Wis—p. 66
- Tumor Metastasis. VI. Ovarian Metastasis of Carcinoma. S. Warren and W. B. Macomber Boston—p. 75
- Scarlet Red as Possible Carcinogenic Agent. Experimental Study. C. T. Eckert, Zola K. Cooper and M. G. Seelig St. Louis—p. 83

**Hypertrophy of Remaining Kidney After Nephrectomy.**—The experiments of Bollman and Mann indicated that hypertrophy of the remaining kidney after nephrectomy is greatly increased by accumulation of urinary products in the blood following transplantation of the ureter so that the urine drains into the duodenum. The kidney increased in weight from 60 to 100 per cent within nine days. The glomerular tufts are enlarged, but most of the increase appears to be due to swelling and multiplication of the cells of the tubules in which there is some evidence of early degeneration. Creatinine apparently does not accumulate in the blood under these conditions until degeneration of the kidney appears.

**Experimental Siderosis.**—Menkin and Talmadge state that whereas repeated intravenous injections of a 0.25 per cent solution of ferric chloride in distilled water are followed by extensive siderosis there is no appreciable change in the number of red blood cells, the percentage of hemoglobin or the reticulocyte count. Since this solution of ferric chloride is hypotonic its injection into the circulation induces a certain amount of hemolysis. However the laking action evidently plays an insignificant part in the formation of iron-containing pigment for when a nonhemolytic, isotonic solution of ferric chloride is substituted for the hypotonic one the same type of deposition of cytosiderin occurs. Furthermore when a hypotonic saline solution is repeatedly injected intravenously iron-containing pigment fails to be deposited. These experiments furnish evidence that iron-containing pigment (indistinguishable from hemosiderin) need not be derived solely through the action of phagocytes on the products of the degradation of hemoglobin but may arise also as a result of the intracellular digestion of available iron containing material exogenous as well as endogenous.

### Colorado Medicine, Denver

72: 89 176 (Feb.) 1935

- Study of Sixty Five Cases of Cancer of Breast Recurrent After Operation. S. Withers, Denver—p. 100
- Aneurysm of Thoracic Aorta. Clinical Study of Two Hundred and Seventy Cases. R. H. Kampmeier New Orleans—p. 104

### Delaware State Medical Journal, Wilmington

7 297 316 (Jan.) 1935

- Intracranial Injuries of the New Born. From the Standpoint of the General Practitioner. P. B. Bland Philadelphia—p. 297
- Infant Nutrition with Reference to Lemon Juice Feeding. J. B. Baker Milford—p. 301

### Endocrinology, Los Angeles

10 1128 (Jan Feb.) 1935

- Contemplating the Hormones. O. Riddle Cold Spring Harbor N. Y.—p. 1
- Compounds That Affect Basal Metabolism in Man. W. O. Thompson, Phoebe K. Thompson, S. G. Taylor, Jd. Chicago, S. B. Nadler New Orleans and Lois F. A. Dickie Chicago—p. 14
- \*Two Cases of Childhood Myxedema Reported for Purpose of Emphasizing Importance of Bone Age Studies. C. K. Canelo San Jose Calif. and H. Lissner San Francisco—p. 21
- \*Nature of Estrogenic Substance in Human Male Urine and Bull Testicle. R. I. Dorfman, T. F. Callagher and F. C. Koch Chicago—p. 33
- Comparative Luteinizing Capacity of Urine of Pregnancy and of Menopause. A. Lipschutz Concepcion Chile South America—p. 42
- Castration Atrophy. Chronological Study of Uterine Changes Following Bilateral Ovariectomy in Albino Rat. W. C. Langston and B. L. Robinson Little Rock Ark—p. 51
- Action of Anterior Pituitary like Substance of Urine on Metabolism of Dogs. O. H. Gaebler Detroit—p. 63
- Clinical Observations on Effects of Anterior Pituitary like Substance (Antuitrin S) on Testicle. W. L. Brosius Detroit—p. 69
- Prolonged Administration of Theelin and Theelol to Male and Female Rats and Its Bearing on Reproduction. N. J. Wade and E. A. Doisy St. Louis—p. 77
- Relationship of Hypophysis to Hair Growth in Albino Rat. J. S. Snow and R. W. Whitehead Denver—p. 88
- \*Attempts to Reduce Symptoms of Experimental Diabetes by Irradiation of Hypophysis. W. A. Selle, J. J. Westra and J. B. Johnson Galveston Texas—p. 97

#### Childhood Myxedema Emphasizing Bone Age Studies

—Canelo and Lissner report two cases of childhood myxedema—one a girl of 12, the other a woman of 34. The girl showed an ossification age of from 6 months to 1 year. In the woman the epiphyses were still ununited and her bone age was estimated at 10 years. The diagnosis of childhood myxedema was clinically obvious in both patients, but roentgenographic studies of bone age were an important item in gauging the severity of thyroid deficiency. A basal metabolism test could not possibly have been performed in the stupid child of 12. Bone age studies were easily obtained with accuracy and without discomfort. Other ailments endocrine and nonendocrine, influencing ossification are referred to. Periodic bone age determinations constitute a simple and helpful adjunct in judging the efficacy of thyroid therapy in childhood myxedema.

**Nature of Estrogenic Substance in Male Urine and Bull Testicle.**—Dorfman and his associates compared the uterine hypertrophy and vaginal introitus responses of equivalent rat unit dosages of theelin, theelol and estrogenic substance from male urine, made at estrogenic levels ranging from 0.01 to 0.3 rat unit. Their method involved the daily administration of the active material in olive oil to female albino rats 25 days of age for five days, and observing the uterus and vagina on the sixth day. Litter mates were used throughout the comparative studies and 161 animals were used for the comparative studies. The quantitative data lead to the following conclusions: 1. There is a distinct difference between theelin and theelol in their respective abilities to cause hypertrophy of the uterus and cause vaginal introitus. On an estrus-rat unit basis, theelol is more effective in causing vaginal introitus as originally demonstrated by Curtis and Doisy, whereas theelin produces an enormously greater uterine hypertrophy. 2. The estrogenic substance in the total benzene extract from normal male urine resembles neither theelin nor theelol in causing either vaginal introitus or uterine hypertrophy. 3. The estrogenic substance in the alkali soluble fraction of the total benzene extract is biologically identical with theelin. It is not comparable to theelol in causing either vaginal introitus or uterine hypertrophy. 4. The evidence presented points to



the presence of a substance in the alkali-insoluble fraction of the total extract which, when administered with theelin, enhances the action on both the vagina and the uterus. This substance is neither theelin nor theelol.

**Attempts to Reduce Symptoms of Diabetes by Irradiation of Hypophysis**—The experiments of Selle and his co-workers show that of seven diabetic (depancreatized) dogs the fasting blood sugar was not reduced in five after irradiation of the hypophyses by high dosage. In three animals the blood sugar was considerably higher after irradiation. The response to ingested dextrose was always typical of severe diabetes. There was no increased sensitivity to insulin and the insulin dosage necessary to prevent glycosuria on a well controlled diet could not be reduced. No indication then was found that massive irradiation of the hypophysis with x-rays under the conditions stated reduces the severity of the symptoms of experimental diabetes.

### Indiana State Medical Assn Journal, Indianapolis

28 57:112 (Feb. 1) 1935

- \*Erythroblastic Anemia R. A. Strong New Orleans—p. 57
- Diagnosis and Treatment of Thyroid State F. H. Iahey Boston—p. 60
- The New Born Infant Its Hazards and Care F. J. Hudson Indianapolis—p. 65
- Influence of Medicine on Life Expectancy H. I. Murdock Fort Wayne—p. 68
- Etiology and Treatment of Itis B. W. Fegan Logansport—p. 69
- Familial Hemolytic Jaundice Splenectomy in Mother and Daughter F. A. Loop Lafayette—p. 77
- Intra-spinal (Subarachnoid) Injection of Absolute Alcohol for Control of Pain in Far Advanced Malignant Growths Case Report M. M. Cullen Bluffton—p. 80

**Erythroblastic Anemia**—Strong points out that in erythroblastic anemia several features seem to stand out in every case reported since Cooley's first description. The children usually resemble the Mongolian race. There is a peculiar yellow, muddy discoloration of the skin with a thickening of the cranial bones and the malar eminences. This thickening is more pronounced as the disease progresses. The changes in the bones are promptly recognized as being peculiar to this form of anemia when roentgenograms are made. The skull shows a marked thickening and a peculiar halo resembling the growth of hair. A peculiar mottled or 'mosaic' appearance of the bones of the hands and pelvis is observed. There is a decreased density, amounting almost to transparency of the fibula and tibia. The explanation that has been offered for these changes in the bones is that they are the result of the reaction of the marrow to prolonged overstimulation as a consequence of a chronic hemolysis beginning before the cortex is too firm to permit the overgrowth of marrow. In the earlier stages and in less severe cases the porous appearance in the roentgenograms seems to represent marrow hyperplasia while in the terminal stages the pronounced striation indicates replacement of exhausted marrow but new bone has been found at necropsies. The bone change is not primary. Most of the cases seen have been either in Italians or in children of parents from the Mediterranean countries. Evidence of bone marrow stimulation characterized by the great number of immature forms, a constant leukocytosis and the absence of increased fragility, seem to be the principal features of the blood picture. The hemoglobin in every case has usually been round 30 to 40. The red cells are reduced considerably. There is usually a leukocytosis of 20,000 or more, but the differential count is not especially remarkable. The cells vary greatly in size and shape, and there are usually a considerable poikilocytosis and anisocytosis. There is a marked and early bone marrow irritation which is reflected in the production of the increased number of leukocytes. As the development of the marked bone hyperplasia increases these numbers may run to a high figure. In erythroblastic anemia, fragility of the erythrocytes to hypotonic salt solutions is conspicuous by its absence. It is for this reason that this particular form of anemia is not considered to be a true hemolytic jaundice, which invariably shows an increase in fragility of erythrocytes to salt solutions. In no other disease of the blood is there a greater number of erythroblasts than is seen in erythroblastic anemia. Moreover after a splenectomy their number increases remarkably but so far as available results are concerned there seems to be little

definite improvement in the patient. Hemolysis and jaundice may be temporarily lessened, but the disease process continues. The benefit to the patient lies mostly in the removal of the drag of the heavy spleen.

### Journal of Nutrition, Philadelphia

9 1:118 (Jan. 10) 1935

- Effect of Diet on Blood Thionine of Albino Rat A. R. Potter and K. W. Franke Brookings S. D.—p. 1
- Iiver Glycogen from Derivatives of Glucose W. T. Salter P. D. Rohb and F. H. Scharles Boston—p. 11
- Effect of Phosphates on Bones of Rachitic Rats C. A. Lilly C. B. Pearce and R. L. Grant Ann Arbor Mich—p. 25
- Cataract in Rats Fed on High Lactose Rations Helen S. Mitchell and W. M. Dodge Battle Creek Mich—p. 37
- Effect of Fertilizers and Soil Types on Mineral Composition of Vegetables J. M. Coleman and R. W. Ruprecht Gainesville Fla—p. 51
- Stability of Vitamins B<sub>1</sub> (B<sub>1</sub>) G (B<sub>2</sub>) and B<sub>6</sub> J. A. Keenan O. L. Kline C. A. Elvehjem and E. B. Hart Madison Wis—p. 63
- Study of Iron Metabolism of Normal Women Margaret A. Ohlson and Kate Daum Iowa City—p. 75
- Study of Protein Needs of Preschool Children Amy L. Daniels Mary K. Hutton Elizabeth M. Knott Olive E. Wright Gladys J. Everson and Florence Scoular Iowa City—p. 91
- Study of Basal Metabolism and Diet of Normal Young College Women in Florida Jennie Tilt and Catherine F. Walters Tallahassee Fla.—p. 109

### Laryngoscope, St. Louis

45 1:80 (Jan.) 1935

- The Eighth Nerve I. Basic Principles Underlying Tests of Hearing V. O. Knudsen and I. H. Jones Los Angeles—p. 1
- Id. II. Diagnosis of Hearing Impairments I. H. Jones and V. O. Knudsen Los Angeles—p. 24
- Id. III. Artificial Aids to Hearing V. O. Knudsen and I. H. Jones Los Angeles—p. 48
- Id. IV. Neuro Otologic Studies in Epilepsy E. E. Langdon Los Angeles—p. 70

**Neurotologic Studies in Epilepsy**—Langdon states that it is evident that a large proportion of active idiopathic epileptic patients show some departure from the responses obtaining in normal persons. There is no one response, however, that is constantly lacking in all the cases. One cannot help being impressed with the large number that show absent or subnormal constitutional responses in that after this more or less violent ear stimulation they are not disturbed showing no pallor, sweat or nausea whatever. Quite similar responses are encountered in cerebrospinal syphilis and arteriosclerosis of the cerebral vessels. Both these conditions give subnormal responses, but the absence of the constitutional responses is not so marked as in epilepsy. Modern investigators no longer consider epilepsy a clinical entity but are inclined to speak of it as a symptom complex or syndrome. The pathogenesis of this disease has been the subject of a great deal of speculation and has not escaped even the most extravagant fancies. The cause has been ascribed to pathologic conditions ranging all the way from congenital cerebral anomalies to gastro intestinal auto-intoxication. The phenomena accompanying the aura have long interested the otolaryngologist. It is generally accepted that the vestibular pathways go through the brain stem and are intimately associated with the basal ganglions, and that a failure to get a normal response in the epileptic patient would seem to indicate at least that some of the pathologic changes are located in the region of the basal ganglions. The author offers this only as a suggestive link in the chain of evidence tending to show that epilepsy is not entirely a cortical disease, as once thought but that at least a phase of the seizure does arise from the lower centers.

### Public Health Reports, Washington, D. C.

50:95:130 (Jan. 25) 1935

- Sickness Among Male Industrial Employees During Third Quarter and First Nine Months of 1934 D. K. Brundage—p. 95
- Place of Psychiatry in Coordinated Correctional Program F. L. Bixby—p. 98
- 50:131:162 (Feb. 1) 1935
- Effects of Exposure to Dust in Two Georgia Talc Mills and Mines W. C. Dreesen and J. M. D. Valle—p. 131

### Rhode Island Medical Journal, Providence

18 17:34 (Feb.) 1935

- Prevention of Malpractice Suits Address by Retiring President of the Providence Medical Association C. F. Gormly Providence—p. 17
- Importance of Observation and Induction in Diagnosis Some Remarks on Errors in Diagnosis G. Blumer New Haven Conn—p. 20

## FOREIGN

An asterisk ( \* ) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Anaesthesia, Manchester

12: 49-96 (Jan.) 1935

- Technic of Nerve Blocking for Various Orthopedic Operations J S Lundy and R M Towell—p 52  
Vinyl Ether Anesthesia in Dogs: Effects on Normal and Impaired Liver W Bourne and B B Raginsky—p 62  
Spinal Anesthesia: Criticism I F Hill—p 70  
General Intravenous Anesthesia with Evipan Sodium P Serocca—p 78  
Two Hundred and Fifty Cases of Spinal Anesthesia with Percaine According to Method of Jones H Franken—p 81

## British Medical Journal, London

1: 139-188 (Jan 26) 1935

- Achlorstic Anemia J F Wilkinson and M C C Israel—p 119  
\*Problem of Chronic Duodenal Ulcer Without Stenosis E L Farquharson—p 144  
Endoscopic Resection of Prostate: Critical Survey of One Hundred and Fifty Cases R W Doyle and G V Peggeter—p 147  
Immobilization in Treatment of Suppuration M Dixon—p 152  
Recovery After Complete Stoppage of Heart for Five Minutes C P Mills—p 153  
1: 189-238 (Feb 2) 1935  
Abdominal Surgery in Children P T Crymble—p 189  
Classic Case of Lead Palsy W Harris—p 193  
Achlorstic Anemia: Part II J F Wilkinson and M C C Israel—p 194  
Some Experiences with Spinal Anesthesia E R Flint—p 197  
Diphtheria in the Tropics: Subclinical Disease in Negroes G Kinneard—p 201

**Chronic Duodenal Ulcer Without Stenosis**—Farquharson points out that the early acute ulcer and the chronic ulcer of short standing are essentially the province of the physician and, with energetic medical treatment can be cured in the vast majority of cases. At the other end of the scale the late complication of cicatricial stenosis renders medical treatment unavailing. Gastro enterostomy has shown undisputedly excellent results in this condition. However, the vast majority of cases of duodenal ulcer do not permit of such simple division. It is comparatively rare for either the medical or the surgical specialist to see an ulcer patient in the early stages of the condition. Unless acute emergencies such as severe hemorrhage or perforation, suddenly establish the diagnosis the condition is usually overlooked or treated in the early stages as simple dyspepsia. Energetic medical treatment is seldom employed before the diagnosis is established definitely. The modern necessity of roentgenologic and biochemical facilities as aids to diagnosis, means that the ulcer patient rarely receives adequate medical treatment until he is referred to the hospital or to the specialist. Statistics regarding the duration of symptoms prior to hospitalization indicate that at least 70 per cent of patients have symptoms for four or more years before the diagnosis is established and adequate medical treatment commenced.

## Clinical Journal, London

64: 45-88 (Feb.) 1935

- \*Ascites: Its Diagnostic Significance and Treatment R Hutchison—p 45  
Nature and Relief of Some Common Gastric Symptoms J A Ryle—p 48  
Sterility in Women A C Palmer—p 52  
Deformities of Toes C Lambrinudi—p 57  
Diagnosis and Treatment of Sciatica J B Burt—p 62  
Diagnosis of Renal and Vesical Disease in General Practice H Wade—p 66  
Some Factors in Causation of Rheumatism B S Nisse—p 71  
Paragonimus Hemoptysis: Case R A Bennett—p 76

**Diagnostic Significance and Treatment of Ascites**—Hutchison gives the probable causes of ascites as being a part of a general dropsy (cardiac or renal) the result of portal obstruction, obstruction of the inferior vena cava high up inflammatory effusion, abdominal tuberculosis (chiefly in children), chronic (nontuberculous) peritonitis and peritoneal irritation, though it is difficult to draw a sharp line between irritation and inflammation. As ascites is a sign and not a disease, it is not worth while trying to get rid of it unless it is causing great inconvenience. Drugs are not of much help. Purgatives have to be used cautiously. Ordinary diuretics are useless, but salyrgan, given intravenously or muscularly (from 0.5 to 1 cc.), is sometimes of great value especially if used

with ammonium chloride (120 grains, or 8 Gm, daily). Apart from meeting any indications furnished by the underlying disease, it is reasonable to restrict fluids as much as the patient can bear and to make the diet as free from salt as possible. In abdominal tuberculosis, evacuation by laparotomy is best. In women incision is sometimes to be preferred. In most cases of ascites, if the fluid should be evacuated, tapping is the method of choice. It is best to make the puncture in the flank and to use a trocar with a tube of moderate caliber. The fluid should be evacuated in any case in which its presence is causing serious inconvenience. Operations designed to promote absorption of the fluid by establishing an anastomosis between the portal and the general circulation have practically been given up. They were founded on the assumption that ascites is due to portal obstruction, which is not true for most cases.

## East African Medical Journal, Nairobi

11: 305-336 (Jan.) 1935

- Drainage as Controlling Factor in Spread of Hookworm W H Watson—p 308  
Some Observations on Infants and Young Persons in Bunyoro Uganda F A C Langton—p 316  
Ocular Filariasis A J Boase—p 326

## Indian Medical Gazette, Calcutta

69: 661-720 (Dec.) 1934

- General Paralysis of Insane in Burma G H Fraser—p 661  
Part Played by Feeling of Guilt in Etiology of Mental Disorders O Berkeley Hill—p 665  
Observations on Thickness of Frontal and Parietal Bones A N Sen—p 667  
Hookworm Infection in Punjab: Survey of Rural Area in Ambala District M Jacob and J R Chaudhri—p 669  
Study of Trachoma in Baluchistan P Shannon—p 672  
Sodium Evipan Anesthesia: Study of Thirty Cases E S Chellappa—p 685  
Treatment of Enlarged Spleens with Injections of Milk A P Jana—p 687

**Treatment of Enlarged Spleens with Injections of Milk**—Jana treated 319 cases of enlarged spleen by injecting milk free from fat. Eighty of the patients have been discharged as cured and 146 received only one injection and did not return. The outcome in 173 cases was noted to some extent of these 173 cases ninety-eight presented soft spleens, fifty-four hard spleens and in twenty-one cases the consistency of the organ had not been noted. Of the eighty cured cases there were fifty-six soft spleens, eighteen hard spleens and in six cases the consistency of the spleen had not been noted. Of the hard spleens one was of a duration of ten years and was cured with three injections one of six years was cured with fourteen injections one was cured with five injections, two were of a duration of four years and were cured with four injections. The duration of the others was less than one year. Among the improved cases there must be many cured, as on inquiry three cases were found to be cured after the first injection. These were cases of recent origin with small sized spleens. As a result of his experience the author concludes that enlargement of the spleen is reduced by intramuscular injection of milk free from fat. Milk injection is effective in enlargement of the spleen due to malaria. In enlargement of the spleen due to kala-azar it has little effect if any. In one case four injections were given regularly but no effect was observed and the patient was subsequently treated and cured with dimethylamine *p* aminophenyl stibinate. Soft spleens are easily reduced in size with this treatment. The progress of improvement is slow in hard spleens. After the completion of one course of five injections a second or third course is sometimes required a gap of one month being given between courses. The longer the duration of the enlarged spleen, the more the number of injections and the longer the time required for its cure.

## Irish Journal of Medical Science, Dublin

No 109 1-48 (Jan.) 1935

- Mercer's Hospital: Its Foundation and Early Days T P C Kirkpatrick—p 1  
Extracts from Old Minute Books R H Keatinge—p 16  
Personal Reminiscences of Mercer's Hospital J Lumsden—p 19  
The Future of Mercer's Hospital R J Rowlette—p 22  
Results of Treatment in Syphilis M H O'Connor—p 24  
Recent Researches on Suprarenal Gland E Brauer—p 39

**Journal of Laryngology and Otology, London**

50: 73 152 (Feb.) 1935

- \*Diagnosis and Treatment of Abscess of the Brain H Cairns and C Donald—p 73  
Id S Scott—p 106

**Diagnosis and Treatment of Abscess of the Brain—**  
In their discussion on abscess of the brain, Cairns and Donald describe methods of operation and then analyze their material, especially the failures. They discuss the thick-walled chronic abscess, the acute and early chronic abscess, drainage by the closed method and open method, after-treatment of the acute and chronic abscess, postoperative complications and errors in diagnosis and treatment, presenting illustrative cases in each instance. They believe that the many difficulties of diagnosis will be overcome by careful history taking and neurologic examination in the light of an accurate knowledge of the life history of brain abscess. If every patient who has severe headache after ear trouble or mastoid operation should be put through the mill of such an investigation, the bad results of today would be improved. They especially stress the importance of examining the visual fields. It is that part of the examination more than any other which cannot be done when the patient becomes lethargic and, for want of which, localization of the abscess in the stupefied patient may be so baffling. When intracranial complications are suspected, neurologic investigation should take precedence over mastoidectomy, since it will tell more about what is happening inside the dura than can be learned from looking at a small area of dura exposed in the region of the mastoid. Lumbar puncture should be done, but only 1 cc. of fluid should be withdrawn. Diagnostic exploration as they describe it is, they believe, important in certain cases. With each case of abscess there is need to form some estimate of when the abscess began and what stage it has reached, for this is the only way in which to gauge the right moment for intervention. This can be done only by careful study of the history of illness.

**Journal of State Medicine, London**

43: 63 124 (Feb.) 1935

- Back-to-Back Houses H Paul—p 63  
Twenty One Years Experience in Insurance Medical Service in the City of Norwich J W Copeland—p 72  
Open Air Schools Critical Survey G W Riddell—p 88  
Present Day Health Problems in Rural Area J F Davidson—p 92  
The Chemist in the Food Industry J W Corran—p 102  
Parentcraft D H Gefen—p 109  
The Problem of the Disposition of the Dead in Crowded Areas P H Jones—p 112  
Toxicity of Calcium Cyanamide F Schoofs—p 116

**Lancet, London**

1 69 128 (Jan 12) 1935

- Mental Disorder in General Practice Plea for Clinical Psychiatry D Curran and E. Slater—p 69  
\*Diagnosis of Vitamin C Subnutrition by Urine Analysis Note on Antiscorbutic Value of Human Milk. L J Harris and S N Ray—p 71  
Mixed Tumors of the Brain Record of Two Cases H E Harding and A E Naish—p 77  
\*Monocytic Leukemia L E H Whitby and J M Christie—p 80  
Vinyl Ether F E Shipway—p 82

**Diagnosis of Vitamin C Subnutrition by Urinalysis—**  
Harris and Ray observed that infants suffering from manifest scurvy or with a history of vitamin C underfeeding excrete less vitamin C in their urine (measured chemically) than do well nourished infants of the same age tested under the same conditions (on controlled diets low in vitamin C). The difference can be made more strikingly manifest by the administration of a large test dose of vitamin C—a marked peak results in the curve of the urinary excretion for the normal infants, but not for the "unsaturated" scorbutic or semiscorbutic infants. After cure the scorbutic infant behaves like a normal infant both in his output of vitamin C on ordinary diets (or controlled diets free from vitamin C) and in his response after the test dose. Observations on adults show that a low urinary output and a low response to test doses go parallel with a history of vitamin C underfeeding and with a state of vitamin C subnutrition as indicated by a lowered capillary resistance. The authors describe a technic that is being used to estimate the prevalence of hypovitaminosis C among certain sections of the community. The rarity of scurvy in breast-fed infants is explained by the

finding that human milk contains from three to four times the amount of vitamin C found in cow's milk, part of the latter is also lost generally (1) by pasteurization, (2) during standing, (3) by further heating and (4) by dilution.

**Monocytic Leukemia—**Whitby and Christie present a case of monocytic leukemia the clinical features of which show that it is not necessarily rapidly fatal, even when accompanied by acute symptoms such as fever, severe anemia and necrotic mouth lesions. There were two remissions—a feature unusual in other acute leukemias. The anemia in the first two attacks was much more severe than would have appeared probable when estimating the acuteness of the leukemic process by the number of primitive cells. The authors were impressed by the distribution of the necrotic lesions in the mouth, which appeared to select the alimentary mucosa rather than the respiratory part of the pharynx. Ulceration failed to spread on to the tonsil or into the nose. Terminal hepatic enlargement was coincident with the appearance of a frankly leukemic blood picture. This enlargement was not apparently due to heart failure and was unaccompanied by enlargement of the spleen and lymph nodes. Save for the terminal phases there was a definite granulopenia, and pentnucleotide was administered for this during the first attack. Violent reaction to the preparation prohibited its further use. The case, as judged by histologic sections, appeared to present a partial myeloid termination. The blood during the last few days of life contained a number of myeloblasts. The predominant cell throughout was an unmistakable monocyte. Histologic sections showed no evidence of proliferation of the reticulum cells of the spleen or of desquamation of newly formed histiocytes into the blood.

**Japanese Journal of Obstetrics and Gynecology, Kyoto**

17 387-478 (Dec.) 1934

- Experimental Study on Effects of Vitamin B on Female Genital Organs Part IV Effects of Some Endocrines to Ovarian Hypofunction Due to Deficiency of Vitamin B Part V Effects of Deficiency Disease of Vitamin B on the Conceptive Ability Pregnancy Parturition and Puerperium J Ueno—p 388  
Hysterosalpingography in the New Borns H Yagi and A Yamabe—p 412  
Investigation of Ferments in Uterine Cancer K Nakahori—p 419  
Blood Vessels of Uterine Tumors G Kawanishi—p 446  
Experimental Cancer Growth and Ovarian Function H Kondo—p 452  
Clinical Observation of Beriberi Complicated During Pregnancy and Puerperium Y Fujita—p 461

**Effect of Vitamin B on Female Genital Organs—**Ueno observed that in the deficiency disease of vitamin B the conceptive ability is depressed and some animals finally fall into sterility. But before the deficiency of the vitamin becomes intense, conception is possible, though various abnormal processes take place during the course of pregnancy, parturition and puerperium, for instance, anomalous hemorrhage of the pregnant uterus, intra-uterine absorption of fetuses, early interruption of pregnancy, weakened power of expulsion, and disturbance in the uterine involution. During the attack of the disease, the development of the fetuses is markedly hindered. In extreme cases some fetuses have been absorbed or macerated in the uterus and others have been delivered in stillbirth. Even if born alive, they are generally structurally weak and small in body length and among the fetuses born from the same mothers some variance was revealed in their body weight and length.

**Journal of Oriental Medicine, South Manchuria**

21 95 118 (Dec.) 1934 Partial Index

- Research on Pyogram of Amebic and Bacillary Dysentery Y Tsugé—p 95  
Etiology of Mitral Stenosis in Manchuria D S Robertson—p 99  
Insensible Perspiration Through Skin and Respiratory Passages and Compensatory Changes in Cutaneous Perspiration Due to Breathing Dry or Wet Air J Adachi and S Ito—p 103  
Human Sweating Due to Muscular Exercise H Iwatake—p 105  
Studies on Ramon's Flocculation I Influence on Flocculation of Physicochemical Factors T Komiya—p 107  
Id II Is Ramon's Flocculation a Specific Reaction Between Toxin and Antitoxin? T Komiya—p 107  
Id III Practicability of Ramon's Flocculation Reaction T Komiya—p 108  
Id IV Speed of Flocculation T Komiya—p 109  
Lipofuscin like Substance in Vascular Walls of Human Brain S Masayama—p 111  
Biochemical Investigation of Blood Serum Irradiated by Artificial Light II Dosimetry of Ultraviolet Radiation M Murayama—p 117

Archives des Maladies de l'App Digestif, Paris

25:1112 (Jan) 1935

- Acute Simple Gastric Paralysis J Monges—p 5  
Morphologic Constitution of Ulcerous Patients J Caroli and I Corman—p 26  
Allergic Factor in Colitis H G Mozena—p 57  
Chronic Constipation D Wajskopf—p 73

**Allergic Factor in Colitis**—Mogena discusses food allergy and bacterial allergy in colitis. He examined personally fifty patients having mucous or catarrhal colitis in whom bacterial sensitization was found. The colon bacillus was found in 84 per cent, enterococci in 42 per cent. Bacterium organism in 40 per cent and fecalis, paracolon bacilli, streptococci and other organisms less frequently. Eleven patients with severe ulcerous colitis were also studied. In eight of these Bacterium diplo-streptococcus was the only organism found. Sensitivity of the patients was tested for each of the germs found with cultures killed by heat and injected intradermally. The reaction was read after one half hour, twenty four and forty eight hours. It was considered positive only when positive after one half hour and negative after twenty four hours. In some cases a focal and general reaction was observed as well as a local one. Control tests were also performed on some normal persons. Sensitivity was recorded for colon bacilli in 48 per cent for enterococci in 24 per cent, for paracolon bacilli in 16 and for others less frequently. In no case was there sensitivity to one organism alone. Desensitization by means of vaccine containing the indicated organisms was usually successful except in serious ulcerative colitis. Here the number of true positive reactions was less. In no case did the author observe exacerbation of symptoms from vaccine therapy. The results in this type of colitis were better than those obtained with any other form of therapy.

Presse Medicale, Paris

47 177 200 (Feb 2) 1935

- Hydatid Echo Sign C Lian and J Odinet—p 177  
Anatomic Physiologic and Clinical Approach in Surgery G Metivet—p 178  
Clinical and Therapeutic Reflections on Role of Hyperglycemia in Furunculo A Raiga J Martineau and H Chabanier—p 179  
\*Primary Necrotic Angina A Stroe and D Hortopan—p 182

**Hydatid Echo Sign**—Lian and Odinet cite three cases in which the sound elicited by percussion and auscultation over a hydatid cyst enabled a diagnosis to be made in the absence of a hydatid murmur. This so-called echo sign is thus frequently useful.

**Primary Necrotic Angina**—Stroe and Hortopan have previously reported on the frequent complication of scarlet fever in Bucarest with necrotic angina (Henoch's angina). They conclude from this further study that the necrotic angina of Henoch constitutes a definite disease which appears most commonly as a complication of scarlet fever. More rarely it may complicate diphtheria or may appear as an autonomous and primary disorder. It is an infection and can be contagious and give rise to small epidemics. Anaerobic organisms Bacillus perfringens and more rarely other organisms seem to play a preponderant if not exclusive part in its causation. The injection of polyvalent antigangrenous serum constitutes the only efficacious treatment that they have found and should be given in all cases.

Schweizerische medizinische Wochenschrift, Basel

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- Blood Perfusion of Hypertrophic Musculature Frey—p 134  
\*Treatment of Cystic Formations K Lenggenhager—p 134  
Studies on Physiopathology of Pneumonia P H Rossier and P Mercier—p 136  
Pellagra and Pellagroid R Flinker—p 137

**Treatment of Cystic Formations**—Lenggenhager points out that, if a cyst is emptied by puncture, it generally refills again, irrespective of its type, whether it is lined with epithelium or endothelium or whether it is a cavity that has developed by the disintegration of tissues. Newly developed pseudocysts are about the only exceptions to this rule since they may disappear following a single puncture (for instance hematomas

that are at the point of transformation into seromas). The cause of the prompt refilling of cysts lies in the great contractile power of the cystic endothelium or pseudo-endothelium and in the type of secretion. To be sure, the secretion contains protein but not all the factors necessary for spontaneous coagulation. Since the agglutinations in the peritoneal cavity are caused by fibrinous exudation the author reasoned that it ought to be possible to stimulate the cystic wall to fibrinous exudation. He obtained this result by the injection of a saturated solution of sodium chloride. Such an injection is followed by the secretion of a fluid with a high protein content. The procedure is done in the following manner. The cyst is emptied by puncture and, if necessary (in case of new pseudocysts and hydroceles) a 0.1 per cent solution of nupercaine sufficient to fill one fourth or one third of the volume of the cyst is introduced for from one to two minutes. The anesthetic is removed and the cyst is filled with sterile saturated solution of sodium chloride. Depending on the thickness of the cystic wall the solution remains in the cyst for from two to three minutes. Then the fluid is removed the cyst is irrigated with physiological solution of sodium chloride or with distilled water and a compressing bandage is applied. The latter is removed after eight hours and if at this time an exudate is still present the cyst is left alone for ten or fourteen days. If it still persists after that period, a second injection is made. However, in the majority of cases this is not necessary. The author employed this treatment in ten cases of chronic bursitis (elbow, knee), in traumatic hematomas, in one serous cyst of the auricle of the ear in twelve ganglions, in two hydroceles and in two struma cysts. The treatment proved most effective in bursitis and traumatic pseudocysts. In the ganglions the results were also so favorable. Isolated results were obtained in cases of hydroceles and of struma cysts, but the author does not recommend the treatment for struma cysts in general.

Prensa Médica Argentina, Buenos Aires

22 159 208 (Jan 23) 1935 Partial Index

- Infrequent Arteriovenous Aneurysms R Pini and E A Beretervide—p 159  
Abscesses of Lung in Children E A Beretervide—p 164  
Influence of Infecting Surroundings in Infantile Tuberculosis A Casoli—p 196  
\*Injections of Maternal Blood in Grave Vomiting of Infants E A Beretervide—p 198

**Injections of Maternal Blood in Grave Vomiting of Infants**—Sujoy reports satisfactory results from intramuscular injections of blood from the mother in the treatment of grave vomiting of infants. The injections are given in the groin region twice a week in a dose of 20 cc. of blood each. In the cases of the author the vomiting was controlled at the first injection in four cases, at the third injection in one case, at the fifth injection in four cases and at the sixth injection in one case. No accident occurred. Only in one case was blood taken from the father. None of the patients of the author had pyloric hypertrophy. The treatment seemed to be indicated even in cases of pyloric hypertrophy, having in mind the frequency of doubtful cases, the satisfactory results obtained by the medical treatment alone as reported in the literature and the seriousness of the surgical intervention in that condition. The pathogenesis of grave vomiting of infants is explained by the author as caused by a vagosympathetic disequilibrium, a vagal predominance of toxic origin that greatly improves or even disappears by the complicated and eutrophic action of maternal blood on the organism of the infant.

Beitrage zur klinischen Chirurgie, Berlin

161:1176 (Jan 23) 1935 Partial Index

- Origin of Pain in Gallbladder Inflammation C Ritter—p 1  
\*Treatment of Appendiceal Peritonitis in Intermediate and Late Stages K Reschke—p 64  
Determination of Blood Alcohol and Accidents G Jungmichel—p 64  
\*Problem of Myeloma E Mathias—p 79  
Hernias of Duodenojejunal Flexure G Kuntzsch—p 88  
\*Localized Inflammation of Cecum and Its Treatment H Pich—p 88

**Treatment of Appendiceal Peritonitis**—Reschke draws attention to the increasing mortality of acute appendicitis in type of case designated by Richardson as arriving at the hospital too late for an early operation and too early for a

operation is responsible for the increase. The author does not accept the rule not to operate after the lapse of forty-eight hours, since the inflammatory process may still be limited to the appendix. On the other hand there may exist a tender but well encapsulated infiltrate, which may go on to absorption or to abscess formation. The third possibility is that of circumscribed or spreading peritonitis. The author is of the opinion that not only the encapsulated abscess but the spreading peritonitis as well should be treated on a conservative plan and no longer submitted to an operative intervention. To prove the point he compares his results with those of Martens, his predecessor at the Greifswald clinic. The latter operated in the acute cases in all stages, making an exception for the encapsulated abscess only. Martens' total mortality in acute appendicitis was 7.9 per cent, while Reschke's was 3.5 per cent. The comparison of their cases in which early operation was performed shows, however, slight difference in mortality: 1.2 per cent in Martens' series and 1.1 per cent in the author's. The difference in the total mortality cannot therefore be ascribed to a difference in the operative technique. In the author's opinion it is due to the difference in the method of treatment of the late cases. Martens treated them radically, whereas the author proceeded conservatively, operating only when an abscess had formed and even then limiting himself to an incision from above or below. Of fifty-two late cases complicated by peritonitis, in which operation was performed by Martens, twenty-seven, or 52 per cent, of the patients died. In a series of similar cases treated conservatively by the author three patients out of eighteen died, a mortality of 16 per cent. The author concludes that when the opportunity for the early operation has been missed, better results will be achieved by waiting rather than intervening.

**Problem of Myeloma**—Mathias states that the appearance of Bence-Jones albumose in the urine of patients with myeloma though highly characteristic is not essential. It is found with the greatest frequency in cases with wide bony dissemination of the tumor. Classification of the tumor on a histogenetic basis does not appear to have much value in the case of myeloma. The designation erythroblastoma, lymphoblastoma or plasmacytoma, because of the preponderance respectively of immature erythrocytes, lymphocytes or plasma cells, throws no light on the essential nature of the tumor. The differentiating histologic feature of myeloma is that it is made up of all the immature elements of the bone marrow. The occurrence in myeloma of double refractory crystals, either as needles or as rhombic prisms, was described by Abrikosov. Because similar crystals could be obtained from the Bence-Jones albumose Abrikosov believed that myeloma was the expression of a variable structural reaction to a disturbed intermediary metabolism rather than a primary disease of the bone marrow. Local manifestations of myeloma are those of absorption of the bone with a tendency to fractures. Involvement of a vertebral body not infrequently causes compression of the cord. The most striking general manifestation is the progressive anemia and, next to it, the appearance of Bence-Jones albumose in the urine. The generally accepted idea that myeloma is a systemic disease has been recently challenged by the description of cases presenting a purely localized tumor. The author reports a case of his own and cites others reported by Geschickter, Crile and Bloodgood. In the author's case a tumor, which on histologic examination proved to be a typical myeloma of the plasmacytoma variety, was removed from the scalp of a man aged 65. Careful examination failed to reveal the presence of metastases in the skeleton. Reexamination eighteen months later likewise failed to show the presence of tumors. There was no anemia and no Bence-Jones albumose in the urine. The author concludes that, besides the generalized form of myeloma with its hopeless prognosis there is a purely localized form amenable to surgical treatment.

**Localized Inflammation of Cecum and Its Treatment**—Pich reports four cases of localized inflammatory process of the cecal wall in its early stages. The preoperative diagnosis in all was acute appendicitis. In three of these the appendix was entirely normal. The history of one suggested that the condition was chronic and that the operation was undertaken

during an acute flare up. The author states that, while acute appendicitis has entirely replaced the older concept of perityphlitis as an independent entity, the contributions of the last decade demonstrate beyond any doubt that the latter, though rare, does exist as such. The inflammatory process involves most frequently the cecum and the adjacent portion of the ileum. Besides the specific causes, such as syphilis and tuberculosis, the etiologic factors considered are constipation and alterations in the physical and chemical character of the gastro-intestinal juices. The resulting lesions of the intestinal mucosa become the weak spot and favor localization of pathogenic microorganisms. Chronic inflammatory tumor of the large intestine requires extirpation. With regard to the acute inflammatory processes of the intestinal wall there exist no sharply defined indications for the operative treatment. Extensive inflammatory involvement of the cecal wall displays a striking capacity for spontaneous healing. The author therefore considers ileocecal resection a too formidable and hardly justified procedure for such cases. In three of the author's cases a complete recovery followed conservative treatment. In the fourth a part of the cecal wall had to be resected.

### Deutsche Zeitschrift für Chirurgie, Berlin

244 101 236 (Dec. 22) 1934 Partial Index

- \*Insulin Dextrose Water Tolerance as Liver Function Test in Rectal Carcinoma F. J. Irsigler—p. 101
- Advances in Study of Actinomycosis E. Neuber—p. 122
- Vocation and Trauma in Dupuytren's Contraction C. H. Schroder—p. 140
- Experimental Studies of Development of Ileus in Acute Diffuse Peritonitis H. Imanaga—p. 156
- \*Review of Two Decades of Experience with Appendicitis E. Seifert—p. 176

**Insulin-Dextrose-Water Tolerance as Liver Function Test in Rectal Carcinoma**—According to Irsigler, the liver function most important from the standpoint of the surgeon is that of glycogen storage and of the carbohydrate metabolism in general. A reliable liver function test would be helpful in cases of rectal carcinoma as an indicator of patients' resistance to the infection and to cancer toxemia as well as of the existence of liver metastases. The author states that Rehn and Littel have demonstrated the existence of a lowered sugar tolerance in cancer patients. The author administered levulose to eleven patients but was forced to give it up because of the occurrence of diarrheas and of contradictory results in a large proportion of the cases. Because sugar tolerance tests are in a sense tests of the insular function of the pancreas, he adopted the insulin dextrose-water test. The technique followed was that of Morowitz and Mancke who used it in internal medicine for the diagnosis of liver cirrhosis. A sample of blood was obtained on a fasting stomach at 6:30 a. m. Ten minutes later 20 units of insulin was administered. At 7 a. m., 50 Gm. of dextrose in 500 cc of tea was given by mouth. This was followed by 1000 cc of tea or water. Samples of blood were taken at 7:30, 8:30, 9 and 10 a. m. Sugar determinations were made after the method of Hagedorn-Jensen. In normal persons the administration of dextrose is followed by a rapid rise in the blood sugar, reaching 140 mg per hundred cubic centimeters after half an hour. This is followed by a fall, which reaches its lowest point of about 80 mg per hundred cubic centimeters at the end of three hours. In normal persons the difference between the fasting blood sugar and the lowest level after the administration of dextrose oscillates between 20 and 30. In diseases of the liver the blood sugar falls to about 40 mg per hundred cubic centimeters and the difference between the fasting blood sugar and the lowest point of the alimentary glycemia was from 50 to 70. The author applied the test in eighteen cases of rectal carcinoma. In some of the cases the test had to be interrupted because of hypoglycemic manifestations caused by insulin. These manifestations in themselves as well as the marked sinking of the glycemic curve serve as an indicator of glycogen insufficiency and therefore of liver insufficiency. He likewise noted a rise of temperature during the rise of the glycemic curve and a corresponding lowering with the fall in the curve. In his opinion this hypothermia is due either to deprivation of carbohydrate reserve of the tissues or to insulin effect on the heat center

The tendency to hypoglycemic manifestations was greater in patients having liver metastases than in those without. The author feels that the test, while not free from errors, is useful in rectal surgery for the diagnosis of metastases as well as for planning two stage or multiple stage operative interventions.

**Vocation and Trauma in Dupuytren's Contraction.**—Schroder states that Dupuytren's contraction always develops on the basis of a congenital dysplasia of the palmar aponeurosis inadequate to sustain the demands made on it. He was able to demonstrate the hereditary nature of this condition in about 40 per cent of the carefully investigated cases. Certain irregularities noted in the hereditary transmission point to the influence of exogenous factors. The author examined 2198 persons whose occupation entails a varying degree of considerable trauma to the hands with the object of ascertaining the influence of trauma on predisposition. The incidence of contracture was many times greater in persons whose hands were exposed to severe traumatization when compared with those whose hands were exposed to little or no trauma. Thus he regards Dupuytren's contracture as a result of two factors: the congenital predisposition and the external factor of repeated traumatization of the palm of the hand. With pronounced hereditary predisposition the contracture may develop in the presence of insignificant exogenous influences. In such cases heredity is relatively frequently demonstrable. A mild hereditary taint can result in a contracture only under the influence of severe traumatization. Dupuytren's contracture resulting from a single trauma, is seen only exceptionally.

**Experience with Appendicitis.**—Seifert reports a statistical study of 2763 cases of acute appendicitis in which operation was performed between 1911 and 1931 at the university clinic of Würzburg. Comparison of the two decades shows an increase in the incidence of the disorder in recent years. The age incidence, however, remained unchanged. The incidence of complications rises steadily within the first five days when surgical intervention is not instituted. Spreading peritonitis and abscess formation make up more than nine tenths of these complications. Pulmonary infections, venous thrombosis and embolism were responsible for only 1.5 per cent of the total mortality. On the basis of results the author feels justified in adhering to the formerly established operative indication, namely, to operate as soon as the diagnosis of acute appendicitis is confirmed. The twenty-four or forty-eight hour limitation is not acceptable as an operative indication. The total mortality of the decade from 1911 to 1920 was 68 per cent. This figure was lowered to 35 per cent during the next decade from 1922 to 1931. An improvement was likewise observed in the mortality due to spreading peritonitis without tendency to localization. This mortality amounted to 69 per cent during the first decade and to 41 per cent during the second. These results have become worse in the last few years in the author's opinion principally because of the treatment of the walled-off abscess. The attitude of the Würzburg clinic regarding that complication is to wait if the fever is moderate, the pain not severe and the intestinal function satisfactory. Conservative treatment is particularly indicated in the older patients when, under the influence of rest in bed and warm applications, the temperature continues to fall and the tumor to shrink in size. When on the other hand, fever and pain persist in the course of two or three days of conservative treatment, operation should no longer be delayed. The author believes that mortality from operations performed on abscesses is due to improper protection of the general peritoneal cavity. In twenty-five fatal cases of operation for a walled off abscess, it was found that in twelve the process was one of a beginning diffuse peritonitis. In five cases of well walled-off abscess death, in the author's opinion was the result of the removal of the appendix. He shares Rehn's opinion that the treatment of the walled off abscess should be limited to evacuation of pus, with no attempt at removing the appendix. He regards the operation for walled-off abscess as one requiring much surgical experience and believes that better results will be obtained when the operation is performed by experienced surgeons rather than by young clinical assistants.

## Klinische Wochenschrift, Berlin

14: 145-184 (Feb. 2) 1935 Partial Index

- Fate of Vitamin C in Digestive Tract Action of Intestinal Bacteria on Vitamin C W. Stepp and H. Schröder —p. 147  
Studies on Hyperchromic Anemias in Experimentally Produced Spruelike Disturbances F. Rominger and C. Bomskov —p. 148  
Clinical Aspects of Oral Scilla Therapy W. Ludwig and F. Schneider —p. 150  
Specific and Nonspecific Reactions in Typhus, Cancer and Tuberculosis I. Hirsfeld, W. Halber and Z. Szwojnicki —p. 154  
Studies on Zondek Aschheim Reaction K. Hansen and L. Gram —p. 158  
Decrease of Complement Content of Blood in Allergic Diseases B. Paul and M. Pely —p. 163

**Hyperchromic Anemias in Experimentally Produced Spruelike Disturbances.**—In their studies on alimentary anemia Rominger and Bomskov were able to produce two types, a chlorotic type that developed in growing white rats after feeding with cow's milk, and one that resembled pernicious anemia and developed after feeding with goat's milk. It was found also that the cow's milk anemia is due to lack of iron and copper, for the administration of these two metals cured or prevented it. The goat's milk anemia reacted just like pernicious anemia to liver and liver extracts. The main symptoms of the disorder that developed in the growing rats following feeding with goat's milk were fatty stools, pernicious anemia, lipemia and nervous disturbances that is the symptoms of sprue. It was found that the disorder can be prevented and cured by the administration of the vitamin B-complex, of liver and of liver extracts. The authors discuss the development of the spruelike disorder and of the anemia on the basis of the various theories that have been advanced. Their own studies convinced them that, although the lack of a specific food factor in the sense of Castle's principle is a contributing factor in the development of spruelike disturbances, it is not the only factor and that the gastro-intestinal disturbances, which prevent the resorption of this factor likewise play a part. They think that this opinion can be reconciled with some of the contradicting theories of the etiology, pathogenesis and treatment of the spruelike diseases and that it explains the therapeutic action of liver preparations in sprue. At any rate, the unsolved questions should be investigated further on the basis of the described experimental methods in animals with goat's milk anemia.

**Specific and Nonspecific Reactions in Typhus, Cancer and Tuberculosis.**—Hirsfeld and his associates summarize their observations as follows: 1. Typhus, cancer and tuberculosis serums react in a certain percentage of cases with organic lipoids, with cholesterol and with cancer extracts. If the percentage of the positive reactions of tuberculosis and cancer serums are compared with tuberculosis and cancer antigens, a greater reaction capacity with the homologous antigen becomes evident, a fact which although it does not definitely demonstrate a specific affinity, makes it nevertheless probable. 2. The different lability reactions occur in various percentages, but certain elective affinities seem to exist, for instance, the tuberculosis serums react more frequently with lecithin, the cancer serums with cholesterol. It is of practical significance that all reactions with lipoids occur less often than the lability reactions according to Daranyi. The nonspecific Daranyi reaction provides a better basis for the exclusion of tuberculous infection or of cancer than does the reaction with specific antigens. 3. The various reactions do not have strong correlations. However, there exists a certain correlation in tuberculosis between the tuberculosis reaction of Witebsky and the lecithin reaction of Sachs, as well as between Hirsfeld's cancer reaction and the complement fixation with stabilized cholesterol. 4. The Wassermann reaction may become positive in the course of cancer, when a syphilitic infection is absent. This could be considered indirect proof of the auto-antibody theory of the Wassermann reaction. 5. The Wassermann reaction in typhus differs to a certain extent from the Wassermann reaction in syphilis since it is positive only with some antigens and under the influence of heat and since the flocculation reactions develop not at all or only rarely.



**Decrease of Complement Content of Blood in Allergic Diseases**—According to Paul and Pely, the immunobiologic processes are dependent on the presence of the complement. On the basis of recent investigations, the complement is considered no longer as a definite substance but rather as the expression of a colloidal condition. Thus complement signifies a physicochemical state of the blood by virtue of which it has complemental capacities. The authors show that in case of a parenchymal lesion of the liver the complemental capacity of the blood decreases, and, since parenchymal impairments of the liver always exist in allergic diseases, it was logical to assume that the complement content of the blood is reduced in allergic diseases. They made this problem the subject of their investigations. They give a tabular report of the complement content of the blood detected in various allergic disorders. They consider 0.04 cc as the normal average that is this quantity of blood serum is required to effect hemolysis of 0.5 cc of a 5 per cent suspension of sheep corpuscles in the presence of 0.5 cc of a titrated hemolysin. The table shows that in allergic disorders the quantity of blood required for this purpose is much larger. The authors conclude from this that the physicochemical structure of the blood undergoes changes in allergic diseases and that these changes result in a decrease of the complemental capacity of the blood. They attempt an explanation of the decrease in the complement in allergic diseases.

11: 185 216 (Feb 9) 1935 Partial Index.

- Sensitivity of Brain for Roentgen and Radium Rays W. Scholz — p 189  
 \*Porphyrin Elimination During Normal and Pathologic Pregnancy C. Carrié and L. Herold — p 196  
 Method of Animal Experimentation for Demonstration of Castle's Principle of Gastric Juice and Its Clinical Significance K. Singer — p 200  
 \*Therapy of Lamblasis G. E. Sincke — p 204

**Porphyrin Elimination During Normal and Pathologic Pregnancy**—In studying the relationship of porphyrins to the blood pigment metabolism during pregnancy, Carrié and Herold employed the spectrophotometric determination of the urine. They found that porphyrin elimination is reduced during normal pregnancy. They think that this is due to the fact that a large portion of the maternal porphyrin is utilized in the formation of the fetal blood pigment, for during the puerperium they noted a renewed increase in the porphyrin elimination. In patients with hyperemesis of pregnancy they observed an increase in the porphyrin elimination and on the basis of parallel tests on the function of the liver they conclude that this increased elimination is the result of a functional impairment of the liver. They think that by the detection of a greater elimination of porphyrin by means of their spectrophotometric method, in patients with hyperemesis or with eclampsia, they have demonstrated a disturbance in the hepatic function and thereby have provided a new possibility for the recognition of an insufficiency of the liver.

**Therapy of Lamblasis**—Sincke observed that intravenous neoarsphenamine injections as well as most of the other remedies that have been recommended for the treatment of lamblasis do not produce permanent cures. Consequently he decided to resort to Lauda's method (THE JOURNAL, Dec 1 1934, p 1743), which likewise employs neoarsphenamine but administers it not by intravenous injection but by the duodenal tube (0.3 Gm of neoarsphenamine in 200 cc. of water). He was able to produce permanent results with this procedure and recommends Lauda's intraduodenal administration of neoarsphenamine for the treatment of lamblasis.

### Monatsschrift für Kinderheilkunde, Berlin

61: 161 240 (Jan 9) 1935 Partial Index.

- \*Exophthalmic Goiter in Children K. Wallis — p 161  
 Life Saving Action of Intravenous Injections in Nurslings Rose Fleischmann — p 172  
 \*Problem of Lactation During Mastitis of Mother M. Schlegel — p 191  
 Intraperitoneal Infusion of Native Carlsbad Mineral Water for Beginning Treatment of Toxicosis in Nurslings R. Ungar — p 194

**Exophthalmic Goiter in Children**—Wallis stresses the rarity of exophthalmic goiter in children in the region of Vienna. He points out that this contradicts the American reports, according to which hyperthyroidism occurs rather fre-

quently in children. He thinks that this might be explained by local differences, pointing out that in regions in which goiter is endemic hyperthyroidism is rarer and more benign. On the other hand, he thinks that the term hyperthyroidism might be used by American authors in a more inclusive sense than it is in Vienna.

**Lactation During Mastitis of Mother**—Schlegel points out that the majority of pediatricians are of the opinion that the nursing should continue to nurse at the breast in the course of a maternal mastitis, because the physiologic emptying of the breast has a favorable effect on the process of inflammation and a deleterious influence on the child does not have to be feared, since an enteral infection of the nursing, as the result of the intake of staphylococci with the breast milk, is not likely. However, the author observed a number of cases which prove that the enteral infection is not the only determining factor, for in the contact between mother and nursing other ways of infection are possible. He gives the histories of three cases in which the nurslings developed suppurating infections. One of the nurslings died. It cannot be doubted that the nurslings were infected during nursing, for the foci of suppuration appeared first on the face and the oral mucous membrane and the same pathogenic agents were found in mother and child. Since every suppurating infection threatens the life of a nursing, the author advises caution particularly in the cases in which the breast of the mother has a tendency to abscess formation. He thinks that contact between mother and child should be avoided in these cases and that the child should be fed with the milk that has been drawn from the breast.

### Wiener klinische Wochenschrift, Vienna

18 129 160 (Feb 1) 1935 Partial Index.

- So Called Stockholm Method and Results of Treatment of Uterine Carcinoma at Radiumhemmet J. Heyman — p 129  
 \*Clinical Aspects and Therapy of Sepsis Following Tonsillitis R. Waldapfel — p 136  
 Arthritis Deformans of Costovertebral Joints P. Barcelo — p 139  
 \*Therapy of Anemia and Problems of Anemia A. Hittmair — p 140

**Sepsis Following Tonsillitis**—Waldapfel differentiates two types of tonsillogenic sepsis. In the first type dissemination takes place directly by way of the blood stream from small thrombosed tonsillar veins and advances in the direction of the jugular vein. In the second type dissemination takes place by way of the lymph channels and along the neck and from there by way of a periphlebitis usually originating in a lymph node, with subsequent invasion of the blood stream and with secondary thrombosis of the jugular vein. Another important factor is that the port of entry is not always identical with the septic focus. The infection may originate in the tonsil, but the septic focus is frequently in the loose tissue of the parapharyngeal space. The therapy should take account of these pathologic anatomic conditions. The author has made it a rule to open and drain the parapharyngeal space from the outside and to examine the jugular vein whenever there is the slightest suspicion of infection. If the local changes in the tonsil indicate that the septic focus is within the tonsil it is removed. By this method the author has succeeded in reducing the mortality rate greatly. The clinical symptoms that indicate the infection of the parapharyngeal space are infiltration of the neck, sensitivity to pressure in the region of the jugular vein, attacks of chills and symptoms of general sepsis. If these symptoms are apparent the diagnosis and the decision to resort to an operation ought to present no difficulties. On the other hand when the local changes seem insignificant it may be difficult to diagnose the condition. The author calls attention to the jugular glands as septic foci and stresses that they ought to be removed even if there is only an inflammatory swelling.

**Therapy and Problems of Anemia**—Hittmair points out that the mechanism by which stomach and liver influence the blood formation is at present the most burning question in the problem of anemia. That even in so-called primary anemia the blood changes are only a symptom and not the disease itself is proved by the fact that although the modern treatment of anemia produces excellent symptomatic results it does not effect complete cure. The author mentions a number of symptoms that occur in all "primary" anemias but limits his discussion



to pernicious anemia. He calls attention to the fact that the liver and stomach therapy of pernicious anemia proved that it was an error to consider this anemia a hemolytic one. Incretory factors play a much greater part than does the hemolysis. It is known that the products of the adrenals and of the thyroid increase the action of the liver and that in some cases of hypothyroidism thyroid extract has to be administered before the liver therapy can become effective. Moreover, atrophy of the thyroid occasionally accompanies pernicious anemia, and strumectomy for the treatment of exophthalmic goiter has been known to be followed by pernicious anemia. On the other hand chlorosis and achylic anemia frequently concur with hyperthyroidism. In achylic anemia this is surprising since hypochlorhydria is usually accompanied by a hypofunction of the thyroid. The efficacy of iron likewise can be increased by a combination with incretory preparations yet it cannot be said that either reduced iron or liver or stomach extracts exert their influence by way of the hormone system. The author thinks that the spinal symptoms and the glossitis indicate that a toxin plays a part in pernicious anemia. Other toxic symptoms of this disease, such as fever disturbances in the water exchange and subjective disturbances usually disappear following stomach or liver therapy. This is probably due to a detoxicating effect. The author discusses the influence of stomach and liver on the blood formation, calling especial attention to certain embryonal conditions.

### Zeitschrift f Geburtshilfe u. Gynakologie, Stuttgart

110 105 224 (Jan 29) 1935

\*Endocrine Syndrome During Pregnancy and Following Puerperium E. Kehler—p. 105

Respiration and Circulation in Pregnant Women with Pulmonary and Thoracic Disturbances R. Hansen—p. 121

Lactic Acid Content of Blood During Pregnancy and Puerperium J. Truka—p. 137

Uterine Scars at End of Pregnancy R. Fikentscher—p. 142

Experiences in Delivering Old Primiparas O. Wallis—p. 149

Tuberculosis of Uterine Cervix I. Morillo—p. 166

**Endocrine Syndrome During Pregnancy and After Puerperium.**—Kehler shows that during pregnancy there usually develops a more or less pronounced hypertrophy and hyperplasia of most of the endocrine glands. This is pronounced in the hypophysis in which the characteristic pregnancy cells appear. The signs of incompletely developed acromegaly observed in some pregnant women are probably not the result of the pregnancy cell but rather caused by the simultaneous hypertrophy of the eosinophile cells. The excessive increase in the size of the hypophysis may result in mechanical pressure on the neighboring portions of the brain on the diencephalon with subsequent development of diabetes insipidus (polyuria polydipsia), or on the optic chiasm with amblyopia or amaurosis. Occasionally obesity develops by way of the cerebral cortex-diencephalon-glandular hypophysis. After the puerperium there often appear the symptoms of diencephalic-hypophyseal adiposity, the so-called adiposogenital dystrophy, the symptoms of hypophyseal cachexia (Simmonds disease) and the symptoms of progressive hypodystrophy. These disorders are caused by organic changes in the diencephalon or the glandular hypophysis (severe forms), or they are of psychic origin developing by way of the cerebral cortex-diencephalon-glandular hypophysis (mild and atypical forms). Both types are accompanied by ovarian disturbances, usually amenorrhea. Later, disturbances of the thyroid may develop which become manifest as hypothyroid adiposity or as thyrosexual insufficiency. These two syndromes are generally accompanied by hypogenitalism and amenorrhea. Then again thyrotoxicoses may develop particularly in the form of exophthalmic goiter. Pancreatic diabetes in the severe as well as in the mild form develops primarily in women who have borne several children. Its first beginnings can usually be traced to a postpuerperal period. Addison's disease has likewise been known to develop following the puerperal period. In addition to the typical there occurs an atypical form, which is designated as adrenal emaciation. The so-called multiple endocrine sclerosis, a severe impairment of several endocrine glands with reduction or complete abolition of their function, has been observed frequently following a

febrile puerperal process. It is always caused by fibrous atrophy of the glandular hypophysis, which is usually followed by the development of similar changes in other incretory glands: the thyroid, the ovaries and the adrenals.

**Lactic Acid Content of Blood During Pregnancy and Puerperium.**—Truka points out that many investigators who study the lactic acid content of the blood during pregnancy make the mistake of comparing the values with so called normal values. He maintains that there is really no normal value, because it changes with the time of the year, with the nutrition and with the physical and psychic condition of a person. Thus it is possible to determine a change in the lactic acid content of the blood only if these factors are the same. The author's tests were made with due regard to these factors. He found that during the ninth month of pregnancy the lactic acid content of the blood increases by 40 or 50 per cent. He controlled the values also on the first days of the puerperium and found that several days are required before the normal level is reached again. He concludes from this that the increase cannot be due to a greater muscular activity.

### Zeitschrift für klinische Medizin, Berlin

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Clinical Contribution to Function of Liver in Various Disorders C. A. A. Schrumph—p. 609

Studies on Disturbances in Conduction System of Cardiac Excitation by Means of Direct Leads for Auricular Electrocardiogram S. Laufer—p. 678

Hyperglycemia by Reflex Action from Oral Mucous Membrane R. Pannhorst—p. 688

\*Etiology of Cryptogenetic Paroxysmal Hemoglobinuria A. O. Schally—p. 697

\*Hypophyseal Suprarenal Insufficiency and the Schellong-Strisower Phenomenon J. Ratner—p. 713

**Etiology of Cryptogenetic Paroxysmal Hemoglobinuria.**—Schally describes a case of hemolytic anemia with paroxysmal hemoglobinuria, which he considers as an unusual manifestation of chronic sepsis. He thinks that the case belongs to the Marchiafava-Micheli type of hemolytic anemia with hemoglobinuria. The chronic sepsis becomes manifest through continuous febrile temperatures that often assume a septic character, occasional chills, and splenic tumor with leukopenia and thrombopenia. One of the first attacks is followed by septicopyemia. Each one of the numerous attacks is accompanied by the acute appearance of various infectious foci located primarily in the accessory nasal sinuses. The author assumes that the prolonged infection caused a toxic impairment of the organs of erythropoiesis. The acute outbursts of infection cause hemolysis of the erythrocytes, the resistance of which has been reduced. He suggests that other obscure cases of paroxysmal hemoglobinuria may perhaps be explained in the same manner.

**Hypophyseal-Adrenal Insufficiency and the Schellong-Strisower Phenomenon.**—Observations on the paradoxical reduction of the systolic pressure during the transition from the horizontal to the erect posture in asthenic persons and reports by Schellong and Strisower induced Ratner to investigate the problem of the extracardiac disturbance of the circulatory regulation. Schellong traced this disturbance of the circulatory regulation to an insufficiency of the anterior lobe of the hypophysis. Strisower, who observed the disturbance in tabes dorsalis, ascribed the insufficient blood pressure regulation to a disturbance in the nervous conduction and rejected an endocrine cause. Without denying entirely the possibility of nervous involvement, Schellong remarks that Strisower's patients, who had attacks of vertigo and fainting became greatly emaciated. Ratner describes ten cases and discusses the nature of the Schellong-Strisower phenomenon in hypophyseal and interrenal insufficiency. His observations indicate that the lack of the interrenotropic hormone of the hypophysis is the most important factor in this regulatory disturbance. However he stresses at the same time the part played by the sympathetic centers. He emphasizes the necessity of watching for this symptom in spontaneous hypoglycemia. In describing a case of hypophyseal insufficiency with disturbances in the pigmentation he calls attention to suggestions Morawitz made in regard to pigment vitamins and to the fact that tetany cataract frequently concurs with disturbances in pigmentation.

## Zentralblatt für Gynäkologie, Leipzig

50: 241 304 (Feb. 2) 1935

- Early Mortality in the New Born P W Siegel—p. 242  
 \*Giant Infants in Maternal Diabetes L Fischer—p. 249  
 Mechanism of Delivery in Teratism H Kraatz—p. 260  
 Apparent Heterosexual Juxtaposition of External Sex Characters in Woman Aged 23 V Rapant—p. 270  
 \*Congenital Diaphragmatic Hernias in the New Born V Lissowetzky—p. 276  
 \*Diagnosis of Fetal Deformities Before Delivery Necessity of Precaution in Interpretation of Roentgenograms J Koerner—p. 284  
 Differentiated Cerebral Cortex in a Dermoid Cyst O Hajek—p. 286

**Giant Infants in Maternal Diabetes**—Fischer demonstrates with reports in the world literature that the infants of diabetic mothers frequently are of excessive weight. On the basis of a general analysis of the carbohydrate metabolism and of the changed metabolic conditions during pregnancy, the relations between mother and fetus, as regards the carbohydrate metabolism are discussed. It is assumed that the increased maternal blood sugar content causes an oversupply of dextrose in the fetal circulation. The placenta supposedly plays no active part in this process. Since the fetus has an adequately functioning pancreatic island apparatus relatively early during its existence, it is capable of storing the oversupply of sugar in the form of glycogen. Moreover the fetus develops beyond its normal size. The aid given to the maternal organism by the presence of a functioning fetal pancreas cannot be explained by a passage of insulin from the fetus to the mother but is rather the result of the continuous drawing off of considerable amounts of blood sugar.

**Congenital Diaphragmatic Hernias in the New-Born**—Lissowetzky maintains that roentgen diagnosis and systematic necropsies on the cadavers of the new born indicate that congenital diaphragmatic hernias are not as rare as is generally assumed. In the course of 220 necropsies on infants three cases of congenital diaphragmatic hernias were found, and the developmental anomaly had been the cause of death in all three cases. The author studied the developmental anomaly in a number of cases. He adheres to the newer theory that considers the diaphragmatic defect not the result of an inhibition in the development during the embryonal period but rather the result of a dissociation of the embryonal aggregations of cells that later form the diaphragm. This dissociation may be caused by a shifting of the abdominal organs or by an overfilling of the abdominal cavity by the intestine, as the result of which the organs are forced from the abdominal to the thoracic cavity. The change in the position of the organs may result from exogenic factors, such as constriction of the maternal abdomen or a push or thrust against it, or from endogenic disturbances in the embryonal conditions. The newer idea of the development of the diaphragmatic defect is of practical significance, for the opinion that the defect is not due to the absence of a portion of the diaphragm but to rending of the embryonic traces of the diaphragm makes the development of an incarceration appear likely, and it also suggests the possibility of surgical repair. In postmortem studies the author observed that after the displaced organs had been brought from the thoracic into the abdominal cavity the edges of the defect came closer together so that practically only a slit remained. He believes that early diagnosis and resorting to the proper measures will make it possible to save the life of infants with congenital diaphragmatic hernia in the majority of cases.

**Diagnosis of Fetal Deformities Before Delivery**—Koerner points out that most obstetricians are of the opinion that pregnancy should not be carried to term when examination during the last months of pregnancy reveals a deformity that makes it impossible for the child to live. He admits that the use of roentgenoscopy makes it much easier to recognize such deformities but he stresses that this advancement in the technique should not be a temptation to make a grave decision without careful deliberation. He describes a case in which roentgenoscopy disclosed an abnormal position, an unusually large head and a double rectangular bending of the vertebral column. The possibility of a deformity of the fetus was considered but it was nevertheless decided to terminate the delivery by a cesarean operation. The child was normal roentgenoscopy of its verte-

bral columns revealed no abnormalities, and the further development was normal. It is interesting to note that the brother of the mother is a contortionist.

## Hospitalltidende, Copenhagen

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- \*Studies on Atrophy of Liver Ctd T Geil and J V Jørgensen—p. 57  
 Proctalgia Fugax Little Known Form of Pain in Rectum T E H Thaysen—p. 73  
 \*Mycosis Fungoides Treated with Chaulmoogra Oil S Lomholt—p. 79

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- \*Unspecific Chronic Epididymitis P W Bræstrup—p. 85  
 \*Studies on Atrophy of Liver Ccn T Geil and J V Jørgensen—p. 97  
 Action of Alpha Hypophamine on Delivery of Placenta O Scheibel—p. 106

**Atrophy of Liver**—Geil and Jørgensen discuss the clinical and anatomopathologic picture of acute subacute and chronic liver atrophy, illustrating this with ten cases. Acute parenchymatous degeneration of the liver may cause death in the acute stage, heal completely or take a protracted or recurrent course. The degenerative processes go hand in hand with regeneration and proliferation of the connective tissue and in atrophy of the liver may be transformed in different ways. Because of the varying clinical picture considerable difficulties in differential diagnosis may arise. In protracted cases, ascites and disturbance in the portal circulation may develop, causing the clinical picture to resemble that of liver cirrhoses. The intermittent course in protracted cases not infrequently results in intermittent jaundice and severe colic-like pains in the hepatic region, so that confusion with cholelithiasis may occur. A third clinical form of liver atrophy appears in certain subacute and chronic cases in the guise of a progressive cachexia, simulating cancer in the liver or bile ducts. This condition is due to deficient liver function with autointoxication. The galactose test sometimes fails in the acute forms of liver atrophy, in the more protracted cases the outcome is usually negative probably because the pseudotubuli formed in the regenerative phases can assimilate the galactose. Although the prognosis in liver atrophy must as a rule be considered grave at the start, the possibility is not excluded that energetic medical treatment with sugar and insulin may in some cases delay the development of the process and possibly even check it. As operative intervention, even exploratory laparotomy, is not well borne by patients with liver atrophy, the attempt should be made by means of other tests of the function of the liver or biliary tract to reach a more certain diagnosis. While the causes of the development of liver atrophy are uncertain, the authors are inclined to think that it may be due to a number of highly different intoxications and infections.

**Chaulmoogra Oil Treatment of Mycosis Fungoides**—Lomholt asserts that, in the stage of mycosis fungoides in which the infiltrating erythema is about to be followed by tumor formation, chaulmoogra oil exerts a remarkable influence. In the four cases reported the treatment has, at least temporarily, led to complete or almost complete freedom from the symptoms. In addition to its action on mycosis fungoides, chaulmoogra oil seems to affect other forms of granulation tissue in the skin, such as certain forms of tuberculosis, Boeck's sarcoid and granuloma annulare.

**Unspecific Chronic Epididymitis**—Bræstrup says that in the majority of cases this disturbance is due to transplantation by the canalicular route of an inflammation from the urethra. The symptoms in chronic and subacute epididymitis resemble those of tuberculous epididymitis and clinical distinction may be impossible. Treatment consists of rest in bed and elevation of the scrotum for from eight to ten days. In the mild cases, in which the symptoms tend to recede rapidly, conservative treatment is continued; in the other cases, resection of the epididymis with the vas deferens is then done. Urethritis was confirmed in six of the eighteen cases reported and in three there was pyuria. Five had a history of trauma. Fourteen were treated surgically; hemicastration was necessary in only one. The diagnosis was verified microscopically.

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## BILATERAL URINARY CALCULI

WITH SPECIAL REFERENCE TO THERAPEUTIC  
PROBLEMS

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NEW YORK

The therapeutic problems peculiar to bilateral urinary calculi are not solved by the application of stated formulas. A few of these, such as operate first (a) on the side of the better kidney, or indeed (b) in certain groups of cases on the worse side, or (c) on the side of recent pain, have become popular and are frequently repeated. My feeling is that these so-called rules do not deal with primary factors but are expressions of frequent secondary effects of these factors and at times may be quite misleading. My purpose in this paper is to point out what I believe to be the more fundamental principles involved, a study of which in a given case should govern therapeutic decisions.

The presence of calculi simultaneously in the two upper urinary tracts is not uncommon. In published series of cases of urinary lithiasis the percentage of bilateral calculi diagnosed clinically has varied between 8 and 20. Joly<sup>1</sup> recently stated that autopsy records show nearly 50 per cent. Hence this subject is one demanding frequent discussion.

In clinical work one must secure data as complete as possible concerning the patient in general and his urinary tract in particular. The symptoms are sometimes valuable but are not infallible guides in therapy. The size and location of all calculi should be known, whether or not they obstruct, as well as the total renal function, the relative function of the two kidneys, and the presence or absence and degree of infection of both kidneys. Knowledge of all these factors is most important before judgment is rendered of whether to take any action and what.

There is no dependable method of dissolving calculi, but stones may pass spontaneously through the urinary channels or be removed by operation. If the latter procedure is contemplated, one must be sure that the probable benefit justifies the risk. Accordingly there is general agreement that operation is not advisable on calculi in some locations and under certain conditions. Moreover, one must be clear in one's mind on this subject, remembering that considerations applicable to unilateral cases will usually apply equally well to each side in bilateral ones, although the latter may need closer observation.

Large, noninfected, nonobstructing, symptomless stag-horn calculi are usually left alone. Also, there is questionable advantage in trying to remove a large mass of nonobstructing, symptomless small stones occupying an entire kidney; it is nearly impossible to find them all, even with roentgen control at the operation table, and the kidney is badly mutilated in the attempt. There is no hurry in operating for small, symptomless stones in a kidney even in the presence of a low grade infection (they are located with difficulty at operation, and, moreover, there is strong probability of spontaneous passage), whereas one does not dare wait long for the spontaneous passage of ureteral calculi associated with urinary infection. Stones of moderate size that are trapped in a calyx need not be disturbed unless there is also persistent infection or symptoms.

In such cases therapy may include little more than occasional observation, including roentgen examination during a period of patient waiting. I seek to avoid infection in noninfected cases by general care, by avoidance of constipation and by the clearance of any foci of infection found in the body. When inflammation is present one should, in addition to the foregoing, try to improve the infection by cystoscopic methods and the use of antiseptics by mouth, although entire relief is not often obtained without the removal of associated calculi.

What are the reasons for operating in urinary lithiasis? Objectively, (a) calculi of the upper urinary tract are a most serious menace when they obstruct the urinary flow, (b) they are potent in prolonging infection, and (c) they may cause pressure atrophy of the parenchyma by growth of the stone. The first two factors are the important ones and the ones that most frequently demand intervention. Obstruction, particularly when complete, causes dilatation above with gradual destruction of kidney substance, encourages the advent or rapid spreading of infection, and may urgently demand relief. Nonobstructing stones, even when associated with chronic infection permit more procrastination, while the fear of renal atrophy by growth of calculi, in the absence of infection, rarely calls for operation. One or more of these factors are usually noted when symptoms are present, yet cases do occur in which pain or hemorrhage alone is the chief indication for treatment.

On the other hand, the risks of the proposed therapy must be considered fairly. Relief of obstruction by a ureteral catheter, if possible, is usually a relatively harmless procedure, it may give temporary relief from symptoms and danger, may be followed by spontaneous passage of a calculus and will at least improve the patient's condition for subsequent operation, should that be needed. Ureterotomy is one of the least danger-

From the Urological Department of Bellevue Hospital.  
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Session of the American Medical Association, Cleveland, June 15, 1934.  
<sup>1</sup> Joly, J. S. Bilateral Urinary Calculi. *Proc. Roy. Soc. Med.* 26:  
923-936 (May) 1933.

ous major operations. Pyelotomy entails an added risk, and nephrotomy, particularly if extensive, is decidedly more dangerous. Sometimes, to reduce the danger, drainage alone with perhaps removal of the most obstructing stone, if easily obtained, is all that is advisable. I am convinced from a study of postoperative figures for nonprotein nitrogen that as a rule ureterotomy and pyelotomy cause no immediate or remote decline of renal function, whereas in some cases nephrotomy has been followed by a decided, though perhaps transient, retention of nonprotein nitrogen in the blood (once to 100 mg.) within a week or ten days. Large and multiple incisions in the kidney cortex requiring deep sutures will also probably destroy permanently a part of the cortex. Moreover, secondary hemorrhages and acute kidney infections, when they do occur after operation, are usually encountered after nephrotomy incisions and not after pyelotomy. I feel that fewer untoward results will follow multiple small nephrotomy incisions than one large one and that better results are obtained if no suture of these small wounds is made except to control hemorrhage. Moreover sutures should preferably be confined to the kidney capsule, should be underpinned with fat or muscle,<sup>2</sup> and as few deep ones should be used as possible.

With these pros and cons in mind each case of bilateral calculi is reviewed as an individual problem. How can the maximum benefit be offered to the patient with the minimum risk? The answer to this question determines the type of therapy, whether operation (if needed) is done primarily on both sides or only on one if the latter, which side should be attacked first. The side to be operated on first may or may not be the one giving better renal function tests at the moment. Even if one could determine which kidney has the greater potential function (which cannot be done), that would not always be the side to be operated on first. As stated before, in occasional instances one will not offer initial relief to the side with recent pain, contrary to oft expressed advice. I do not decry the helpful value of symptoms and of the determined relative kidney functions when wisely interpreted but urge particularly that one seek more fundamental reasons for one's decisions rather than follow the time honored formulas.

The knowledge possessed of the probable improvement of renal function or infection as a sequel of operation will also influence the urologist. The more nearly complete urinary obstruction is, the more rapidly will kidney injury occur. The greater this injury, the less the return of function to be anticipated following operation. Unfortunately, one's ability to judge of a kidney's potential possibilities is far from perfect, and I was sorely disappointed in one case because no augmented function could be demonstrated after ureterotomy with removal of a stone, although the primary purpose was a gain of renal function. In instances of bilateral obstructing calculi, in which bilateral operation seems inadvisable, one may theoretically argue in favor of operating first on the side with symptoms of longer duration and usually temporarily lower function, to allow the corresponding kidney a better chance to approach normal, realizing that primary relief of the other side will make that side assume even more of

the function of its mate and retain it permanently. (This principle has been repeatedly demonstrated experimentally by Hinman and has been referred to in many papers.) But in such cases one is often dealing with a sick patient and must relieve first the side more recently obstructed, thereby risking a partial functional loss of the other side, as a live patient is preferable to a theoretically well conceived plan of operation.

If nephrectomy will obviously be required on one side, this may well be the primary operation in a septic patient, but usually it is wiser to relieve the other kidney of calculi first and permit its full restoration before doing the nephrectomy.

And so one might run on with special problems requiring individual judgment. Thus it is that in the literature numerous groupings of various combinations, according to the ideas of the author, are offered with the appropriate management. The advice offered is usually sound but the multiplicity of possible combinations is confusing. Hence I urge that less attention be paid to groupings and to rules and formulas, but that treatment be based on a knowledge (a) of the principles involved (b) of facts determined by history and examination with more emphasis laid on the location and size of calculi, the total renal function and the presence of infection than on tests of relative renal function, (c) of the immediate and remote needs of the patient and (d) of the probable risks of various lines of treatment. The immediate needs may overshadow the ultimate good, but always the general aim should be to render the greatest service with the least risk.

This communication is offered after a study of the literature<sup>3</sup> and a careful review and tabulation of thirty-five cases (all but three of which are from the urologic service of Bellevue Hospital) of simultaneous bilateral calculi of the upper urinary tract, which came to operation at my hands. Excepting two earlier records, all cases were seen between 1921 and 1934. I do not include those patients who did not receive surgical treatment, some refused treatment or even examination, treatment was not advised in others because of a concurrent serious medical ailment. One man, deemed beyond surgical aid, was uremic, with very high nonprotein constituents of the blood, ribbons of pus oozing from both ureteral orifices, and a stag-horn calculus on one side and recurrent multiple stones

### 3 These publications include

- André P. Indications in Bilateral Reno Ureteral Calculi. French Congress on Urinary Calculi 1931.
- Braasch W. F. and Culligan J. L. Multiple Renal Stones. Problems in the Treatment of Patients with this Condition. Arch. Surg. 17: 259-278 (Aug.) 1928.
- Cabot Hugh. Modern Urology. Philadelphia: Lea & Febiger 2: 1924.
- Cabot Hugh, and Holland W. W. Nephrostomy, Indications and Technique. Surg. Gynec. & Obst. 54: 817-825 (May) 1932.
- Geraghty J. T., Short J. T. and Schanz R. F. Multiple Renal Calculi. Unilateral and Bilateral. J. A. M. A. 77: 901-903 (Sept. 17) 1921.
- Hamer H. G. Renal and Ureteral Calculi. Present Day Surgical Problems. Am. J. Surg. 13: 96-103 (July) 1931.
- Hunner G. L. Calculus of the Urinary Tract. End Results, Tr. South. S. A. 40: 1017-1927.
- Keyes L. J. Problems Concerning Urinary Calculi. Am. J. M. Sc. 161: 334 (March) 1921.
- Leschnew A. F. and Levant D. E. Bilateral Calculi. Diagnosis and Surgical Treatment. Ztschr. f. Urol. 24: 17-30 1930.
- Mamikonoff. Problem of Simultaneous Bilateral Nephrolithotomy or Pyelolithotomy. Ztschr. f. Urol. 33: 506-510 1931.
- Moore F. Bilateral Calculi. Diagnostic Indications and Treatment. Med. Klin. 27: 1417-1423 (Sept.) 1931.
- Retting W. Bilateral Calculi. Treatment. Arch. f. klin. Chir. 168: 533-542 1930.
- Rosenstein P. Surgical Treatment of Bilateral Calculus. Deutsche Ztschr. f. Chir. 225: 215-228 1930.
- Schuessler H. Operation for Bilateral Coral Calculi. Deutsche Ztschr. f. Chir. 228: 307-311 1930.
- Young H. H. Practice of Urology. Philadelphia: W. B. Saunders Company 1: 413 1926.

2 Beer Edwin. Use of Fat to Prevent Sutures Cutting into Parenchymatous Organs. Surg. Gynec. & Obst. 37: 694-695 (Nov.) 1923.

in the other kidney which had been operated on elsewhere two years earlier. There was one patient who passed spontaneously bilateral ureteral calculi following cystoscopic manipulations. Three of the excluded group were operated on by us on one kidney only, after nephrectomy elsewhere for calcareous pyonephrosis.



Fig 1—Simple roentgenogram of a woman aged 40, much pain in the left flank for the past two weeks, similar attacks for four years. There was no urinary disturbance. Marked tenderness of the left kidney, with fair function and some infection, the right ureteral orifice was not found, no indigocarmine was seen in twenty minutes, an intravenous urogram showed good output from the left kidney and none from the right. Large calculi in the lower right ureter and stag horn calculus in the left kidney. Pain and tenderness in the left kidney became less in the hospital. Right ureterotomy was done with removal of two calculi. Intravenous urograms two weeks after operation showed slight excretion from the right kidney. The operation was done on the side showing poorer function and not on the painful side. The object was improvement of total renal function by ureterolithotomy, an operation of little risk. Later operation was advised on the left kidney.

In only three instances were simultaneous bilateral operations performed, all the patients survived. This bilateral procedure is preferable in young and robust patients who are good operative risks, and with rapid operations not requiring extensive nephrotomy. Hryntschak<sup>4</sup> has reported seven one-stage operations in fifteen bilateral cases. The advantages of one over two operations are evident: shorter stay in the hospital, briefer convalescence, less expense, and the like. However, most of our patients apply for treatment late and are in poor condition.

There were five deaths after the first operation performed on the other thirty-two, four among the first twenty-one and one among the eleven seen during the past five years. These will be reported critically but briefly, particularly to discuss the treatment in certain cases.

CASE 1—A man, aged 54, who was very ill with stones in both kidneys, died three days after simple incision of a perinephric abscess. No attempt was made to do anything to either kidney. His nonprotein nitrogen was over 200 on the day of operation.

<sup>4</sup> Hryntschak, T. Operations in One Sitting for Bilateral Calculi. *Deutsche Ztschr f Chir* 225: 229-241, 1930. Operative Treatment of Bilateral Nephrolithiasis. *Surg Gynec & Obst* 58: 103-112 (Jan.) 1934.

CASE 2—A man, aged 43, died from shock following a difficult intracapsular nephrectomy through the scar of a former kidney operation. There was a long history of frequent colic on both sides, a litholapaxy and the renal lithotomy already noted. He had had recent severe pain on the operated side which showed infection and reduced function without any evidence of ureteral obstruction. The better kidney contained a large stag horn calculus. We believed the painful kidney to be of little real value and operated to relieve symptoms. The error was in surgical judgment, the operation was prolonged to the large vascular pedicle because of the optimistic report on the general condition (not justified) given by the anesthetist.

CASE 3—A man, aged 34, died on the fifth day following removal of the very adherent right pus kidney, as the result apparently of extreme abdominal distention. The patient had a large dendritic calculus in the right kidney which gave thick pus, no urea and no dye; there was a large rounded calculus in the left kidney, the excretion from which contained no pus and yielded a good urea percentage and phenolsulphonphthalein in seven minutes. We elected to remove the worthless kidney which was causing pain. I believe it would have been wiser simply to drain this kidney by nephrostomy to relieve infection and pain and then remove the calculus by pyelotomy from the left kidney before attempting right nephrectomy.

CASE 4—The fourth death occurred three days after pyelotomy with removal of a stone. A man aged 53, was admitted in 1923 with anuria of twenty hours duration following a drunken debauch. Indwelling ureteral catheters brought urine from both kidneys and were left in situ for three days, at which time the patient insisted on going home. Normal urination continued for four days only and was followed by three days of anuria. The patient returned to the hospital and bilateral catheters were again introduced. The next day the nonprotein nitrogen was 84 mg per hundred cubic centimeters of blood and creatinine was 4.5. Five days later (the catheters having been withdrawn) the nonprotein nitrogen was 230 and catheters were

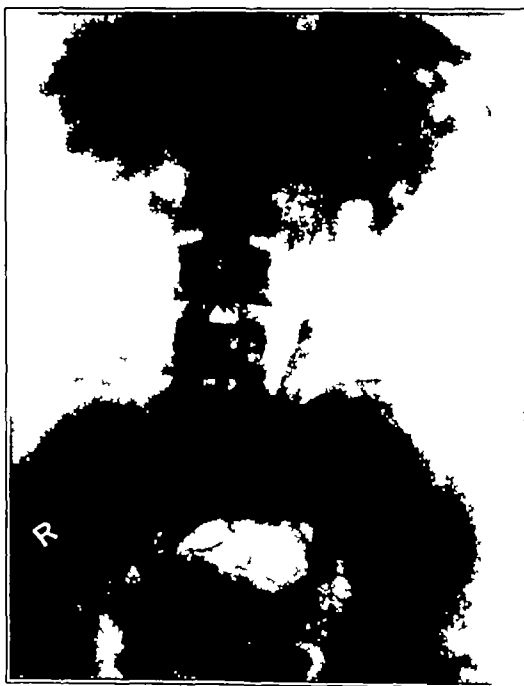


Fig 2—Intravenous pyelogram before operation (same case as in figure 1).

reintroduced. Several phenolsulphonphthalein tests done at various times gave zero output in two hours. Roentgenograms showed small shadows at the ureteropelvic junctions on both sides. Several times the catheters were withdrawn, anuria ensued, and the catheters were reinserted. But the cystoscopic treatment could not be continued indefinitely. On the twenty-fifth day in the hospital the nonprotein nitrogen was 56 and

creatinine 32, the best report on the record. The situation was desperate, but some type of drainage was urgently needed. I doubt whether any operation would have saved this man, but, theoretically, with our present views rapid bilateral nephrostomy would seem indicated and undoubtedly would have been permanent. However, we operated on one side only and performed right pyelotomy with removal of one obstructing stone, considerable perinephric edema was noted. Autopsy revealed a small right kidney with recent perinephritis and calcareous



Fig. 3—Simple roentgenogram of a man aged 31 who had no pain or urinary symptoms the general symptoms including high blood pressure, headaches and flushing of the skin. Function tests of the right kidney were little better than the left. Total phenolsulphonphthalein output was 25 and 15 per cent for two hours; nonprotein nitrogen and creatinine of the blood were normal. Multiple calculi of both kidneys were found with large stones in both pelves. Left pyelotomy and multiple nephrotomy incisions were done; more than 200 stones were removed. Oliguria occurred followed by death on the third day after operation.

incrustations in the thickened wall of the corresponding ureter, 2 cm below the pelvis, the left kidney was large and badly infected and there was an obstructing calcific deposit at the ureteropelvic junction.

CASE 5—The most recent death (1931) followed three days after left pyelotomy and multiple nephrotomy performed on a man, aged 31 (fig. 3). More than 200 stones were removed. Judging from the roentgenograms, the other kidney contained as many calculi. Before operation the nonprotein nitrogen was normal and the total phenolsulphonphthalein output was 20 per cent and 20 per cent for the first two hours. The kidneys were of about equal functional value. Postoperatively, in spite of the administration of much fluid, the urine output was very scanty; the nonprotein nitrogen rose steadily and the patient died on the third day.

In case 5 we were influenced by the youth of the patient, the presence of symptoms indicating renal insufficiency in spite of apparently satisfactory tests, and the dismal prospect without operation. The grave risk was appreciated, but we hoped to prolong life and make it more comfortable. It is now obvious that too much was done. We should not have undertaken more than the removal of the large pelvic stones and drainage of the kidneys at first, if indeed we should have operated at all. Although complete removal of all stones in such a kidney is well nigh impossible, we were led to attempt it by the fairly satisfactory function tests on the one hand and the desperate outlook on the other.

Only eleven of the twenty-seven patients with bilateral calculus who had survived operation on one stone-bearing kidney or ureter came to operation on the other side. It was advised in many other cases but declined by the patients because of lack of symptoms. The second operations were performed at intervals varying from seventeen days to a year after the first operations. As a rule, the procedure consisted of removal of calculi and drainage. Nephrectomy was required but once, recovery was rapid. Only nephrostomy was done on the second kidney but once, the opposite kidney had failed to resume function after ureterotomy for obstructing calculus three months earlier, and it was impossible without grave risk to remove the multiple and stag-horn calculi from the second kidney, which was tightly embedded in a mass of tough fibrous tissue. This patient is still in the hospital, walking about two months after operation, and he will be sent home wearing a nephrostomy tube.

Most of the eleven patients had an easy convalescence after operation on the second kidney. There were two deaths, however, and I would stress their parallel histories. Both patients were admitted in a precarious condition, as they had failed to return for the second operation until driven to the hospital by pain due to calculus obstruction and infection of the kidney. One died (in 1921, a year after the first operation) of renal insufficiency and infection eighteen days after removal



Fig. 4—Simple roentgenogram of a man aged 36; many stones were passed following ureteral colic on both sides during the past year; for four months he had been in another hospital with acute multiple arthritis, septic temperature and frequent right renal colic with passage of stones. Very ill on admission. Thick pus from the right ureter and practically no function of the right kidney; little pus from the left kidney and fair function. Total phenolsulphonphthalein output 25 and 15 per cent. Large groups of calculi in the right kidney and many small stones in the left. Right nephrectomy was performed with prompt and marked improvement in the general condition and acute joint pains. During the next six months he passed spontaneously all but two stones from the left kidney. Total phenolsulphonphthalein output for two hours eight months after operation was 58 per cent. The purpose of the operation was relief of acute sepsis.

of a stag-horn calculus through multiple nephrotomy wounds. The other returned to the hospital three months after right ureterotomy, with fever and acute

left-sided pain. He died nine days after pyelotomy for removal of stones from the left pelvis and upper ureter drainage of a peripelvic abscess, decapsulation of the kidney and drainage of cortical abscesses. There was suspicion of pneumonia before operation but the signs were not clear and the need for relief of the kidney was urgent. Operation was done under spinal anesthesia. Pneumonia and empyema of the left side

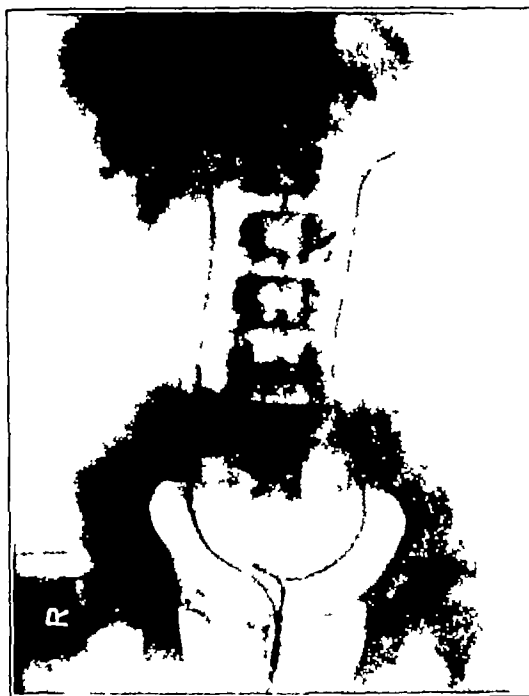


Fig. 5—Simple roentgenogram of a man aged 44, dull pain in the right flank for the past two or three weeks with no other history of pain or of any urinary frequency. Function of two kidneys about equal slight bilateral infection. Two large calculi in calices of the right kidney with faint diffuse shadows in the lower pole, one large calculus in the lower major calix of the left kidney with diffuse shadow in the lower pole. No stone in either renal pelvis or ureter proved by urograms. Left nephrotomy was done for stone and resection of the lower quarter of the kidney for latent tuberculosis. The patient did not return for further observation. With no stone in either ureter or kidney pelvis and with equal bilateral infection and equal function the side requiring less surgery for stone (resection was not contemplated) was attacked first.

were evident some days later. Operation, before the onset of acute symptoms set in and not required as an emergency measure, would probably have led to an easy convalescence.

As an example of successful primary nephrectomy performed to relieve sepsis—the urgent need in this case—I cite the following. A man (fig. 4), aged 32, had suffered for months with multiple acute infectious arthritis and had a high septic fever daily. He had multiple renal calculi with infection on both sides, but fewer stones, much lighter infection and better function on the left. The right kidney was removed with immediate relief of fever and the arthritis. However, there was no very large stone in the better kidney and none in the pelvis to cause obstruction, as was the case in the two patients who died following primary nephrectomy. To our amazement, most of the stones from the left kidney passed spontaneously during convalescence.

The following is of peculiar interest from the diagnostic point of view. A man, aged 32, showed by roentgenograms multiple calculi in the right kidney and one large stone apparently in the pelvis of the left kidney. Much more urine was obtained by catheter from the right ureter than from the left, and a larger

amount of phenolsulphonphthalein was recovered from the right side. However, the percentage of urea and the concentration of the dye were much better on the left side. These observations were confirmed by a second cystoscopy. The conclusion was that the left kidney was of better quality than the right but very small. At operation an infantile kidney was found on the left side and the stone removed from its pelvis. The right kidney was immediately exposed and a large group of stones removed from that side. The patient went home comfortable and apparently in good condition but returned to the hospital in about six months and died of uremia twelve days after nephrostomy was done on the right side.

We had but one instance of nephrectomy required for hemorrhage following nephrotomy for calculus. In one patient (fig. 5), we resected the lower third of a kidney because of old tuberculosis, after removing stones from the upper part of the organ.

The relative functions of the two kidneys at the time of examination have been tabulated, the side of the first operation being noted. There were twelve primary ureterotomies for stones on the side of poorer function, as indicated by the tests (we compare the urea percentage and the output of phenolsulphonphthalein or indigo-carmin as a routine), and none on a side presenting better function. Primary pyelotomy (with additional nephrotomy at times) was done six times on the poorer side, four times on the better, and six times when the two kidneys gave equal function tests before operation. Primary nephrectomy of a

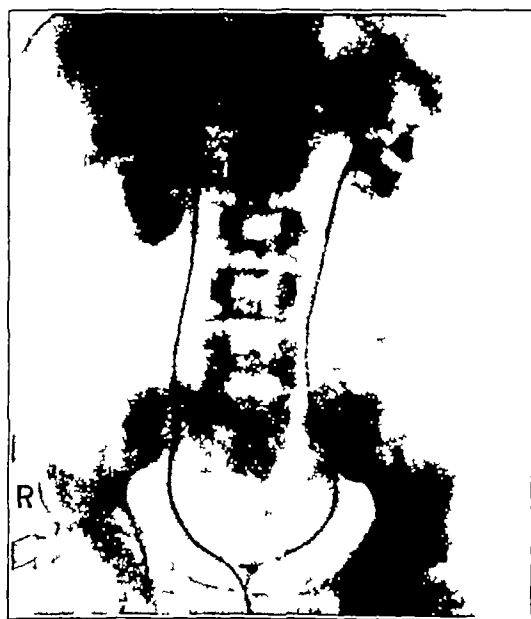


Fig. 6—Bilateral calculi with double pyelograms (same case as in figure 5).

poorer kidney was done three times. This is probably not good practice when a calculus in the other kidney is so situated that it may obstruct and particularly if it is possible to remove that calculus without mutilation of the kidney substance.

When pain in either kidney region was a complaint at the time of admission to the hospital, our reasoning as outlined has led us to operate on the painful side in most cases. Yet in three patients we deliberately operated first on the nonpainful side, and in one man



(fig 7), with pain for six weeks in both kidney regions but distinctly worse on the right side, we first removed calculi from the left side and later performed right nephrectomy. All recovered.

Observations in the hospital after operation and such late examinations as we have been permitted to make have usually demonstrated great improvement in the function of the kidney involved after a definite obstruction was relieved. In one patient, however, we could



Fig 7—Simple roentgenogram of a man aged 48 had had left pyelotomy for calculus twelve years earlier. Calculi found in both kidneys four years ago also pyuria and hematuria. For the past six weeks there was much pain in both kidney areas worse on the right. The right kidney urine was thick with pus, function was almost zero; the left kidney was moderately infected but function was good. Large dendritic calculus was found in the right kidney; multiple calculi in the left kidney. Left pyelotomy and four nephrotomy incisions were done for removal of the calculi. Two small pieces of stone remained. Nonprotein nitrogen and creatinine rose from 45 and 2.2 before operation to 100 and 4.3 on the tenth day after operation and dropped to 37 and 1.5 on the twenty-fourth day. Five months later right nephrectomy of pyonephrotic kidney was done. Phenolsulphonphthalein output for two hours, before first operation was 45 and 20 per cent; best after first operation 20 and 15 per cent; four years after both operations 30 and 5 per cent and the urine free from pus; there was a very slight increase in the size of the two stones in the left kidney and the general health was excellent. The first operation was done for relief of the better functioning kidney as later nephrectomy of other side was anticipated.

prove no function of a kidney after removal of a stone from the corresponding ureter, obviously the obstruction had existed too long and the kidney was destroyed. When no definite obstruction was present, the removal of renal calculi was not always followed by better function, indeed, sometimes after nephrotomy incisions the tests were worse than before operation.

Pain and hematuria are usually promptly relieved by operation for stone, as might be expected. Definite improvement in the infection of a kidney relieved of calculi is usually evident within a few weeks, particularly when care has been exercised to remove all stones and to leave good ureteral drainage at the time of operation. To insure this, we make it a practice to pass a large bougie down the ureter to the bladder in all cases. Those patients with urinary infection still present on discharge from the hospital should be given conscientious treatment by antiseptics, pelvic lavage with silver nitrate, and ureteral dilation to reduce the probability of the reformation of calculi.

To substantiate a claim of recurrent stones, one must as a routine examine by x-rays all patients who have

had operation for calculus. This practice has proved to me how difficult it is to remove all of a group of small stones. X-rays employed at the operating table will help locate larger pieces but are of little assistance with small pieces and bits of sand. Fortunately, some of these smaller pieces will later pass through the wound or through the urinary channels. The retention of some of these remnants does not necessarily offer a bad prognosis. In some cases the growth of stones is so slow that observation by roentgenograms may indicate little or no increase in size over a period of years.

I have come to feel that commonly, in the absence of acute sepsis, the primary object at first operation should be the maximum improvement of the total kidney function without undue risk. This may mean simply drainage, nephrostomy or pyelotomy, but usually removal of a probably obstructing stone by ureterotomy or pyelotomy. Occasionally, acute infection is the outstanding problem. If I considered here all the possible combinations of large and small stones in one or both kidneys or ureters, with and without infection, a discussion would lead to multiple presumptive situations with a conclusion for each—a long series of formulas. Is it not simpler to fix securely in mind the underlying principles and apply them to each problem as it is presented? Again I say that the size, number and location of calculi, as revealed by roentgenograms, the total renal function and the presence or absence of



Fig 8—Simple roentgenogram of a woman aged 68 who had had many attacks of pain in the right flank for the past five years. Calculi were passed three months ago following pains on both sides. Function of the left kidney was nearly twice that of the right with no infection of either. Large stone in the right pelvis and multiple jackstones and small bits in the right major calices. Small stones scattered in the left kidney. Right pyelotomy was done and one nephrotomy incision for removal of multiple calculi. Operation was not advised on the left side. Operation was done to improve the renal function and relieve pain by removal of obviously obstructing pelvic calculus.

infection are more important factors than symptoms and the relative function of the two kidneys, in helping one to decide what to do and on which side to operate first.

## SUMMARY

1 The conclusions presented here are based on a study of the literature and on a review of thirty-five cases of bilateral urinary calculi in which operation was performed

2 Full history, careful general examinations and an especially painstaking and complete urologic examination are necessary

## ABSTRACT OF DISCUSSION

DR JOHN S LEWIS JR Youngstown Ohio There is no rule of thumb that will serve as a guide in the management of bilateral urinary calculi Each case is a law unto itself Dr Stevens's keynote "Render the greatest service at the least risk" is the only guiding rule to be accepted I would make a plea for a more general use of nephrostomy in these very sick patients In certain cases permanent nephrostomy may be the only answer After nephrostomy, which at first may have been considered as a permanent procedure, the benefit will be so great to the patient that further operative procedure may be considered with safety Dr Stevens has not considered nonopaque calculi While the general principles apply one has to exercise unusual caution as the size, location and number of stones cannot be accurately estimated In those cases of bilateral urinary calculi which occur as the result of disturbance of the function of the parathyroid gland, the stones are small and are scattered throughout the parenchyma as well as along the excretory channels The stones are of calcium phosphate multiple bilateral and usually small Their arrangement is rather characteristic These cases present the additional problem of correction of the underlying cause which is a disturbance of the function due to a tumor of one or more of the parathyroid glands This may be accomplished by surgery, which is very difficult, or by properly given and adequate irradiation I cannot say that I agree with Dr Chute as regards the results of irradiation in parathyroid disease I feel that definite results are being obtained

DR MOSSES SWICK New York Dr Stevens's presentation of this trying and often discouraging condition illustrates the serious nature of the disease The usual life history is that marked by bilaterality, recurrence, infection and renal insufficiency For these reasons and because of difficulties encountered in coping with this problem, every attempt at conservatism directed toward the maintenance of kidney reserve both in the



Fig 9—Simple roentgenogram of a man aged 40 entered medical wards with bronchitis has had three attacks of renal colic last one five years ago but no urinary symptoms now Total phenolsulphonphthalein output was 10 and 10 per cent for two hours the right kidney showed slightly better function than the left Multiple calculi in the right kidney and long one in the upper ureter single stone in the upper pole of the left kidney and long one in the upper ureter slight infection on both sides Left pyelotomy and one nephrotomy incision nine days later function of the left kidney was more than twice that of the right and general phenolsulphonphthalein output was 20 and 5 per cent Seventeen days later right pyelotomy and multiple nephrotomy were done In six months the general phenolsulphonphthalein output was 25 and 20 per cent Operation was performed primarily for improvement of renal function and was done first on the side requiring the least damage to the parenchyma in removing calculi (and incidentally that with slightly lower tests)

3 Operation may not be advisable, or one may operate primarily on both sides or on one, depending on conditions

4 One must not be blindly guided by rules and formulas—such as, operate first on the side of the better kidney, or of the worse kidney, or of the most recent pain—but the therapy proposed must depend on a clear knowledge of the objectives sought, immediate and remote, of the means of attainment of these objects and of the risks involved I urge careful consideration of the relative dangers of various operations in a given case

5 Data on a series of thirty-five operative cases of bilateral calculi especially illustrate the fallibility of commonly accepted rules

6 One should seek improvement of renal functions, primarily and eventually, control of infection and alleviation of symptoms The first motive is usually outstanding, but relief of acute infection may demand initial attention, even nephrectomy

65 East Sixty Sixth Street

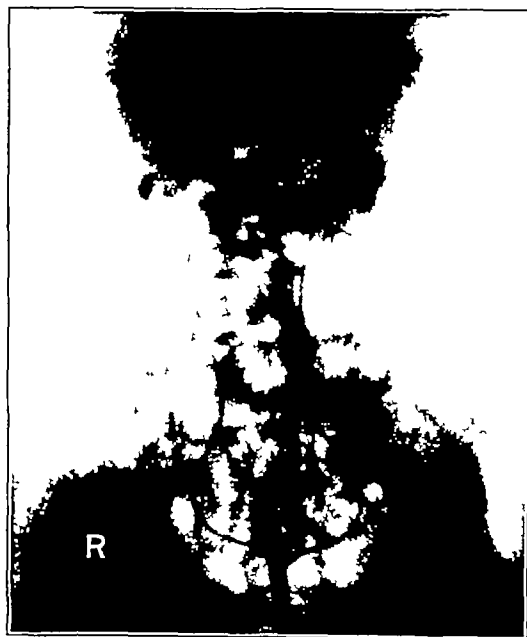


Fig 10—Simple roentgenogram of a man aged 48 with occasional hematuria for six months but no pain The function of the kidneys was good and equal neither being infected Medium nonobstructing stone in the right major calix large stone in the left pelvis and major calix Left pyelonephrotomy was done The patient went home and did not return for operation on other side The first operation performed on stone most apt to cause damage by obstruction

diagnosis and in the preoperative and postoperative care, must be made Because practically all cases of bilateral renal calculi are for the most part composed of calcium phosphate and oxalate and are therefore radiopaque retrograde pyelography not only becomes unnecessary in many of these cases but may be dangerous to an already compromised kidney reserve Thus in cases of bilateral renal calculosis in which in many instances

the renal reserve is already compromised, retrograde pyelography may be the turning point in the death of the patient in bringing about either uremia, urosepsis or both. Since in cases of bilateral renal calculi one frequently encounters the staghorn soft and fragmented type roentgen control at the operating table as an adjuvant in the handling of such cases becomes apparent. Only by this procedure can one evaluate the end results and hope for a total removal of the calculi at the time of operation. Furthermore a clear insight into the general constitutional laboratory and clinical status of the patient is important. Determinations of water and nitrogen balance and the blood carbon dioxide chloride and calcium content should be carried out, and therapy directed along these lines. The treatment of the patient should not cease with the operation but should be followed jointly by the metabolist and urologist along lines such as: 1. Exhibition of the vitamin A diet considering the possible relationship of hyperparathyroidism to renal calculi. In this connection it might be helpful to consider also the possible relationship of phosphaturia and its causes. 2. The importance of constant forced intake of fluids. 3. The reaction of the urine and the chemical composition of the stone removed which should be determined in order to prescribe diets and medications more intelligently. 4. Finally in the presence of infection after removal of stones, use of the ketogenic diet.

## PRODUCTION AND SOLUTION OF URINARY CALCULI

### EXPERIMENTAL AND CLINICAL STUDIES

CHARLES C HIGGINS M.D.  
CLEVELAND

Investigations dealing with the experimental production of urinary calculi have been reported in previous communications.<sup>1</sup> In a high proportion of albino rats maintained on a diet deficient in vitamin A, urinary calculi developed. If the deficiency in the diet was continued for a period of 250 days 85 per cent of the experimental animals exhibited vesical calculi and 42 per cent showed renal calculi. The spherical, light brown calculi varied in size from 0.5 to 8 mm in diameter. They contained calcium phosphate chiefly, with traces of carbonates and a small amount of mucoid substance. No oxalates or uric acid were detected.

### METHODS OF PRODUCTION OF URINARY CALCULI

Three constant changes were observed in the experimental animals that might be associated with calculous formation. They are (1) keratinization of the epithelium of the genito-urinary tract, (2) urinary infection and (3) alkalimuria.

1. The keratinization of the epithelium is noted after the diet has been deficient in vitamin A for a period of from eight to ten weeks. This is not confined to the genito-urinary tract but involves also other mucous membranes, such as the trachea, bronchi and vagina.

This experimental study is in accord with clinical observations. Wilson and DuBois<sup>2</sup> in 1923 noted at autopsy that infants who had died from intercurrent infection associated with vitamin A deficiency demonstrated keratinization of the epithelium of the trachea, bronchi and other mucous membranes. Similar obser-

vations were reported by Mori<sup>3</sup> and recently, in necropsies on eleven infants who had vitamin A deficiency and died from some infectious process, Blackfan and Wolbach<sup>4</sup> found metaplasia or keratinization of the epithelium of the pelvis of the kidney and ureter in seven instances.

2. Urinary infection is produced in a large percentage of rats maintained on a diet deficient in vitamin A for long periods of time. Infection of the bladder occurs usually after thirty days and renal infection after from sixty to ninety days. When the experiments have progressed for from 200 to 250 days, 72 per cent of the rats have bladder infection and in 42 per cent of these there is a coexistent renal infection. The organisms isolated in dextrose brain broth were streptococci, staphylococci and mixed cultures.

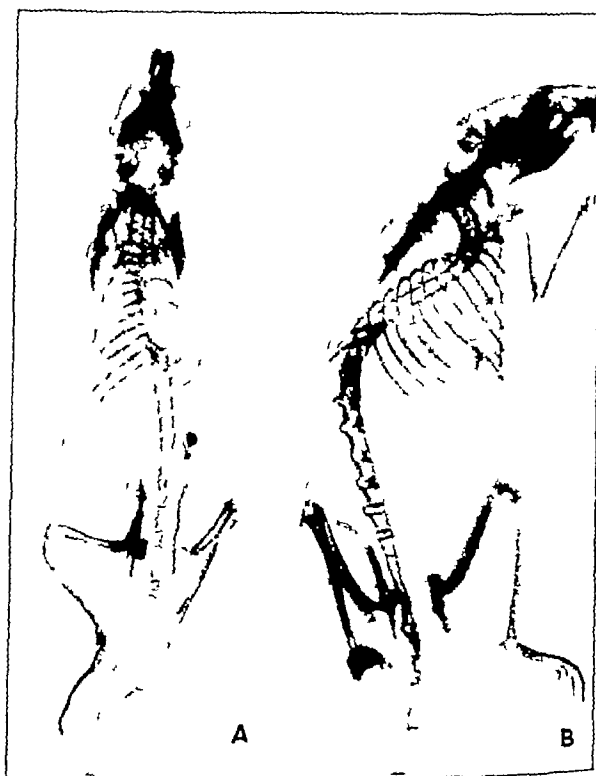


Fig. 1—White rat 187 days old. A, stone in bladder and two stones in kidney after diet deficient in vitamin A. B, disappearance of renal and bladder stones after high vitamin A feeding for a period of two months.

3. Alkalimuria is a constant finding in rats maintained on a diet inadequate in vitamin A. By the addition of ammonium chloride to the diet the incidence of calculi is decreased. Likewise, by adding vitamin A to the deficient diet the urine becomes acid and calculi are not produced.

### SOLUTION OF URINARY CALCULI

It was demonstrated in earlier experiments that, if vitamin A alone was restored to the diet of rats, the formation of urinary calculi could be prevented. In order to determine whether stones already formed could be dissolved by the administration of vitamin A, thirty

3. Mori D. Changes in Para Ocular Glands Which Follow the Administration of Diets Low in Fat Soluble A. Effect of Same Diets on Salivary Glands and Mucosa of Larynx and Trachea. *Bull. Johns Hopkins Hosp.* 33: 357-359 (Oct.) 1922.  
4. Blackfan K. D. and Wolbach S. B. Vitamin A Deficiency in Infants. *Clinical and Pathological Study J. Pediat.* 3: 679-706 (Nov.) 1933.

From the Cleveland Clinic.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

1. Higgins C. C. The Experimental Production of Urinary Calculi. *J. Urol.* 29: 157-185 (Feb.) 1933. Experimental Production of Urinary Calculi in Rats. *Urol. & Cutan. Rev.* 38: 33-39 (Jan.) 1934.

2. Wilson J. R. and DuBois R. O. Report of a Fatal Case of Keratomalacia in an Infant, with Postmortem Examination. *Am. J. Dis. Child.* 26: 431-446 (Nov.) 1923.

rats with bladder or renal calculi were studied. Except for the addition of cod liver oil, the diet remained the same as when the calculi were produced.

Twelve rats with vesical calculi had the deficient diet for from thirty to sixty days. In eleven of these the calculi had entirely disappeared roentgenographically after two drops of cod liver oil had been administered daily for a period of from fifty to sixty days. The other rat died shortly after the experiment was started. Cultures taken when the rats were killed showed no evidence of urinary infection. Sand was present in the bladders of two rats. A mild degree of keratinization of the epithelium of the genito-urinary tract was present in seven rats, in the others the epithelium appeared normal.

In a second group of eleven rats that had been on the deficient diet for from ninety-six to 130 days vesical calculi could be demonstrated roentgenographically and coexistent renal calculi were observed in two rats. After the rats had been on the high vitamin A diet for ninety days (two drops daily) roentgenograms showed no evidence of calculi in the bladders of six rats. In the other five the calculi were definitely smaller. One of the renal calculi could not be demonstrated. Cultures from the bladder were positive for mixed infection in every animal of this series, and in three animals there was infection in the kidney. There was a large abscess between the bladder and the abdominal wall in one animal but no other gross pathologic changes were noted in the genito-urinary tracts. Some degree of epithelial keratinization was present in all the rats in this series, but there was found to be evidence of repair of the stratified to normal epithelium in six rats.

The third group of twelve rats had been maintained on the deficient diet for a period of 180 days. Vesical calculi had been demonstrated in all these rats and renal calculi were present in two of them. In four animals the vesical calculi had entirely disappeared 101 days after cod liver oil (two drops daily) was added to the diet. In the remaining rats in this series the calculi were definitely smaller. In one the renal calculi also had disappeared (figs 1 and 2). The rats were killed after 107 days, and organisms were isolated from the bladder in all instances. A pure culture of staphylococcus was found in two and mixed infection in the others. In eight of the rats a coexisting renal infection was found.

Cystitis, hemorrhage under the mucosa of the bladder and renal infection were common observations in this group. Keratinization of the epithelium was present to some degree in the genito-urinary tracts of all the animals in this series. A reparative process was evident in the epithelium of the ureters, kidneys and bladder, especially when there was not a marked degree of infection. Vesicular degeneration of cells and hemocytic infiltration above the layer of undifferentiated cells, as described by Wolbach and Howe,<sup>5</sup> were present in numerous instances.

These experiments show that with the addition of vitamin A to the diet there is a tendency toward restoration of the normal epithelium, along with solution of the calculi. In our first experiments at the clinic, the calculi produced in rats on a vitamin A deficient diet

were composed chiefly of calcium phosphate, so it seems logical to assume that the calculi in this series of experiments were of the same composition.

#### CHEMICAL FACTORS IN THE FORMATION OF CALCULI

Schade<sup>6</sup> and other colloid chemists have described certain conditions necessary to the formation of calculi. These include precipitation of crystals from a supersaturated solution together with some organic colloid material, such as fibrin and mucin, which can form the nucleus of minute calculi. These, in the presence of stasis and infection, can accrete to stones of much greater proportions.

In vitamin A deficiency, then, are produced the essential conditions for calculus formation, the precipitation



Fig. 2.—White rat, aged 192 days. A, two large lamellated stones in the bladder produced on vitamin A deficient diet. B, stones entirely disappeared after high vitamin A feeding for six weeks.

of crystals from a supersaturated alkaline urine and the formation of local irritation, sometimes to the point of ulceration, consequent to keratinization and desquamation of the epithelium of the urinary tract.

Precipitation, per se, causes sediment and not stones. Neither do the desquamated epithelial cells alone act as nuclei for the formation of calculi. But the keratinization of the epithelium causes sufficient irritation and local lesions producing fibrin and mucin to form a framework for the deposition of crystalline sediment and subsequent development of stones.

These factors explain the formation of urinary calculi in experimental animals deprived of vitamin A and also in patients who have had inadequate diets. Stone areas or regions in which urinary calculi are unusually prevalent have been noted by various clinical observers

<sup>5</sup> Wolbach S. B. and Howe P. R. Epithelial Repair in Recovery from Vitamin A Deficiency. Experimental Study. J. Exper. Med. 57: 511-526 (March) 1933.

<sup>6</sup> Schade H. cited by Alexander Jerome. Colloid Chemistry—Theoretical and Applied. New York: Chemical Catalog Company, Inc. 2: 803-844. 1928.

and have usually been attributed to some rather general dietary deficiency peculiar to the region

#### CLINICAL OBSERVATIONS

Since these experimental investigations were undertaken, it has been the routine procedure at the Cleveland Clinic for the last two years to administer to patients who have been operated on for urinary calculi a special acid ash diet high in vitamins especially in vitamin A. Vitamin A is also added in the form of cod liver oil or halibut liver oil a teaspoonful three times a day. The various capsules containing these sources of vitamin A usually four daily also may be used. Generally this diet suffices to render the urine acid. If the urine remains alkaline, neutral or only slightly acid however acidifying agents such as ammonium chloride or sodium acid phosphate are administered. The patient is instructed to test the urine morning and night with litmus paper and on each visit to the clinic a urinalysis including the  $pH$  is made. Of course other therapeutic measures such as the eradication of renal infection or the elimination of stasis in the urinary tract have not been neglected. On this regimen no calculi have recurred but insufficient time has elapsed to warrant definite and final conclusions as to the efficacy of this prophylactic measure.

Seven patients with renal calculi, either unilateral or bilateral, who have refused operation or in whom surgical treatment was not feasible have been taking a similar diet. In each of two instances a small stone in the lower calyx of the kidney too large to pass spontaneously, has disappeared entirely within four months, according to roentgenographic examination. In two

323 small calculi were passed (fig 4). Previously this patient had never had colic nor had he passed sand or a stone in the urine. The other two patients have been on the diet for only a short time.

Several other physicians have used the acid ash diet and vitamin A in the treatment of their cases, and the collected series in which calculi have disappeared now numbers eighteen. Detailed reports of these cases will appear in a later publication.

This series is too small and insufficient time has elapsed to permit definite conclusions regarding the

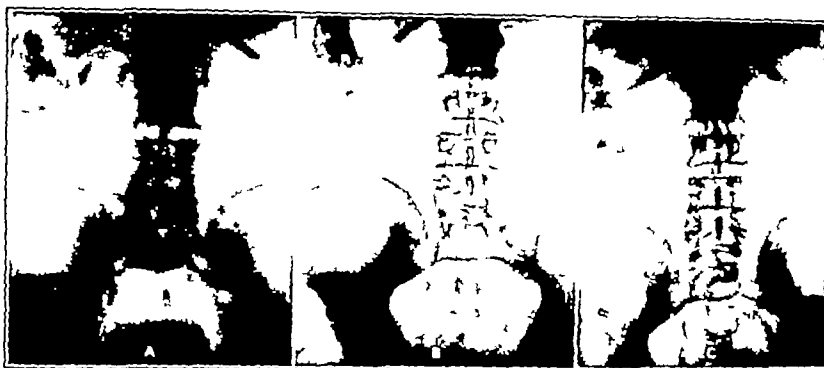


FIG. 4.—A kidneys, ureters and bladder of a man aged 59 showing right renal calculus. B six months later there was a definite breaking up of the lower portion of the stone. C ten months after beginning treatment there was a marked decrease in the lower portion of the stone. The patient has passed 323 small stones.

clinical value of the method but the outlook for medical treatment at least in some cases of urinary lithiasis, seems promising.

#### SUMMARY

- 1 Urinary calculi develop in albino rats sustained on a diet deficient in vitamin A, and alkaluria and keratinization of the epithelium of the urinary tract are constant observations. Infection of the urinary tract is frequent in the later stages of the experiment. The calculi are composed chiefly of calcium phosphate.

- 2 Addition of vitamin A causes disintegration and solution of the calculi experimentally produced in rats.

- 3 The chemical conditions necessary for the formation of calculi are produced by vitamin A deficiency.

- 4 An acid ash diet high in vitamins, especially vitamin A, is suggested as a prophylactic measure to prevent the recurrence of calculi in patients who have had urinary lithiasis, and the rôle of vitamin A in the diet to prevent primary calculous disease is important.

- 5 A high vitamin acid ash diet has produced a decrease in the size or total disappearance of renal calculi in patients refusing surgical intervention or in whom operation has not seemed indicated. In eighteen collected cases in which the high vitamin, acid ash diet has been used the renal calculi have undergone solution, according to roentgenographic evidence.



FIG. 3.—A kidneys, ureters and bladder of a woman aged 51 showing bilateral renal calculi. B roentgen examination eleven months later showed decrease in large renal calculi in the right kidney. The patient has passed approximately 200 small stones.

patients, multiple large bilateral renal calculi have decreased definitely in size within thirteen months. One of these patients never had passed sand or calculi in the urine until she had been taking the special diet for three months and the urine is now continually loaded with sediment and small stones (fig 3). Another patient had a large silent stone completely filling the left kidney. Operation was refused and, after the patient had taken the high vitamin diet for six months

#### ABSTRACT OF DISCUSSION

DR VINCENT J. O'CONOR, Chicago: Much has been learned about the etiology of urinary stone. Keyser, among others, has pointed out the importance of metabolic influences. The disturbance of calcium and phosphorus metabolism associated with parathyroid adenoma has been emphasized by the Massachusetts General Hospital group this year. Holmes and Coplan showed the relation of excessive alkaline ash and acid ash diets in the etiology of urinary calculi. I have been tabulating the frequency of renal stone formation in patients who have observed a prolonged alkaline management for gastric and duodenal ulcer. This study covers a period of more than

fourteen years and comprises some sixty individuals. The persistent low grade alkalosis with alkaline urine seems to be the etiologic factor in the formation of small white crystalline calculi in these ulcer patients. The stones are composed almost entirely of calcium carbonate, an uncommon stone in the records of large series of analyses. Since the original presentation of Dr. Higgins's work two years ago, I have utilized his ideas clinically by having patients on alkaline powder treatment take halibut or cod liver oil in large doses. Several patients who had recurrent stones several times each year for several years (one had passed thirty stones in six years and all of them pure calcium carbonate) have had no evidence of stone during these two years although being obliged to continue their ulcer management. An attempt should be made to institute a regimen for the prevention of recurrence. This includes not only the elimination of systemic focal infection, the correction of defective urinary tract drainage and the clearing up of urinary infection but also the determination as to whether or not in a given individual the stone is the result of an excessive acid or alkaline ash diet. The analyses of the calculi help greatly in this as does a study of the reaction of the urine when the patient is on various dietary managements. Clinical experience shows that the average physician advises every patient with urinary lithiasis to avoid meat eggs and fats. In the case of the many patients who are forming stones in an alkaline urine these are the foods they need most. The work of Dr. Higgins accentuates that from a metabolic point of view the dietary correction varies with the individual depending on whether he is forming stones as a result of excess acid or alkaline ash. It is obviously as wrong to prescribe excessive vitamin A food in an individual forming acid ash stones as it is to alkalinize a patient further whose dietary ash residue is alkaline. The haphazard prescribing of excessive amounts of citrus fruit juices and prolonged ingestion of alkalis is not an aid to metabolic problems unless it is based on a careful study of the requirements for each individual under consideration.

## RECURRENT UROLITHIASIS ETIOLOGIC FACTORS AND CLINICAL MANAGEMENT

LINWOOD D. KEYSER, M.D.

ROANOKE, VA.

While the etiology of urolithiasis is far from clear, an attempt may be made at correlation of data from laboratory and clinical sources with an effort to ascertain what facts may be of value in the preventive therapy of recurrence.

Experimentally the production of calculi in laboratory animals may be recounted in the following ways:

- 1 By the feeding of oxamide
- 2 By producing an artificial excessive excretion of calcium oxalate.
- 3 By excessive doses of parathyroid extract and of viosterol
- 4 The formation of uric acid calculi in animals with Eck fistulas
- 5 By feeding diets deficient in vitamin A
- 6 By infection with urea splitting streptococci, staphylococci and *B. proteus-ammoniae*
- 7 By the incrustation of organic or inorganic foreign bodies in the presence of infection

The first four of these methods imply an aseptic metabolic disturbance associated with excessive excretion of urinary crystalloids. The role of infection in the sixth and seventh method of experimental calculus production is obvious. That the infection is specific is attested by the fact that organisms successfully used by different observers were isolated from the teeth, tonsils or urine of patients afflicted with active stone

formation and that the use of strains of similar organisms from other sources gave negative results.

The mechanism of hyperexcretory calculosis (figs. 1 and 2) has been dealt with in numerous reports.<sup>1</sup> This mechanism takes one at once to the realm of physical chemistry. Lichtwitz<sup>2</sup> and Schade<sup>3</sup> have shown that the water insoluble constituents of stones (crystalloids) are held in a state of dispersion in the urine by adsorption to irreversible urinary protective colloids. In experimental animals I showed that an increased excretion of calcium oxalate resulted in first a precipitation of isolated octahedral, dumb-bell or tabloid crystals but that further intensification of the excretion of oxalate resulted in an inadequacy of the colloidal mechanism to maintain either solution or deposition of isolated crystals. In consequence, fusing clusters of coalescent spheroidal crystals were precipitated and stone formation took place (figs. 3 and 4). Especially in the case of oxamide calculosis pigment and organic matter, probably the gel of the irreversible colloid, accompanied the deposition of stone forming spherules and served to form the organic framework of the stone.

The mechanism of infectious calculosis is not so clearly demonstrable. Hager and Magath<sup>4</sup> felt that *Proteus ammoniae* formed calculi in bladders previously irritated by salicylic acid, through the process of splitting urea and depositing precipitates of magnesium ammonium phosphate and calcium carbonate on abraded mucous membranes. These precipitates tended to break off and form free calculi in the bladder. Likewise, in experimental streptococcal calculosis in rabbits (figs. 5 and 6), I have shown the initial lesion to be an impregnation of lime salts in necrobiotic cells of the mucosa. From this incrustated cystitis, free particles break away to grow as calculi. In one instance this process was most intensive even in the kidney pelvis and ureters. Thus from the experimental standpoint infectious calculosis seems related more to the deposition of lime salts in tissues, a process the chemistry of which has been much studied, with varying and somewhat conflicting opinions.

Vitamin A deficiency lithiasis has provoked much speculation. As a cause of stone, vitamin deficiency has been championed by the English school and in America Higgins<sup>5</sup> has presented evidence of its etiology bearing on the disease. His observation that calculosis begins in rats before the advent of infection is illuminating. While I am hesitant to disagree with those who hold for a vitamin factor in lithiasis, a general survey of the subject reveals some points that I cannot rationalize with certain clinical facts.

In the first place, this type of stone formation has been noted chiefly in rats, a species rather remote phylogenetically from human beings. The occurrence of urolithiasis is a late stage in a progressive state of malnutrition, other prominent and concomitant features of this malnutrition being biliary calculi, cachexia and

1 Keyser L. D. and Braasch W. F. The Etiology of Urinary Lithiasis. Internat. Abst. Surg. January 1922 pp. 110. Keyser L. D. The Mechanism of the Formation of Urinary Calculi, Ann. Surg. 77: 210-222 (Feb.) 1923. The Etiology of Urinary Lithiasis. Arch. Surg. 6: 525-553 (March) 1923. Urinary Lithiasis—Its Cause and Prevention. An Evaluation of Contributions to Our Knowledge During the Past Decade. South. M. J. 25: 1031-1040 (Oct.) 1932. The Relationship of Urinary Infections to Recurrent Calculi. J. Urol. 31: 219-238 (Feb.) 1934.

2 Lichtwitz L. Untersuchungen über Kolloide im Urin, Ztschr. f. physiol. Chem. 64: 144-157 1910. Die Bildung der Harnsedimente und Harnsteine. Ztschr. f. Urol. 7: 810-820 1913.

3 Schade H. Beiträge zur Konkrementbildung. München. med. Wehnschr. 56: 77-80 1909.

4 Hager B. H. and Magath T. B. The Formation of Vesical Calculi. J. A. M. A. 90: 266 (Jan. 28) 1928.

5 Higgins C. C. The Experimental Production of Urinary Calculi. J. Urol. 29: 157-171 (Feb.) 1933.

changes in the cornea, in the retina, and in the respiratory and alimentary tracts. These concomitant features of experimental avitaminosis stone are certainly not common or even infrequent accompaniments of calculous disease as it is seen in America. Even children in whom the formation of stone is somewhat rare seldom present calculi and the general malnutritional changes associated with marked vitamin deficiency.

Furthermore, in the pathologic study of the urinary tract, keratinization of the epithelium is not a common finding with stone. Vesical calculus in boys in certain geographic areas as Rumania, Dalmatia, the Canton province and the Indian Punjab does seem to be related to a cereal diet deficient in vitamin A. However, children who are fed on a similar diet in other contiguous areas are singularly free from stone. The factors of infection and of excessive crystalline excretion are yet to be ascertained in this type of stone disease.

Since 1920 when I first began the intensive study of urolithiasis I have had an opportunity to investigate personally several hundred patients afflicted with urinary stone in its various phases. In each instance a searching inquiry into the previous dietary has led to not a single striking case of vitamin or nutritional inadequacy. Many of these patients who had recurrent stone had at some time lived largely on a diet of milk, eggs, fruit and vegetables, which while adequate in vitamin content, did produce an alkaline urine of more or less intense degree. Milk alone seemed to aggravate the process in certain instances. This is significant in that milk while rich in vitamins, furnishes an abundance of calcium and phosphorus and is a producer of alkaline urine. Certainly there is much to be learned before a vitamin deficient diet can be accepted as a cause of stone in the usual American patient.

Whether the urinary colloids may, under certain metabolic conditions, become inadequate to hold the normal amounts of crystalloids present in the daily urine output in solution and whether in consequence

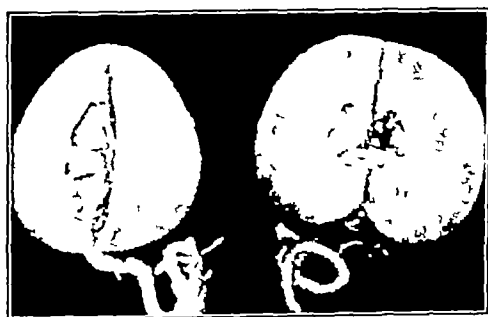


Fig. 1—Hyperexcretory calculosis in a rabbit fed oxamide daily for seventeen days.

of this stone may arise are possibilities concerning which there are no available data. The occasional occurrence of fibrin phosphatic stone is suggestive that fibrinogen, an abnormal colloid, may at times find entrance to the urinary stream and, in being precipitated to fibrin, be associated with calculus formation.

From the clinical side, evidence for the two types of calculosis, namely, hyperexcretory and infectious, is abundant. Uratic calculi are known to be associated with hyperexcretion of uric acid, cystine calculi with the abnormal appearance of a crystalloid foreign to the urinary tract. Recently the high incidence of cal-

cium phosphate calculus in hyperparathyroidism has been noted by Barr, Bulger and Dixon<sup>6</sup> and in an especially interesting group of cases from the Massachusetts General Hospital by Churchill and Cope<sup>7</sup> and by Albright, Aub and Bauer.<sup>8</sup> Hypercalcemia, hypophosphatemia, hypercalciuria and hyperphosphaturia, associated with excessive secretion of parathyroid extract follows clinically an almost identical course

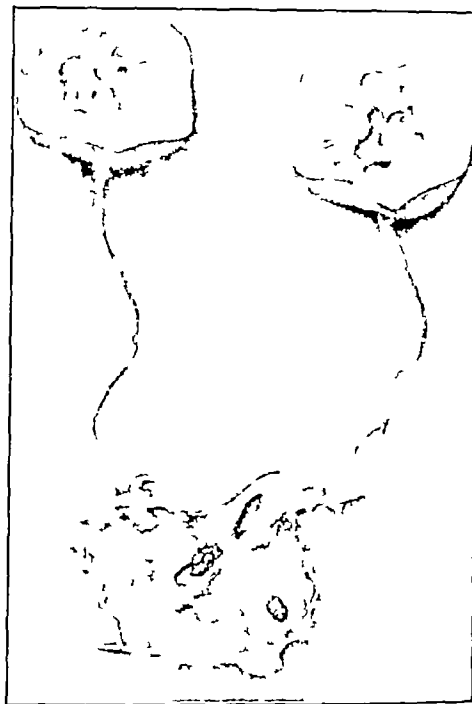


Fig. 2—Hyperexcretory calculosis. Calcium oxalate stones in rabbit's bladder. Result of intense oxaluria produced by injection of N-butyl oxalate and calcium chloride.

with that which I have noted with intense calcium oxalate hyperexcretion in the experimental animal. Excessive crystalline material is excreted, even the renal tubules being clogged with lime salts. This phenomenon was likewise noted with artificial oxalate stone (fig. 4). Certainly hyperexcretory calculosis is approaching the point of establishment as a clinical entity, the chemistry of the stone with concomitant studies of the urine and blood leading to its possible diagnostic recognition.

Likewise the clinical evidence for calculosis from infection with alkaline urea splitting specific streptococci, staphylococci and Proteus organisms is abundant. The works of Rovsing,<sup>9</sup> Hryntschak,<sup>10</sup> Hellström,<sup>11</sup> Hyman,<sup>12</sup> Cifuentes,<sup>13</sup> Legueu and Coidan,<sup>14</sup> Lau<sup>15</sup> and

- 6 Barr, D. P., Bulger, H. A. and Dixon, H. H. Hyperparathyroidism. *J. A. M. A.* 92: 951-952 (March 23) 1929.
- 7 Churchill, E. D. and Cope, Oliver. Parathyroid Tumors Associated with Hyperparathyroidism. Eleven Cases Treated by Operation. *Surg. Gynec. & Obst.* 58: 255-272 (Feb.) 1934.
- 8 Albright, Fuller, Aub, J. C. and Bauer, Walter. Hyperparathyroidism. *J. A. M. A.* 102: 1276-1286 (April 21) 1934.
- 9 Rovsing, C. M. Infection as a Cause for Recurrence Following Operation for Kidney Stone. *Acta chir. Scandinav.* 67: 387-1924.
- 10 Hryntschak, T. Ueber der Rolle der Staphylokokken für die Entstehung der sekundären Harnsteine. *Klin. Wchnschr.* 12: 63-65 (Jan. 14) 1933.
- 11 Hellström, J. Einige Erfahrungen über Anstehung, Wachstum und spontanen Abgang von Nierensteinen. *Ztschr. f. urol. Chir.* 18: 248-1925.
- 12 Hyman, A. Albumin, Fibrin and Bacterial Stones. *J. Urol.* 19: 551 (May) 1928.
- 13 Cifuentes, P. Sur la recidive des calculs du rein. *J. d'urolog. med. et chir.* 26: 289 (Oct.) 1928.
- 14 Legueu and Coidan. Les troubles d'évacuation de basinet et la recidive des calculs. *Arch. urol. de la clinique de Necker.* 6: 175-1928.
- 15 Lau, F. T. Recurrent Calculi in the Urinary Tract. *J. A. M. A.* 84: 272 (Jan. 24) 1925.



others have shown the consistent association of stone forming pyelonephritis with bacterial infection

From such a survey I feel that experimental evidence is now sufficiently correlated with clinical data to justify the acceptance of at least two mechanisms of stone formation as reasonably well established facts, first metabolic hyperexcretion of crystalloids and second infection with biologically specific stone forming bacteria. The first mechanism will produce stones corresponding largely to Albarran's primary calculi and the latter to secondary calculi of earthy phosphates and carbonates. Doubtless other mechanisms will also be shown to be at fault each of them acting in some way to upset the solvent properties of the urinary colloids.

FEATURES OF RECURRENT CALCULI

The recurrence of calculosis following the removal of stone is estimated at from 4 to 25 per cent varying with the series of cases reported. Judd and Scholl<sup>16</sup> and Braasch and Foulds<sup>17</sup> estimated 10.3 per cent recurrence in 1413 cases of renal calculus. 11.8 per cent recurred following pyelolithotomy and 24.3 per cent following nephrolithotomy. Small stones are more likely to be associated with recurrence than larger calculi. Branched stones seem more prone to recurrence than smoother varieties.

Certain individuals seem to be possessed of what may be termed "stone forming kidneys." Their calculi may recur at the same site or at different parts of the urinary tract, first one side being involved and then the other. The removal of calculi is only the starting point for a renewal of the stone forming process.

The most rapid stone formers are those with recurrent ureteral calculi, these probably arising in the kidney above. Another perhaps smaller group tend to confine calculosis to the kidneys and suffer repeated surgical removal of stones at intervals of from months to years. Recurrent vesical calculus is less frequent in incidence. As a rule recurrent concretions are chemically distinct

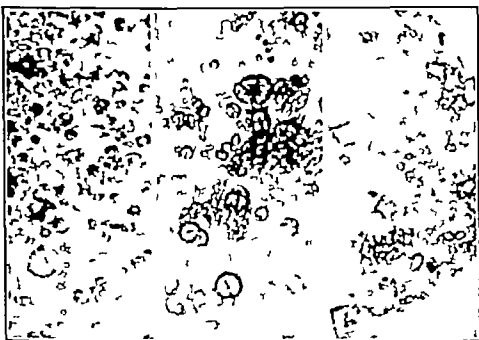


Fig 3—Hyperexcretory calculosis. Small calcium oxalate calculi experimentally produced and crushed on a slide to show crystalline elements in structure. The small fusing spheroids constitute the structural units.

and not mixed varieties and are of the same composition as their predecessors. Most frequently associated with recurrence are phosphates and carbonates. These are most often found associated with infection of coccic or bacillary type and are the variety most often noted with uroastasis, such as vesical neck obstruction, hydro-ureter, hydronephrosis, ectopic kidneys and the like. There is no definite evidence, clinical or experimental, that

urostasis alone will initiate stone formation, but uroastasis does invite and maintain the existence of infection, and when this is a stone forming infection uroastasis, by producing urinary stagnation, will produce rapidity of growth.

On the other hand the evidence for recurrent aseptic calculus of the hyperexcretory type is being more frequently recognized as in the case of cystine and uratic

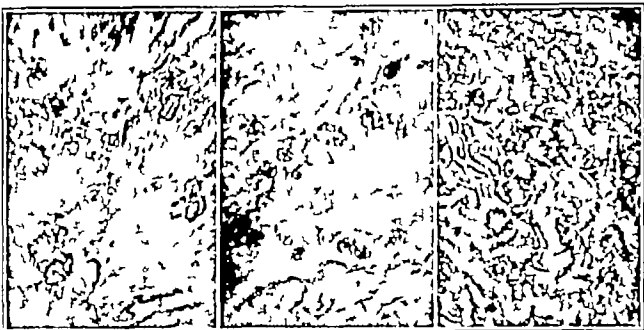


Fig 4—Hyperexcretory calculosis. Oxalate deposits in renal tubules associated with chemical nephritis. A consistent finding in experimental oxalate lithiasis.

calculi and more recently the calcium phosphate stones of hyperparathyroidism already mentioned. Just how often this type of calculus reforms is a question that one must wait for clinical investigation, probably in the near future, to answer.

MEASURES EMPLOYED IN PREVENTIVE THERAPY AGAINST RECURRENCE

Preventive measures against recurrence should be started with the removal of all stones as far as practicable by surgery or cystoscopy. At operation fluoroscopy or immediate kidney roentgenograms should be used, and the avoidance of exposure of suture material to the urinary stream and the insurance of proper urinary drainage should be practiced. In badly infected calculous pyonephrosis the utilization of nephrostomy as developed recently by Cabot is of value.

An immediate qualitative chemical examination of the calculus obtained should be made. A quantitative examination of the various constituents would be ideal but is hardly to be afforded by the average clinical laboratory. As urologic textbooks and manuals of laboratory technique seldom give definite directions for the analysis of calculi, I have modified an outline from two standard works on physiologic chemistry which can be carried out in any clinical laboratory and which has proved of value in my own experience. It is reproduced here in the accompanying table.

Repeated roentgenograms immediately and at periods of from six months to one year should be practiced. A careful study of the patient's metabolism should be carried out with every feature of laboratory diagnosis available. The blood uric acid and now the serum calcium and serum phosphorus seem to be additional data that should be secured as a routine and repeatedly, if one is properly to evaluate the incidence of hyperexcretory calculosis. If hyperparathyroidism is suggested, roentgenograms of the bones and other data pertinent to this disease should be determined.

Dietary regulation<sup>18</sup> with regard to the intake of purines, oxalates or calcium and phosphorus is indicated

16 Judd E. S. and Scholl A. J. Renal Calculus. Collected papers of the Mayo Clinic and Mayo Foundation. 10 303-313. 1924.

17 Braasch W. F. and Foulds G. F. Postoperative Results of Nephrolithiasis. J. Urol. 11 525 (June) 1924.

18 Grant O. and Simpson V. Food Content with Relation to Density and Composition of Stone in the Upper Urinary Tract. South. M. J. 23 628-635 (July) 1930.



according to the predominant chemical found in the chemical analysis of the calculus. A high intake of vitamin A should receive further clinical trial as first suggested by Kerns and Turkeltaub. I have used vitamin A drugs and diet is a routine procedure during the last four years.



Fig 5—Infectious calculosis produced by infection of rabbit's bladder with streptococci from the urine of a stone forming patient. Note encrusted cystitis, dilated ureters and pyonephrosis five weeks after infection.

After every effort has been made to correct the metabolic disturbance present, an intensive and persistent effort to eradicate or to reduce to a minimum the infection should be made. Initial and repeated bacteriologic studies of the urine are imperative. The role of focal infection is not clear. Just why teeth infected with streptococci should produce a stone-forming infection when *Proteus*, colon bacilli or staphylococci are found in the urine is difficult to explain, unless one considers the latter organisms secondary invaders. I agree with Hunner<sup>19</sup> that the chief object of attack is urostatics, and I practice periodic postoperative lavage as a routine with the free use of indwelling catheters and ureteral dilation of bulbs up to 16 F. In spite of sharp controversy concerning this procedure, I feel that it is one of the best therapeutic measures in treating any type of chronic nontuberculous urinary infection. Antiseptic drugs may aid, especially methenamine if the  $p_H$  is kept below 5.6. Neosarsphenamine in certain instances of coccid infection may be tried at times with success.

Finally, the reaction of the urine should be shifted to the opposite of that which is ideal for deposition of the stone. This will mean intense acidification of the urine in the case of oxalatic, carbonate and phosphate calculi, while alkalization will be indicated with uratic and cystine varieties. The urinary reaction should be

made in terms of the hydrogen ion concentration, numerous small determinators such as the one put out by the LaMotte Company being available for office use. If such apparatus is not at hand, the use of methyl red paper as an indicator is of value.

The hydrogen ion concentration of the urine is a great factor in aiding the urinary colloids to maintain solution. That acid urines are clear and alkaline urines are clouded with phosphates and carbonates is a matter of common knowledge, and each chemical constituent of stone has its ideal range for crystalline precipitation. In maintaining an intense acidity ammonium nitrate and chloride dilute aqua regia, and the ketogenic or an acid ash diet are available and usually will bring the urinary reaction to a point below  $p_H$  5, this being only slightly influenced by the morning alkaline tide and that following ingestion of food. A diet rich in acid ash may be used if this does not interfere with other dietary considerations already mentioned. The ketogenic diet affords in addition to its urinary acidifying properties the best antiseptic for bacilluria, as has been demonstrated by Helmholtz and Clark.<sup>20</sup> In many cases it acts almost as a specific for this type of infection and with acidifying drugs pushed to the point of gastro-intestinal tolerance will possibly dissolve crystalline material and minute fragments. The coccid infections are most persistent and respond poorly to any treatment with which I am familiar. Neosarsphenamine intravenously will occasionally give a brilliant result.

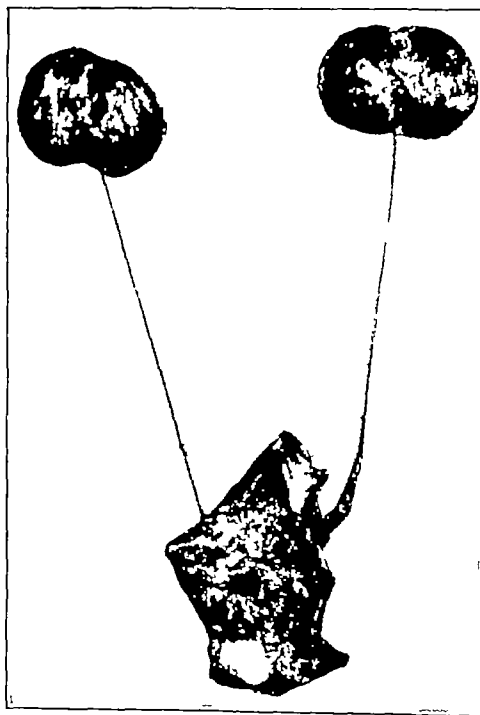


Fig 6—Infectious calculosis produced by instillation of streptococci from the urine of a patient with a stone-forming kidney four weeks after infection. The process appears to start with a deposition of lime salts in necrobiotic epithelium.

On such a basis I have treated seventeen cases of recurrent calculosis, sixteen of which I reported in detail last year. The seventeenth case, a patient with recurrent phosphatic ureteral calculi, has been free from stone now for one year and may be added to the group.

<sup>19</sup> Hunner G. L. Calculus of the Upper Urinary Tract with Special Consideration of Recurring Stone Formation. *Tr. Western Branch American Urological Association* 2: 65-87, 1933.

<sup>20</sup> Clark A. L. The Ketogenic Diet in the Treatment of Urinary Infections. *J. Urol.* 31: 193-205 (Feb.) 1934.

These patients presented the syndrome of recurrent calculosis in intense degree and the cycle of their recurrence has been definitely broken for periods of from one to nine years. None of the seventeen have had a recurrence during the past year. Eleven are absolutely free from pus and bacteria in the urine. A minor degree of infection persists in six. Whether these results can be repeated and maintained in a larger series of cases remains for the future to show, I feel, however, that this type of clinical management sets a precedent in breaking the cycle of recurrent stone which has not hitherto been attained.

#### THE POSSIBILITY OF DISSOLUTION OF CALCULI

Recently interest has been revived in the possibility of dissolution of calculi. Randall's<sup>21</sup> introduction of phosphoric acid in the treatment of incrustations and of small fragments is noteworthy and a distinct contribution to the subject. My own experience with phosphoric acid in solution of from 1 to 2 per cent has not been encouraging as I have had several severe reactions from renal lavage with this drug.

During the past year I have studied the solution of stones of the phosphatic and the carbonate type in



Fig. 7—Large carbonatic calculous pyonephrosis in right kidney treated by nephrectomy. Recurrence in left kidney after thirty days. Streptococcal infection. Reduction in size of calculous mass with two small fragments remaining after thirty days of urinary acidification and pelvic lavage with phosphoric acid.

the test tube with a series of weak organic acids. These included tartaric, lactic, malic, citric, acetic and trichloroacetic acids in various combinations. A study of the solvent action of caroid, pepsin and urea alone and in combination with these acids in dilutions of from 1 to 3 per cent has also been made. While these studies are to be reported elsewhere, I may say briefly that all these acids exert a moderate solvent action at incubator temperature. Much depends on the density of the stone, however. The outer layers dissolve as a rule rather rapidly, but as the inner layers and nucleus are approached one reaches a point at which dissolution is much delayed or brought to a standstill. One phosphatic calculus of 2,800 mg. was reduced to 1,800 mg. in twenty-four hours with a mixture of tartaric, malic and lactic acids, each in 1 per cent strength. Within wide limits not so much seems to depend on the acid used as on the density or compactness of the calculus.

Clinically it is difficult to apply acid solutions to the surface of calculi for any length of time by catheter irrigation. Continuous irrigation with phosphoric and malic acids has resulted after a short time in ureteral or vesical spasm which becomes intolerable to the patient and invites a severe inflammatory reaction. Malic acid has been used satisfactorily in strengths of

from 1 to 3 per cent in dissolving phosphatic incrustations and seems less irritating than phosphoric acid of similar strength and is, to my mind at present, the acid of choice. By mouth, Wise<sup>22</sup> found malic acid to be nontoxic in dogs and to be excreted from 20 to 40 per cent unchanged in the urine. In doses of from 8 to 16 mg. daily it is not, however, a good urinary acidifier, as the amount of alkali carried through from neutralization in the intestine tends to offset the acid portion that is excreted unchanged.

To Crowell<sup>23</sup> is acknowledged the distinction of first dissolving urinary calculi by purposive therapeutic means. In dealing with recurrent cystine calculi, he caused their dissolution by intense urinary alkalinization and renal lavage with alkaline drugs.

Three cases of partial or complete solution of stone in situ have been noted in my own experience, setting a precedent in the purposive dissolution of alkaline earth calculi. In the first, a woman suffered a marked recurrence of carbonate stones in a previously stone free and uninfected left kidney, three weeks after right nephrectomy for calculous pyonephrosis (fig. 7). The urine, which had previously been alkaline and loaded with amorphous carbonates, was acidified by dilute aqua regia, ammonium chloride and nitrate by mouth, along with an acid ash diet to  $pH$  4.5, where it was maintained over several months. Disintegration of calculi with the passage of multiple stones through the ureter ensued, with roentgen evidence of diminution of the calculous mass. A crystal clear urine was usually passed. However, two small fragments resisted ureteral dilation and lavage with 1 per cent phosphoric acid, until finally pyelolithotomy had to be done. Urinary acidification with postoperative renal lavage has been carried out over eighteen months. The patient has had no further recurrence but still presents a stone forming streptococcus in the urine that produces calculosis in experimental animals. The case is strong evidence for the prevention of recurrent alkaline earth stone by maintenance of acid urine.

A second case presented repeated recurrent phosphatic ureteral calculi of small size. Urinary acidification in a similar manner quickly brought about dissolution of a small ureteral calculus, and the patient has remained stone free over three years.

A third patient, a man aged 32, had a recurrent small phosphatic calculus in the left kidney after two years (fig. 8). A stone was present at the ureteropelvic juncture. Malic acid, an acid ash diet and ammonium nitrate by mouth together with renal lavage with 2 per cent malic acid visibly reduced the stone in size roentgenographically, and after two weeks a small residual fragment was passed by way of the ureter.

Sufficient time has not elapsed and a sufficient number of cases have not been observed to furnish a positive evaluation of this treatment, but these occasional results are noteworthy and I hear of similar isolated cases from time to time. Dr. Higgins's excellent results with an acid ash high vitamin A diet are encouraging. The true significance of the vitamin A content is to my mind a matter yet to be evaluated. Progress along the line of solution of calculi is necessarily slow, and the ideal solvent has not yet been determined. However, from what has been learned of urinary calculus,

<sup>22</sup> Wise, L. F. Elimination of Valates After Subcutaneous Injection of Sodium Valate. *J. Biol. Chem.* 28: 185 (Dec.) 1916.  
<sup>23</sup> Crowell, A. J. Cystine Nephrolithiasis. Report of Case with Roentgenographic Demonstration of Disintegration of Stone by Alkalinization. *Surg. Gynec. & Obst.* 38: 87-91 (Jan.) 1924.

<sup>21</sup> Randall, A. Prevention of the Recurrence of Urinary Calculi. *Am. J. Surg.* 18: 482-493 (Dec.) 1932.

It is possible now to make purposive efforts in the therapy of dissolution, especially in cases of bilateral alkaline earth calculi or stones in single kidneys when operation would be hazardous.

In looking to the future, one may approach the problem of urolithiasis with more confidence than has been done in the past. The hypersecretory and infectious types of lithiasis are almost certainly established as clinical entities. Research is being actively carried out to show the relationship of vitamin deficiency to the disease. A newer concept of the role of urostrasis is being brought forth. As to the reasons for form, size, rate of growth and site of calculus deposition it is necessary as yet to speculate. The conditions determining these features of calculous disease are beyond present comprehension but will doubtless be clarified when a better understanding of the physiochemical variations of this anomalous form of crystalline deposition is reached.

NOTE.—A word of warning should be given with regard to overzealous administration of urinary acidifying drugs. Occasional cases of acidosis and nephritis are noted. Hence, extreme caution should be used when the total amount of acidifying salt administered in twenty-four hours exceeds from 5 to 8 Gm. Even this dosage may be excessive if renal insufficiency is present.

Medical Arts Building

# ABSTRACT OF DISCUSSION

DR. GEORGE H. EWELL, Madison, Wis. Vitamin deficiency produces marked changes in the urinary tract. Reddiwell published a paper several years ago on the possible relation of vitamin deficiency to leukoplakia and alkaline incrustation of the bladder. To my mind Reddiwell's ideas are more applicable than those of vitamin deficiency to stone formation in the human being. Osborne and Mendel clearly pointed out in their experiments that in all cases in which the rats developed calculi they were without an adequate source of the vitamin for an extended period. I cannot believe that even in these times of economic distress our patients are so lacking in vitamins as the specific diet to which these laboratory animals were subjected. Fragments of stone left at operation have been very properly stressed. Dr. Stevens showed a slide of a case in which fragments had been left for six years without any further development. It is apparent that other factors play a part. The mechanism of the production of stone by stasis and infection is not known. The hypothesis that the stone forms around bacteria and desquamated epithelium as a nidus explains the appearance of only a few stones. The hypothesis that infection upsets the colloid-crystalloid mechanism of the urine explains a greater incidence of stone as due to infection and stasis. Alkalmuria has been considered to be due to the type of infection present. Dr. Clark stated that in many of his cases of chronic urinary tract infection, in spite of large doses of acidifying drugs, he was not able to change the hydrogen ion concentration very much to the acid side. I have observed several cases of chronic urinary tract infection in which, in spite of the administration of large doses of acidifying drugs the urine remained alkaline. Those patients were subjected to gastric analyses and one patient was found to be lacking in free hydrochloric acid with a low total acidity, while the rest had marked diminution in total acidity. Their urine promptly became acid when hydrochloric acid was administered by mouth. I believe that their urinary tract infection was a part of a general disturbance in metabolism and their alkaline urine due to the hypochlorhydria and not to the type of infection that happened to be present. Two years ago before this section, I presented a paper on cystine nephrolithiasis. Cystine stones are often found in cases of recurrent urolithiasis, and cystine stones also occur in conjunction with other types of stones.

DR. FRANCIS P. TWINEM, New York. Dr. Keyser, who has been at the forefront of investigators in this problem has covered this subject in a complete manner. Decades ago Ord

showed that he could change noncoalescent calcium oxalate crystals into the coalescent form by changes in the relative proportions of colloids and crystalloids in the urine, and Shattock later showed that the coalescent variety of crystals was at the basis of calculus formation. Deficiency in vitamin A is only one factor in calculus formation. It does not explain many vagaries of geographic distribution. Dr. Keyser stated that in Punjab, India, calculosis is exceedingly common, while in other districts, in which the diet is equally deficient in vitamin A stones are rare. One geographic point that agrees with this idea however, is that investigators among the Eskimos have said that they never saw a full-blooded Eskimo with a renal calculus. However, in Iceland, among the Norwegian population in which the consumption of vitamin A is probably very high stones are common. Any theory of calculus formation should also take into consideration the fact that stones are usually found in only one kidney. About 87 per cent of cases in the series that I studied in the New York Hospital showed stones only on one side. When one considers the

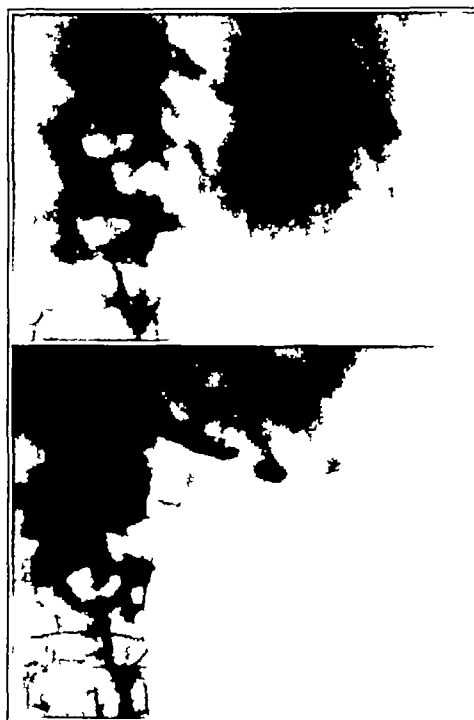


Fig. 8.—Recurrent phosphatic calculus at left ureteropelvic juncture. Intravenous urogram lightly retouched. Reduction in size of stone after one week of urinary acidification and lavage with malic acid. The patient passed a stone two weeks later with no other treatment.

factors of metabolic disturbances and vitamin A deficiency one would expect that these factors would apply equally to the two sides. There must be some other factor involved to account for the frequency of unilateral involvement. As to the frequency of recurrent calculi Rongiersma found nine recurrences out of sixty-one cases in aseptic stones. However in cases of infection the recurrences amounted to twenty-one out of thirty-nine cases. Rovsing found 40.3 per cent of recurrence in 109 cases. In the series of more than 200 cases that I investigated the proportion is about 15 per cent of recurrence in the aseptic or but slightly infected cases, and about 30 per cent in the cases showing infection with urea splitting organisms. Rongiersma found that, in primary nephrectomy for unilateral calculous disease recurrence occurred on the opposite side in only one case out of fifty-three. In these cases the metabolism of the individual was not changed at all, the same situation was still there as regards diet, and yet only one case out of fifty-three showed a recurrence of calculus. A large percentage of recurrence is due to wrongly preserving a badly infected kidney, a kidney infected with urea splitting organisms. I feel that a nephrostomy in an aseptic case is seldom indicated by reason of the fact that an infection nearly always supervenes. I wish to emphasize the

taking of roentgenograms on the table in cases in which there are several stones or a large, easily fragmented staghorn calculus. The analysis of the stone is important, and in my service we do this without exception. A patient whom I observed had six operations for phosphatic calculi. The urine was alkaline and was changed to acid. That patient has now gone a period of ten years without recurrence.

DR LINWOOD D. KRYSTER, Roanoke, Va. Dr Twinn has been rather insistent that there are probably a number of factors in calculus formation, and with this I agree. The attempt to centralize on one factor is likely to cause trouble. Dr Randall of Philadelphia expressed an opinion at Atlantic City which is consistent with clinical and experimental facts. He felt that there must be dissolution of the mucous membrane at some point in the urinary tract, a point of irritation or of lowered resistance before any type of calculus can take place. I have long held a similar concept of stone disease. Whatever mechanism of stone formation is at fault, whether this is impregnation of lime salts in necrobiotic tissue as in the case of artificial infectious calculus, whether it is keratinization of urinary tract epithelium as in the case of vitamin A deficiency stone, or whether it is crystalline hypersecretion, in each instance there will be some pathologic change in the epithelium that is probably essential for the process. Such a concept may explain in some measure the unilaterality or bilaterality of calculi or their formation and recurrence at specific sites.

## THE MEDICAL AND SURGICAL TREATMENT OF CALCULOUS ANURIA

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Calculous anuria, the term used to denote suppression of urine due to a stone in the kidney or ureter, occurs under the following circumstances:

1 Two secreting kidneys may have both ureters or pelves blocked simultaneously, either synchronously or one following the other.

2 A single secreting kidney may be blocked, the other (a) being imperfectly developed, (b) having been destroyed by disease or (c) having been previously removed.

3 Both kidneys or a double kidney may have a fused single ureter, which may be blocked by a calculus.

4 Two kidneys apparently normal may have one kidney blocked and the other failing to secrete reflexly the so-called renorenal reflex block.

I have added twenty-two cases from the Squier Urologic Clinic to the collection of 355 cases obtained from the literature by Rubritius. On his basis of analysis these 377 cases are tabulated (table 1).

Diagnostically, in my experience, the pain and anuria have been the most important symptoms. Cystoscopy, in conjunction with retrograde injection pyelograms, was the most important diagnostic procedure. Intravenous urograms were not satisfactory. The kidneys failing to secrete the dye gave no roentgenographic shadows. In nine of the twenty-two cases, or 40 per cent, there was no calculus shadow on the roentgenogram of sufficient density to make a diagnosis.

In the treatment of calculous anuria the first step was to relieve the obstruction. The various procedures for the relief of the obstruction were:

1 Cystoscopy and extraction of the calculus.

2 Insertion of a ureteral retention catheter past the obstruction with later extraction of the calculus.

3 Ureterotomy with removal of the calculus.

4 Pyelotomy with removal of the calculus.

5 Nephrostomy, single or double, with or without removal of the calculus.

In two cases, or 11 per cent, it was possible to use the cystoscope and extract the calculus. In one, a case in which anuria had existed for forty-eight hours without infection there was an impacted calculus in the orifice of the only functioning ureter, from which it was possible to dislodge and remove the calculus on the first examination. The second case was one of reflex or toxic anuria in which the patient had been anuric for six days, for four of which he was under treatment for circulatory collapse, with endeavors made to stimulate the unobstructed kidney. At the first cystoscopy possible to be made, the obstructing calculus in the ureteral orifice was dislodged and removed followed by rapid recovery of the patient. This procedure, when it can be performed, offers the shortest method of relief. One additional case presented an anuria of two stages. The first stage was an anuria of two days from a block of the only kidney, with relief on the passage of the calculus into the bladder, only to become lodged in the urethra totally obstructing it. The calculus was removed from the urethra with a Howard spiral stone dislodger.

In three cases, or 14 per cent, it was possible to pass a ureteral catheter by an obstructing calculus in the ureter of a solitary kidney. Two of these calculi were in the lower ureter and one in the upper ureter. All were uninfected and the two in the lower ureter were primary calculi. The catheters were left in place to drain the kidney, which they did successfully. In the two lower ureteral calculi, on removal of the catheter after twenty-four hours had elapsed, the calculi were successfully passed and to date there has been no recurrence. In the case with calculus in the upper ureter the catheter dislodged the calculus back up the ureter, leaving the kidney unblocked. This case, one of cystine stone, showed a rapid increase in size of the calculus and a descent seventeen days later with recurrence of the anuria necessitating a ureterotomy for relief. To date there has been no recurrence of calculus. In several other cases it was possible after considerable manipulation to pass a small catheter by the obstructing calculus but no therapeutic value could be obtained by the use of the catheter because these cases were associated with infection and drainage was effected through the catheters with difficulty. Eisen-drath reported good results in catheter drainage of some anuric patients, and it may be of benefit in the preparation of these cases for operation to lessen the risk.

Ureterotomy with removal of bilateral calculi was done in two cases or 10 per cent. One presented bilateral calculi in the lower ureter with a four day anuria and infection. Drainage was attempted by cystoscopy and catheter without success. The calculi were removed by a midline bilateral pelvic ureterotomy, followed by drainage. The operation was followed by paralytic ileus, septicemia and death. The second case presented a pyelolithotomy with decapsulation of one kidney for a calculus obstructing the pelvis and a ureterotomy with removal of a calculus from the lower ureter on the opposite side. This case was of long standing anuria with infection and the operative procedure was followed by septicemia, exhaustion and

death. Autopsy showed a perinephric abscess and multiple abscesses throughout the parenchyma of the untouched kidney, unrecognized clinically because of stupor and toxemia.

Experience with these two cases, in contrast to the three similar cases in which the calculus was ignored at first and a nephrostomy with renal decapsulation performed, all three followed by recovery, confirms the

TABLE 1—*Calculus Anuria*

Condition	Number	Per Cent
1 Bilateral calculi	92	21.4
2 Unilateral calculi		
(a) Opposite kidney diseased	4	11.9
(b) Condition of opposite kidney unknown	3	14
(c) Opposite kidney absent, removed or aplastic	12	31.9
(d) Reflex inhibition of opposite kidney	1	1.6

belief based on experience and previously expressed in my reported cases, as well as the belief of other writers, that, when anuria is severe or associated with infection, drainage is the safer procedure. Removal of the calculi would seem to be the first necessary step, but the risk of having unrecognized renal damage or infection that is masked by the toxemia is too great. Nephrostomy with drainage in this type of case is better surgery.

Pyelotomy or ureterotomy near the pelvis with removal of the calculus was done in four cases, or 18 per cent. In all these, the kidney had not been previously operated on and they were all classified as uninfected. In all, the renal area was exposed and the kidney freed and examined. The renal fossa was drained to care for the perirenal edema. Recovery was rapid in these four cases and to date there has been no recurrence. Technically the procedure was simple except for the marked edema of the perirenal tissues obscuring the field, and they were all practically bloodless.

A combination of pyelotomy and nephrostomy was done in three cases or 13 per cent. These were all recurrent calculi and in all there was a clinical evidence of infection. The cases presented multiple calculi in addition to the obstructing ones. The calculi were removed from the kidneys through the pyelotomy incisions, but the nephrostomies were done for better drainage, for longer drainage and for intrarenal lavage. Two of these patients had a recurrence of calculi with

TABLE 2—*Urea Retention from the Blood*

6th day	Urea	230 mg	per hundred cubic centimeters
6th day	Nephrostomy		
8th day	Urea	153 mg	per hundred cubic centimeters
10th day	Urea	48 mg	per hundred cubic centimeters
15th day	Urea	21 mg	per hundred cubic centimeters

anuria. In both cases, drainage by nephrostomy was again done. The infection in each persisted in spite of drainage, lavage and medication, accompanied by slow deterioration of renal tissue. Death finally resulted from exhaustion and infection. One patient has continued on drainage with a functioning kidney but with persistent renal infection. This is apparently made worse by intrarenal lavage and progresses satisfactorily without it.

Nephrostomy was done in eight cases, or 36 per cent. Of these, three were cases of calculi in kidneys not

previously operated on. In these three cases, the calculus in the ureter was ignored at the time of nephrostomy, and in two the calculi were passed spontaneously while the nephrostomy was draining. The third necessitated a ureterotomy and removal of the calculus while the nephrostomy was draining. None of the patients were considered to be infected clinically. All have been well to date—two for six years and one for three years. Four patients had calculi in the kidneys not previously operated on, but in all evidence of severe infection was present. Of these, one recovered from a toxic suppression or a renoreflex suppression and has been alive seven years without recurrence. Two patients were seen in the terminal stages of obstruction and they failed to survive the nephrostomy. In the last of these four cases, nephrostomy was performed three times for anuria with infection and recurrent calculi. The last nephrostomy was made permanent and the patient survived three months. Autopsy showed that the kidney had developed a thick inflammatory exudate covering the entire pelvis and calices and obstructing all the collecting tubules. One of these eight patients had two attacks of anuria, both relieved by nephros-

TABLE 3—*Rate of Increase and Decrease of Blood Urea*

	Urea Mg per 100 Cc.	Creatinine Mg per 100 Cc.	Carbon Dioxide Coefficient
3d day	78	5	
3d day Nephrostomy			
5th day	95		
7th day	116	12	31.5
9th day	103		
10th day	94.5	9.5	40.0
11th day	87	8.4	30 *
11th day			49 †
14th day	77		
16th day	64		44
20th day	33		47
33d day	20		50.4

\* Before bicarbonate infusion

† After bicarbonate infusion

to my. Under treatment he has been well and free from recurrence for eight years.

In cases of bilateral obstructions, the operation on both sides was done at one sitting. The last obstructed kidney was always operated on first. This was done on the supposition that this kidney would be the least damaged and, if any operative accident prevented the relief of the second kidney, temporary function at least would be restored.

Following relief from obstruction there were marked changes in the patient's symptoms. Before operation the patient usually showed a dry skin and lack of thirst, after operation there was profuse sweating and return of thirst. In the uninfected cases there was rapid secretion of urine and the elimination of the increased urea retention from the blood, for example, uninfected block with recovery (table 2).

In the infected cases secretion often did not start until twenty-four or forty-eight hours or more after the nephrostomy. It was assumed that it was necessary for the renal tissue to be relieved of the edema and infectious tissue exudate before its proper physiologic function could be resumed. In all these cases the blood urea increased for a variable time usually several days, before beginning to fall. The fall was then at a regular rate, for example a case, infected, with three days anuria (table 3).



tion of urinary salts C H Mayo<sup>4</sup> often has directed our attention to the question of stagnation and infection, and he regards the kidney as an organ of filtration which is constantly eliminating bacteria from the circulation This hypothesis of infection he considers the only tenable one, and he contends that the development of stones requires the presence of two types of bacteria, one of these produces hematogenous infection, whereas the other may come from a local focus Bacteria of the stone-forming type must come in contact with the mucoid exudate when the latter is present in the kidney as a result of the first infection Rovsing<sup>5</sup> expressed the opinion that urea-splitting organisms account for 71 per cent of the recurrences of stone, and that nephrectomy should seriously be considered in renal lithiasis when a urea-splitting organism is found unilaterally This seems to us in view of present methods of postoperative care a radical procedure and not justified

There is no doubt that stasis and infection are contributory causes in many cases of nephrolithiasis, but the exact influence these factors exert is not clear The frequency of formation of stone associated with obstruction of the urethra and of the vesical neck, with diverticula of the bladder, and with incomplete obstruction at the ureteropelvic juncture certainly is presumptive evidence of the etiologic influence of faulty drainage in cases of renal lithiasis Infection is associated with faulty drainage in most instances Livermore<sup>6</sup> and others hold that it is only of academic interest how the infection gets into the urinary tract, whether by way of the blood stream or by stasis from ureteral stricture, ptosis of the kidney, tumors of the kidney, faulty metabolism or dietary indiscretion, any of these may cause sufficient irritation to the renal pelvis to allow infection to gain a foothold and to furnish the nucleus of blood or pus on which crystals may deposit Hunner<sup>7</sup> and Mathe<sup>8</sup> regard ureteral stricture as an important factor in the cause of formation of stone That this theory is difficult to prove has been pointed out by Braasch<sup>9</sup> in that it is quite as difficult to say whether stricture found at operation is primary or secondary as it is to determine its presence clinically In addition, renal or ureteral stone is so often found without any evidence of stricture that it can hardly be a common etiologic factor

Keyser<sup>10</sup> is of the opinion that there is sufficient clinical evidence to show that stasis is not the primary factor Stirling<sup>11</sup> in discussing renal stones, noted their presence in only 15 per cent of cases of prostatic obstruction, and he found that vesical diverticula, ureteral strictures hydronephrosis, ulcerations of the bladder and infections of the urinary tract without stasis, in general are more often found without calculus than with it He expressed the opinion, however, that when the stone-forming mechanism is present, when crystals are being deposited by infection or by colloidal

disturbances, it can easily be understood how stagnation enhances their retention and growth

#### DIETETIC FACTORS CAUSING STONE

Careful study of the experimental work of McCarrison<sup>12</sup> on the formation of renal stones in rats and cattle in India, and his clinical observations on this disease among the various peoples of India, leaves no doubt that there is some evidence of a relationship between a deficiency of vitamin A and the formation of urinary calculi Furthermore McCarrison noted that, if vitamin C was removed from the diet along with vitamin A, a greater influence on stone formation was produced and if earthy phosphates were added to this diet deficient in vitamins, the rate and degree of calculus formation was increased The mechanism involved is not settled, but a fairly clear explanation is the serious injury that occurs to the urinary epithelium in the presence of a deficiency of vitamin A It is quite probable that the desquamated, keratinized epithelium from the urinary tract may form the nidus around which deposition of stony material occurs The stones produced experimentally nearly always are of the calcium phosphate variety The interesting point in this connection is that they are nearly always associated with infection Joly regards the formation of stone following a deficiency in vitamin A as resulting from some action on the urinary colloids that reduces their power of holding stone-forming salts in solution

#### THE ROLE OF PROTECTIVE COLLOIDS

Ebstein<sup>13</sup> was the first to draw attention to the importance of the colloids in stone formation, and he was of the opinion that colloids were the primary factor and crystalloids the secondary factor in their production Rainey and Ord,<sup>14</sup> however, previously had pointed out that crystals formed in solutions containing colloids differed from those derived from pure water solutions From the work of Ord and Shattock,<sup>15</sup> who laid down the physical principle that colloidal matter in vitro modified crystalline morphology, and from the microscopic studies of oxalate and urate calculi by Ord,<sup>16</sup> who concluded that they were made up of a variety of fused crystals, it appears that the power of the urine to hold the water-insoluble salts of stone in solution is due to protective colloids These physical principles have been confirmed by Lichtwitz<sup>17</sup> and Schade<sup>18</sup> Joly expressed the belief that, in general, both crystalloids and colloids are essential in the production of stone and that it is incorrect to assign a principal part to either of them, too, that this is the generally accepted opinion

Keyser has caused calculi to be formed in the urinary tract by producing excessive excretion of urinary crystalloids in such an amount that the protective colloids could no longer take care of the solution of the crystals

These observations indicate that the prevention of calculi is dependent on protective colloids in the urine

4 Mayo C H Renal and Ureteral Stone Internat J Med & Surg 42: 613 615 (Dec) 1929

5 Rovsing C M On Infection as a Cause of Recurrence Following Operations for Kidney Stone Acta chir Scandinav 57: 387 395 1924

6 Livermore G R Nephrolithiasis South M J 18: 603 607 (Aug) 1925

7 Hunner G L Calculus of the Upper Urinary Tract Treated by New Methods End Results J Urol 20: 61 81 (July) 1928

8 Mathe C P The Present Day Management of Stone in the Kidney J A M A 96: 657 664 (Feb 28) 1931

9 Braasch W F Clinical Data in Cases of Renal Lithiasis Illinois M J 47 284-287 (April) 1925

10 Keyser, L D Urinary Lithiasis Its Cause and Prevention An Evaluation of Contributions to Our Knowledge During the Past Decade South M J 25 1031 1040 (Oct) 1932

11 Stirling W C Kidney Stone Review of Thirty Five Cases J Urol 18 259 268 (Sept) 1927

12 McCarrison Robert The Causation of Stone in India Brit. M J 1: 1009 1015 (June 13) 1931

13 Quoted from Joly<sup>1</sup>

14 Ord W M and Shattock S G On the Microscopic Structure of Urinary Calculi of Oxalate of Lime Tr Path Soc. London 46 91 132 1895

15 Ord W M Some Experiments Relating to the Forms Assumed by Uric Acid London St Thomas Hosp Rep 1: 335 348 1870 An Account of Some Experiments Relating to the Influence Exercised by Colloid upon the Forms of Inorganic Matter ibid 2 122 1871 On Molecular Coalescence and on the Influence Exercised by Colloids upon Forms of Inorganic Matter Quart J Mier Sc 12 219 239 1872

16 Lichtwitz N and Rosenbach Otto Untersuchungen über Kolloide im Urin, Ztschr f physikal Chem 61: 112 118, 1909

17 Schade H Beiträge zur Konkrementbildung München med Wehnschr 56: 77 80 (Jan 12) 1909

When crystalloids are abnormally excessive, colloids may be unable to retain them in solution thereby resulting in formation of calculi. Likewise if the protective power of the colloids is interfered with, as Keiser stated, by the production of abnormal colloids that may arise from metabolic sources or from the product of bacterial inflammation, then calculus formation may result.

#### HYPERTHYROIDISM

Studies on the parathyroid bodies recently have served to increase the probability that renal lithiasis is in some fashion linked to disturbances in metabolism. Albright, Aub and Bauer<sup>18</sup> relate that hyperparathyroidism is almost unique in giving the combination of a high level of serum calcium and of a low level of serum phosphorus which is accounted for by an increased production of the hormone of the parathyroid bodies which in turn produces a disturbance in the metabolism of calcium and phosphorus. The manifestation of this metabolic disturbance also is revealed by an increase of both calcium and phosphorus in the urine. Polyuria and polydipsia are noted in nearly all cases and are attributed to the increased excretion of calcium and phosphorus. A similar observation was made by McCarrison in his feeding experiments on rats. This increase of calcium and phosphorus in the urine may lead to the formation of urinary calculi. Albright and Baird<sup>19</sup> found twenty-three instances of this in a series of eighty-three cases. Moreover, the calcium phosphate was deposited in the parenchyma of the kidney, so that the renal pyramids were sometimes outlined by a flat roentgenogram of the abdomen. Of seventeen cases of hyperparathyroidism reported by Albright, Aub and Bauer, in ten urinary calculi were present, whereas in seven the only symptoms were those pertaining to calculi and in five of these seven there were no evidences of bone disease. This observation seems to us important, if one is seriously to consider disturbance in metabolism as an etiologic factor in the production of renal stones. Eight of these seventeen cases of hyperparathyroidism were discovered as a result of doing routine calcium and phosphorus determinations on all patients with urinary calculi. Albright and his associates were inclined to deduce from the foregoing evidence in their group of cases that hyperparathyroidism will turn out to be a fairly common cause of urinary stone.

Dysfunction of the parathyroid bodies is now definitely associated with a rather high incidence of renal lithiasis, which is fundamentally the result of disturbed calcium and phosphorus metabolism. It is not unlikely that urinary stones associated with long disability incident to fractures, arthritis and other conditions may have a similar etiology.

#### GENERAL SURGICAL CONSIDERATIONS

The indications and the type of operation for the removal of a single stone that is too large to pass spontaneously have been fairly well standardized. In the past, nephrolithotomy was the operation of choice for removal of a renal stone, but except for a stone or stones situated just beneath the renal capsule or impacted high in one of the calices, pelvolithotomy is now the

preferable procedure. This especially is true for the single stone that is situated in the renal pelvis. By careful manipulation, many single or multiple stones situated in the calices can also be removed through incision of the renal pelvis. Removing stones through the renal pelvis does not destroy important structures, large blood vessels are not divided and a satisfactory anatomic closure can be obtained. Urinary fistulas very rarely follow this procedure. Pelvonephrolithotomy is used to distinct advantage when a stone is impacted in a calix, or if there are branches extending into one or more calices. By introducing the finger through the pelvic incision, the stone or stones can be pushed toward the cortex, which not infrequently is scarred or somewhat thin over this region and, by making a small incision through the cortex or by using a pointed forceps as advocated by Judd and Scholl,<sup>20</sup> the stones can quite easily be extracted. When an upper or lower calix has been greatly dilated by the presence of large or multiple stones and accurate drainage cannot be reestablished, Herbst<sup>21</sup> advised resection of that portion of the kidney. Occasionally the renal pelvis is small or mostly intrarenal. In such cases more of the pelvis can be exposed by gentle retraction of the parenchyma with a flat ribbon retractor, thereby greatly facilitating removal of stones from such pelves.

Which surgical procedure is best in the management of multiple stones cannot be dogmatically stated, since the choice of procedure must be governed largely by clinical judgment in a given case. In the past decade there has been a decided tendency toward conservative surgical measures for renal stones. It is a simple procedure to remove a kidney for stone, but it requires much experience and several technical aids to remove all stones or stony fragments and to preserve the kidney. In the presence of extensive infection with great destruction of renal tissue nephrectomy is the wisest procedure. This particularly is true if the opposite kidney is normal. Nephrectomy for single or multiple stones without infection should be condemned.

Conservative operations depend on the type, size and situation of the stones, the presence or absence of infection, status of the opposite kidney, whether or not the stones are bilateral or unilateral, on renal function, and on the general condition of the patient. An elderly patient with renal stones, for whom operation would be a great risk and who is not having many symptoms, should not be subjected to operative treatment. Cardiac lesions of the coronary type, even in middle life, must be regarded as an important contraindication to surgical removal of renal stones of the silent type. The risk of the cardiac lesion may be greater than that attending removal of stones.

Considerable controversy still exists regarding management of the stag-horn or coral-form type of stone. The reason is that they often are symptomless and are discovered only during routine examination, their removal usually has been difficult and attended with considerable destruction of renal parenchyma. Mathe<sup>22</sup> advised that, if a patient presenting coral-shaped stone of one or both kidneys gave a history of passing fragments, operative intervention should be instituted at once. In proof of his statement he cited five cases in which fragments broke off and produced obstruction in

18 Albright, Fuller, Aub, J. C. and Bauer, Walter. Hyperparathyroidism: A Common and Polymorphic Condition as Illustrated by Seven Proven Cases from One Clinic. *J. A. M. A.* 102: 1276-1287 (April 21) 1934.

19 Albright, Fuller, Baird, P. C., Cope, Oliver and Bloomberg, Esther. Studies on the Physiology of the Parathyroid Glands. IV. Renal Complications of Hyperparathyroidism. *Am. J. M. Sc.* 187: 49-65 (Jan.) 1934.

20 Judd, E. S. and Scholl, A. J. Renal Calculus. *Texas State J. Med.* 20: 434-439 (Dec.) 1924.

21 Herbst, R. H. Recurrent Renal Calculus. Its Cause and Prevention. *Tr. Chicago Urol. Soc.* 1: 73-80 1931.

22 Mathe, C. P. The Management of Stone in the Solitary Kidney and Ureter. *Surg. Gynec. & Obst.* 52: 79-86 (Jan.) 1931.

various portions of the ureter, necessitating emergency procedures. The late Dr Geraghty<sup>23</sup> advised against removal of such stones on account of the extensive injury incident to their removal and the frequency of recurrences, on the other hand, Livermore, and Kelly and Burnham,<sup>24</sup> advocated their immediate removal, correction of any stasis, elimination of infection, and frequent postoperative examination.

In the past few years we have been able to remove successfully stag-horn stones from the kidney in most cases, in several of these cases the stones were bilateral, serious injury to the kidney, its pelvis, or ureter did not take place, and all fragments were removed. The method employed in removal consisted of retraction of the parenchyma to the bifurcation of the calices, as suggested by von Lichtenberg thus giving direct access to the calices through a V incision in the renal pelvis. By nephrotomy over each calix, the portion of stone in that calix was removed, the forefinger of each hand being used, one in the pelvis and one in the calix. Bleeding from the parenchymal opening was controlled by suture or by Pezzar catheters pulled snugly up into the calix.

The surgical treatment of bilateral renal lithiasis is a problem that requires mature judgment and care. There are many who believe that, if the stones are of the aseptic or primary type, surgical removal is contraindicated, provided the stones are small, are not fixed in a calix, do not cause symptoms, and do not interfere with urinary drainage, and that all other aseptic stones which from their situation and size are likely to injure the renal parenchyma should be removed surgically. If infection is superimposed, then the stones should be removed as early as possible before extensive renal injury takes place. After the stones are removed completely, the problem is one of eliminating infection and of restoring renal function. A kidney that is obstructed and infected may appear from clinical examination to have little if any functional capacity, but at operation it may be found to possess much sound renal tissue that may be valuable to the patient, especially if the opposite kidney also is injured.

Cabot<sup>25</sup> has pointed out the value of nephrostomy for infected and obstructed kidneys in providing a method of immediate drainage, which is so essential in these cases and which promotes elimination of infection. Nephrostomy for drainage is superior to pyelostomy, by virtue of the fact that urinary fistulas rarely occur and the wound closes rapidly following removal of the tube.

The frequent reports in the literature of the occurrence of calculi in solitary kidneys serve to emphasize the importance of this urologic problem. Beer<sup>26</sup> in 1916 advocated early surgical removal of stone from the ureter in the presence of solitary kidney. Keyes<sup>27</sup> in 1930 reported five cases in which the surgical removal of such stones was successfully accomplished. The severity of the disease is shown by the report of fifty-two cases by Walters and Wright<sup>28</sup> wherein stones were removed from the remaining kidney with a

mortality rate of 14 per cent. The necessity for early removal of the stones before renal injury or infection has set in can hardly be overestimated. One of us recently removed a large triangular stone from the pelvis of a solitary kidney, this stone had completely blocked the ureteropelvic juncture about twenty-four hours previously. Following the removal of the stone by pelvolithotomy, the kidney was temporarily drained by nephrostomy for a period of ten days, when the tube was removed. Renal function returned rapidly and infection gradually subsided.

#### RECURRENT AND PROPHYLACTIC CARE

The mere surgical removal of stones from the kidney no longer constitutes adequate treatment for renal calculi, as the postoperative care and management forms one of the more important phases of the treatment. Particularly is this true if infection is present in the urinary tract or a definite tendency toward recurrent calculi has been demonstrated, and if renal function is materially interfered with, subsequent attention to these factors is of particular importance. The incidence of recurrence of renal stones has been variously estimated. Braasch and Foulds<sup>29</sup> in 1924 reporting 504 cases found recurrent calculi in approximately 10 per cent of them. Others have reported reformation of stone in from 30 to 40 per cent. Undoubtedly, small remnants of calculi not removed at the operation may account for certain cases of so-called recurrence. Despite this fact, however, a certain group of patients presents a definite tendency toward reformation of calculi. These individuals are similar in many respects to those patients who have recurrent ulcers following operation for peptic ulcer. In both types of cases, although the exact etiologic factors responsible for the disease remain undetermined, sufficient is known concerning apparently contributing causes to render preventive measures worth while. In brief, efforts directed toward prevention may be applied with consideration of five main points:

1 *Complete Removal of Stones*—It appears obvious that all calculi and stony fragments should be completely removed at the time of operation if recurrence is to be prevented. This may be accomplished only by the routine use of fluoroscopy and roentgenographic examination at the time of operation. With these aids, in association with careful surgical technic in order to avoid any undue trauma or bleeding, all of the stony fragments may be removed in practically every case. In rare instances it may be advisable, if a few minute fragments remain which cannot be removed without causing considerable trauma to the kidney, to forego total removal of all remnants in order not to jeopardize renal function.

2 *Complete Relief of Renal Obstruction*—Although the exact part played by obstruction of the kidney in the formation of stones is not fully understood every effort should nevertheless be made to provide free drainage of urine from the upper portion of the urinary tract following removal of stones. Not infrequently, because of obstructing factors such as anomalous vessels, bands of fibrous tissue, acute angulation of the ureter or other causes, obstruction may be discovered at the ureteropelvic juncture. This should be corrected, if possible, at the time of operation. The almost certain development or persistence of infection secondary to obstruction is well known, and it accentuates the

23 Geraghty J. T. and Frontz W. A. Idiopathic Nephralgia. *South M. J.* 16: 462-466 (June) 1923.

24 Kelly H. A. and Burnham C. F. *Diseases of the Kidneys, Ureters and Bladder*. New York, D. Appleton & Co. 1914.

25 Cabot Hugh. Nephrostomy in Theory and Practice. *South Surg.* 2: 129-135 (June) 1933.

26 Beer Edwin. Diagnosis and Treatment of Ureteral Calculi. *New York State J. Med.* 16: 501-503 (Oct.) 1916.

27 Keyes E. L. Operation on the Single Kidney Especially for Stone. *J. A. M. A.* 94: 152-156 (Jan. 18) 1930.

28 Walters, W. and Wright William. Operations on Solitary Kidneys and Ureters. Report of Fifty Two Cases. *Surg. Gynec. & Obst.* 51: 836-839 (Dec.) 1930.

29 Braasch W. F. and Foulds G. S. Postoperative Results of Nephrolithiasis. *J. Urol.* 11: 525-537 (June) 1924.

importance of free drainage. In very exceptional cases, retrograde ureteral dilation may be indicated; however, it is exceptional in our experience to find renal calculi associated with true stricture of the ureter, and retrograde dilation seldom seems indicated.

**3 Elimination of Infection**—At present, complete elimination of infection is one of the most important requirements in preventing subsequent formation of calculi. Different aids may be utilized in removing infection from the urinary tract. If the kidney is found to be rather extensively injured and to be the seat of marked infection at the time of operation it frequently is advisable to insert a nephrostomy tube, preferably through the lower calyx, in order to aid rehabilitation of the kidney. This not only provides excellent drainage but permits of direct pelvic lavage as often is desired. Gratifying results frequently are noted in the restoration of renal function and in the eradication of infection by the use of nephrostomy. Occasionally, if the kidney has not been drained by nephrostomy, pelvic lavage by means of the ureteral catheter, with silver nitrate, phosphoric acid or other solutions may be helpful in sterilizing the upper portion of the urinary tract.

Before any treatment can be intelligently planned against infection of the urinary tract accurate information should be obtained regarding the exact type of offending bacteria. This necessitates cultures from the pelvis of the kidney and also from any stones that are removed. Strangely enough, the organism found in the stone may be different from that discovered in the pelvis of the kidney. The elimination of coccus forms and urea-splitting organisms from the urinary tract is essential if recurrent calculi are to be avoided.

Considerable has been written regarding various medicinal measures and the dietary treatment of infection in the urinary tract. It has been our experience that the best results are obtained by acidification of the urine with ammonium chloride or ammonium nitrate given in association with methenamine if the offending organism belongs to the bacillary group. Methenamine is most effective if a  $pH$  of the urine of at least 5.4 is obtained. If cultures reveal cocci the nonspecific use of neoparsphenamine frequently is efficacious. When measures of this type fail to produce the desired results the production of ketosis by the use of the ketogenic diet often will be effective.<sup>30</sup> A possible relationship between foci of infection and renal calculi makes<sup>31</sup> desirable removal of all sources of chronic infection.

**4 Correction of Metabolic Disorders**—Various metabolic disorders may fundamentally be responsible for the formation of calculi. A routine chemical analysis of the calculus removed may aid in the detection of these disorders. In addition microscopic examination of the urine may reveal cystinuria or uric acid crystals.

The association of hyperparathyroidism with renal calculi has been mentioned previously, and although this condition is relatively uncommon, estimations of the amounts of calcium and phosphorus in the blood and roentgenographic study of the bones may be advisable to exclude the possibility of hyperfunction of the parathyroid bodies.

**5 Periodic Examinations**—Periodic examinations of the urinary tract are desirable following removal of stones from the kidney. In many cases this may seem unnecessary and may be discontinued after several such examinations. On the other hand, if the patient presents a tendency toward persistent or recurrent infection in the urinary tract, or if he has impaired renal function or faulty drainage from the kidneys, periodic examinations are desirable for a number of years. This enables one to detect in its early stages any change in the condition of the patient before injury becomes too extensive to remedy. Stones may be recognized when they are still small, and infection may be combated before function is impaired further.

#### ABSTRACT OF DISCUSSION

DR JEROME M. LYNCH, New York. I feel honored at being invited to discuss a topic before this assembly of specialists. At first glance there seems to be no contact between urology and diseases of the colon, rectum and anus, and yet you and I are deeply interested in the derivatives of the cloaca. Our fields are chiefly concerned with excretion. In casting about for etiologic factors in urinary lithiasis, certain indicators may point a way of investigation. Focal infection has been stressed for twenty years, and though the evidence is not convincing to me it is good practice to check possible foci and suppress or eliminate those found to harbor infection. More important is the recent work defining the influence of certain parathyroid disturbances in producing stone in the urinary tract. This, I am sure, has furnished the necessary stimulus to the urologist to keep in mind the extra-urinary possibilities in the etiology of stone. I have been interested in the gastro-intestinal symptoms displayed in many stone cases. The mimicry of appendicitis by right ureteral stone is a commonplace to urologists. Similarly attacks resembling gallstone colic or subacute obstruction occur with obstructed or infected kidney stone cases. Duodenal and gastric ulcer may be simulated by kidney stone in the absence of infection. Indeed, the periodicity associated with chronic peptic ulcer may be simulated in a striking manner. Hematemesis has occurred and no lesion except a kidney stone found. The syndrome called spastic colon can occur to disappear following removal of the stones. It is apparent that the kidneys deserve the close attention of gastro-enterologists and other internists in cooperation with urologists in the solution of resistant cases of dyspepsia.

DR RICHARD CHUTE, Boston. I congratulate Drs Counsellor and Priestley on their summary of the present-day conception of renal lithiasis. They mention the frequent occurrence of calcium phosphate stones in hyperparathyroidism. I have seen a number of cases of hyperparathyroidism and learned something about this comparatively new condition from colleagues at the Massachusetts General Hospital who have done pioneer work in calcium metabolism. Hyperparathyroidism is due to an excess of the internal secretion of the parathyroid glands, which excess comes from either a benign adenoma or hyperplasia of one or more of the four parathyroids and results in raising the blood calcium, lowering the blood phosphorus and causing a greatly increased amount of both calcium and phosphorus to be constantly excreted by the urine. The very frequent occurrence of calcium phosphate lithiasis, ranging from large calculi down to minute multiple stonelets or calcifications throughout the tubules of the kidney cortex, is consequent to the large amount of calcium and phosphorus concentrated in the urine—in one case seven times the normal amount of urinary calcium. Since this stone formation depends on a general metabolic disturbance, these calcium phosphate stones tend to be bilateral and multiple and to recur until the underlying metabolic disturbance has been remedied. One patient had recurrent bilateral calcium phosphate calculi over a period of ten years until the cause was discovered and corrected. Cases of hyperparathyroidism are not rare. The Massachusetts General Hospital has accumulated a series of nineteen proved cases of which fifteen were urinary lithiasis, which was bilateral and multiple in more than half. In the last fifteen months about 10 per cent of all stone cases that have

<sup>30</sup> Clark, A. L. Bacilluria Under Ketogenic Treatment. A Study of Fifty Cases. Proc. Staff Meet., Mayo Clin. 7: 257-260 (May 4) 1932.  
Helmholz, H. F. The Ketogenic Diet in the Treatment of Urinary Infections of Childhood. J. A. M. A. 99: 1305-1309 (Oct. 15) 1932.  
<sup>31</sup> Rosenow, E. C. and Meisser, J. G. Nephritis and Urinary Calculi After Production of Chronic Foci of Infection. Preliminary Report. J. A. M. A. 78: 266-267 (Jan. 28) 1922.

come to the Massachusetts General Hospital have been found to present an underlying hyperparathyroidism. The diagnosis is easily made and depends entirely on the finding of a high fasting serum calcium (the normal is 10 mg per hundred cubic centimeters, the average in the nineteen cases was 14 mg), and a low serum phosphorus (the normal is 4 mg per hundred cubic centimeters, the average in the nineteen cases was 2.6 mg). In addition to the usual urologic treatment for calculi the only adequate treatment to date for hyperparathyroidism itself is surgical removal either complete or subtotal of the adenomatous or hyperplastic gland tissue which has been well described by Churchill and Cope. Special diets, vitamins and radiation therapy directed to the neck has been tried without success. Surgical resection results in a rapid correction of the calcium phosphorus metabolism back to normal in both blood and urine. In eight cases each of which has been followed for at least six months (and one case for two and one-half years) since the operation, the calcium and phosphorus metabolism has remained normal.

DR. VIRGIL S. COUNSELLER, Rochester, Minn. The importance of what Dr. Chute has just said with regard to hyperparathyroidism should be stressed. It seems that this condition is definitely established as one of the etiologic factors in renal lithiasis and it may be a more important factor than it is now regarded to be. The work of Albright, Aub and Bauer at the Massachusetts General Hospital in this connection certainly must be considered epoch making in its character. I want to reemphasize elimination of infection from the kidneys when conservative operation has been done. A word should be said regarding the value of nephrostomy. Dr. Cabot has pointed out how rapidly an infection can be eliminated from the kidney by temporarily retaining the conditions produced by nephrostomy. This I have observed many times. Too when one traumatizes a kidney considerably in the removal of stones particularly branched stones, nephrostomy is certainly a very protective mechanism and this is also more true when one is dealing with a solitary kidney.

## MANAGEMENT OF URETERAL STONE

### OPERATION VERSUS EXPECTANCY AND MANIPULATION

FREDERIC E. B. FOLEY, M.D.

ST. PAUL

• In recent years, ingenious devices and methods have been perfected for the passage or removal of ureteral stones without resort to operation. Properly employed they have proved of great value and have reflected much credit on urology as a specialty. Among urologists management of the condition according to this so-called conservative plan has become very popular and quite generally is regarded as the method of choice. There is much evidence that this attitude has carried too far and that the just purpose of such management is becoming subordinate to mere zeal for its use.

Conservatism in surgery deserving the name must have as its object welfare of the patient, and this must not be confused with the surgeon's zeal or prejudice for a particular method. The patient's welfare is a many-sided objective in which mortality, morbidity, suffering, duration of disability and economic factors all are concerned.

Management of ureteral stone by expectancy and manipulation is enthusiastically described in published papers, in discussions at meetings and in the casual comment of colleagues. Very often pride is displayed in having effected the passage or removal of a stone

without operation, but frequently the undesirable features of such methods are overlooked, or at least their morbidity, mortality and hardships are considerably underestimated. Only stones of very small size, ones no larger than a wheat kernel, give any promise of prompt passage or easy removal. Occasionally with these, and very frequently with stones of only slightly larger size, expectancy and manipulation lead to unforeseen difficulties, risks and hardships. The severe pain of many colics may be required for the stone to progress into manipulative distance. During this period dilatation of the ureter and pelvis and extensive kidney damage may occur. After the stone has reached the pelvic ureter the turmoil of several cystoscopic procedures may be necessary for its removal. During this whole period there is the constant threat of acute infection and all that it may entail. Finally there is the chance of ultimate failure and the necessity for pelvic ureterotomy, a distinctly major and at times difficult operation. Such a sequence of events is indeed deplorable in cases in which the stone was first discovered in the lumbar ureter before any notable damage had occurred, before the patient had had any great hardship and in which there was or should have been opportunity for immediate and easy removal by simple and relatively minor lumbar ureterotomy.

If proper conception of what really constitutes the patient's welfare is borne in mind and mere prejudice in favor of the word conservatism is laid aside, careful consideration makes it very apparent that much of the so-called conservative management of ureteral stone is radically conservative is without intelligent purpose and should be abandoned in favor of open operation. This assertion does not belittle the great value of these procedures when properly employed or detract from the credit due their originators. Merely it points out that their great worth can obtain only when the patient's welfare is their object and is not subordinated to zeal for their employment.

In the management of ureteral stone, either expectancy and manipulation or open operation must be determined on. In making this decision no general comparison between the two methods is applicable, for numerous factors such as the size of the stone and the presence or absence of infection have a bearing and are extremely variable among different cases. Considerations regarding the decision usually give no great importance to position of the stone and make no particular distinction between the magnitudes of lumbar ureterotomy and pelvic ureterotomy. Pelvic ureterotomy is always an operation of distinctly major character. Lumbar ureterotomy, as described in textbooks and as usually seen is also a definitely major operation, it can and should be a relatively minor one. A method and technique for lumbar ureterotomy have been perfected and are described here that so minimize the operation that in this form it scarcely belongs to major surgery. Accordingly in the present consideration of the two methods of management, and particularly in comparisons of expectancy and manipulation with open operation, pelvic ureterotomy is sharply distinguished from lumbar ureterotomy by this particular method, and position of the stone, whether it affords or does not afford opportunity for this procedure, becomes an important factor in determining between the two methods of management. Decision between the two methods thus should differ greatly depending on whether lumbar or pelvic ureterotomy is involved.

Lumbar ureterotomy, even by former methods, should always be of more minor character than pelvic ureterotomy, but proper recognition and appraisal of this important point in the management of ureteral stone has not been properly emphasized and has not been practiced. In the urologic service of the Ancker Hospital and in private practice the method I have per-

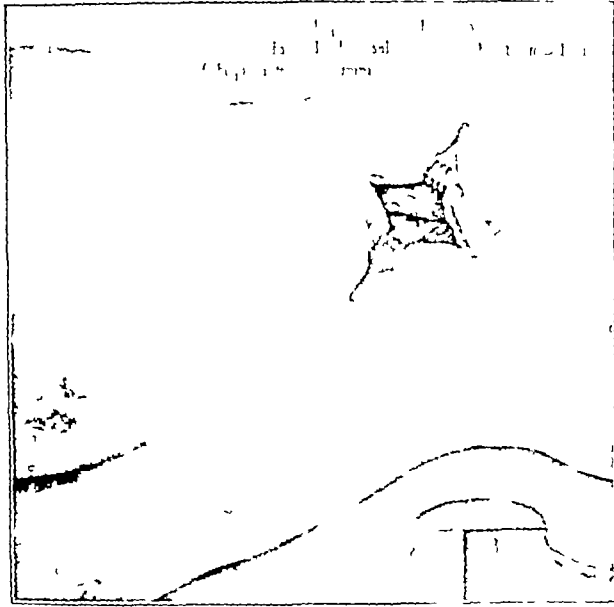


Fig 1—Lumbar ureterotomy. Incision. Patient in "kidney position." The kidney elevator of the operating table is raised only enough to widen the space between the twelfth rib and the ilium but not enough to put the muscles under tension. The incision from 10 to 12 cm long exposes the posterior edges of the external and internal oblique muscles and the anterior edge of the latissimus dorsi muscle. The lumbodorsal fascia presents between the muscles or is exposed by slightly separating them.

formed for lumbar ureterotomy has greatly emphasized for my associates and me the importance of this consideration, and we have come to the conclusion that, in the management of ureteral stone, opportunity for this procedure never should be neglected in favor of expectancy and manipulation, except in cases of stones so small that prompt passage or easy removal is almost certain. Accordingly, when a ureteral stone larger than a wheat kernel occupies a position above the pelvic brim it is removed at once by open operation, even though its small size meets the former criterion favoring management by expectancy and manipulation. Only stones of truly minute size are allowed to progress into the pelvic ureter for spontaneous passage or manipulative removal.

If the stone is already located in the pelvic portion of the ureter the considerations are quite different, for pelvic ureterotomy is a much more major procedure and expectancy and manipulation should be employed unless the stone is of such large size as to give little prospect for the success of such management.

The technic of lumbar ureterotomy as described in textbooks and as usually observed in practice does not properly take advantage of anatomy toward the ends of simplicity, accuracy and minimal trauma. General anesthesia is employed, an unnecessarily large incision is made, muscles are divided, and the ureter is identified and exposed by unwarrantedly extensive and inaccurate dissection of retroperitoneal structures. Such a procedure is time consuming and accompanied by shock and risk in a superfluous degree. All this can

be avoided in favor of local anesthesia, a small incision without division of muscle fibers, accurate identification and exposure of only the stone containing segment of ureter, and with almost no disturbance of retroperitoneal structures. When the operation is so performed it may be done in a brief time, with accurate closure of the ureter by suture and without drainage of urine from the wound. Such an operation imposes less risk and usually less discomfort than removal of the stone by expectancy and manipulation. The convalescence is rapid and there is a minimal period of disability.

The operation so performed takes properly into account the position of the ureter close to the vertebral bodies, its course through the fat containing space between the two layers of pararenal fascia (of Gerota) and the clean cleavage plane between the posterior layer of this fascia and the muscles of the abdominal wall—the quadratus lumborum and iliopsoas. The dissection is anatomically accurate and almost entirely by blunt opening of cleavage planes between structures.

#### TECHNIC OF OPERATION

Local infiltration anesthesia using 1 per cent procaine hydrochloride containing 10 drops of epinephrine per ounce (30 cc) is made in the line of incision. The infiltration is extended deeply into the muscles on each side of the incision and into the retroperitoneal space of the flank. With the patient securely fixed in the

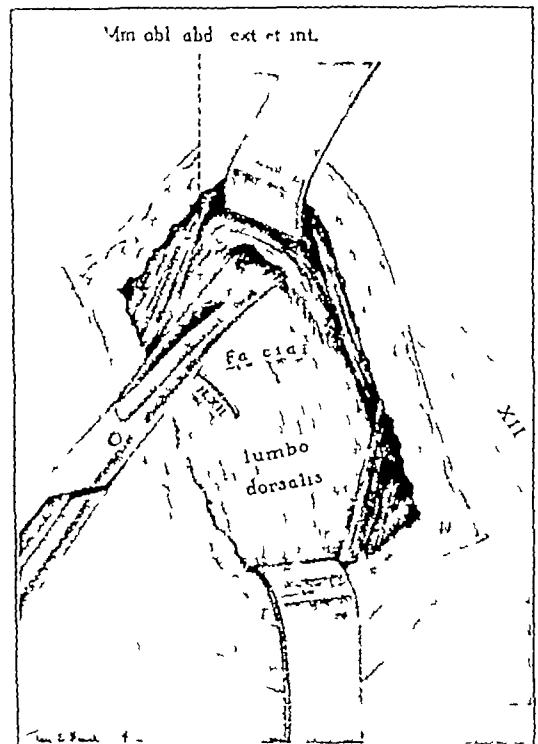


Fig 2—Lumbar ureterotomy. Freeing of muscles. Exposure of lumbo dorsal fascia. The undersurface of the internal oblique muscle is bluntly separated from the lumbodorsal fascia. This permits the internal oblique and external oblique muscles to be drawn well forward. The latissimus dorsi, already bluntly separated from the fascia is drawn backward. A wide area of lumbodorsal fascia is exposed.

"kidney position," the elevator is raised only enough to widen the space between the rib and the ilium without putting the flank muscles under tension.

The incision, from 10 to 12 cm in length, is placed on a line extending in vertical oblique direction from the middle of the twelfth rib toward the anterior supe-

rior spine of the ilium (fig 1) The level of the incision on this line is made appropriate to the level of the stone Division of the skin and subcutaneous fat exposes the posterior edges of the external and internal oblique muscles and the anterior edge of the latissimus dorsi muscle midway between the twelfth rib and the iliac crest These muscles are made freely mobile by bluntly separating their undersurfaces from the lumbodorsal fascia on which they lie (fig 2) This permits the oblique muscles to be drawn well forward and the latissimus dorsi well backward, with exposure of a wide area of lumbodorsal fascia The lumbodorsal fascia is now split parallel to its fibers with exposure of the posterior layer of the pararenal fascia (fig 3) Except for a thin layer of intervening fat (pararenal), this fascia lies directly in contact with the muscles of the posterior abdominal wall, the quadratus lumborum and the iliopsoas It passes posterior to the ureter and kidney and onto the vertebral bodies medial to them (fig 4) This fascia and the anterior layer of pararenal fascia form an envelope completely enclosing the perirenal and the periureteral fat Instead of immediately opening this fascia to approach the ureter through its surrounding fat, as is usually done, the dissection takes advantage of the clean cleavage plane between the posterior layer of pararenal fascia and the muscles on which it lies By blunt dissection this cleavage plane is opened by gently stripping the fascia away from the muscles behind it The stripping is continued medially to the vertebral bodies, even disclosing the position of

lateral to the vertebral bodies and immediately under the fascia, for most of the periureteral fat lies anterior to the ureter (fig 5) The position of the stone is marked by a bulge in the course of the ureter, or if not evident in this way it may be felt by passing a finger along the course of the ureter With a curved or somewhat hooked point scalpel a longitudinal incision is made through the fascia and ureter over the stone,

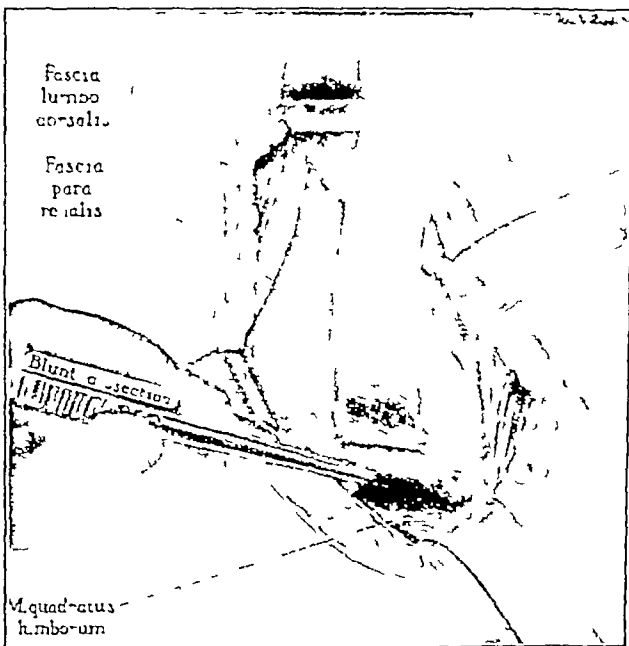


Fig 3—Lumbar ureterotomy Separation of pararenal fascia from muscles of the posterior abdominal wall The lumbodorsal fascia has been split parallel to its fibers exposing the posterior leaf of pararenal fascia The pararenal fascia completely invests the periureteral and perirenal fat It lies in contact with peritoneum in front and muscles of the abdominal wall behind The clean cleavage plane between the pararenal fascia and the muscles of the posterior abdominal wall is being opened by blunt dissection

the aorta or cava, and in an upward or downward direction, as determined by the position of the stone With the pararenal fascia and the contained fat elevated and held forward away from the muscles by a Deaver retractor, the ureter will be seen as a pale ribbon-like streak running longitudinally 3 or 4 cm

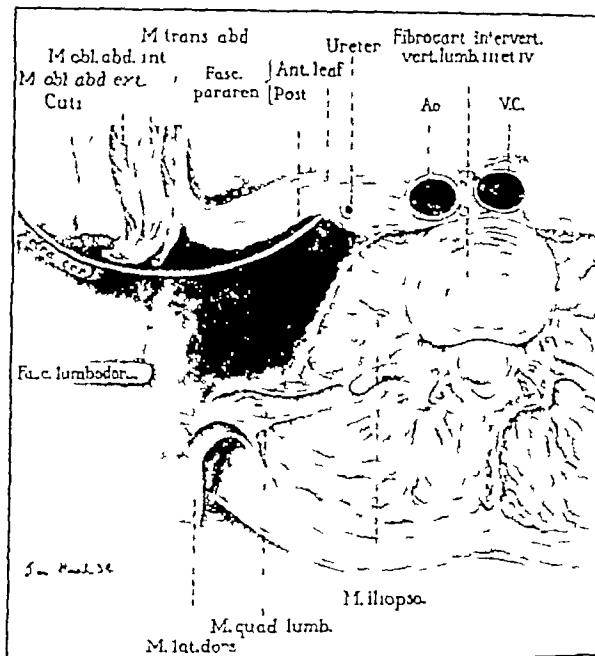


Fig 4—Lumbar ureterotomy Horizontal cross section at level of proposed ureterotomy (intra-peritoneal structures not shown) Note the relations of the pararenal fascia (fascia of Gerota) to surrounding structures and to the ureter and fat that it surrounds Apart from incision of the skin and the subcutaneous fat and blunt splitting of the lumbodorsal fascia parallel to its fibers the exposure thus far is accomplished entirely by blunt opening of cleavage planes between structures Opening the pararenal fascia and the usual method of approaching the ureter by dissection through the fat are carefully avoided

with removal of the latter The ureter is not further explored and bougies or olives are not passed into it The opening in the ureter is securely closed by a continuous suture of 0000 catgut affixed to a fine atraumatic needle The suture includes only the muscularis, with careful avoidance of the mucosa The wound is closed without drainage (fig 6) The lumbodorsal fascia is closed with a continuous suture, but the muscles fall into place and do not require approximation

#### COMMENT

The operation as described can be performed in from fifteen to twenty minutes and with practically no shock Thus far there has been no fatality, and the risk to life has appeared negligible The postoperative courses have been entirely without incident, the patients have been out of bed on the second or third day and ready to leave the hospital on the fifth to the seventh day By comparison with expectancy and manipulation, the risk, damage to the kidney, hardship for the patient, period of disability and uncertainty of outcome have been vastly less

Usually a stone in the lumbar ureter produces typical symptoms and physical changes When these are accompanied by a shadow in position of the ureter, the shadow usually can be localized and positively identified as a ureter stone by excretion urography, even in patients of very large stature If changes demanding



further investigation are not thus disclosed, the hardship of cystoscopy and ureteral catheterization may be entirely avoided

A stone in the lumbar ureter giving a radiographic shadow of 5 mm or more in the greatest dimension should be removed at once by lumbar ureterotomy. When such a stone has already reached the pelvic ureter, expectancy and manipulation by all means should be tried. The hardship of the several colics required to advance it to this position, the damage to the upper urinary tract that has already occurred and the discomfort of the manipulative procedures to be employed cannot be undone. Such a stone and even ones of larger size may appear susceptible of easy removal. Attempts to remove it may not verify this. If the stone remains in this position sufficiently long extensive changes requiring nephro-ureterectomy may occur, even in the absence of painful symptoms. It is a fool's enterprise to persist in manipulative procedures, frequent colics continuing damage to the kidney and the grave risk of acute infection. Even pelvic ureterotomy is to be preferred to such a course and should be resorted to when one or at most two attempts at manipulation have failed.

In cases of ureteral stone in which there is or should have been opportunity for lumbar ureterotomy as described here, expectancy and manipulation should be considered only in cases of stones so small that there is almost positive assurance of passage or removal with-

pose, is radically conservative and should be abandoned in favor of the truly conservative procedure described here

#### SUMMARY

1 Management of ureteral stone by expectancy and manipulation has been employed too extensively. Their morbidity, mortality and hardships are underestimated and their just purpose is often subordinated to mere

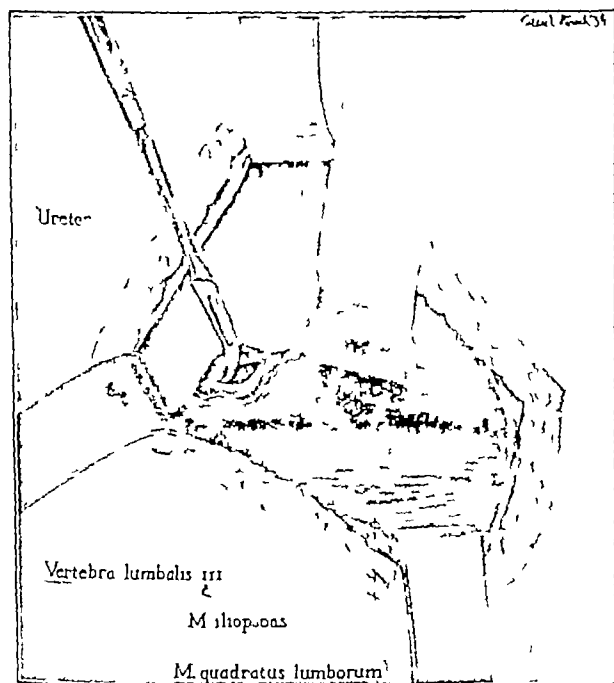


Fig 5—Lumbar ureterotomy. Exposure of ureter and removal of stone. The pararenal fascia has been stripped up from the muscles of the posterior abdominal wall medial to the vertebral bodies. The ureter covered only by the thin fascia is readily identified as a pale ribbon-like streak. A stone within the ureter is marked by a bulge or may be identified by passing a finger along its course. The pararenal fascia overlying the ureter has been split and the ureter is being incised over the stone. The opening in the ureter will be closed with a continuous suture of 0000 catgut in the muscularis with care not to include the mucosa.

out difficulty. To accept the risks, hardships and uncertainties of expectancy and manipulation in any but such cases of lumbar ureter stone is bad judgment and betrays blind prejudice in favor of expectancy and manipulation. Such conservatism lacks intelligent pur-

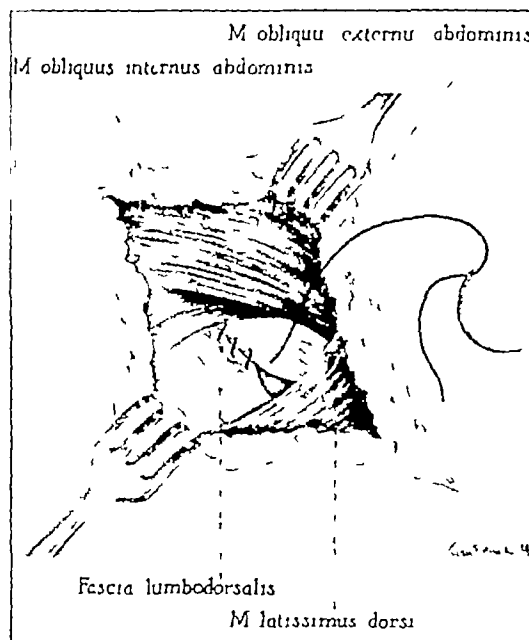


Fig 6—Lumbar ureterotomy. Closure of wound. The "kidney elevator" of the operating table has been lowered permitting the wound edges to approximate themselves. A continuous suture of number 1 chromic catgut is used to close the lumbodorsal fascia. The muscles fall into place and need not be sutured. In most cases even a superficial drain is not left in the wound.

zeal for their use. Such methods are truly conservative only when they best serve the patient's welfare.

2 Lumbar ureterotomy should always be of more minor character than pelvic ureterotomy. This fact is not properly recognized. It always should be taken into account in determining between "expectancy and manipulation" and "open operation."

3 Lumbar ureterotomy, as usually described and observed, is a distinctly major operation and does not properly take advantage of anatomy toward the ends of simplicity, accuracy and minimal trauma.

4 The improved method for lumbar ureterotomy that has been described takes advantage of anatomy toward the ends of simplicity, accuracy and minimal trauma and greatly minimizes the procedure.

5 A lumbar ureter stone of greatest dimension 5 mm or more should be removed at once by lumbar ureterotomy, as described here. Only stones of truly minute size should be allowed to pass into the pelvic ureter for spontaneous passage or manipulative removal.

229 Lowry Building

#### ABSTRACT OF DISCUSSION

DR. WILLIAM J. ENGEL, Cleveland. I am in almost complete agreement with Dr. Foley on manipulation of stones in the ureter. The multiplicity of methods advocated for manipulative removal of stones in the ureter is proof of the inadequacy of any one procedure. I have employed multiple catheters, the spiral stone extractor and dilation of the ureter below the stone with bougies and have been impressed with the infrequency with which the stones have been satisfactorily removed by these

means In my experience manipulative procedures often give rise to sharp reactions associated with chills, fever and rather marked prostration Manipulation may well traumatize the ureter and ureteral mucosa sufficiently to produce stricture Additional disadvantages are the prolonged period of time that is usually necessary to secure the passage of the stone, during which time the patient is in constant fear of recurrent colic and the period of morbidity is distinctly increased by the manipulative procedures Too often final resort to open operation is necessary after the patient has been exhausted by the preliminary procedures I have favored open operation for the removal of stones in the ureter in the vast majority of instances The situation of the stone is important in making the decision Contrary to Dr Foley's experience I have found most stones in the lower or pelvic portion of the ureter In a series of 268 cases reviewed recently, the stones were in the pelvic portion in 205 instances I must disagree with the author that removal of a stone from the pelvic portion of the ureter is an operation of great magnitude The operation described by Dr Lower consists of a muscle-splitting incision carried out entirely extraperitoneally and is not difficult Its success depends on extremely careful dissection of the ureter and the avoidance of bleeding The external and internal oblique muscles are divided much as in a McBurney incision and the peritoneum is retracted medially until the ureter is found Then by picking it up with Allis forceps and dissecting it down, one can follow the ureter all the way down to the bladder When the stone has been located it is fixed between two clamps and then a small longitudinal incision is made over it and the incision is closed with drainage I have not had the courage to close these wounds without drainage as Dr Foley has In the series of operations for pelvic ureteral stone the average postoperative stay in the hospital was ten days although many patients have been dismissed on the fifth, sixth and seventh day In an occasional case in a woman when the stone is stuck in the lower pelvic ureter and can actually be palpated on vaginal examination the cervix is drawn to one side a little longitudinal incision is made and the stone is palpated and removed These patients are out of the hospital sometimes within four or five days

DR F C HERRICK, Cleveland I do not agree with the author that ureteral calculi should always be operated on as soon as diagnosed Dr Crowell of Charlotte, N C recorded his method of removal of these stones by the passage, first of a small ureteral bougie, followed up by another perhaps two or three or four bougies, followed possibly by a small catheter or a larger catheter so that he can get at times three bougies or catheters by such a stone This is followed by injection of a small amount of oil and a wait of twenty-four hours when these stones slide as it were down the bougies I think that 75 or 80 per cent can be gotten that way I think that one is too hasty in taking the step of immediate surgical removal I remember a case first diagnosed by Dr Braasch of Rochester Minn A stone was carried around for some twelve or fifteen years I got it at the lower end of the ureter It was huge, larger than one would expect to pass by this method The patient was so much relieved that he left the hospital at once and would not let me get it out of the bladder Dr Lower took it out of the posterior urethra by incision It came down nevertheless by this bougie method Twenty-five years ago I described in Binney's Surgery an operative technic for access to the lower ureter It was an intermuscular incision from an inch above the anterosuperior spine in a line with the opposite spine of the pubis It allows one to split both oblique muscles and affords easy access to the ureter Although I devised that method and used it a number of times I have rarely taken out a ureteral stone by incision since the idea of the catheters and the bougies up the ureter came along I have gotten almost all of them the other way It does not seem reasonable or safe to make an abdominal incision open the ureter in the presence of frequently infected urine, close the ureter and the abdomen without a drain and send the patient home in five or six days as has been suggested by Dr Engel The danger of leak and infection is such that although a primary closure may result in primary union, a small cigaret drain to the site of the ureteral opening appears advisable

DR. FREDERIC E B FOLEY, St Paul In spite of the facility with which Dr Herrick and Dr Engel perform pelvic ureter-

otomy, I am convinced that the operation for removal of a stone from the ureter down close to the bladder is technically a much more formidable procedure than lumbar ureterotomy of the sort I have described The reason so many more stones are seen in the pelvic ureter than in the lumbar ureter is not the fault of the urologist but the fault of the general practitioner who sends the patient to us When pain suggestive of renal or ureteral colic occurs, a urinary tract x ray film should be made at once I make a plea with the general practitioners to recognize these lumbar ureter stones promptly and to have them removed in the safe quick and easy way I have described rather than to accept the hazards and uncertainties of expectancy and manipulation

## AN INVESTIGATION OF THE NEW BIOLOGIC TEST FOR HORMONES IN PREGNANCY URINE

### PRELIMINARY REPORT

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ABNER I WEISMAN, MD

AND

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NEW YORK

Kanter, Bauer and Klawans,<sup>1</sup> basing their work on previous experiments of Tozawa,<sup>2</sup> Fleischmann and Kann<sup>3</sup> and Szusz<sup>4</sup> have recently reported experiments on a new biologic test for hormones in pregnancy urine in which they intimate the usefulness of the female bitterling in the diagnosis of pregnancy They used the lengthening of the female ovipositor as a criterion of positive reaction for the hormones of pregnancy urine and suggested a method of standardizing the female bitterling, believing that "it was necessary to know in advance whether each fish was capable of responding positively to urine from a known pregnant woman and that the same fish would not react to the urine from a patient who was not pregnant"

In their technic a standardized fish (presumably a Japanese bitterling) was placed in a 2 liter bowl half filled with water to which 4 cc of the urine to be tested was added After seventy-two hours, final readings were taken A lengthening of the ovipositor from a normal of from 2 to 5 mm to from 15 to 25 mm was considered a positive reaction Thirty-one cases of doubtful pregnancy were reported, with twenty-seven absolutely checked by the Friedman test and with four discrepancies between the two tests These results seemed so promising in the face of the fact that Szusz reported such unfavorable results, using a wider range of controls, that we decided to repeat their work

We were fortunate enough to obtain a supply of female bitterlings (*Rhodeus amarus*) from the New York Aquarium This fish resembles the Japanese bitterling very closely in size and appearance and has the same sexual apparatus and the same breeding habits Each fish was examined and was said to be mature and

From the Department of Physiology and Physiological Chemistry of the New York Homeopathic Medical College and Flower Hospital

1 Kanter A E, Bauer C P and Klawans A H A New Biologic Test for Hormones in Pregnancy Urine J A M A. 103 2026 (Dec 29) 1934

2 Tozawa Tomiyo Experiments on the Development of the Nuptial Coloration and Pearl Organs of the Japanese Bitterling *Folia anat japon* 7 407 417 1929

3 Fleischmann Walter and Kann Susanne *Leber eine Funktion des weiblichen Sexualhormons bei Fischen (Wachstum der Legeröhre des Bitterlings)* Arch f d ges Physiol 230 662 667 1932

4 Szusz Ferenc *Researches Conducted with *Rhodeus amarus* for Determination of Early Pregnancy Orroosi hetil 77 905 (Oct 7) 1933 Untersuchungen mit Bitterlingen zur Erkennung der Schwangerschaft. Monatsschr f Geburtsh u Gynak 88 292 (March) 1934*

in good health<sup>5</sup> with the ovipositor presenting externally in the quiescent state from 2 to 5 mm in length. The first thing which came to our attention was that, after we had transported the fish and placed them in our stock tanks two out of fifty showed elongated ovipositors from merely being handled. These ovipositors were at least 25 mm in length and regressed overnight after being placed in our large tank.

The question of the necessity of "standardization" was first considered. According to Kanter, Bauer and Klawans the fish should be standardized before use. They maintain that the test fish must show a positive elongation produced by a known pregnancy urine and that the same fish should not react to a urine from a patient who is not pregnant. In our opinion standardization is neither feasible nor scientific and our results bear out this statement.

#### TECHNIC

A mature fish was placed in a 2 liter bowl containing 1,500 cc of water. Six cc of the urine to be tested was added to each bowl. The fish were observed at twenty-four hour intervals for seventy-two hours. Elongation of the ovipositor to at least 25 mm was taken as a positive reaction, a length of 15 mm was considered a moderate enlargement (doubtful), about 10 mm was called slight enlargement, (probably negative), and a negative reading was an ovipositor measuring 5 mm or less. Forty-six fish were placed in individual aquariums. Five groups of urine were tested. After forty-eight hours most of the fish had either reacted positively or not at all and the seventy-two hour reading showed little or no variation from the forty-eight hour reading.

#### RESULTS

Group 1 Twenty-one female bitterlings were tested with known pregnancy urines. Of these, eight tests were negative, nine were definitely positive and four showed some enlargement of the ovipositor.

Group 2 Urines from seven normally menstruating nonpregnant women were tested by the fish method with the result that four gave positive ovipositor tests.

Group 3 Samples of urine from four different normal males were tested, with one positive result. This positive result was so striking and occurred so rapidly (before forty-eight hours) that we obtained another specimen from the same individual, a healthy normal man, aged 21. This was tested on six fish in separate aquariums with positive results in every fish within forty-eight hours.

Group 4 Three samples were obtained from women who were in the postclimacteric period and had not menstruated for from four to seven years. Each urine of this group was tested on two fish. One urine gave a positive fish test.

Group 5 The urines of group 1 (from known pregnancies) were boiled and tested in the same way. In some cases two boiled urines were mixed and tested. The results were quite irregular, some boiled urines giving positive reactions and some negative.

#### COMMENT

It will be seen that only nine of the twenty-one urines from pregnant women gave definitely positive reactions. Of seven from normally menstruating nonpregnant women, four gave positive reactions. One male urine

of the four tested was positive, and a later specimen from the same male gave positive reactions in every one of the six fish tested. Urines from women who had passed the menopause were positive in one of three cases. Boiled urines from pregnant women were positive in some instances and negative in others.

These results agree with those of Szusz and indicate that this biologic reaction is not a specific test for pregnancy as Kanter, Bauer and Klawans intimate. Moreover, the latter authors do not report as great a variety of controls as we have and as Szusz previously reported. Our finding that nonpregnant female urines, postmenopausal urines, male urines, boiled pregnancy urines, and physical disturbance may bring about lengthening of the ovipositor would seem to show that a standardization of a fish, as these authors suggest, would be extremely difficult if not impossible. Whether the phenomenon is due to the presence of estrogenic substance or to some other hormone or to some other substance remains to be determined. We are continuing the investigation.

## POISONING DUE TO THALLIUM SULPHATE

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Poisoning with thallium is still a rarity as contrasted with that of lead and mercury, owing in all probability to the relatively infrequent use of the former for industrial purposes. The toxicity of thallium is however well recognized and cases of poisoning have been described in both the domestic and the foreign literature.<sup>1</sup> Because of the infrequency, the strange symptomatology, the fact that treatment is not well standardized, and the probability that more widespread commercial use of thallium compounds is foreshadowed, the case reported here is of exceptional interest.

#### REPORT OF CASE

The patient was a man, aged 38. I was called to his home, June 24, 1934. The following history was obtained. The patient's previous health had been good the only previous complaint being of relatively easy gastro-intestinal upsets and moderately frequent sore throats. About June 10 the patient had a slight sore throat lasting a few days. June 14 the patient, who is connected with the motion picture industry, went to a laboratory in which experiments were being performed on the development of films. While there he had a lunch consisting of a sandwich and coffee sent up from a nearby restaurant. The sandwich was unwrapped and placed on the table between bites. He noticed a crunching in his mouth and after the sandwich was eaten a metallic taste. He asked the laboratory worker what substance was being used, and was told thallium (later determined as chemically pure thallium sulphate). He was somewhat worried for a few days but nothing occurred to remind him of metallic poisoning.

For the sake of clarity the course is presented in chronological order according to the number of days following the ingestion of the thallium.

2 (noted only in retrospect) The stools were soft to semiliquid but there was only one a day. This condition persisted for four days.

3 There was moderate loss of appetite. The patient's wife noticed that his face was "flaming."

7 and 8 He began to notice a sensation of "going to sleep" in the toes. There was slight pain under the manubrium of

<sup>5</sup> Mr. W. Christopher Coates, curator of tropical fish of the New York Aquarium, obtained and selected the fish for us and gave us valuable information regarding the care of the fish in our laboratory.

the sternum. In retrospect the patient believed he had some fever at this time.

8 The patient went to bed because of pain in his legs. There was a brief return of the metallic taste in the mouth.

10 This was the day of my first visit. The patient was complaining of pain and soreness at the tips of all the toes, in the proximal joints of the toes, especially the big toes, and in the knees anteriorly below the patella.

The physical abnormalities were relatively few. The blood pressure was 120 systolic 86 diastolic. The temperature was 99.4 F. The pulse was 80. All the toes were sensitive at the tips and painful to pressure and to passive motion of the proximal joints. The metatarsophalangeal joints of both feet were sensitive to pressure and felt hot and slightly swollen. There was moderate tenderness to pressure over the subpatellar region. The knee motions were free and caused only slight pain. Muscular strength of the leg muscles was good. The knee and ankle tendon reflexes were normal. There were no abnormalities noted in the lungs, heart or abdomen. The face was flushed. There was slight mental confusion. The tongue was moderately coated. The teeth and gums were normal except for several crowns. The throat was moderately reddened and there were large tonsils present. The pupils reacted to light and in accommodation. The patient appeared in general more prostrated than was accounted for by the physical changes found. My impression was one of rheumatic fever (atypical) or infectious arthritis. The patient was given sodium salicylate with sodium bicarbonate of each 4 Gm daily as an attempted therapeutic test.

11 Subjectively the feet were slightly less painful. The temperature was 99.6 F. The first complaint of marked sleeplessness was reported. The patient was still confused and prostrated. The urine was normal. The sedimentation index was 10 (Cutler method).

12 The feet were about the same. The patient complained of sharp pains in the epigastric region. He vomited several times. There was tenderness over the epigastrium. Sleeplessness was severe. He felt listless but was unable to sleep. His vision was blurred for about twenty-four hours. The pulse was 104. Salicylates were stopped. Attempted administration of bismuth subcarbonate was without effect on the nausea or gastric pain. Attempted induction of sleep on usual hypnotics was without effect. Morphine sulphate, one sixth grain (0.01 Gm) was given hypodermically.

13 The temperature was 100.2 F, the pulse 100. The white count was 14,200 with 77 per cent polymorphonuclears, 21 per cent lymphocytes and 2 per cent monocytes. The hemoglobin was 100 per cent (Dare). The patient was unable to retain food or fluids. There was marked nervousness and sleeplessness. The posterior palate showed some diffuse redness and punctiform purple red spots. There was no complaint of sore throat. An enema was followed by a retention enema at night.

14 The pulse was 104, the temperature 99.4 F. The symptoms remained the same except for some decrease of pains in the feet and knees. The patient was given no food but retention enemas every four hours.

15 Pains in the epigastrium were decreasing. The patient was able to take fluids freely with only slight discomfort. Mental confusion was somewhat lessened. Small amounts of bland foods were retained.

16 The temperature was staying between 99.2 and 99.8 F. The pulse was 104. The white count was 12,000.

17 The head hair began to fall out freely. The patient was slightly jaundiced. He still complained of sleeplessness and some gastric distress, especially after taking food. There was slight desquamation of the hands.

18 The pulse was 84, the temperature 99.4 F. There was no albumin in the urine. There had been no vomiting for five days. The joints were less painful. The patient was still listless and complaining of sleeplessness. Gastric pains were severe in the evening and at night. Sodium thiosulphate, 0.5 Gm intravenously, was administered. The hair was still falling rapidly.

19 The pulse was 100. The patient noticed a "boiling sensation" in the stomach after eating. A twenty-four hour urine specimen was collected and identification of thallium was attempted by Miss Isaacs. In spite of the cooperation of the

physics department of the University of Chicago (Professor Gale), none was ever found. Sodium thiosulphate 0.5 Gm, was administered. Light drops of dilute hydrochloric acid was given with meals.

20 The patient vomited for the first time in a week. No gross blood was seen. The vomitus was examined for hydrochloric acid. There were 28 points of free acid present. Gastric pains were much worse. Dr. L. C. Gatewood saw the patient in consultation. From this time on the temperature varied between 98.6 and 99.6 F but gradually returned to normal. The pulse was 104. The hair was still falling out and had become scanty. The jaundice was practically gone. The chief complaints were severe gastric pains and sleeplessness. No food or fluid was taken on this day. Sodium thiosulphate 0.5 Gm, was given.

21 The pulse was 120. The white count was 18,300. Jaundice was decreasing. No food was taken. There was no vomiting but gastric pain was still severe. The patient was restless and still unable to sleep. He stated that the desire to urinate preceded the starting of the stream by about an hour. There was some pain at the beginning of the stream but none later. The stream was normal however, when started. Sodium thiosulphate 0.5 Gm was given.

22 The pulse was 104. Fluids were taken freely. The patient vomited once. Gastric pain was present but slightly less severe than formerly. The hair was still falling out. The beard grew slowly the past week. Pilocarpine hydrochloride 1 per cent, five drops four times a day was given. The tongue was slightly coated. The gums were normal. All-day suckers were given. No sodium thiosulphate was administered.

23 The pulse was 108. The usual afternoon nausea and vomiting occurred. The jaundice disappeared. Potassium iodide was given by mouth.

24 The pulse was 116. The patient was nervous and restless, and he complained of sleeplessness. He had been able to retain little by mouth. He was still moderately confused.

25 The pulse was 108, the blood pressure 156 systolic, 104 diastolic. Pilocarpine hydrochloride five drops four times a day was given.

26 The pulse was 128. Gastric pains occurred at intervals. The patient was unable to retain food. Iodides were stopped.

27 For the following week the pulse varied between 100 and 108. The blood pressure was 152 systolic, 118 diastolic. The patient's memory was better. The tongue was still coated. The abdomen was relaxed. There was moderate tenderness over the epigastrium. Gastric pains were still severe at night.

28 The blood pressure was 136 systolic, 104 diastolic. The hemoglobin was 118. The urine contained a trace of albumin (acetic acid). The white count was 11,800 with 64 per cent polymorphonuclears, 33 per cent lymphocytes, 2 per cent eosinophils and 1 per cent monocytes. There was no bluish discoloration of the gums. Moderate tingling of toes and tenderness was still present.

29 The tongue was almost clear. The patient was taking food and fluids well. He was still unable to sleep.

30 The patient's memory was practically normal. He had not vomited for three days. Gastric pains were much less severe and less constant.

31 The patient felt tired and weak but was eating well.

32 The patient noticed more frequent but slightly painful micturition while taking pilocarpine. The hair was apparently not falling out any more. A few strands were left. The beard was growing more rapidly (?). Sleeplessness was the pre-dominant symptom.

33 The patient felt weak and tired.

34 The pulse was 96, the blood pressure 120 systolic, 88 diastolic. The hemoglobin was 100, the white count 8,000, the urine normal. Sodium thiosulphate 0.5 Gm, was given intravenously.

36 The pulse was 104. There was slightly increased pain in the toes.

37 The pulse was 108. The hair was beginning to grow on the head (?). Urination was still slow in starting and slightly painful before the stream began to flow.

42 The pulse was 100, the blood pressure 138 systolic, 100 diastolic. The white count was 10,000. Pain was still present at the ends of the toes.

43 The pulse was 96. The patient's general condition was improving. He had been taking potassium iodide for about twenty-four hours.

45 The pulse was 106, the blood pressure 134 systolic, 106 diastolic. There were severe cramps in the muscles of the thighs and calves.

51 The white count was 9,800, the urine normal. The condition remained about the same. There were no important developments in the subsequent course. The convalescence was gradually extended. The hair grew back normally. The last remaining obvious symptom was tenderness and numbness of the toes. It was about three and one-half months after ingestion of the thallium before the patient was able to resume his work. The blood pressure when the patient was last seen, October 19, was 108 systolic, 74 diastolic. The pulse was 84. The urine was normal.

#### SUMMARY

In a case of human thallium intoxication the origin was almost certainly that amount of chemically pure thallium sulphate accidentally picked up by a sandwich placed on a table on which experiments had been performed with this substance. So far as can be determined this is the first case of industrial thallium poisoning reported from the motion picture industry.

The symptoms of the poisoning began gradually. The most important in order of appearance were neuritic pains in the toes and feet, mental excitement and confusion, sleeplessness, epigastric pains and vomiting, and falling out of the hair of the head. These were associated with other signs of profound physiologic disturbance, e. g., fever, rapid pulse and increased blood pressure.

Treatment, after correct diagnosis had been made, was symptomatic with the addition at various times of sodium thiosulphate, iodides, hydrochloric acid and pilocarpine, all of which have been recommended. The alarming exacerbation of symptoms following the administration of sodium thiosulphate and iodides in the earlier phase of the illness was most striking and deserves special emphasis. In this case hydrochloric acid appeared not to be indicated, as free acid was present in the vomitus.

#### COMMENT

There are two main problems relating to thallium poisoning, both amply demonstrated in the case reported. The first involves the early diagnosis and the second the treatment. The rarity of thallium poisoning makes one hesitate to diagnose this condition in the face of early symptoms simulating other much more common diseases. Thus, in the present case the initial impression was rheumatic fever (apparently a common mistake)<sup>2</sup> in spite of the volunteered history of alleged thallium ingestion on a sandwich. Furthermore, a description of swelling of the metatarsophalangeal joints was not obtained in the first articles consulted but was later found mentioned in the article by Goodman.<sup>3</sup> The most striking and absolute clinical diagnostic feature is falling out of the head hair, but this does not usually occur until sometime during the third week following the ingestion of the poison. In the reported instance, falling of the hair began on the seventeenth day. There was hence, and apparently often is, a prolonged period between the occurrence of poisoning and correct diagnosis. More widespread knowledge of the high toxicity of this substance should serve to reduce this delay in a majority of the cases.

<sup>2</sup> Hamilton, Alice. *Industrial Toxicology*. Harper's Medical Monographs. New York: Harper & Brothers, 1934.  
<sup>3</sup> Goodman, Herman. *Thallium Acetate: Its Toxicity and Depilatory Action*. New York State J. Med. 32: 1307-1313 (Nov. 15) 1932.

Treatment based on animal experiments has been outlined by Munch.<sup>4</sup> This consists in (1) intravenous administration of sodium iodide until thallium has practically disappeared from the twenty-four hour urine, (2) sodium thiosulphate intravenously to induce gradual elimination of thallium, (3) pilocarpine and calcium salts intravenously, and (4) hydrochloric acid orally. Leschke<sup>5</sup> says "The best agent for the treatment of thallium poisoning is sodium thiosulphate given slowly by intravenous injection in a daily dose of 20 cc of a 3 per cent solution in distilled water. In addition, the water excretion should be stimulated by means of frequent drinks of tea and through purging. In acute cases the stomach should be thoroughly washed out, and large amounts of milk given." These two citations serve as examples of the wide discrepancy in recommended treatment.

It is obviously impossible to formulate any rational method of therapeutics from the observation of one case. Certain aspects that may be of importance are nevertheless suggestive. There was a marked exacerbation of symptoms following administration of sodium thiosulphate and later following sodium iodide taken orally. Both of these may have been fortuitous, but both occurred at times when the patient had become almost symptom free. It seems probable, therefore, that these substances have a demobilizing action on thallium, tending to bring it out of the bones or other depots into the circulation, as is the supposed action in lead and certain other metallic poisons. If this hypothesis is correct, the time element and acuteness or chronicity of the intoxication become of paramount importance. With the atomic weight of thallium at 204, lying between that of mercury and of lead, its behavior might be expected to be at least somewhat similar. A more rational treatment, subject to real investigative procedures, in the acute and subacute forms at least, would seem to be the administration of calcium and alkalis as in lead poisoning, with the object of removing thallium from the circulation. It is necessary to note, however, that Lehman and Gaffney<sup>6</sup> did administer calcium chloride to one patient but after five injections the symptoms became worse and this treatment was discontinued. Later sodium thiosulphate and iodides might be given cautiously to attempt the reversal of this process with gradual elimination of the metal. Admittedly this is speculative but seems at least as rational as the administration of five drugs simultaneously each with an uncertain mode of action.

Finally, it should be reemphasized that the extension of industrial use of thallium, in this case in the developing of motion picture films, constitutes an important potential danger and may make intoxications of this nature much more frequent.

NOTE—The patient was seen in my office, Jan. 27, 1935. At this time his only complaints were moderate listlessness and inability to walk fast because of stiffness in his feet. There was no pain. March 1 he committed suicide by shooting himself in the head. Judging from the arrangements made for this event, there was no evidence of mental confusion remaining from the illness described in the report. Although several cases of acute thallotoxicosis have resulted from attempted suicide, in this instance there were no known motives for suicide at the time of the poisoning.

8 South Michigan Avenue

<sup>4</sup> Munch, J. C. *Antidotes III. Thallium*. J. Am. Pharm. A. 23, 91 (Feb.) 1934.

<sup>5</sup> Leschke, E. *Clinical Toxicology*. London: J. and A. Churchill, 1934.

<sup>6</sup> Lehman, James, and Gaffney, Leo. *Thallium Poisoning*. Ann. Int. Med. 6: 60 (July) 1932.

## Clinical Notes, Suggestions and New Instruments

### EMERAUDE PERFUME DERMATITIS

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Perfume dermatitis is not common in this country when one considers that thousands of bottles of various types and grades of perfume are sold annually. It is possible that many cases are overlooked by the physician, others may be mild in character and detected by the patient herself. Unfortunately the literature contains very few reports of true perfume dermatitis.<sup>1</sup> These cases are fairly common in France.

There are three types of dermatitis that may be caused by perfume. Dermatitis venenata can be produced by irritants in the perfume coming in contact with the skin at the first application without the intervention of hypersensitivity. This type simulates benzene or turpentine dermatitis (examples of universal cutaneous irritants) and is similar to a chemical burn. At first local, it may spread and become generalized, as a result of autosensitization, a phenomenon first described by Whitfield<sup>2</sup> in 1930. Other cases are due to hypersensitization to certain ingredients such as aldehydes,orris root or dyes after prolonged contact (contact or eczematous dermatitis). A third type of perfume dermatitis first described by Freund<sup>3</sup> in 1916 is called berloque dermatitis, a streaked erythematous eruption followed by pigmentation and produced by the action of sunlight on oil of bergamot, a common ingredient of toilet waters and cologne.

Schwartz<sup>3a</sup> reports five cases of perfume dermatitis among twelve girls whose occupation consisted of bottling perfume. In one of the cases the eruption was severe enough to cause the girl to give up her occupation. In two of the perfumes manufactured there were five possible skin irritants, one of which, linalool, a terpene alcohol obtained from the Mexican oil of linaloe, was found by the use of patch tests to be the probable cause of the dermatitis.

#### REPORT OF CASE

Mrs. A. D., aged 33, a white housewife, in May 1934 had an acute dermatitis involving the left subclavian and left mammary regions from the sternum to the extreme lateral margin of the chest. The condition began two and one-half weeks before consultation as an erythematous eruption which became vesicular in forty-eight hours. The onset was fairly sudden. Various simple home remedies had been used without any effect. The patient demanded relief from the annoying pruritus.

The previous history was negative for hay fever, asthma and urticaria. There was no history of drug idiosyncrasy either by ingestion or by local application. In March 1932 the patient had consulted me for a mycotic infection of the left hand, which disappeared following seven roentgen treatments.

The physical examination did not reveal any functional or organic disturbances. It is noteworthy that the entire skin was moist from perspiration. Examination of the urine gave negative results, and the red and white counts were normal. No focal infections could be determined in the teeth, tonsil or sinuses.

The condition immediately impressed me as being a dermatitis of external origin, and questioning on the first day brought out the fact that the husband was using two preparations on his hair, ontrasan (a proprietary medicated oil) and a sulphur-salicylic pomade. The possibility of an environmental dermatitis suggested itself and patch tests were made with these substances, but both were negative.

In spite of local soothing, astringent therapy, the eruption continued to spread. After repeated questioning on the second visit the patient stated that she had been using Emeraude

perfume daily for the past six months. A small quantity was sprayed on the dress over the left shoulder each evening. A patch test was immediately performed on the back with a Bloch 3 plus reading at the end of twenty-four hours (erythema and vesiculation). After discontinuance of the perfume the eruption entirely disappeared in five days. The perfume supplied by the patient was used as a patch test on four normal controls with negative results. No attempt was made to make patch tests on the patient with varying dilutions of the perfume.

#### COMMENT

Perfumes are complex products. The better ones on the market may contain as many as twenty-five ingredients in varying proportions, the exact formulas being carefully guarded trade secrets. It is difficult, therefore, to determine the specific sensitizing or irritating substance in the individual case. Most perfumes consist of (a) a coloring, (b) a fixative, (c) a solvent, (d) essential oils (fortifying) and (e) odor—animal, vegetable or synthetic.

According to Jausion,<sup>4</sup> perfume dermatitis may result from sensitization to anilines or acetoaldehydes or from photosensitivity to the essential oils or to the coloring matter. There is usually an abnormal condition of the skin or what the French call the terrain, which acts as a predisposing factor. The conditions may be (1) previous sensitivity to other substances, (2) seborrheic dermatitis, (3) perspiration and (4) friction. In the case described, perspiration was an important factor, as the summer was abnormally hot in St. Louis.

#### DIAGNOSIS

The diagnosis of perfume dermatitis rests on careful questioning and on the clinical evaluation of the following points, which Hollander<sup>5</sup> has stressed:

1 Location of the eruption. The bulk of the eruption will appear at the site of application (ears, nipples, chest, sides of neck or axillae). Generalization due to autosensitization occurs as the result of scratching or rubbing.

2 Sudden appearance. The onset is usually mild in hypersensitive individuals and severe if due to local irritant reaction.

3 Intense itching and burning. The intensity of these symptoms is usually out of proportion to the extent of the eruption and may be severe in neurotic patients.

4 Time element. According to Sulzberger and Kerr,<sup>6</sup> eczematous sensitiveness consists of two periods of development: (a) the period of incubation or formation of sensitivity, which is extremely variable from months to years; and (b) the period of reaction time, which is usually constant and lasts from twenty-four to seventy-two hours.

5 Type of skin eruption. The berloque type of perfume dermatitis is usually linear and followed by pigmentation after exposure to sunlight. The contact type is at first localized over the site of application and may be erythematous or vesicular, depending on the degree of hypersensitiveness and the concentration of the antigen.

6 Diagnosis. The use of the patch test in skin testing is imperative in this type of case as the sensitization is epidermal. A square of white blotting paper 1 cm. by 1 cm. is saturated with the perfume to be tested and then applied to the skin over the back or over the V of the neck. The site is examined at the end of twenty-four, forty-eight and seventy-two hours to determine the degree of reaction.

7 History. Last but not least, incessant and repeated questioning is always necessary to elicit the facts. If cosmetic dermatitis is suspected the type and name of the various cosmetics, the frequency and time of use and the time of greatest intensity must be determined. In perfume dermatitis, the odor of the perfume that the patient is using should create suspicion.

#### CONCLUSIONS

Perfume may act as an eczematogenic agent under certain conditions and provoke a contact or eczematous dermatitis. Some cases of perfume dermatitis may be due to the fact that

1 Cole H. N. Investigation of Injuries from Hair Dyes Dyed Furs and Cosmetics, J. A. M. A. 88: 397-399 (Feb. 5) 1927. Babalian M. Dermite cervicales et sensibilisation par les fourrures teintes et les parfums. Bull. soc. franc. de dermat. et syph. 37: 496-504 (April) 1930.  
2 Whitfield A. Autosensitization in Eczema. Eighth International Congress on Dermatology and Syphilology, Copenhagen 1930, pp. 142-145.  
3 Freund E. Ueber bis her noch nicht beschriebene kuesliche Hautverfarbungen. Dermat. Wehnschr. 63: 931 (1916).  
3a Schwartz. Skin Hazards in American Industry. Pub. Health Bull. 215.

4 Jausion M. in discussion on Babalian.  
5 Hollander Lester. Dermatitis Produced by Cosmetics. J. A. M. A. 101: 259 (July 22) 1933.  
6 Sulzberger M. B. and Kerr P. Sensitizations of Eczematous Type. Ten Selected Cases Illustrating Some Uses of the Patch Test. J. Allergy 4: 326 (May) 1933.

certain batches may be more concentrated than usual, or irritants may develop in the perfume from the action of light. Since most good perfumes are tested on the skin clinically by the manufacturers, the question of individual sensitization and preexisting changes in the skin rendering it more susceptible to damage must be considered. Once the cause is suspected the patch test is valuable in proving the diagnosis.

Without entering into a discussion of the antigen-antibody theory, it suffices to say that in the case reported there was a long incubation or refractory period of six months which finally ended with a cutaneous display of hypersensitivity (erythematous eruption). Repeated insult to the skin by the continuous use of the perfume finally produced an erythematous eruption, which in forty-eight hours became vesicular (reaction time). A threshold concentration of the perfume which was qualitative in nature, was necessary to change the clinical picture. Perfume dermatitis while more complex than that due to budesin picrate, corrosive mercuric chloride and other drugs, consists of the same vital processes and manifests itself according to similar principles of hypersensitivity.

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#### DEATH FOLLOWING COAGULATION OF THE CERVIX

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From a survey of the literature one would gain the impression that coagulation and cauterization of the cervix were entirely harmless procedures. Yet I am aware of two deaths following cauterization of the cervix, reports of which have not as yet appeared in the literature. In one of these cases a retroperitoneal phlegmon and in the other a generalized peritonitis were found at autopsy. In 1928 Curtis<sup>1</sup> casually mentioned three cases of pelvic cellulitis from the use of cauterization treatment of the endocervix. All of his patients recovered. He felt that this complication was perhaps more common in those women who have a retrodisplacement of the uterus.

The two cases reported here emphasize the fact that coagulation of the cervix is not entirely without danger, especially if there has been a previous history of septic abortion.

#### REPORT OF CASES

**CASE 1—History.**—M. R., a white woman aged 26, a waitress, was seen in consultation, Feb. 12, 1934, complaining of pain in the lower part of the abdomen. Nine days previously she had had a coagulation of the cervix with the Cherry electrode for about forty seconds. Following the coagulation she had experienced mild lower abdominal pains for about seven days. At the end of the seventh day the abdominal symptoms were aggravated and abdominal distention began to develop. She was admitted to the hospital on the following morning with a temperature of 100, pulse of 92 and a respiratory rate of 20. There were no symptoms referable to the urinary, cardiovascular, respiratory or central nervous systems. Except for mild constipation, requiring the regular use of magnesium magma, there were no symptoms of gastrointestinal disturbances. The patient had begun to menstruate at 13. The periods were always irregular until she was 18. The flow lasted about seven days and was accompanied by dysmenorrhea on the first day. During the past three to four years the flow had lasted only two or three days. She had been married at 16 and gave birth to a child when she was 18. A few months after the birth of her child she again became pregnant and had a criminal abortion performed by a midwife. She became extremely ill with chills and fever and pain in the lower part of the abdomen and was confined to bed for several months. Two years before admission she began to have attacks of sharp pain in the left lower quadrant. These came at irregular times and were accompanied by a thick yellowish vaginal discharge varying in amount but never profuse enough to require the wearing of a napkin. At the age of 22 she was divorced. Her past history was devoid of other significant illnesses, operations or accidents. Measles had been suffered in childhood. Her mother, father and two sisters were all in good health.

**Examination.**—The blood pressure was 112 systolic, 70 diastolic. The pulse rate was 120. The temperature was 100 F. The respiration rate was 28. The patient was well developed and well nourished. She was acutely ill and pallid. No evidence of a pathologic condition in the lungs was found. The heart was rapid but no murmurs were detected. The abdomen was distended, and marked tenderness and muscle spasm was present over both lower quadrants. On vaginal examination, one could note infiltration in both broad ligaments as well as in the culdesac of Douglas. No bulging was noted at the first examination.

Both Wassermann and Kline tests were negative. The patient was a Moss type II. February 12 the hemoglobin was 93 per cent, the red blood cell count 4,780,000, the color index 0.9 plus and the white blood cell count 25,600, with 50 segmented and 45 nonsegmented polymorphonuclears, 3 lymphocytes and 2 monocytes. A blood culture taken on February 13 showed no growth after seven days.

Urinalysis, February 13, disclosed an acid, cloudy, dark amber urine with a specific gravity of 1.016, a trace of albumin and no sugar. A few leukocytes, an occasional granular cast and some squamous epithelial cells were found.

The impression gained was one of acute exacerbation of a chronic pelvic inflammatory disease, probably originating in an old postabortal infection.

**Progress.**—On the evening of the day of admission to the hospital the patient had a chill, after which her temperature rose to 105.2. This might have been accounted for in part by an intravenous infusion of dextrose and saline solution which she had obtained at noon. Her temperature thereafter fluctuated between 100 and 102.6. Dextrose and saline solution were administered intravenously almost daily and calcium gluconate was administered intramuscularly. The Levine tube was inserted for continuous gastric drainage, February 16, and left in place for two days. February 18, bulging was noted in the posterior vaginal vault and the entire vulva became edematous. Aspiration of the culdesac of Douglas yielded about 6 ounces (180 cc.) of thick gelatinous pus which on laboratory examination proved to contain gram-positive cocci in short chains—streptococci—gram-positive cocci in groups—staphylococci—and a few gram-negative bacilli. The patient's condition became progressively worse, presenting the characteristic picture of peritonitis, until death occurred, February 19.

**CASE 2.**—Mrs. G. H. was a well developed white woman, aged 22, who had had a criminal abortion performed a few years previously. She had no children. She could not recall the exact date of the abortion but estimated it to have been about three or four years previous to her present illness. In childhood she had had rheumatic fever following which a heart murmur developed. Since her abortion she had had pain in the lower part of the abdomen and on examination her physician had found an erosion of the cervix. He coagulated the cervix with a Cherry electrode, July 9, 1934. July 11 she began to have pain in the abdomen and was seen by me July 12 when she had a temperature of 100.4, pulse of 110 and presented marked tenderness in both lower abdominal quadrants. The rheumatic mitral condition was easily identified by the transverse hypertrophy of the heart and a rough systolic murmur at the apex. She was put to bed in Fowler's position with an ice bag to the lower part of the abdomen and nothing by mouth. By July 14 her temperature had returned to normal and the lower abdominal pain and tenderness had somewhat abated. She made an uneventful recovery.

#### COMMENT

In both of these cases a history of peritonitis following criminal abortion was present. In one case the abortion had been performed seven years prior to the cervical coagulation, and in the other at least three years. One might well be justified in questioning the possibility of organisms lying dormant in the tissues for such long periods in such a state as to be activated by the inflammatory process occasioned by a cervical coagulation. Curtis<sup>2</sup> expressed himself as follows on this point: Streptococcus infection of the tubes, as previously stated, is but part of a more widespread pelvic involvement.

<sup>1</sup> Curtis, A. H. Gonococcal Lesions of the Female Genitalia. *Am. J. Obst. & Gynec.* 10: 531 (Oct.) 1928.

<sup>2</sup> Curtis, A. H. Chronic Pelvic Infections. *Surg. Gynec. & Obst.* 42: 6 (Jan.) 1926.



The complete picture may, however, closely resemble gonorrheal disease. A history of abortion, a persistent tendency to aching distress in the pelvis, a prolonged tendency to slight chills or low grade fever are suggestive. The tissues may yield bacteria for a long period of time six months is fairly common, recovery of streptococci after two years is not infrequent, in one instance they were obtained eighteen years after the initial infection." The dormant bacteria, however, may possess varying degrees of potential virulence, since in the one case cited a fatal peritonitis resulted, whereas the other patient recovered. These cases further demonstrate that no lasting immunity need result from a previous peritoneal invasion.

#### CONCLUSIONS

A history of a septic abortion must be considered as a definite contraindication to coagulation treatment of the cervix.  
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## Special Articles

### GLANDULAR PHYSIOLOGY AND THERAPY

#### PREGNANCY TESTS

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The old problem of the biologic diagnosis of pregnancy, that is, without physical examination of the woman, has practically been solved by the demonstration of the existence of certain hormones. No hormones are known, however, that appear solely and constantly during pregnancy, there are no specific hormones of pregnancy. Consequently there is no specific hor-

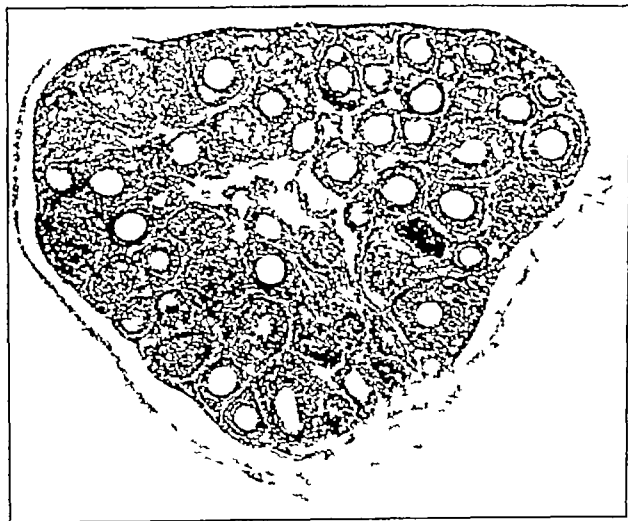


Fig 1—Ovary of infantile mouse (normal control) Numerous small follicles, no mature follicles

mone pregnancy reaction in the strict sense of the word. In human pregnancy there occurs so great an increase of certain hormones in the blood and so large an excretion of these hormones in the urine that, on the

In this translation from the German gonadotropic substance is employed as a generic term to indicate the gonad stimulating principle or principles of pregnancy blood or urine. The question as to whether this consists of one or of two factors has been discussed in the papers by Smith and by Collip. From the practical standpoint of pregnancy tests this makes little difference.—Ed

basis of this increased production and excretion, it is possible to diagnose pregnancy with the aid of animal experiments. The basis of the biologic pregnancy test therefore lies in quantitative and not in qualitative hormonal differentiation of the blood or urine of the pregnant woman as contrasted with the blood or urine of the nonpregnant woman. This difference is so exceptionally great that it may be considered the outstanding characteristic of the blood and urine in pregnancy.

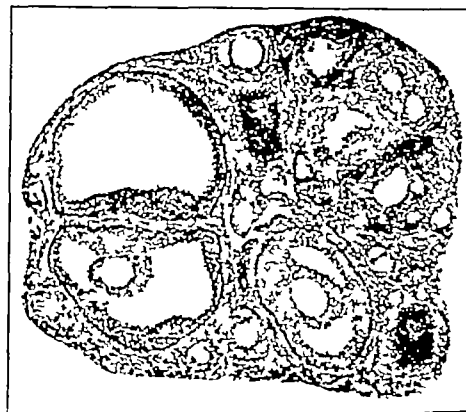


Fig 2—Reaction 1 in ovary of infantile mouse. Large follicle with cavity and cumulus oophorus. This reaction is not adequate for the diagnosis of pregnancy.

There are two types of hormones that are definitely increased during pregnancy.

1 The estrus-producing hormone, which may be demonstrated by the Allen-Doisy test in the castrated mouse or rat.

2 The gonadotropic hormone, which is similar in its effects to the gonad-stimulating substance of the anterior lobe of the pituitary, this principle may be demonstrated (1) by the changes in the ovaries that result from its administration to the infantile mouse or rat, (2) by its effects on the endocrine function of the testicles of the infantile mouse or rat, or (3) by the changes produced in the ovaries of the mature rabbit.

The estrogenic substances are described more in detail in the article of Edgar Allen and the gonadotropic factors in the articles by P. E. Smith and by Collip.

During pregnancy the amount of estrogenic substance increases continuously, so that at about the fourth month it may be demonstrated in from 2 to 3 cc of serum or in 3 cc of urine by direct injection into test mice. During the latter months of pregnancy the amount of estrus-inducing principle increases markedly, especially in the urine, so that at this stage from 10,000 to 40,000 mouse units may be found in a liter of urine. In practice, biologic diagnosis of pregnancy is especially desired during the first few weeks, for this reason assay of estrogenic substance is not satisfactory for early diagnosis, but it may be an aid to diagnosis in the later months of pregnancy. Of seventy-five assays of urine from pregnant women during the first eight weeks, only seventeen showed a positive Allen-Doisy test with 4 cc of urine in the castrated mouse, twenty-five gave doubtful results, and thirty-three gave negative results. Furthermore, urine assays of many women afflicted with amenorrhea, some of whom had follicular cysts, gave positive Allen-Doisy tests with 4 cc of urine in the absence of pregnancy.

thus, assay of the estrus-inducing principle may be considered useless for the diagnosis of pregnancy.

In contrast are the rates of production and excretion of gonadotropic substance. Within a few days after the missed menstrual period it is present in the blood and is excreted in the urine in such amounts that a gonad-stimulating effect is demonstrable in from 1 to 3 cc of whole urine and even in smaller quantities of this fluid. The pregnancy test that I have developed is based on the assay of gonadotropic substance. The principle of the reaction consists in demonstration of the unusual increase of gonadotropic substance in the organism of the pregnant woman. As this substance is so abundantly excreted in the urine, the test consists in its detection in urine rather than in blood serum, the patient is thus not inconvenienced. The gonadotropic substance produces the same changes in the ovary of the infantile mouse as implantations or extracts of the anterior lobe of the pituitary, as Zondek and I, and P. E. Smith and Engle have demonstrated, a positive Allen-Doisy test may be obtained in from three to four days after the beginning of the experiment. However, estrus is not produced through the presence of estrogenic substance in the anterior hypophysis, as no effect occurs in castrated animals. This phenomenon is mediated by the changes produced in the ovaries of normal animals by an anterior pituitary gonadotropic factor.

In the ovary there appear (1) large mature follicles which on their part produce an estrogenic hormone (estrus is accordingly a secondary effect of the anterior pituitary factor), (2) numerous corpora lutea which either enclose the ovum or result from ruptured follicles, (3) large blood-containing follicles, especially in mice. On the basis of microscopic investigations we differentiate the following three reactions as the characteristic effects of gonadotropic substance on the ovaries of infantile mice.

1 Reaction 1 Follicular maturation, formation of large follicles with secondary estrus (figure 2, com-

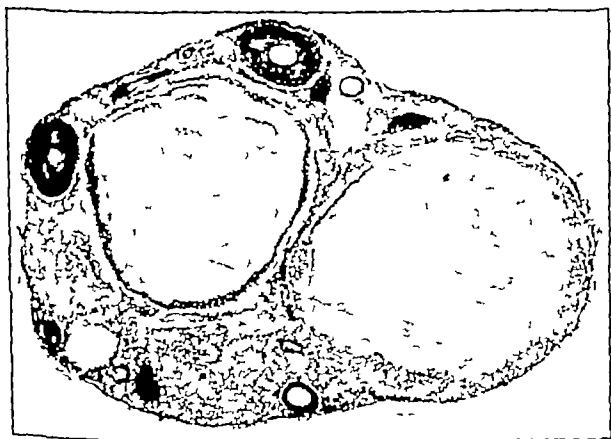


Fig 3—Reaction 2 in ovary of an infantile mouse. Hemorrhage in enlarged follicles (blutpunkte). This reaction is used as a pregnancy test.

pare with figure 1, which represents the normal ovary of an infantile mouse).

2 Reaction 2 Hemorrhage in the follicles (German, "blutpunkte") (fig 3)

3 Reaction 3 Formation of corpora lutea with imprisonment of the ovum (fig 4)

The appearance of corpora lutea with enclosure of the ovum following administration of an extract of the

anterior pituitary was first discovered by Long and Evans. Reaction 1, the formation of mature follicles, presents a physiologic effect, reaction 2 and reaction 3 may be designated as pathologic reactions. Under appropriate experimental conditions certain corpora lutea may appear without enclosure of the ovum, following rupture of mature follicles, that is, the physiologic process of follicular maturation and rupture may be brought about by hormones of the anterior hypophysis.

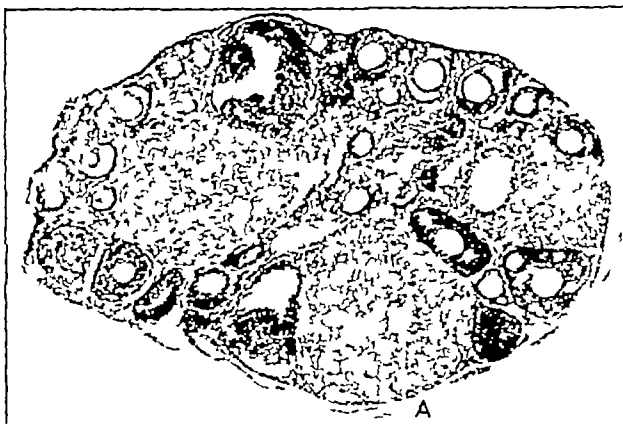


Fig 4—Reaction 3 in ovary of infantile mouse. Corpora lutea (3) with enclosure of ovum, A (corpora lutea atretica). This reaction is likewise used as a pregnancy test.

The known fact that the anterior lobe of the hypophysis hypertrophies during pregnancy and the generally accepted thesis that this hypertrophy of the anterior lobe is a sign of increased function induced me to investigate whether or not the characteristic principles of the anterior lobe could be demonstrated in the organism of the pregnant woman by means of the aforementioned reactions. I found that implantation of placenta, decidua, corpus luteum of pregnancy and even ovarian cortex of pregnancy produced the same reaction in each case, injection of amniotic fluid or of embryonic extract was similarly effective. Most important of all was the demonstration that the serum of pregnant women contained gonadotropic substance having effects in the infantile mouse similar to those of extracts of the anterior hypophysis. The evidence apparently substantiated the thesis that gonad-stimulating substance appeared in the blood through increased activity of the pituitary itself. It appeared from my discovery, however, that the placenta was very rich in this substance, particularly in the early months of pregnancy, that this organ might also be involved in its production. Later it was found (Philipp) that implantation of the hypophyses of pregnant women into infantile animals had no effect on the ovaries of these animals. It appeared from these studies that the substance which we were able to demonstrate in pregnant women was not of hypophyseal origin but was produced in the placenta. The question is as yet not definitely decided, however, from the practical point of view it is not important for the pregnancy test.

After parturition, gonadotropic substance disappears from the blood stream within three days, at least it cannot be demonstrated after that period in 3 cc. of serum. This fact induced me to investigate what happened to this hormone in the body and whether or not it was excreted in the urine. After I had determined the excretion during the first few days of the puer-

perium I came to the amazing conclusion, on investigating further that gonadotropic substance is excreted in the urine of pregnant women in such large quantities that even as soon as four or five days following the expected onset of the missed menstrual period a positive reaction could be obtained in infantile mice with from 1 to 3 cc of urine. It immediately occurred to me that assay of gonadotropic substance in the urine presented a useful test for the diagnosis of pregnancy

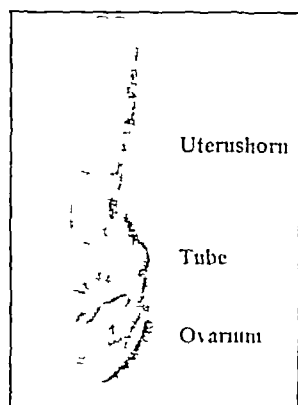


Fig 5—Ovary of infantile mouse (normal control) magnified six times

and in the large series of investigations that I conducted, originally in collaboration with Zondek, this assumption was completely substantiated.

In these investigations it was soon apparent that the effect designated as reaction 1 that is, the formation of large follicles with a secondary Allen-Doisy reaction, could also be demonstrated with the urine of women beginning the menopause or of those in the advanced climacteric, with the urine of castrated women and with that of

women with severe primary or secondary amenorrhea. Women with carcinoma of the uterus were found also to excrete follicular maturation substance, often in great amounts, I now believe on the basis of recent investigations that the fact that most of these women were in the menopause is more important than the fact that they were suffering from carcinoma.

Reaction 1 consequently does not serve as a satisfactory criterion of pregnancy. Definite criteria for the diagnosis of pregnancy are reaction 2 (blutpunkte) and reaction 3 (corpora lutea). Reaction 1 must also be evaluated, since occasionally it is the only reaction that occurs in early pregnancy. In such cases the test must be repeated, as far as I was able to determine, in actual pregnancy reactions 2 and 3 always occurred subsequently.

The technic of the reaction proposed by myself with a few slight modifications of the original method, is as follows. Five infantile mice are used for each test. The animals are weighed at the beginning of the experiment, they should weigh not less than 6 Gm nor more than 8 Gm (Animals of this weight which we procure from dealers in Germany, are usually from 3 to 4 weeks old and show no spontaneous sexual maturation. In other stocks, previous investigation must be made as to the weight of the animals at puberty.) The first urine passed in the morning is injected into the animals subcutaneously, in six doses. Originally six doses of 0.2 cc, of 0.25 cc, of 0.3 cc (two animals) and of 0.4 cc were injected into each of five animals, respectively, during a period of thirty-six hours. For the sake of simplicity this procedure was modified so that six doses of 0.5 cc are injected into each of five animals, three doses on the first day and three on the second day. (Many urines are quite toxic. Some of these toxic urines, but not all of them, may be detoxicated by shaking them up with ether in accordance with the method proposed by Zondek.) On the fourth and fifth days, vaginal smears are made, ninety-six hours after the beginning of the test the animals

are killed and the ovaries examined for corpora lutea and blutpunkte. These may usually be seen with the naked eye but more readily with a lens (figs 5 and 6). A microscopic examination of the ovaries is seldom necessary. I make such examinations only to establish the occurrence of reaction 1 in case a positive Allen-Doisy test shows a definite hormone effect but the corpora lutea and hemorrhagic spots are not apparent. In such an event the urine is subjected to a second examination.

Positive results sometimes may be obtained as early as sixty hours after the first injection. In this case it is advisable to use several more animals and to kill only half of them at sixty hours. If a positive diagnosis is not made at this time, the result is checked with the remaining animals at ninety-six hours. In emergency cases the Friedman method, which employs mature rabbits may be used, with this method diagnoses may be made in twenty-four hours.

My own results in 2,000 control urine assays made on women with undisturbed normal pregnancy and on nonpregnant women were as follows:

Urine specimens of normal undisturbed pregnancy, 925  
Positive reactions (2 and 3), 908, or 98 per cent  
Negative reactions, 17, or 2 per cent

Of these seventeen cases, eleven showed reaction 1. Of these eleven cases, eight gave definite reactions 2 and 3 on the subsequent tests. Urines of the other three patients were not sent to the laboratory for further investigation, hence these could not be examined again. Therefore, false negative reactions were obtained in only six cases, or in 0.65 per cent of the cases of pregnancy.

Urine specimens from definitely nonpregnant women, 1,075  
Negative, 1,070, or 99.5 per cent  
Positive (2 and 3), 5, or 0.5 per cent  
Results 2,000 urine examinations with twenty two mistakes, or 1.1 per cent

False diagnoses, excluding the cases showing reaction 1 amounted to eleven cases, or 0.55 per cent. Seven

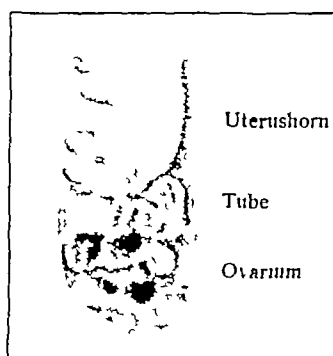


Fig 6—Ovary of mouse injected with pregnancy urine. Blutpunkte (4), corpora lutea (2), positive pregnancy reaction (magnified six times)

hundred urine specimens were included that were taken from the fifth to the eighth week of pregnancy, of which the results of the test in fourteen were erroneous (2 per cent). Of these fourteen mistakes seven were corrected by the second test (namely those which gave reaction 1), so that for early pregnancy practically 99 per cent of the results were correct and 1 per cent erroneous.

Later investigators who worked with the original method reported 11,345 urine examinations up to 1933 with 211, or 1.8 per cent, false reports. These results deviate only slightly from my own. The reliability of this reaction, therefore, exceeds by far that of all other biologic pregnancy tests.

Before the application of this method to pathologic cases of pregnancy is discussed it is necessary to con-

questions: 1. How early in pregnancy does reaction occur? 2. How long does it persist after termination of pregnancy?

Several cases have been reported in which a test made following the coitus resulting in pregnancy with a positive reaction was obtained before the expected subsequent menstrual period. A positive reaction in such cases several times. A reaction was reported in one case ten days and in another case fourteen days after and in a case

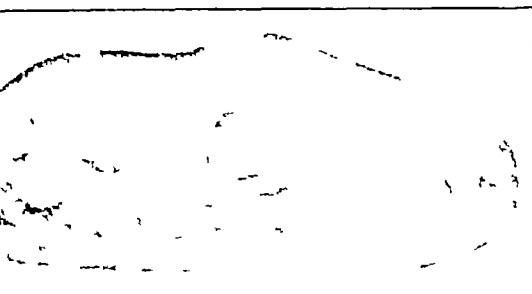


Fig. 7—Ovary of sexually mature virgin rabbit. Large and small follicles are visible neither follicles containing blood nor corpora lutea.

observed sixteen days after the coitus resulting in pregnancy. In view of the small number of cases and it is not possible to state exactly how many days after coitus resulting in pregnancy a positive reaction can first be obtained. Obviously a positive reaction can occur only when the trophoblast has entered the maternal circulation and exchange of material between it and the circulating blood has begun.

With the technic described gonadotropic substance can be detected in the urine beyond seven days after birth of a full term child. The excretion lasts several days following abortions in the early months of pregnancy but this varies in individual cases, in general the action of gonad-stimulating substance ends by the tenth day but in some cases positive reactions may be obtained as late as the sixteenth day. Often before the reaction becomes completely negative, reaction 1 may be obtained.

Since the reaction depends on exchange of material between the uterine circulation and the chorionic epithelial tissue, it may be concluded in some cases that the reaction disappears after having previously been positive, biologic contact between ovum and chorion has been interrupted and the ovum has died. A warning is necessary here. In cases of clinical miscarriage in which the hormone test has been made only once and has been found negative one cannot conclude from this single examination of the urine that the fetus has died, and interruption of pregnancy should never be considered on the basis of a single negative hormone test. In such a case repeated examinations of the urine—also of the blood serum—gonadotropic and estrogenic substances must be determined and all other methods for determining the viability of the fetus (roentgenogram, heart-beat and so on) must confirm the negative hormone tests. Even the most experienced gynecologists will leave expulsion of the fetus to nature.

What does the hormone pregnancy reaction offer to the diagnosis of extra-uterine pregnancy? The clinician speaks of ectopic pregnancy without considering

whether it is a matter of living and growing or of dying or dead extra-uterine pregnancy. The biologic reaction informs one primarily as to whether living chorionic epithelial tissue is to be found in the body. From positive reactions in cases clinically diagnosed as extra-uterine pregnancy one may conclude that either an intact and growing extra-uterine pregnancy or a pregnancy in which the fetus has died just recently is present, as in the case of dead intra-uterine pregnancy, gonadotropic substance continues to be excreted for a number of days. An absolutely negative reaction in extra-uterine pregnancy justifies the contention that the fetus no longer lives, that the villi no longer grow, and that the uterine vessels can no longer be eroded. Reaction 1, which is often found in extra-uterine pregnancy, supports the clinical diagnosis of this condition and makes it probable that the pregnancy has just ceased growing, in these cases with reaction 1 on first examination, later no reaction at all is obtained.

I consider it incorrect in statistics on extra-uterine pregnancy to state, for example, that of 100 cases of extra-uterine pregnancy so many cases gave a positive and so many cases a negative result and to conclude from this that the negative results are failures of the reaction. It is necessary to consider the clinical and the anatomic changes, from which it may be determined why, in a number of cases, the biologic reaction is negative or, better said, why it may no longer be positive. In connection with the clinical changes the hormone test, when it is negative or gives reaction 1, permits a diagnosis of dead or dying ectopic pregnancy. The following is a summary from my own material of results with urine specimens from 122 cases of clinically suspected extra-uterine pregnancy. Of these 122 cases operative interventions in sixty-six confirmed the diagnosis of extra-uterine pregnancy. Of these sixty-six cases, fifty-three showed reactions 2 and 3 and eight showed reaction 1. In the eight cases a dying extra-uterine fetus was present according to the anatomic observations. Five cases were completely negative in these the preparations showed the presence



Fig. 8—Ovary of sexually mature virgin rabbit twenty hours after intravenous injection of 10 cc of urine from a pregnant woman. Follicles containing blood. Magnified seven times.

of an old tubular mole. In forty-nine cases in which differential diagnosis of extra-uterine pregnancy and tumors of the adnexa were necessary, the reaction was negative. Clinical examinations showed that these were not cases of extra-uterine pregnancy. Of the remaining seven cases, three showed a positive reaction 2 and 3, these were cases of intra-uterine pregnancy. Four showed reaction 1, in one of the latter there was a well founded suspicion that shortly before an abortion had

been performed, and in the three other cases this was similarly suspected but not definitely substantiated.

Professor Wagner has proposed the following valuable method for the differential diagnosis of inflammatory tumors of the adnexa with hemorrhage from the uterus and extra-uterine pregnancy with hemorrhage. The patient is given two injections daily of 1 cc of posterior pituitary extract. After from five to six days uterine hemorrhage arising from inflammation disappears, while in extra-uterine pregnancy the hemorrhage persists. A combination of this clinical method with the hormone pregnancy reaction provides a high degree of diagnostic accuracy in the differential diagnosis of extra-uterine pregnancy and inflammatory tumors of the adnexa.

In hydatid mole the pregnancy reaction has also proved quite valuable. As the reaction is positive in these cases it was thereby proved that this is independent of the fetus itself and dependent only on the presence of chorionic epithelium. In hydatid mole the quantity of gonadotropic substance produced often shows an exceptional rise. On an average, approximately 25,000 mouse units per liter of urine (urine collected in the morning) is found in the second to the third month of normal pregnancy. In hydatid mole, however, frequently amounts of several hundred thousand units are excreted per liter. The quantity excreted depends on the size of the hydatid mole. In small hydatid moles and in degenerated hydatid moles an increase above that found in pregnancy may not occur at all, indeed, in one case of hydatid mole that had been isolated from the uterine circulation by a fibrinous coating, no gonadotropic reaction could be obtained in the urine from this patient, although the tissue of the hydatid mole itself was effective on implantation (Philipp). If hydatid mole is suspected, quantitative evaluation of the urine should be undertaken. Values of more than 100,000 mouse units per liter point to the presence of hydatid mole with great probability. Such assays, however, do not give absolute surety, for in one case of twin pregnancy 100,000 mouse units per liter was observed. Recently I was able to demonstrate 100,000 mouse units on first examination in a pregnancy of three months' duration, whereas several weeks later a second examination showed a smaller value, at the termination of pregnancy a child was born with normal placenta. Furthermore, it may be said that hormone diagnosis does not permit one to dispense with clinical and physical methods of diagnosis.

In malignant chorionepithelioma the reaction has attained great significance, in this disease, large amounts of hormone are usually excreted. Clinically and histologically the diagnosis of this type of malignant tumor offers great difficulties. Tissue obtained by curettage frequently presents pictures that are highly suggestive but nevertheless cannot be designated by the investigator as definitely malignant. In such cases the biologic reaction is of great value. If it gives a negative result, malignant chorionepithelioma may be ruled out. In positive observations, however, a quantitative evaluation should be made, high hormone values, 100,000 mouse units or more, point to malignant chorionepithelioma. Since the latter frequently occurs after hydatid mole, it should be required that, in every case of hydatid mole, urine examinations should be continued after evacuation of the uterus until the reaction is negative. This may happen after from eight to ten

days, indeed, excretion of gonadotropic substance may be found as late as two months afterward without implying the presence of a malignant tumor. It need not be especially emphasized that in the latter cases the most careful clinical observation is necessary and that in hemorrhages immediate curettage is advisable. If the reaction is at first negative and some time later a positive reaction sets in, this points to a malignant change in a hydatid mole, provided of course that pregnancy has not occurred in the meantime. After a chorionepithelioma has been removed, the recurrence of a positive reaction indicates the presence of metastases.

In this connection it is necessary to point out that other tumors with chorionic epithelial constituents also exist and that these give a positive reaction. Such tumors, mainly teratomas, are found in both men and women, especially in the generative glands. The clinician should be aware of this, so that he may not be led to a false diagnosis through a positive pregnancy reaction in one of those unusual cases of ovarian teratoma with chorionepithelioma. Furthermore, it may be mentioned at this point that many diseases of the hypophysis may show positive gonadotropic reactions. Pregnancy ordinarily does not complicate such cases, they are mentioned because they show why this test is not designated a reaction specific for pregnancy.

Of the numerous modifications of the method, such as the use of male infantile animals or the use of adult mice or rats, not one has any special advantage or has been generally employed, with but one exception, that is the valuable and important method of Friedman (of the United States) in which gonadotropic substance is demonstrated by means of mature female rabbits. The method is based on the fact that, like extracts of the anterior hypophysis, pregnancy urine causes rupture of mature follicles (which are almost constantly present in mature female rabbits) in from sixteen to twenty-four hours. This is therefore a satisfactory and rapid biologic indicator of pregnancy.

The technic has been practiced by most investigators in the following manner. Ten cubic centimeters of urine is injected into an ear vein of a mature female rabbit, which must have been isolated for at least three weeks previously. The ovaries are examined twenty-four hours later. The reaction is positive if the follicular rupture is marked by a reddish protrusion or by recent hemorrhage in the follicles. According to the literature, the reaction has the same reliability as the original method in infantile mice. I employ it when, as in tubular pregnancy, a rapid diagnosis is necessary, and I regard it as a valuable complement to the original method. It is not a complete substitute for the latter, since one cannot determine the occurrence of reaction 1 by the Friedman method. Frequently I have had a negative result with one rabbit while in mice reaction 1 occurred, without the parallel mouse experiments, false negatives would have been reported. In these cases I repeated the urine tests and was able to make the correct diagnosis. In extra-uterine pregnancy, I consider the rabbit reaction of unusual value because with this method many patients can be operated on from two to three days earlier. In case of freshly ruptured extra-uterine pregnancy no biologic reaction is needed since this type of pregnancy with signs of internal hemorrhage must be brought to operation immediately.

I cannot at this point delve into the question of whether there are one or two gonadotropic substances

Of the other animals, only the higher apes as, for example, the orang-utan, show this urine reaction. In pregnant mares gonadotropic substance is found in abundant quantities in the blood during the first month of pregnancy, as Cole and Hart (of the United States) have determined. After that time it is no longer demonstrable. The pregnant mare excretes unusually large amounts of estrogenic substance especially during the second half of pregnancy. This fact has been applied by Kust and Gravier to the diagnosis of pregnancy. This method has also been verified by Crew of Edinburgh and by Zondek.

The discussion presented here is intended to acquaint the practitioner with the nature and reliability of the hormone pregnancy reaction so that he may make use of it in conjunction with clinical observations in the diagnosis of pregnancy.<sup>1</sup>

## LEAGUE OF NATIONS INVESTIGATION AND REPORT ON TREATMENT OF EARLY SYPHILIS

By THE COMMITTEE OF EXPERTS ON SYPHILIS AND  
COGNATE SUBJECTS, ZURICH NOV 21-23 1934

The Health Organization of the League of Nations publishes<sup>1</sup> the results of an inquiry into the treatment of syphilis carried out in five countries (Denmark, France, Germany, Great Britain and the United States), ninety-three clinics in these countries have contributed to this inquiry and 13 198 case records of primary and secondary syphilis have been analyzed.

Guided by the principles revealed by the study of these records the experts who have collaborated<sup>2</sup> have adopted the following recommendations which are of great interest to syphilologists, public health officers and private practitioners.

1 Treatment should be recommended as early as possible in the seronegative primary stage. In this connection, the fullest possible use should be made, for purposes of diagnosis, of the microscopic examination of secretion from primary lesions or from lymph glands.

2 It should be emphasized that, prior to the institution of either of the systems of treatment to be outlined, there should be an adequate physical examination to determine the absence or otherwise of any indication for caution in respect of the dosage.

3 It is essential that, in carrying out the treatment, a strict supervision of the patient be exercised especially in respect of the mucous membranes, skin, kidneys and liver.

4 Observations, clinical and serologic, after completion of treatment should be adequate and in any case for not less than three years.

5 Adequate examination of the spinal fluid, at least before dismissal from observation, is essential.

6 The principles to be followed in carrying out the actual treatment should be as follows:

(a) To employ a comparatively heavy individual dosage of the arsphenamines and of the bismuth or mercurial compounds, the doses being administered in comparatively rapid succession, especially at the commencement.

(b) To maintain a persistent attack on the disease, avoiding intervals of such length as to afford the parasite an opportunity of recovering.

(c) To administer approximately as much treatment in primary as in secondary cases.

7 The material studied does not enable a clear decision to be made as to the relative merits of intermittent treatment, with courses of injections in rapid succession separated by rest intervals of some weeks, and continuous treatment, or between the simultaneous employment of both arsenical and bismuth or mercury and the system in which bismuth and mercury are withheld until a number of arsenical injections have been administered.

Nevertheless it seems practicable from the results of the analysis and from the personal experience of the experts to formulate a system of intermittent treatment.

TABLE 1—Plan of Courses of Injections

Week	Neoars phenamine Gm	or	Ars phenamine Gm	and	Insoluble Compound of Bismuth Containing Bismuth Metal* Gm
1st	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
2d	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
3d	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
4th	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
5th	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
6th	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
7th	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
8th	0.6 to 0.75	or	0.4 to 0.5	and	0.20 to 0.24
9th					0.20 to 0.24
10th					0.20 to 0.24

\* By insoluble bismuth is here meant compounds of a very slight solubility in water. They should therefore be given in suspension those of extremely slight solubility (the oxychloride, etc.) usually in a watery suspension those that are more soluble (the subsalicylate, quinine bismuth iodide, the alkaline tartrates, etc.) suspended in a vegetable oil. If a liposoluble compound (e.g. the camphocarboxylate, etc.) is preferred it is desirable that the injection be given twice weekly in half doses.

The dosage of all bismuth compounds should be calculated according to their content in bismuth metal.

As an alternative to bismuth a course of mercury may be given either in the form of lunations (40 days at 3 Gm. of unguentum hydrargyri) or of injections (70 mg. of mild mercurous chloride or 120 milligrams of mercuric salicylate, etc. suspended in a suitable base).

and one of continuous treatment either of which can be expected to yield satisfactory results in ordinary cases of early syphilis.

It seems possible that the intermittent treatment that is suggested may in effect be continuous or practically continuous treatment owing to the continued absorption of bismuth from the sites of the injection for some weeks after any temporary suspension of the treatment.

### PLAN OF INTERMITTENT TREATMENT

For adult males of average weight less than 50 years of age and in whom there is no contraindication, a number of courses of injections on the plan described. It should be said that, at the beginning of this course, some administer at once the full weekly dose (from 0.60 to 0.75 Gm.), while others divide it into two doses (e.g., 0.30 and 0.45 Gm.) so far as the first week is concerned.

1 Further discussion of this subject may be found in Aschheim Selmar Schwangerschaftsdiagnose aus dem Harn ed 2 Berlin S. Karger 1933

Claiberg Die biologische Frühdiagnose der Schwangerschaft (AZR) Review in Ber u d ges Gynak u Geburtsh 25 No 4/5 1933 Engle E T in Allen Edgar Sex and Internal Secretions Baltimore Williams & Wilkins Company 1932 chapter XVI

1 Quarterly Bulletin of the Health Organisation 4 March 1935

2 Prof J Jadassohn former director of the dermatologic clinic of the University of Breslau Col L W Harrison technical adviser in venereal diseases Ministry of Health London Prof T Madsen director of the state serotherapeutic institute Copenhagen Prof Louis Queyrat president of the Ligue nationale française contre le peril vénérien Professor Queyrat died and was succeeded by Prof H Gougerot director of the Clinique des maladies cutanées et syphilitiques de la Faculté de médecine de Paris (Hôpital St Louis) Prof C Rasch director of the State Hospital Copenhagen whose place was occasionally taken by Dr Svend Lomholt director of the dermatologic clinic of Finsens Lysinstitut Copenhagen Dr John H Stokes professor of dermatology and syphilology University of Pennsylvania School of Medicine Philadelphia Rapporteur consultant in venereal diseases United States Public Health Service Prof Hans Martenstein director of the dermatologic clinic Municipal Hospital Dresden Friedrichstadt.

It is recommended that

(a) In cases which remain or become serologically negative during, or by the end of, the first course four such courses be administered, with intervals of three to five weeks between any two courses

(b) In cases which have not become seronegative by the end of the first course, in addition to the amount of treatment shown in *a*, further courses should be administered until the patient has received as a minimum three beyond that which has ended with negative serum reactions. At the option of the individual clinician, this treatment may be prolonged as may be considered necessary

and the arsenical, believed by some observers to protect against neurorelapses, one should begin the bismuth treatment two, three or even four injections before the end of the longer arsenical course and continue it through the period in which the arsenical is suspended and on into the beginning of the next arsenical course. The bismuth treatment is then suspended while the arsenical course is completed

The bismuth salt advised for this system is bismuth salicylate in oil suspension, in full adult dosage with due regard for weight. Other preparations of bismuth may be used only with due regard for an equivalent metallic content and for their rate of elimination. The

TABLE 2—Plan of Alternating Continuous Treatment for Early Syphilis

Time	Arsphenamine Gm	Interim Treatment	Serologic Test	Comment
Day				
1	0.3-0.6		1	Arsphenamine dosage for first 3 injections at level of 0.1 Gm for each 25 pounds (11.3 Kg.) body weight. Average subsequent dosage 0.4 Gm men 0.3 Gm women the 4th and subsequent injections in the first course at weekly intervals. In average patient all lesions heal rapidly and blood serologic reaction becomes negative during first course. If arsphenamine cannot be used substitute 8 to 10 doses of 0.3 Gm of silver arsphenamine or 10-12 doses of neoarsphenamine (0.4-0.6 Gm maximum for women and 0.6-0.75 Gm for men). This applies also to subsequent courses.
5	0.3-0.6			
10	0.3-0.6			
Week				
3	0.4			
4	0.4			
5	0.4			
6	0.4			
7	0.4		1	If mercury is used note overlap of 1 week at end of first and start of second arsphenamine courses. At this point a few days without treatment may be dangerous. (Neurorelapse)
8		Bismuth compounds 4 doses 0.2 Gm and potassium iodide or mercurial ointment and potassium iodide		
9				
10				
11				
12	0.4		1	Arsphenamine starts bismuth compounds stop. Watch for provocative serologic reaction after first dose of arsphenamine. Try to prevent short lapses in treatment especially at this early stage.
13	0.4		1	
14	0.4			
15	0.4			
16	0.4			
17	0.4		1	Bismuth compounds are better than mercury use if possible. Examine cerebrospinal fluid if patient's cooperation can be secured at about this time. If found to be abnormal continue or intensify treatment as required, reexamining fluid within 6 months.
18-23		Bismuth compounds 6 doses or mercurial ointment and potassium iodide		
24	0.4			
25	0.4			
26	0.4			
27	0.4			
28	0.4			
29	0.4			
30-37		Bismuth compounds 8 doses or mercury and potassium iodide		
38	0.4		1	
39	0.4			
40	0.4			
41	0.4			
42	0.4			
43	0.4		1	Note that bismuth or mercury courses are gradually getting longer 4, 6, 8 and now 10 weeks.
44-53		Bismuth compounds 10 doses or mercurial ointment and potassium iodide		
54	0.4		1	The average seronegative seropositive primary or early secondary patient should have at least 5 courses of arsphenamine.
55	0.4			
56	0.4			
57	0.4			
58	0.4			
59	0.4		1	It is safer to finish treatment with bismuth or mercury compound rather than with arsphenamine.
60-69		Bismuth compounds 10 doses or mercurial ointment and potassium iodide		
70-122	Probation		0-12	
123	Complete physical and neurologic examination vessels	No treatment	lumbar puncture and if possible fluoroscopic examination of heart and great	

(c) Cases presenting signs of clinical relapse of an early type should be dealt with on principles similar to those enunciated in *b*

For nonpregnant females treatment should be administered on the plan outlined for men, with the exception that the single dose of neoarsphenamine should be reduced by 0.15 Gm and that of arsphenamine by 0.1 Gm

In the event of any reduction in the amount of treatment being indicated, it is recommended that this be effected by reducing the number of arsenical injections rather than by reducing the individual dose or increasing the intervals

As an optional scheme more in harmony with the trend toward longer courses, three series of from ten to twelve injections each of the arsenical drugs may be given. To secure an overlapping of the heavy metal

mercurial injection is 50 per cent metallic mercury in a suitable fatty base, the dose being 4 Gm by injection, from five to six injections each week. The use of the iodide is optional, depending on indications

The use of insoluble mercurials intramuscularly in this system is not recommended

It should be further understood that when heavy metal is employed after the last course of arsphenamine the heavy metal courses are to be separated by rest intervals of from six to eight weeks after each series of ten weeks injections, or each course of forty injections

In cases of primary syphilis that have remained seronegative throughout, a minimum of five courses of arsphenamine or neoarsphenamine should be given. In cases of seropositive primary syphilis, the full treatment called for by this system should be given



## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR CENTRAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

### WARRANTY SIEVED BEETS

**Manufacturer**—The Nielsen Corporation Ltd Oakland Calif

**Description**—Sieved beets prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt.

**Manufacture**—The beets as received from the field are cooked in steam to loosen the skins which are removed by hand. Any necessary trimming is done at the same time. After a final rinse, the beets are cut and ground and subsequently processed and canned by essentially the same procedure as described for Warranty Sieved Spinach (THE JOURNAL, Feb 2 1935, p 399).

Analysis (submitted by manufacturer) —	per cent
Moisture	87.8
Total solids	12.2
Ash	0.8
Sodium chloride	0.05
Fat (ether extract)	0.02
Protein (N × 6.25)	1.3
Reducing sugars as invert sugar	0.6
Sucrose	6.5
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	9.5

**Calories**—0.4 per gram 11 per ounce

**Vitamins**—The method of preparation and processing insures the retention in high degree of the natural vitamin values.

**Claims of Manufacturer**—Specially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving.

### SPECIAL DRICO

**Manufacturer**—The Dry Milk Company, Inc, New York

**Description**—Drum dried irradiated partially defatted milk (Dryco) fortified with vitamin B concentrate prepared from rice polish. Contains from 100 to 125 Sherman vitamin B units per ounce.

**Manufacture**—Rice 'polish' is extracted with moderately warm water. Insoluble matter is mechanically separated out of the filtrate. The almost clear filtrate is dried and stored either in air tight containers or hermetically sealed containers filled with inert gas, or is concentrated to a viscous syrup and stored at a low temperature (—20 C). The vitamin B concentrate, either in dry or in syrup form, is added to the irradiated fluid milk prepared as previously described for Dryco (THE JOURNAL, Jan 2 1932 p 49) in the proportions of 3.5 parts of solids of the rice polish extract to 96.5 parts of milk solids. The mixture is dried by the Just process, as previously described for Dryco, and hermetically sealed in cans in the presence of nitrogen gas.

Analysis (submitted by manufacturer) —	per cent
Moisture	3.1
Ash	7.0
Fat (ether extract)	11.6
Protein (N × 6.25)	31.5
Carbohydrates (by difference)	46.8

**Calories**—4.2 per gram 119 per ounce

**Vitamins**—Contains from 100 to 125 Sherman vitamin B units and from 37 to 52 U S P vitamin D units per ounce. Taken as a daily ration, it prevents rickets.

**Claims of Manufacturer**—Especially recommended for infants deprived of mother's milk and for convalescents.

- (1) HAWAIIAN CROSS BRAND HAWAIIAN PINEAPPLE FANCY CRUSHED  
KING OF HAWAII HAWAIIAN PINEAPPLE (FANCY QUALITY) CRUSHED  
HAWAIIAN CRUSHED PINEAPPLE (FANCY QUALITY)
- (2) HAWAIIAN CROSS BRAND HAWAIIAN PINEAPPLE (FANCY) CRUSHED IN JUICE  
KING OF HAWAII HAWAIIAN PINEAPPLE (FANCY QUALITY) CRUSHED IN JUICE
- (3) HAWAIIAN STAR CRUSHED PINEAPPLE (STANDARD QUALITY)  
SURE HIT BRAND CRUSHED HAWAIIAN PINEAPPLE (STANDARD QUALITY)

**Distributor**—Alexander & Baldwin, Ltd, Honolulu, Hawaii  
**Packers**—Kauai Pineapple Company, Kalaheo, Kauai; Baldwin Packers Ltd, Lahaina, Maui, and the Maui Pineapple Company, Kahului, Maui (subsidiaries)

**Description**—(1) and (3) Grades of crushed pineapple packed in pineapple juice with added sucrose. (2) Crushed pineapple packed in pineapple juice without added sucrose.

**Manufacture**—Crushed pineapple obtained by shaving off the flesh adhering to the skins or by the mechanical cutting of broken slices is cooked in steam jacketed kettles with or without the addition of sucrose, and is canned and processed. The distinction between the grades is that of added sucrose only.

**Analyses** (submitted by distributor) —

(1) Fancy finest quality (sugar added) —	per cent
Moisture	74.8
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	0.5
Reducing sugar as invert sugar	21.1
Sucrose	0.4
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	22.7
Titrate acidity as citric acid	1.1

(2) Fancy finest quality —	per cent
Moisture	84.9
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	0.5
Reducing sugar as invert sugar	11.2
Sucrose	0.1
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	12.6
Titrate acidity as citric acid	0.9

(3) Standard quality (sugar added) —	per cent
Moisture	78.2
Ash	0.4
Fat (ether extract)	0.1
Protein (N × 6.25)	0.4
Reducing sugar as invert sugar	17.3
Sucrose	0.2
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	19.5
Titrate acidity as citric acid	1.0

**Calories** —

Fancy finest quality in syrup	1.0 per gram	28 per ounce.
Fancy finest quality in juice	0.6 per gram	17 per ounce.
Standard quality in syrup	0.8 per gram	23 per ounce.

**Vitamins**—Biologic assay shows the products to be a good source of vitamins A, B and C containing only slightly less than fresh pineapple.

### HERCULES JUSTRITE BRAND GELATIN TITAN JUSTRITE BRAND GELATIN

**Distributor**—Meyer-Blanke Company, St. Louis

**Packer**—Atlantic Gelatin Company, Inc., Woburn, Mass

**Description**—Granular and flake plain unsweetened, unflavored gelatins, graded on the basis of jelly strength for special uses, the same as Atlantic Super-Clarified Gelatin (THE JOURNAL, Feb 18, 1933 p 499).

### RIVAL UNSWEETENED EVAPORATED MILK

**Distributor**—Rival Foods Inc Cambridge, Mass

**Packer**—Sheffield Condensed Milk Company, New York.

**Description**—Canned unsweetened sterilized evaporated milk, the same as Sheffield Sealect Brand Unsweetened Evaporated Milk (THE JOURNAL, Feb 3, 1934, p 373).

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 13, 1935

## FOOD POISONING

Food poisoning has recently become the object of much discussion and experimental investigation. This increased interest may be the result of a newly awakened consciousness that many mild intestinal upsets are due to some toxic bacterial substance. Interest has been stimulated and knowledge increased especially by the work of E. O. Jordan, a pioneer in the field. Food poisoning, in the sense used here, is characterized by diarrhea, nausea, abdominal pains and sometimes fever, which result from the ingestion of foods contaminated with bacteria or their products. The onset is from two to twenty-four or thirty-six hours after eating, and the attacks vary in severity. Usually they are not of long duration and recovery is complete. Botulism, of course, has a distinct and different clinical syndrome, the primary symptoms are great muscular weakness, no fever, profuse secretions from both the mouth and the nose, and often disorders of the eyes. Botulism is not difficult to diagnose and the mortality is high. It is the result of the ingestion of a true toxin from food contaminated with *Clostridium botulinum*. Patients show symptoms of a profound systemic toxemia rather than the gastro-enteric irritation characteristic of the food poisoning under consideration. The cases of so-called ptomaine poisoning are in all probability forms of food poisoning due to toxic substances other than ptomaines.

For many years, members of the *Salmonella* group have been regarded as the most important agents of acute food poisoning other than botulism. Recently, however, Jordan's work<sup>1</sup> has brought proof that other bacteria are implicated. Progress with this investigation has been retarded by the nature of the problem. Often the causative agent must be sought in a remote bakery, canning company or other food concern. The only clue available for the investigator is what he sees in those affected. By a process of selection and elimination he determines what food from a common source the patients have consumed. Not infrequently the contamination may occur in bakeries, bacteria having been

isolated from fillings for cakes and pies. *Staphylococci*, and more particularly *Staphylococcus aureus*, have been isolated as the active agents in a number of outbreaks. Occasionally streptococci also have been found. The symptoms in these cases vary to some extent from those of *Salmonella* poisoning. The incubation period is shorter and, while the symptoms are acute and sometimes alarming, the mortality is low.

The toxic substance causing certain food poisonings is a product of bacterial metabolism. The first successful experiments to establish this fact are described by Dack,<sup>2</sup> who fed bacteria-free filtrates of *staphylococcus* cultures to human volunteers and obtained symptoms of typical food poisoning. Jordan and McBroom<sup>3</sup> in 1932 made successful experiments in several species of juvenile South American monkeys. They fed the animals approximately 50 cc of a filtrate of cultures of *staphylococci* isolated from patients with food poisoning. Diarrhea, loss of appetite and abdominal distress developed. Of thirteen animals infected, definite symptoms were obtained in five. A possible explanation of this small number of takes has been proffered by Borthwick,<sup>4</sup> who states that the  $p_H$  has a definite and strong effect on the active principle in toxic filtrates of *staphylococcus* cultures, the toxicity being destroyed or markedly decreased at a  $p_H$  higher than 7.8 or lower than 6.8. He succeeded in producing symptoms in guinea-pigs without exception by adjusting the stomach reaction to a  $p_H$  favorable for the action of the poison (7.3) before feeding *staphylococcus* filtrates to the animals. Differences of the  $p_H$  of the stomach contents may afford an explanation, then, for the variable results in attempts to reproduce the symptoms in animals.

*Staphylococcus* products are not the only substances to be considered in food poisoning. In a recent epidemic in Winona a green-producing streptococcus was isolated as the causative agent.<sup>5</sup> Twenty-five cubic centimeters of a sterile filtrate of a culture of this organism, when fed to monkeys, caused symptoms identical with those caused by *staphylococcus* filtrates.<sup>6</sup> The chemical nature of the toxic substance has not yet been clearly defined nor has it been demonstrated to be a true toxin. It appears to be similar in *staphylococcus* and streptococcus filtrates and is not limited to strains obtained in cases of food poisoning. Filtrates from streptococcus cultures of both alpha and beta types and from different origins are capable of causing food poisoning. Indeed, the presence of this poison may account for the gastro-intestinal symptoms in scar-

2 Dack G. M. Cary W. E. Woolpert Oram and Wiggers Hazel. Food Poisoning Due to a *Staphylococcus*. *J. Prev. Med.* 4:167 (March) 1930.

3 Jordan E. O. and McBroom Josephine. Results of Feeding *Staphylococcus* Filtrates to Monkeys. *Proc. Soc. Exper. Biol. & Med.* 29:161 (Nov.) 1931.

4 Borthwick G. R. Experimental Observations on Toxic Effects of *Staphylococcal* Filtrates. *Brit. J. Exper. Path.* 14:236 (Aug.) 1933.

5 Jordan E. O. and Burrows William. Streptococcus Food Poisoning. *J. Infect. Dis.* 55:365 1934.

6 Woolpert O. C. and Dack G. M. Relation of Gastro-Intestinal Poison to Other Toxic Substances Produced by *Staphylococci*. *J. Infect. Dis.* 52:6 (Jan. Feb.) 1933.

1 Jordan E. O. *Staphylococcus* Food Poisoning. *J. A. M. A.* 97:1704 (Dec. 5) 1931.

let fever and other streptococcic infections.<sup>7</sup> Further investigation is necessary to ascertain the exact chemical nature of the toxic substance. It is extracted by ether<sup>8</sup> is unstable when heated with hundredth normal hydrochloric acid, does not produce a positive skin reaction, and its effect is destroyed after cultivation of the organism for several generations on artificial mediums.

A knowledge of food poisoning is of importance to the student of public health and to physicians. An accurate recognition of symptoms and prompt report of cases will be of great value in the control of outbreaks. These recent investigations have advanced knowledge of food poisoning and are paving the way to the ultimate control and eventual elimination of the disease.

### WATER TRANSMISSION OF AMEBIASIS

Evidence that amebiasis may be water borne has recently become highly suggestive. As a result of the outbreak of amebic dysentery in Chicago in 1933 cross connections between water and sewer lines and defective piping have been, as pointed out by Magath<sup>1</sup> and others, the source of surprising discoveries. Thus as he says, direct and indirect cross connections between sewerage and water lines is so common that one might say it is universal. The existence of this situation and the belief that massive doses of amebias are usually necessary for the development of human acute amebic infection, strongly suggest the water spread of most acute amebiasis.

Further evidence of water-borne amebiasis is offered in the recent report by Hardy and Spector.<sup>2</sup> Following an extensive fire in Chicago in May 1934 many cases of acute diarrhea appeared followed in due time by typhoid. These occurred in both firemen and spectators. As a result, a careful study of the water system in the fire area was undertaken. A double water supply, partly from private sources and partly municipal, was discovered. Moreover, open cross connections allowing the mixture of heavily polluted water with the city supply were later disclosed. It was thus apparent that most firemen as well as spectators in the immediate neighborhood of the fire were exposed to heavy pollution of their drinking water.

On the third and fourth days after the fire, acute enteritis among firemen was reported. That amebic dysentery might also be present seemed a distinct possibility and hence a special study was instituted. Classic cases were not, however, encountered among firemen.

7 Scamman C L, Lombard H L, Becker E A and Lawson G M. Scarlet Fever Outbreak Due to Infected Food. *Am J Pub Health* 17: 311 (April) 1927.

8 Jordan E O and Burrows William. Nature of the Substance Causing Staphylococcus Food Poisoning. *Proc Soc Exper Biol & Med* 30: 448 (Jan) 1933.

1 Magath T B. The Water Transmission of Infections with Especial Reference to Amebiasis. *J Am Water Works A* 27: 63 (Jan) 1935.

2 Hardy A V and Spector Bertha Kaplan. The Occurrence of Infections with *E. Histolytica* Associated with Water Borne Epidemic Diseases. *Pub Health Rep* 50: 323 (March 8) 1935.

The early onset and course was not that of amebic dysentery, but later clinical and laboratory observations demanded its consideration. This evidence may be summarized as follows. *Endamoeba histolytica* was present in almost two thirds on one stool examination only. Bacteriologic studies failed to reveal other etiologic agents. Treatment with carbarsone was found to be remarkably effective. The late symptoms and course of the illnesses were quite characteristic of amebic infections. The authors therefore believe that *Endamoeba histolytica* was the important etiologic agent in the group with the more severe infections.

The investigation of firemen was paralleled by careful observations in all cases of amebic dysentery reported to the Chicago board of health. Routine information as to possible exposure at the stockyards fire was requested. Eleven cases apparently from this source were discovered. In five of these the laboratory examination pointed to a diagnosis of amebic dysentery, but on clinical grounds the illnesses could not be differentiated from nonspecific enteritis. The remaining cases were of unquestionable amebic origin.

The authors believe that these studies provide definite evidence that amebic dysentery may be water borne. Undoubtedly a large number of amebic infections resulted from drinking polluted water at the fire. There were, however, few cases of classic amebic dysentery. The explanation for this apparent paradox, they feel, lies in the probable association of acute nonspecific enteritis due to massive sewage ingestion with *Endamoeba histolytica* infestation.

### OAKLAND COUNTY, MICH., MEDICAL EMERGENCY RELIEF

The cooperation of physicians, dentists, nurses and druggists in the County Emergency Welfare Administration in Oakland County, Mich., has resulted in a system of medical care for relief clients so comprehensive and satisfactory to all served that its description may be helpful to other localities. The plan is based on a faithful adherence to the intent as well as to the wording of FERA Rules and Regulations No. 7, in the preparation of which, it will be remembered, the American Medical Association participated. A "medical manual" has been issued, containing a description of the plan, all the blanks used, and standard instructions for all those concerned. In the introduction the medical director states that "the reason why we feel that this plan is successful thus far is the utter lack or absence of complaints from the welfare clients, and the universal approval of physicians and dentists."

Among the principles set forth as necessary to "be considered before any medical plan will function properly" are free choice of physician, cooperation of the county medical society, prompt payment for services rendered, no dictation of methods of treatment by law.

men, and a medical advisory committee that can and will discipline the members of the profession more effectively than others outside the profession

A characteristic of this plan, which is a deviation from the practice common elsewhere in emergency relief, is that any person who presents to any physician a card stating that he is on relief is immediately given the medical care needed. The physician reports the service furnished within seven days and receives payment usually within thirty days. This procedure places more responsibility on the physician and secures quicker action than when medical service must always follow a social service investigation. It also does away with any possible influence by a social service worker in the selection of a physician.

The spirit of the understanding is expressed in the statement that "social problems are one thing and medical problems another, and it would seem that by tending strictly to their own field both groups would be fairly well occupied during such times as these."

The medical work is under the direct supervision of a medical director who is a physician. It is made clear that the medical director "should serve in an administrative capacity entirely. It should not be his duty to dictate what diagnosis is made by the family physician or to criticize in any manner the type of treatment without first consulting the advisory committee appointed by the county medical society. In other words, he should refrain from medical dictatorship."

All disputes as to medical matters go before the medical advisory committee of the county medical society. There are special regulations to prevent imposition by clients who demand excessive medical service.

The fee schedule which "is intended as a guide only," is about one half of the minimum fees usually charged in the community. All drugs must be prescribed by the physician and must be taken from the U S P or N F unless special authorization is granted. Except in case of emergency, serious operations require consultation and special authorization. The arrangements as to dental care are practically the same as those for medical service. Nursing, surgical appliances, glasses, special diets and other things considered necessary by the attending physician are provided, also after special authorization.

The cost of the plan has been less than under previous methods of giving relief. In 1934 a total "gross case load" of 15,548 families was given medical care. This case load varied from 5,983 in June to 10,566 in December. The average cost for medical service for 1934 per family per month was \$0.9523 and the average cost per person was \$0.2506. The total payments to physicians for the year were \$89,729.74 and the total cost for all kinds of medical, dental, nursing and other service, excluding drugs and glasses, for which the audit is not yet complete, was \$116,881.06. Laboratory service was furnished by the

county hospital without charge. A letter signed by the board of directors of the Oakland County Medical Society says "We feel that the administration of medical poor relief in Oakland County has come as close to approximating the ideal as it is possible to come in the first year of any program."

## Current Comment

### YELLOW FEVER

*Public Health Reports*, issued weekly by the United States Public Health Service, contains current information regarding the prevalence and geographic distribution of communicable diseases in the United States as far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever and other important communicable diseases throughout the world. An excellent summary of the occurrence of yellow fever and the recent advances in knowledge relating to this disease<sup>1</sup> has just been made available. The incidence of yellow fever in Colombia and in West Africa is discussed, and the present status of this disease in the Americas is outlined. Although yellow fever is no longer a problem as a communicable disease in the United States, the report serves to emphasize the sporadic outbreaks that have occurred in other countries within the immediate past. Protection tests, transmission of protective qualities to offspring, dengue, vaccination and immunization are other topics considered in this report.

### INHERITANCE OF PIGMENTATION

The question is constantly asked whether or not parents who are light in color, that is, one of whom has a small amount of Negro blood, may give birth to a coal-black child. Indeed, newspaper stories of the birth of a black child to white parents whose ancestry shows a slight trace of Negro blood several generations back appear with amazing frequency. The question is also asked whether or not pure Negro children may be born to mulatto parents who occasionally pass as white. The answer is of course in the negative. The entire subject was analyzed by Irene Barnes,<sup>1</sup> who was concerned particularly with the question whether or not the crossing of persons of different color results in a blend of pigmentation. In making her study, a technique for measurement of pigmentation was worked out and the previous literature on the subject was analyzed. Studies were then made on a considerable number of Negroes and the data obtained were compared with those available from previous studies. The conclusions were reached that the offspring of parents of different color tend to resemble the parent with the greater percentage of dark pigmentary supply more than they tend to resemble the parent with the less percentage. However, pigmentation is not inherited by blending nor is

<sup>1</sup> Yellow Fever. *Pub. Health Rep.* 50:369 (March) 1935.  
<sup>1</sup> Barnes, Irene. *The Inheritance of Pigmentation in the American Negro*. *Human Biology* 1:321 (Sept.) 1929.

it produced by the action of one or two factors that act as mendelian dominants. The studies made by the Davenportists indicate that two nearly white hybrid parents can have offspring somewhat darker than themselves but that it is not genetically possible for nonhybrid parents to have Negro children unless a melanic mutation should occur. There is no evidence that such mutations do occur, and the appearance of a Negro child from a white parent naturally has a much simpler explanation.

## Medical Economics

### INFLUENCE OF SICKNESS INSURANCE ON DIPHTHERIA MORBIDITY AND MORTALITY

Diphtheria morbidity and mortality rates seem to offer a fairly sound test of the quality of medical service received by a community. The conquest of diphtheria is now in process. The methods of achieving victory are known. The date of complete triumph depends on the way in which these methods are applied to the entire population. Diphtheria death rates vary directly with the extent to which these known and tested methods of prevention and treatment are made available to the population. This situation furnishes conditions, almost labora-

ever to the existence of insurance, unless it is a negative relation. The number of cases has increased in Germany and Austria, where the insurance system extends to the family, and also in England and Wales, where families are not included. The number of cases has declined most rapidly in Canada and the United States, where there is no sickness insurance.

TABLE 3—Diphtheria Mortality per Hundred Thousand of Population in Groups of Large Cities

	1928	1929	1930	1931	1932	1933
51 German towns*	8.4	10.6	11.7	7.1	5.6	8.0
118 English towns	9.7	9.4	10.2	7.7	6.9	8.2
16 Scottish towns	12.2	11.5	11.5	8.5	8.6	7.2
18 U. S. cities†	9.2	7.8	5.1	3.7	3.2	2.3
28 U. S. states‡		6.4	4.6	4.1	3.8	2.9

Epidemiological Report of the Health Section of the Secretariat of the League of Nations, March-April 1934, p. 52.  
† THE JOURNAL, May 26, 1934, p. 1760.  
‡ Public Health Reports, May 4, 1934.

Promptness of treatment with immediate application of recognized remedies determines the mortality. The statistics on mortality are available only in a somewhat different form from those on morbidity. These statistics are given in table 3.

Again it is noted that the rate of decline in mortality is more rapid in the English and Scottish towns, where children are not included in the insurance system, than in Germany, where they are included. But the most striking fact is that in neither of these countries has the decline been as rapid as in the United States, with no insurance. These figures for the

TABLE 1—Diphtheria Cases Reported in Certain Countries from 1923 to 1933\*

	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Europe											
Germany	31,947	37,948	37,767	30,209	33,690	40,900	50,536	70,002	57,822	64,138	74,530
England and Wales	40,009	41,900	47,720	51,069	59,011	61,134	62,840	74,043	50,290	43,389	47,434
Austria	2,400	3,291	3,709	3,401	6,666	8,173	10,680	15,500	13,556	21,071	20,757
Belgium	2,303	1,645	1,389	1,183	1,033	1,308	1,914	2,648	2,016	2,209	2,169
Denmark	5,692	5,241	5,097	5,315	5,037	5,752	4,069	5,416	3,598	3,037	2,130
Scotland	7,016	6,827	7,292	7,909	10,374	10,796	10,471	10,946	8,910	7,560	8,840
Norway	1,094	1,600	1,212	1,042	1,028	1,100	1,033	1,429	1,367	974	825
Poland	3,634	4,838	5,885	6,826	8,640	10,460	11,977	17,074	14,917	18,767	17,187
Sweden	4,898	3,929	3,890	3,400	3,700	2,890	2,630	4,178	2,576	1,913	1,738
Czechoslovakia	3,159	3,646	4,102	5,343	7,713	12,787	17,438	23,500	22,003	31,940	29,624
America											
Canada		9,068	7,327	7,234	8,001	8,790	8,677	7,534	5,913	3,912	
United States†	146,570	119,831	97,811	94,690	100,924	99,416	85,300	66,676	70,829	56,690	48,613

\* Epidemiological Report of the Health Section of the Secretariat of the League of Nations, March-April 1934.

† Besides the District of Columbia 47 states in 1923 and 1924, 48 since.

tory in type, from which to determine the social value of a medical service.

The arguments for sickness insurance may be summed up in the claim that it removes the economic obstacles to the giving of medical service and thereby secures a wider and more effective distribution of that service. Because of the interest in the progress of this conquest of diphtheria, statistics have been gathered throughout most modern nations.

TABLE 2—Population According to Latest Available Information

	(1933)	(1931)
Germany	65,913,082	
England and Wales	39,947,931	
Austria	8,739,624	
Belgium	8,213,449	
Denmark	3,023,000	
Scotland	4,842,654	
Norway	2,840,000	
Poland	33,000,000	
Sweden	6,190,364	
Czechoslovakia	14,720,138	
Canada	10,370,780	
United States	126,654,000	(1934 estimated)

The League of Nations has assembled the reported diphtheria cases from 1923 to 1933 for a number of countries. These are given in table 1.

The population of these countries, according to the latest available information, is given in table 2. It is at once evident from this table that variations in the number of cases between countries or in time within any country bear no relation what-

ever to the existence of insurance, unless it is a negative relation. This country and Canada, unencumbered by insurance, are the only ones in which there seems to be a possibility of complete victory. In 1933 the following eleven cities of considerable size had no diphtheria deaths: Duluth, Elizabeth, Hartford, Rochester, Salt Lake City, Seattle, South Bend, Spokane, Springfield, Syracuse, Yonkers. Some of the very largest cities in the United States had death rates much less than even the low average. Some of these and their death rates per hundred thousand in 1933 were as follows: Philadelphia, 0.7; New York, 1.2; Baltimore, 0.7; Chicago, 0.2; Milwaukee, 0.8; Omaha, 0.9; St. Paul, 1.1; Minneapolis, 1.4; Oakland, 0.7; San Francisco, 1.2.

Judging by these facts, the conclusion seems inevitable that the very classes for which insurance is proposed are now receiving under a system of private medical practice, in the United States and Canada, medical care far superior to that which is supplied when the same classes are put under an insurance system.

That this conclusion is justified is also the opinion of the observers in countries now having insurance. Edwin H. T. Nash, public health official of England, in discussing "The Present Position of Diphtheria Immunization" in the *Journal of State Medicine*, September 1934, pages 522 to 526, says:

At long last this country is really waking up to the importance and safety of immunization against diphtheria.

America has been some ten years ahead of us in this matter due to a certain extent to the American flair for wholesale publicity together with a more polyglot population in its big towns that is more susceptible to flamboyant methods of propaganda than our more sober-minded and less emotional people.

As a contrast compare London with 1 per cent of its school population immunized with New York State where the numbers immunized exceed 700 000. We have no figures in this country that can compare with those on the other side of the Atlantic. None of us who are immunizing on a larger scale here can approach the figures in some of the American towns where diphtheria is being steadily eliminated. Take Hamilton, Ontario.

In 1922 there were 32 deaths from diphtheria when immunizing was begun.

In 1925 the deaths had dropped to 14, in 1929 to 1, in 1930 there were 2, and in 1931 there were none at all.

Just as I finish writing this paper the *Medical Officer* of the 12th May reports that The diphtheria ward of the Alexandra Hospital at Montreal has been closed because there are not enough cases to warrant it being kept open. It was in 1928 that immunization against diphtheria was started in Montreal. The death rate that year was 28 per 100 000. In 1929 it fell to 15, in 1930 to 10, in 1931 to 6, and in 1933 to 2. Last year 52 063 Montreal children were immunized.

## Association News

### ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty First Annual Meeting held in Chicago Feb 18 and 19 1935

(Continued from page 1249)

DR. MERRITTE W. IRELAND, Washington D. C., in the Chair  
FEBRUARY 18—AFTERNOON

#### TUBERCULOSIS INSTITUTIONAL AND EDUCATIONAL ASPECTS

##### Objectives of the Campaign Against Tuberculosis

DR. KENDALL EMERSON, New York. With the founding of the Trudeau Sanatorium fifty years ago there was planted the seed of a sturdy tree, which has since spread its protecting branches over the lives of thousands of patients, at the same time removing from contact with their susceptible neighbors an equal number of foci each capable of indefinitely spreading the disease. With therapeutic aid in abeyance, with the initial step in handling any infectious disease, segregation, already under way, the first decade of the twentieth century offered the opportunity to gird our loins for a grapple with the leading cause of human mortality. Our resources were the medical profession and the public health service. Were these sufficient? Osler, Welch, Trudeau, Biggs, Bowditch, Billings, Janeway, Cushing, Musser and many other leading physicians of that period thought not, and it was they who added the National Tuberculosis Association to the attacking forces. Since then the nursing profession, social service and public education have all entered the ranks and the campaign has become proportionately complicated. From its inception, leadership has been and always will be in the hands of the medical profession. To the medical profession belongs the credit for recognizing and adopting the basis on which to found and build an effective campaign for the control of tuberculosis. Their objective was to secure the cooperation of the public in the project, and their method was through popular health education. It was agreed that the medical profession unaided had not the time or the training to assume the whole task, so it was decided to give birth to a volunteer health association, which should have both physicians and prominent laymen on its board of directors and which under adequate professional guidance should cooperate in getting across to the public the essential elements of health education. Two thirds of the board still consists of doctors, and there is good professional representation on the boards of all the affiliated and local associations, assuring essential medical direction.

The National Tuberculosis Association considers itself but one factor in the fight for the control of tuberculosis. It covets no position of dominance, its aim is to be a supporting educational arm of the public health service, working always under the skilled guidance of medical specialists. Under any other conditions it could feel no justification for its solicitation of funds from the public to enable it to make its due contribution to a properly coordinated general campaign against the disease. One of the first handicaps to the progress of the campaign was

found to be lack of adequate knowledge of the tubercle bacillus itself. Several discoveries of profound significance had already been made even at the beginning of the organized campaign. Among these was Theobald Smith's identification of the bovine type of bacillus, resulting in the salutary and effective attack on the disease at one of its sources, infected cattle. Here was an objective calling for immediate action and from the start purification of dairy herds, pasteurization of milk supplies and inspection of abattoirs have been aims relentlessly pursued by the campaign. Proof of the transmission of tuberculosis through direct contact with infected persons or with freshly deposited sputum led to antisputting campaigns and laws as well as to the abolition of the common drinking cup and towel and the inspection of food handlers and the regulation of restaurants and drinking places.

Clinically the early diagnosis of tuberculosis is of vital importance both for the sake of the patient's ultimate welfare and for the protection of the public against an occult spreader of the disease. Two priceless discoveries of those earlier days came to hand as aids to this most important task of the clinician: the tuberculin test and the roentgen examination of the chest. From the administrative point of view an essential in eradicating infectious disease is the accurate and complete reporting of cases.

The economic and social problems presented by tuberculosis are recognized not only as those pertaining to any infectious disease but also as those inherent in other chronic illness, entailing long disability, loss of earning power, expensive treatment and the suffering of dependents. These are definitely social problems in a field beyond the borders of strictly medical responsibility. The first effort to meet them systematically lay in the development of the public health nurse. Little by little the social worker has assumed an increasing share of this burden until now the care of a tuberculous patient, in the middle and less privileged classes of society, is clearly recognized as a dual problem, primarily medical but with an essential economic factor. One of the outstanding aspects of the campaign in recent years has been to draw into proper relationship these two phases of the tuberculosis problem as they affect the majority of cases individually and the whole community collectively. From the age of 6 to 16 the entire population of the United States is assembled in school. These years offer a priceless opportunity to put health education to work. It is an opportunity that has been sadly neglected up to very recent times, although for twenty years the sponsors of the campaign have been urging it and the Tuberculosis Association in particular has made large scale experiments to bring it about. In 1900 the death rate from tuberculosis was just over 200 per hundred thousand of the population, last year it was probably below 60 for the general public, and Dublin announces a rate just under 50 for the insured industrial group. Save in those epidemics yielding to specific measures of prevention, no similar achievement is on record in the history of human disease. How much the campaign has contributed, no one can say. It can scarcely be accused of holding up progress. Yet right here complacency meets a rebuff for, although the disease has been successfully demoted from first to seventh place as a cause of death, it still leads in the age group from 20 to 40, usually considered the prime of life. On the other hand a comforting example of what more may be accomplished by intensification of known methods is furnished in the Cattaraugus County demonstration, in which in seven years the rate has dropped from 70 to 38 per hundred thousand. Outstanding among objectives of the campaign is the relentless pursuit of medical and social research to shed light on the darkened areas in the field of epidemiology.

Within the limits of accepted knowledge the following procedures appear sound: protection of the milk supply, early discovery of cases, segregation of infectious cases, protection of the child against first infection or, if already sensitized, against reinfection, elimination of proved industrial hazards, more attention to age and racial groups that show the highest indexes of infection, promotion of acceptable standards of housing and nutrition, intensive research, and eternally hammering away at the task of teaching a none too receptive public how to take care of itself through health education. How is such

a program to be prosecuted? The answer points in just one direction toward the practicing physician. The outstanding objective of the campaign against tuberculosis in the immediate future is the enlistment in that campaign of greater professional interest. Practical control of the disease can be visualized by the more intensive use of even the imperfect methods that are already familiar. Slower progress may be expected as the fighting is turned to the more resistant areas. Skill, endurance and imagination are called for in dislodging the enemy from his more entrenched positions. These can be supplied by the practicing physician alone.

#### DISCUSSION

DR. HENRY C. SWANN, Chicago. There is only one objective in this work, viz., to eradicate tuberculosis, but in accomplishing this end the problem becomes many sided. Of all the lapses, it seems that the greatest lies at the door of the medical profession itself. The physician must take more interest in what always will be his own work. It is regrettable that practitioners of medicine have not kept abreast with the newer knowledge of tuberculosis. For the cause of this one does not have to look far. First, tuberculosis was for a long time considered a hopeless disease. Second it was a long drawn out process when not fatal. Third, the chronicity of the disease did not permit of as sudden or striking results as could be obtained with acute diseases. The result was that the tuberculosis field was almost completely deserted by physicians. Fortunately for the tuberculosis problem a few doctors contracted the disease in those early days, else we should still be leaving the care of the tuberculous to laymen and nurses. From Trudeau down to recent times the bulk of tuberculosis men have been those who had contracted the disease and were forced into the work. There is no excuse for such conditions to prevail today. The disease may now be treated as actively as any other disease. To the indispensable hygienic treatment there have been added the newer methods of diagnosis and newer forms of surgical treatment. Practitioners represent the greatest possible potential factor in early case finding, but much of their opportunities are wasted because of lack of knowledge of the disease. The most important problem, therefore, resolves itself into an educational campaign on behalf of this group. More attention should be given to curriculums in medical schools. Postgraduate work in tuberculosis should be given. Students should be taught the characteristics of early infection, its pathology in primary and postprimary types, its clinical course, its interesting roentgenologic aspects and the immunity and allergic reactions. Many times early lesions are missed on physical examination. It is of the greatest importance to teach that the early lesion is predominantly of a benign character. It does not always produce clinical symptoms nor are the physical manifestations constant. So many times in the past these early cases have been missed by the physician, that his confidence has been shaken in his ability. With this foundation, the frank clinical disease will have more meaning, the doctor will regain his place in the tuberculosis campaign, and the greatest need will be supplied.

#### The Undergraduate Teaching of Tuberculosis

DR. JAMES ALEXANDER MILLER, New York. I approach the question of the undergraduate teaching of tuberculosis to medical students as a part of the course in internal medicine and to a lesser degree also in surgery, rather than from the point of view of a specialty in medicine.

The idea that tuberculosis is a systemic infection, which develops clinical manifestations in practically all organs of the body should constantly be borne in mind. At graduation the usual medical student has an inadequate appreciation of the problems of tuberculosis, and his preparation for the diagnosis and treatment of the disease is far from satisfactory. Students first come in contact with cases of pulmonary tuberculosis through clinical material employed for the teaching of physical diagnosis, an approach which appears to give them a lasting impression that the physical signs are of predominant importance in the recognition of the disease. As a matter of fact, the physical signs in such cases are usually those of lesions already far advanced. It is now being generally recognized as Brauning has put it, that early pulmonary tuberculosis must

be seen, not heard. This means that a much greater emphasis than at present should be placed on the study of roentgenograms of the chest. It would appear desirable from the first contact of the student in his second year with pulmonary tuberculosis that in connection with the teaching of physical diagnosis there should be emphasized its correlation with the corresponding pathologic conditions at autopsy and the study of the pathologic changes during life, which is afforded by the roentgenogram.

The close personal relationship established between physician and patient is the best sort of training for the development of that broad understanding which we like to think of as one of the most admirable qualities of our profession. Nowhere can this be developed so well as in the management of chronic disease such as tuberculosis, demanding as it does a full knowledge of all the personal, social and economic factors involved, as well as a close scrutiny of many symptoms, which are often slight and which require painstaking study to appreciate their significance. To place before the student the necessary clinical material in a proper way, a special chest service and a properly trained staff are essential. This service should be closely integrated with that of internal medicine, not alone should the members of the staff be specialists in chest diseases but they should also have a broad fundamental experience in general medicine.

Because the study of pulmonary tuberculosis affords the opportunity for special training in chronic diseases of the lungs that are not tuberculous, I would emphasize the importance of a general chest service for chronic pulmonary disease, including pulmonary emphysema and fibrosis, bronchiectasis, pulmonary abscess, pneumoconiosis and malignant diseases of the lung. If to this material are added the numerous incidental medical and surgical complications that occur in the course of tuberculosis and the incidental complicating general diseases that occur in any such service, we have offered to us a wide variety in the teaching material available for students, which, if properly studied and properly taught, deserves to have such a service rank in importance with the regular general medical service in the assignment of teaching hours for the undergraduate student. If there is added to this the opportunity for a few days of intensive study in a neighboring sanatorium to learn the details of the sanatorium methods of treatment and the wide variety in the course of the disease, a very satisfactory teaching setup for bed cases becomes available. In addition, there is an immense clinical material available for the study of ambulatory cases in the outpatient department. Here, too, the special tuberculosis clinic should include the other chronic chest diseases and it is here that the opportunity for the teaching of early diagnosis is afforded and the follow-up after-care so important in the management of any chronic disease, particularly tuberculosis. But even more important than this, the outpatient department affords the opportunity for application of the modern principles of preventive medicine, and this is linked closely with the social problems of medicine.

The organized efforts for the prevention of tuberculosis through public health agencies as well as numerous coordinated private agencies, and the methods of health surveys as a foundation for preventive health examination are too little known by the medical student and consequently by the younger practitioner. The underlying principles involved can be taught to the student systematically in the tuberculosis clinic. Some efforts along these lines are already being made in some medical schools, but they are still inadequate. Properly developed this combined medical, public health and social approach to the problem would lead to a broadening of the whole basis of the understanding of the students of the social background, so important in many diseases, and the many home and economic elements involved, and also would impress on them their responsibility for an understanding of the methods of spread of the disease and consequently their responsibility for its prevention as well as for its treatment. Through the social service department each student should have an opportunity to visit and study on the ground the homes and working places of a few patients under their care and to study the public health aspects of the problem as developed by examination of contacts, particularly children, the importance of untoward environment and the possibilities of its remedy.



Another important aspect of the problem is the psychologic one. Any patient with chronic disease faces a great psychologic and emotional problem as well as a physical one.

Of course, the study of the pathologic conditions involved is essential. The treatment of pulmonary tuberculosis has been revolutionized by modern collapse methods, beginning with artificial pneumothorax and going on to include the various more radical surgical procedures. The principles of modern thoracic surgery are largely based on experiences in pulmonary tuberculosis and similar chronic infections. It has developed on a sound basis only if there is a close cooperation between the surgeon and the internist. Therefore a chest service should have its closely correlated surgical unit and the student should have an opportunity to study the course and treatment as a whole under the combined guidance of both the internist and the surgeon. In general, we should begin the second and third year of the medical students' life with a somewhat different approach to chest diseases, emphasizing of course physical diagnosis but also enabling them to understand the limitations of this one method of procedure. Also during this phase of training it would seem logical to begin to include x-ray and pathologic material, and all through the entire course much more training in the interpretation of roentgenograms should be afforded than now exists in most medical schools. The time is gone by when the practitioner in medicine would be satisfied to accept the report of the roentgenologist as giving him a full interpretation of the knowledge to be obtained by this important method of examination. It is in the fourth year during the period of so called medical clerkship that most of this teaching material on chest diseases should be placed before the undergraduate student. Each student should certainly at least have one month, and preferably six weeks of continuous all-day study, with a schedule including the various angles of approach. The Bellevue Hospital Service comprises 180 beds, mainly for tuberculosis, but between 15 and 20 per cent of all patients are suffering from chronic nontuberculous chest conditions. There are over 3,000 admissions each year. Many of the basic requirements that I have outlined as desirable for teaching tuberculosis to undergraduates have been provided at Bellevue. We feel that we need a little more time for each student and that six weeks would be none too long for each fourth-year student to spend in our service. In general, the aim of our teaching is to provide first the material. This consists on the one hand of the patients specially selected because of their type of ailment, and on the other hand of the student, the material of which the physician is to be made. With this human material we provide the tools and the technic for the training of the student under expert guidance. He is also encouraged to learn to think for himself and thus to acquire wisdom rather than to accumulate knowledge. Having arrived at this point he may be a very well trained man, but he is not yet a physician. That end is achieved only if and when the trained man with all his technic turns to the consideration of the original material that is, the human individual under his care. When the proper contact between the individual patient and the individual student occurs, then is created the spark which transforms the technically trained student into that rare product, the true physician. If, under the inspiration of proper leadership, this personal human interest can be widened to include the community environment surrounding the individual patient one may expect to obtain that still rarer flower of medical education, the trained physician with social vision and broad human understanding.

#### DISCUSSION

DR JAMES J. WARING, Denver: While I am in accord with Dr. Miller in recognizing the superiority of the x-rays to the stethoscope in the detection of minimal tuberculosis of the lungs, I would urge great care not to depreciate the art of painstaking physical examination. For the inexperienced student and the careless hurried doctor, the tendency is still, after the lapse of more than a century since its discovery to reach for the stethoscope at the beginning of a physical examination rather than at the end. Care must be taken lest reliance on the x-rays lead to neglect of the development to the highest point of efficiency of inspection, palpation, percussion and auscultation. Tuberculosis must be studied throughout its entire

course. Serial roentgenograms enable one to review, in a few moments, the long drawn out evolution of pulmonary tuberculosis. They are most instructive when they encompass months and even years and when carefully related to conduct and to incidental events of the patient's life. One's morbid existence is caught on the film and may be preserved indefinitely for leisurely study and instruction. Since infection, reinfection or complications may arise today or tomorrow, films should be preserved at least until the death of the patient. I am pleased that Dr. Miller dwelt on the emotional or psychic problems of the consumptive, because it gives me opportunity to speak of the work of the Psychiatric Liaison Department at the University of Colorado School of Medicine and Hospitals. This project, conceived by Dr. Franklin Ebaugh and supported by the Rockefeller Foundation, has been in operation only a few months under the capable direction of Dr. Edward G. Billings. It aims first to effect a more intimate relationship between the personnels of the Colorado General Hospital and the adjacent Psychopathic Hospital and, secondly, to establish psychobiology and psychiatry as efficiently functioning services in the out-patient medical and surgical clinics and the medical and surgical wards of the General Hospital. Through lectures, clinics, ward rounds, seminars, conferences and informal discussions with students and staff, it is hoped to develop a common sense psychiatric approach for the betterment of the patient's condition. The student is being taught in a very practical fashion the technic of discovery and relief of mental and personality disorders. Each day testifies to the success of the plan. In any brief consideration of the teaching of tuberculosis, one can only acknowledge the accuracy of Dr. Miller's premises and wish that every medical school could have a duplicate of the setup at Bellevue.

DR. J. N. BAKER, Montgomery, Ala.: This subject makes a strong appeal to those who are deeply interested in medical licensure. Medical schools are learning that the practice of scientific medicine today is about three fourths preventive and one-fourth curative, and when they incorporate those principles into their daily teaching they are turning out practitioners on whom great reliance can be placed. It is gratifying to see the training they are now given as contrasted with the training of the practitioner who has been in active work for twelve or more years. One of the big problems in the control of tuberculosis is an extension of our educational methods down to the practicing physician of today. If the curriculum might somehow be permitted to seep down into the practicing physician of today, it would be an immense help to those who are trying to exercise control in the communicable diseases. If physicians can be made to realize not only that cure depends on early diagnosis but that their financial interests are materially enhanced through an early recognition and the proper application of modern surgical therapy to the treatment of that, some sort of dent will have been made in the problem.

DR. CHARLES J. HATFIELD, Philadelphia: At the University of Pennsylvania we endeavor to have the teaching of tuberculosis an integral part of the teaching of general medicine. It is the general practitioner who is going to come up against almost 100 per cent of the cases. All through our teaching we try to emphasize the preventive side, both on the personal family lines and also on the epidemiologic lines, the community health. In the second year in Philadelphia in the teaching of physical diagnosis, we have the use of tuberculous patients as contrasted with the normal chest. There is also fifteen hours devoted to the pathology of tuberculosis, lectures and laboratory work. Only five hours is assigned to the bacteriology of tuberculosis. In the third year, lectures on tuberculosis are included in the program of lectures on general medicine. But at the Phipps Institute we have tried to give an intensive survey of the whole field of tuberculosis. We allow only sixteen hours for this particular survey but in that there are given to groups of sixteen four short lectures of only thirty minutes each. Then these groups of sixteen are split into groups of four, and those four are instructed for six hours four different sessions, in the actual handling of tuberculous cases starting with the history taking, physical examination, differential diagnosis, treatment

and prophylaxis. Then to groups of eight a careful outline of roentgenologic work is given. To groups of eight, again, there is an hour assigned for the discussion of the laboratory procedures useful in diagnosis and prognosis. To groups of sixteen two different sessions are devoted to instruction in treatment: medical and surgical, and, again, to groups of eight there are two sessions devoted to a demonstration of surgical treatment and its results, including fluoroscopic examinations of patients and demonstrations of the technique of artificial pneumothorax. To groups of sixteen a session is devoted to the presentation of pulmonary tuberculosis as a public health problem. Throughout the program emphasis is laid on the preventive side of tuberculosis from the standpoint of the patient, his family and the community. In the fourth year from eight to ten hours is devoted to bedside instruction in the tuberculosis department of the Philadelphia General Hospital. Students of the Graduate School of Medicine of the University of Pennsylvania are given a sixteen-hour course at the Henry Phipps Institute. The plan is similar to the course for third year students with however greater emphasis on physical examination and treatment. At least one clinical demonstration of phrenicectomy, pneumolysis and pneumothorax is provided.

DR R. E. PRUNKETT, Albany, N. Y. In Albany we have had the opportunity of watching the effects of Dr. Miller's program of medical education by virtue of our observations of physicians who have established themselves in the various parts of New York State. There isn't any question that Dr. Miller conveys to every medical student that the tubercle bacillus is the alpha of the clinical phases of tuberculosis and the omega of the public health features of that disease. If that is kept in mind naturally, physicians not only will be tuberculosis conscious from the standpoint of the geographic distribution of pathologic conditions within the chest but also will at least look for its manifestations in the sociological and economic phases. In 1919 the state department of health of New York came to the conclusion that if further progress was to be made in tuberculosis control, the physicians in the various parts of the state should be taken into the picture and that a place for the physician, a place for the public health official and a place for the sanatorium should be well defined. A consultation type of clinic was inaugurated which since that time has been conducted in approximately thirty or forty counties throughout the state. No patients are accepted at those clinics unless they have an admission card from their family physician or if they cannot afford a family physician they may secure an admission card from the health officer of the community in which they reside. We have had 100 per cent cooperation on the part of the practicing physicians, and they think of tuberculosis not alone as a clinical entity but also from its public health significance. As a result of this development of good will we have established an esprit de corps with the physicians which, I think correctly, has been paying benefits to the patients. The benefits accruing to the community cannot be measured in dollars. As a result of that service for the last two years, of the cases which we have diagnosed as positive, one of every seven people who come into our clinics have clinical pulmonary tuberculosis and one out of seventeen that are examined at these clinics is discovered as a new case of pulmonary tuberculosis. We have about 1200 physicians participating in this service. Fifty-five per cent of our patients come to us giving a history of known contact with the disease. Among the females examined who gave a history of contact and who have been followed up, 58 per cent are in the minimal stage of the disease as against 44 per cent of the male cases. Of the noncontact groups there are 36 per cent of the females who are in the minimal stage, and 25 per cent of the males. In other words, over half of the cases that come to our clinic are in the minimal stage of the disease. The incidence in these groups is another interesting manifestation of the peculiarities of tuberculosis in contacts. In the females who know of no contact with the positive case the peak of incidence is found between the ages of 25 and 35, whereas in the males who know of no intimate contact the peak of incidence is between 35 and 45. I want to compliment Dr. Miller because of the work he is doing in educating doctors in New York.

### Some Historical Aspects of Tuberculosis

DR LEWIS J. MOORMAN, Oklahoma City. Tuberculosis may have been the first born of the mother of pestilence and disease. Labeled skeletons of prehistoric periods bear the marks of tuberculosis. The Code of Hammurabi, written more than 2000 years B. C., indicates a possible knowledge of tuberculosis. Aretaeus, in the first century A. D., gave accurate clinical descriptions of tuberculosis and suggested routine treatment similar to that employed today. Galen preserved the teachings of Hippocrates and recorded his own observations. He was one of the first to employ climate in the treatment of tuberculosis recommending the balmy zones immediately surrounding Vesuvius. The period of the dark ages was characterized by twelve centuries of lethargy resulting from a combination of religious prejudices against the opening of the dead human body and a static condition of existing knowledge due to galenic fixation. The works of Aristotle, Hippocrates and Galen furnished the foundation for the renaissance of medicine in the fifteenth century, but no progress occurred until Sylvius in the seventeenth century gathered up the lost threads and added his work on the pathology of tuberculosis.

Not until 1761 a hundred years after Sylvius can another genuine advance be recorded. Then came Auenbrugger "knocking at the human thorax." Fifty years later Laënnec put the cruse of diagnosis forward with unprecedented rapidity. Laënnec's revival and amplification of auscultation and his invention of the stethoscope enabled Corvisart to check the results of percussion in the living body, whereas Auenbrugger may have failed to establish the value of his method because he could confirm his observations only at autopsy. Laënnec, more truly than any one who had gone before, brought together the varied clinical and pathologic manifestations of tuberculosis and proclaimed the unity of phthisis. The great teacher Louis, who established clinical medicine throughout the world correlated in a scientific way the symptoms elicited at the bedside with the pathologic changes found at autopsy and inaugurated valuable statistical methods of recording his observations. Virchow, advancing from Bichat's tissue pathology to cellular pathology, made valuable contributions to the knowledge of tuberculosis. However he joined the dualist Schoenlein, who coined the word tuberculosis in order, as he thought, to differentiate the nodular tubercles from the cheesy patch characterizing phthisis. Thus is seen the perspicacity of Laënnec with reference to the "unity of phthisis" blocked by the unfortunate and misguided application of a scientific advance. Not until the discovery of the tubercle bacillus were the dualists routed and the unity of tuberculosis finally established. Villemin, Bodington, Beddoes, Brehmer, Dettweiler, Forlanini, Trudeau, Robert Koch and many others then made outstanding contributions.

As one studies the course of this malady, one is confronted with a strange paradox. The tubercle bacillus resident in the human organism gives rise to two distinct manifestations: the depletion of physical energy and the stimulation of mental activity. In those who are endowed with exceptional mental qualities and are at the same time suffering from tuberculosis often there seems to be a strange psychic stimulus bent on creative accomplishment. In some individuals only the vision of death brings a consciousness of "the divine reality of life." It seems reasonable to say that the progress of medicine has been largely dependent on the stimulus of this dual influence. No doubt Galen periodically came under the spell of tuberculosis. He reports having had two physical breakdowns before he was twenty.

Franciscus Sylvius (1614-1672), who it is thought suffered from tuberculosis not only stressed the importance of anatomic tubercle in the lungs but pointed the way for all great clinical teachers.

William Withering (1741-1799), reported as having died of tuberculosis, gave to the world "An Account of the Foxglove and Some of Its Medical Uses." What a godsend to fibrillators! He also advocated a therapeutic regimen approaching the modern treatment of tuberculosis.

Maximilian Stoll (1742-1787), who succumbed to tuberculosis sharply defined its clinical manifestations. No doubt the consciousness of its presence in his own body had much to do

with his untiring interest. He succeeded de Haen at the University of Vienna, where he directed the clinic in the general hospital, exerting a wide influence in the field of clinical investigation. Corvisart translated Stoll's aphorisms ten years after the author's death. It was here he first learned of percussion. Had it not been for Stoll's influence percussion might have remained dormant and untaught in the poor French translation that antedated that of Corvisart by more than a quarter of a century.

Benjamin Rush (1745-1813), according to Jacobson, was a victim of chronic tuberculosis. He was one of the first to give tuberculosis a place in the annals of American medicine.

Bichat (1771-1802), who died of tuberculosis at the age of 31, made a great contribution to pathology in that he progressed from Morgagni's organ pathology to tissue pathology within the organ.

Laennec (1781-1826) died of tuberculosis at the age of 45. His reaction to his environment was much like that of St. Francis, Voltaire, Robert Louis Stevenson, Keats, Shelley and Sidney Lanier. With remarkable industry and conspicuous discrimination, "he drew up a minute history of nearly four hundred cases of disease" before he was 22 years of age. These carefully tabulated case histories served as a foundation for his future researches and discoveries. When Laennec came upon the scene, the diagnosis of diseases of the lungs and heart was more difficult than that of any other internal organ. In a short time he had made the most difficult diagnostic tasks relatively easy. In half the time now allotted for a medical education, Laennec, virtually without chart or compass, "observed, recorded, tabulated and communicated" practically all that is now taught with reference to the diagnosis of diseases of the thorax.

Louis (1787-1872), who was one of the world's greatest clinical teachers, also suffered from tuberculosis. When 34 years of age he gave up private practice to pursue his clinical and pathologic investigations, the results of which were reported in a volume of 600 pages known as "Louis's Researches on Phthisis." It is impossible to estimate the value of Louis's contribution to medical education. His spirit inhabits the wards of every well ordered hospital, his influence is evident wherever the principles of clinical medicine are taught.

#### DISCUSSION

DR. KENNON DUNHAM, Cincinnati. Dr. Moorman did not touch on the Biblical references to tuberculosis. The Egyptians before the Jews left Egypt had developed a great deal of medical knowledge, locked up in Deuteronomy and Leviticus. Moses wrote "Those who are stricken with cough after illness." It was known long before that. Along in 1700 the Mohammedans the Arabians, were doing the best medical work, and they discovered tuberculosis in cattle. Therefore it became a fetish to have anything to do with eating cattle. The infectiousness of tuberculosis was also recognized a long while ago. Then there are two fundamental pieces of work which I think bear well on our work of the present day and which are not generally recognized. Birch Hirschfeld is the man who gave us the most perfect outline of the bronchial tree. In 1898 he showed that not in the apex but in the posterior part of the upper lobe was the place where one should look for the earliest finding of pulmonary tuberculosis. He wrote so clearly and so accurately that this was called the posterior apical bronchus of Birch Hirschfeld. Today a great deal is being said about the subapical tuberculosis in contrast to the apical lesions, also about subclavicular tuberculosis. That is an x-ray mistake. That is not below the clavicle but it is below the apex in the posterior part of the upper lobe and Birch Hirschfeld is the man who should have the credit for that. In giving history to medical students it is worth while to teach them the importance of the accuracy of the man who found certain things. William Snow Miller is the man working with Mall at Clark University who worked out the anatomic unit of the lung which is absolutely essential to the understanding of pulmonary tuberculosis especially so far as it refers to exudate. The biggest thing is to teach the student how to translate x-ray densities into pulmonary pathologic changes but especially, above everything else, into pulmonary anatomy.

Dr. Hatfield has spoken about what they do in teaching tuberculosis in Philadelphia. We try in Cincinnati to make the student understand the five properties of sound as they vary over the normal chest. A class of four are put together, and they have to learn how the different breath sounds and percussion notes vary over those four normal chests, and then they are allowed to listen to a chest of tuberculosis. These are men after they have had their course in physical diagnosis. Then they are shown how the diseased chest differs from that. The big point is that in auscultation the breath sounds vary in various parts of the normal chest and over different chests that are perfectly well. In addition to that, disease varies greatly. When teaching tuberculosis, one should keep the fundamentals before one's students. First of all, they must learn the normal and compare that with the pathologic. That applies to the roentgenogram.

#### Function of the General Hospital in the Treatment of Tuberculosis

DR. J. ARTHUR MYERS, Minneapolis. The use of the general hospital for the care of tuberculous patients is not a new idea. Centuries ago, in Italy and Spain, these patients were freely admitted to such institutions. Bodington of England conceived the idea of congregating tuberculous patients in an independent institution. The hospital that he used for this purpose failed not only because of the lack of support of the medical profession and the public but also because of the active opposition which developed against his views. In 1858 Brehmer, with views somewhat similar to those of Bodington, established a special institution for the tuberculous in Germany. One of his medical assistants, Dettweiler, developed two similar institutions in that nation. After reading of the work of Brehmer and Dettweiler, Trudeau established the Adirondack Cottage Sanitarium at Saranac Lake, N. Y., in 1885. Although the Channing Home in Boston was in operation for the isolation and palliative care of consumptives as early as 1857, Trudeau's institution was the first in this country actually to offer any hope of recovery for the person who had clinical tuberculosis.

Since the time of Trudeau's initial step in this country, approximately 700 sanatoriums for the tuberculous have been constructed, and the actual bed capacity in these institutions now closely approximates 80,000. The work done by the physicians of these institutions will go down in medical history as one of the greatest accomplishments of the profession. The sanatorium contributed what has proved to be its greatest service, namely, the isolation of the patient. In the beginning of sanatorium work, to protect the entire nation against exposure through isolation of open cases must have seemed hopeless, because of the large number of sufferers from this disease. Today no one would doubt that taking about 80,000 persons with open tuberculosis out of their communities is having a very marked effect on present morbidity and mortality and will have a greater effect in the next generation. This work, together with that of private practitioners of medicine and the veterinarian's unequalled demonstration of tuberculosis control, has brought about an entirely different situation with regard to the tuberculosis problem than existed even one or two decades ago. As early as 1916 the National Tuberculosis Association went on record as recommending the use of general hospitals for tuberculosis. This action was reaffirmed in 1921 and again in 1924. In 1920 the surgeon general of the United States requested action by the American Medical Association concerning the admission of tuberculous patients to general hospitals and in 1921 the House of Delegates endorsed a recommendation to the effect that general hospitals be used in this capacity. Thus, the two most instrumental organizations in tuberculosis control have recommended that general hospitals be utilized in the program. Already a good many general hospitals have opened their doors to tuberculous patients. Moreover, there has been a recent awakening of the members of the medical profession to their responsibilities, the possibilities of marked achievement, the ease with which the disease is diagnosed, and the success with which it may be treated, that may be likened to the renaissance in general medi-

cine of a few centuries ago. This increased interest on the part of the general medical profession, together with the past accomplishments, has brought about a situation so different from that of the past and an outlook so hopeful that it can now be truthfully said that we have entered on a new era in the field of tuberculosis. The goal is to have diagnostic and therapeutic centers established in the offices of at least 100,000 physicians throughout the country, with the hospitals on whose staffs they hold membership offering adequate facilities for their patients who need hospital care.

Whenever a general hospital decides to set aside space for tuberculous patients, some objections are registered. If it is a private institution patients and their families object to paying for the services rendered by the hospital and its staff. This is because of the fact that many of the sanatoriums are tax-supported institutions which were originally intended for the care of the poor but which have in more recent years accepted patients regardless of the financial status on a part pay basis.

Another objection often voiced is that the general hospital is not capable of rendering as good service as the sanatorium. Obviously, the service will depend on the management of the institution. If service is poor in a general hospital there is no reason why it should not be improved through change of management. There is nothing mystifying about the diagnosis or treatment of tuberculosis. The general treatment of tuberculosis consists of conservation of energy, adequate diet and good atmospheric conditions. Strict or partial bed rest as required may be had in any good general hospital, and dietary needs can be provided. The open air treatment of tuberculosis is being rapidly abandoned. Any well ventilated room is adequate. Conditioned air is ideal, and there is little doubt that plants providing such air will be installed in large numbers of general hospitals during the next few years.

Collapse therapy is the most important special measure employed in the treatment of pulmonary tuberculosis. The most effective and most extensively used method of collapsing the lung is artificial pneumothorax. Artificial pneumothorax has long been carried out in the home and in the general hospital with satisfactory results. Surgery of the phrenic nerve, such as phrenicectomy and phrenic excision is very valuable in properly selected cases. The nerve is easily accessible and any careful surgeon can quickly learn the necessary technique. When other methods of collapse therapy fail extrapleural thoracoplasty is often indicated. There should be on every general hospital staff, and is on many of them, one or more surgeons especially interested in chest surgery, who if not already trained, can soon become proficient in extrapleural thoracoplasties. Extrapulmonary tuberculosis often requires surgical treatment, such as that involving the bones, joints and kidneys. The tuberculous patient is not immune to diabetes, appendicitis, cholecystitis and pelvic disturbances. On the general hospital staff there are always members available who are especially interested in such conditions and by reason of training and experience are capable of providing the best treatment. Therefore the needs of the tuberculous patient can be adequately met by the general hospital. Indeed, some of the larger sanatoriums have been converted into general hospitals through the establishment of obstetric, pediatric, surgical, and nose and throat services, and other departments found in a general hospital.

Another objection to the general hospital admitting tuberculous patients is on the basis of contagion. There is no reason why contagion should be feared. The technique employed in any good contagious disease service is adequate, anything less than this introduces an element of danger. Unfortunately, in many cities only one or two general hospitals, and these usually are tax supported institutions, provide contagious disease services. The result is that the private general hospitals lose all the work in this field, and the physician who diagnoses the case frequently loses it because he is not on the staff of the particular hospital providing such service. A contagious disease service added to every good sized private general hospital could be made to increase the revenue of the institution and, better than this, would make it possible for the hospital to render a much better service to the citizens of the community than it is now doing. The danger of contagion with reference to students of nursing and medicine in general hospitals, as well as sanatoriums, has received some emphasis but needs much more. In

the Minnesota General Hospital for a number of years tuberculous patients have been admitted for chest surgery and similar procedures to the contagious disease service. Here it has not been unusual to have a patient with measles in one room, one with tuberculosis in the next, with diphtheria in the next, and so on. So far we have not seen a single case of cross-infection nor have we seen a nurse in this service fall ill from tuberculosis. During the past year we sent a questionnaire to all the students who had graduated from the University of Minnesota School of Medicine since 1920. Much to our surprise, among the physicians who graduated in the earlier years of this period only approximately 5 per cent have had tuberculin tests or x-ray film examination of their own chests, whereas, of those who had graduated in the last two or three years, about 97 per cent had been so examined.

It is a well established fact that, when symptoms of pulmonary tuberculosis appear from 80 to 85 per cent of the patients have moderately to far advanced disease, also, most tuberculous patients do not present themselves to physicians for examination before symptoms appear. Moreover, chronic pulmonary tuberculosis usually exists over two or more years before causing any outward manifestations of its presence. If the physician has detected their disease before it has broken down, such patients do not need to be admitted to a contagious disease service and, if he treats it adequately, the majority of such patients will never spread tubercle bacilli from that particular lesion. Patients with positive sputum should always be admitted to the contagious disease service. Many of them through collapse therapy will have their lesions brought under control so that their disease is no longer communicable to others. When this time arrives, they do not need contagious disease technique any more than the patient who has recovered from typhoid or diphtheria. However, in each of the three diseases one must constantly keep in mind the possibility of the carrier. The 80,000 beds now available in our sanatoriums are inadequate to solve the problem as quickly as it should be solved. There is no thought of displacing any sanatorium when the number of patients is adequate to keep it filled to capacity, it is only a matter of supplementing the very fine work now being done by these institutions.

Because the mortality and morbidity, as well as the number of potential cases of clinical tuberculosis, is rapidly decreasing, it would seem poor economy to provide for more sanatorium beds except in a few places where sanatoriums have been lacking. It would seem far wiser to use beds in general hospitals, of which there are vacant at this time approximately 150,000. Patients who can afford to pay for services should do so and those who cannot should have the fees of the hospitals paid from tax funds, as is done in the case of sanatoriums. It is far better economy for a political division to pay for its patients in general hospitals on a cost-plus basis than to erect new institutions. If the program of tuberculosis control continues to succeed, the demand for sanatorium and hospital beds will decrease rather rapidly, indeed, many now living should see the time when numerous sanatoriums and tuberculosis divisions in general hospitals will be closed for lack of patients. In fact in one state the sanatorium capacity, which was frequently inadequate in the past, has now by reason of decrease in morbidity become greater than the demand. If in addition all physicians and general hospitals attack the problem, a tuberculosis situation can be created for the people of this country as good as that which has been created for cattle.

#### DISCUSSION

DR. EDWARD S. MCSWEENEY, New York. Up to recently there was a general acceptance of certain fundamental principles of treatment of tuberculosis. Discussion during the last few years of newer methods seems to have created the impression that these principles have been abandoned by tuberculosis men and a whole new scheme of treatment adopted. So far as I know, nothing of the kind has taken place. Additions have been made to what we previously had but what we previously had has lost none of its own values and is still held precious. I am here as president of the American Sanatorium Association, and that is the brief I hold, but I shall try to give a fair presentation of the different sides of the matter. Bodington and Brehmer evidently thought of tuberculosis as some sort

of nutritional disorder. They had observed that patients who quite fortuitously rested in the open air and gave particular attention to their nutrition improved and of the few who stuck to it for a long time many apparently recovered. Out of these considerations, medical and personal, grew the concept of the sanatorium—a place located, built, equipped, staffed and managed for this particular purpose. If patients not very sick in the ordinary use of the terms must spend weeks or months in idleness in bed or on reclining chairs, freedom from the sense of confinement means much. So sanatoriums have open porches and angulated arrangements to insure breadth of outlook and a sense of freedom, lawns and flowers, woods, the open sky day and night and all the factors that go to make for contentment over a long period of residence. Contrast this with the hospital, which may be located in the midst of a busy town, having nothing but closed rooms and wards. Brehmer's concept of a sanatorium remains valid. The problem narrows itself to a consideration of what has since been developed, which should modify our handling of it. Since 1858 there have been only two developments applicable to the treatment of tuberculosis of really first rate importance, namely, x-rays and the comparatively recent wide use of pneumothorax. More routine and research lung work with x-rays has been done in sanatoriums than in all other places combined. The x-rays offer no argument for or against sanatoriums or hospitals. Pneumothorax demands more consideration. Any one who does not recognize its value simply doesn't know enough about it. Its field has already been widened and one hopes will be still further developed. As an adjuvant and improvement to sanatorium treatment there is no question about it. Unfortunately, not all cases for one reason or another can be given it nor in many can it be successfully maintained. The process too is not free of danger even to life although this is small but it is frequently accompanied by disabling effusions and all too frequently by empyema. As I said of the x-rays, the same is true of pneumothorax—more routine and experimental use has been made of it in sanatoriums than in all other places combined. Taking all these facts into consideration, I do not see how considered judgment of the values involved can arrive at any other conclusion than that the sanatorium with judicious use of these newer weapons remains the place *par excellence* to treat tuberculosis and that there is no sufficient reason to transfer the treatment of such cases when avoidable to hospitals, especially urban hospitals. Until sanatoriums were developed no method of curing tuberculosis had been evolved although man had been familiar with the disease since the time of the Pharaohs and they have a seventy-five year record of substantial achievement for their patients and the public. No such therapeutic system should be lightly discarded. What may be said on the positive side for general hospital treatment? I have answered this question in one aspect. That which remains is consideration of service to tuberculosis cases which must be treated out of sanatoriums and in this I see no reason why general hospitals should not participate as Dr. Myers has so well discussed to their own and their patients' advantage. There are diagnostic problems best solved by hospital study, and in some places a hospital may serve a useful purpose as a collecting and distributing station. The best solution of a local problem may be a tuberculosis hospital or a tuberculosis wing or a tuberculosis ward, but I want to add my plea to Dr. Myers that the general hospitals not too lightly dismiss consideration of their obligations and opportunities in this respect. The main consideration is that whatever service is set up it be manned by interested physicians and not be a mere adjunct to some general medical scheme. I have made an omission which was intentional. I refer to surgery, more especially rib resections. Such an operation, if successful, is a supreme procedure to the patient, but I am afraid that tuberculosis offers no field for the mechanical doll concept of the treatment of human ailments so prevalent among surgeons. Such work as I have referred to is a specialty within a specialty, and good results can be hoped for only at the hands of operators experienced as well as deeply interested in the problem, and naturally deft technicians with well trained operating teams and carefully applied preoperative and postoperative technique.

(To be continued)

## MEDICAL BROADCASTS

### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

April 18 Catarrh  
April 25 May Day or All Year Round?  
May 2 Being Your Age (4:30 p. m. Chicago daylight saving time,  
3:30 p. m. central standard time)

### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

April 16 Meeting a Challenge W. W. Bauer M.D.  
April 23 Sudden Death Morris Fishbein M.D.  
April 30 Child Health W. W. Bauer M.D.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Personal**—Dr. William B. Wells, Riverside, has retired as health officer of the city and of Riverside County on account of ill health. He has been succeeded by Dr. Wendell A. Jones, Riverside.—Dr. Esther Rosencrantz, associate professor of medicine, University of California Medical School, San Francisco, has been appointed medical adviser to the San Luis Obispo Tuberculosis Sanatorium.

**Bills Passed**—The following bills have passed the senate: S. 21, proposing to regulate the production and distribution of serums, vaccines, bacterial cultures and viruses, and to require the licensing by the department of public health of persons manufacturing, preparing and distributing such products; and S. 468, proposing to amend the medical practice act so as to authorize courts on the application of the state board of medical examiners to enjoin the unlicensed practice of medicine.

**Southern California Meeting**—The Southern California Medical Association will meet at the Arrowhead Springs Hotel, May 3-4. Among the physicians on the program will be:

Harold M. Walton, Loma Linda, Blood Picture in Hodgkin's Disease and Polymyositis with Special Reference to Eosinophilia  
George Franklin Farman, Los Angeles, Treatment of Gonorrhea  
Harris Garcelon, Arrowhead Springs, Mucous Colitis  
Adelbert M. Moody, San Francisco, Endometriosis of the Appendix  
Cysticercus Cellulose  
Percival A. Gray, Jr., Santa Barbara, Hypoglycemic Headache  
Albert H. Elliott, Jr., Santa Barbara, Studies in Peripheral Vascular Disease  
Walter F. Pritchard, San Bernardino, Intravenous Urograms  
Albert D. Neubert, Redlands, Spinal Anesthesia  
Mark A. Glaser and Herman M. Beerman, Los Angeles, Depressed Skull Fractures: Clinical and Experimental Study  
John C. Jones, Los Angeles, Surgical Treatment of Chronic Empyema  
Joseph A. Pollia, Los Angeles, Malignancy of the Heart  
Harry H. Wilson, Los Angeles, Management of Alcoholism

### COLORADO

**Personal**—Dr. Roy L. Cleere, Denver, has been named a member of the state board of health, succeeding Dr. Samuel R. McKelvey, Denver, who had served on the board since 1911.

**Bill Enacted**—S. 277 was approved by the governor, April 1, making it unlawful for any person to receive hospital care with intent to defraud the hospital of the amount due it for such service and also making it prima facie evidence of intent to defraud for a patient to leave a hospital without paying his bill.

**Bill Introduced**—S. 581, to amend the laws relating to the practice of chiroprody, proposes among other things, to enlarge the scope of a license to practice chiroprody. The bill proposes to permit chiroprodists to examine, diagnose or treat medically, mechanically, surgically or by electrical and manipulative means or by bandaging and strapping, the ailments of the human foot.

## CONNECTICUT

**Changes in Health Officers**—Dr Harry B Smith has been appointed superintendent of health of the town of West Hartford succeeding Dr Theodore I Foster resigned. Dr Donald W Herrman has been named health officer of Winsted succeeding Dr Horace W Ward who had held the position since 1923 and Dr Louis Howard Wilnot succeeds Dr William H O Neil as health officer of Ansonia. Dr O Neil had occupied the position since 1928.

**Bill Passed**—S 456 has passed the senate, proposing to supplement the pharmacy practice act by providing that a store not a licensed pharmacy, which has been licensed to do so by the commission of pharmacy may sell proprietary and patent medicines if they are in sealed containers labeled and accompanied with directions for use and with the name and address of the manufacturer or distributor. Such patent and proprietary medicines however must not contain alcohol in excess of the amount necessary for use as a solvent or preservative and must not contain more than 2 grains of opium nor more than one fourth grain of morphine nor more than one eighth grain of heroin or 1 grain of codeine.

**Sound Motion Pictures of Infant**—The first public showing of sound motion pictures of the life and growth of the human infant produced by the Yale Clinic of Child Development was given in New Haven February 16. According to an announcement the films were assembled from scientific records collected by the clinic over a period of years and are intended for general educational and study purposes. The subjects include a description of the methods of studying infant behavior early and later stages in the growth of infant behavior posture and locomotion from creeping to walking, a baby's day at twelve weeks a thirty six weeks' behavior day a behavior day at forty-eight weeks, behavior patterns at one year learning and growth and early social behavior. The narration in the picture is by Dr Arnold L Gesell, director of the clinic.

## FLORIDA

**Mosquito Eradication and Malaria**—The Florida board of health began a state-wide campaign of mosquito eradication in February. Cooperating with the board are representatives of the U S Public Health Service the bureau of entomology and the Rockefeller Foundation. In the first ten months in 1934, 330 deaths from malaria were reported, in 1933 the total was 373.

**Society News**—At a meeting of the Duval County Medical Society, March 5 a symposium on syphilis was presented by Drs Bertram F Woolsey, Alan D Brown, Lucien Y Dyrenforth, William W Kirk and James H Randolph. Dr Henry Hanson read a paper on 'Survey of the Maternal Mortality in Florida'. All are from Jacksonville. Dr David D Berlin, Boston, addressed the society, February 5 on 'Present Status of Total Thyroidectomy in the Treatment of Congestive and Anginal Heart Failure'. At a recent meeting of the Pasco-Hernando Citrus County Medical Society, Dr Samuel C Harvard, Brooksville, read a paper on 'Cancer of the Breast'. Speakers before the Dade County Medical Society in Miami, March 1, were Drs Marion C Wilson and Stewart Lee Jeffrey on endometriosis and dengue, respectively.

## GEORGIA

**Bill Passed**—H 229 has passed the house, proposing to establish a special committee of the house and senate to formulate and to recommend to the next session adequate plans for the hospitalization of the indigent sick.

**Personal**—Dr Hugh B Senn Newberry S C, has succeeded Dr Guy G Lunsford, Millen, as health officer of Jenkins County. Dr Lunsford resigned to become chief of the division of county health work of the state department of health. Dr Herbert B Kennedy, Atlanta, has been appointed associate medical director of the Woodmen of the World, with headquarters at Omaha.

**Hospital News**—A new contagious disease and outpatient wing was recently added to the University Hospital of the University of Georgia, Augusta. A memorial gift of \$18,000 was presented to the institution by Mrs John W Herbert Augusta, to equip the addition, newspapers reported. The first floor of the new building, which was named for Milton Antony, founder of the medical school in 1828 is the outpatient department of the University Hospital, while the second floor is a contagious disease unit. Funds for the erection of the structure, which cost \$90,000, were obtained from the alumni association of the school of medicine a public works administration grant the city of Augusta and the county of Richmond.—The

Hamilton Memorial Hospital, Dalton, which has been closed for the past year was reopened March 4. Newspapers reported that the Civilian Hospital Board, Inc, will operate the institution.

## IDAHO

**Society News**—Gordon E Davis of the staff of the laboratory of the U S Public Health Service at Hamilton, Mont, addressed the South Side Medical Society, Burley, February 18 on 'Results of the First Ten Years' Use of Spotted Fever Vaccine'. Dr William F Passer, Twin Falls, addressed the society, January 25, on 'Anemia in Infancy and Childhood'.

## ILLINOIS

**Society News**—At the quarterly meeting of the Iowa and Illinois Central District Medical Association, Rock Island, March 15 Dr Emil Novak, Baltimore, discussed 'Sex Differentiation and Intersexuality'. Speakers before the LaSalle County Medical Society in Ottawa, March 20, were Drs Harry A Singer and George de Tarnowsky, Chicago, on 'Ulcer and Cancer of the Stomach' and 'Cancer of the Bowel and Its Surgical Management', respectively. Health Promotion Week will be observed in Illinois, April 28-May 4. Dr James H Hutton, Chicago, discussed 'Essential Hypertension and Diabetes Mellitus, Their Endocrine Aspects and Treatment by X Rays' before the Adams County Medical Society in Quincy, March 11. In the morning he conducted a clinical conference on essential hypertension before the society. The St Clair County Medical Society was addressed in East St Louis, March 7, by Dr Williams McKim Marriott, St Louis, on 'Practical Points in Pediatrics'. Dr Julius H Hess, Chicago addressed the Champaign County Medical Society, Champaign, recently on diagnosis of children's diseases.

## Chicago

**Society News**—Speakers before the Chicago Urological Society, March 28 were Drs Eugene A Ockuly, Toledo, Ohio, among others on 'Osteomyelitis Following Lesions in the Genito-Urinary Tract'. Dr Austin A Hayden discussed 'Hyperesthetic Rhinitis Ionization' before the Chicago Laryngological and Otolological Society, April 1.

**Capps Prize Awarded to Dr Gulbrandsen**—The Institute of Medicine of Chicago has awarded the Joseph A Capps Prize for 1934 to Dr Lars F Gulbrandsen, instructor in pathology, bacteriology and public health, University of Illinois College of Medicine, for a paper on 'Invasion of the Body Tissues by Orally Ingested Bacteria and the Defensive Mechanism of the Gastro-Intestinal Tract'. The prize of \$500, established by an anonymous donor in honor of Dr Joseph A Capps is awarded annually for the most meritorious medical research by a graduate of a medical school in Chicago completed within two years after graduation.

**Personal**—Dr Max Thorek was awarded the scrolled silver urn by the Hong Kong University of China at the recent international competition of camera art, for his picture 'Odalisque', according to the Chicago Tribune. Dr Clarence A Neymann sailed from New York, March 16, for Belgium, where he was invited as Committee for Relief of Belgium exchange professor to lecture at the Universities of Ghent, Louvain, Liège and Brussels on 'Electrolytes in the Treatment of Disease'. He will address the Royal Medical Society of London this month on the same subject. Dr James P Henderson observed the completion of fifty years in the practice of medicine, March 10, his father Dr Harvey Dinwiddie Henderson, practiced medicine in Salem, Ind., for fifty-four years.

## IOWA

**Bill Introduced**—S 336 proposes to repeal the law regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

## LOUISIANA

**Personal**—Dr Gideon Douglas Williams, Lake Providence, director of the East Carroll Parish health unit, has been appointed in charge of the Ouachita Parish health unit, succeeding Dr John W Williams, Monroe, who resigned to become health director of Asheville, N C. Dr James C Sartor, Rayville, has been appointed a member of the state board of health, succeeding the late Dr John L Kelly, Oak Grove.

**University News**—Bids will be opened this month for construction in New Orleans by Louisiana State University of a fifteen story dental and pharmacy school building, as a part of the medical center expansion program at the institution. Planned for occupancy next fall, the new building will be



erected on the grounds of Charity Hospital at a cost of \$2,500,000. It will be equipped with classrooms and laboratories for the teaching of dentistry, pharmacy, medicine and surgery. The expansion program will also include the rehabilitation of the hospital at a cost of \$8,000,000, it was stated.

### MARYLAND

**Bill Passed**—S 211 has passed the house and the senate, proposing to authorize corporations to organize under the corporation laws of the state for the purpose of operating a non-profit hospital service plan.

**Bill Enacted**—H 70 has been enacted as chapter 59, Laws, 1935. This new law repeals the laws regulating the possession and distribution of narcotic drugs and enacts what the draftsman of the act cites as the 'uniform narcotic drug act.' The bill, however, differs from the model uniform narcotic drug act in some important particulars. It omits the provisions in the model bill intended to limit the gross quantity of a habit-forming drug a person can buy in exempt preparations within a period of forty-eight hours.

**Child Health Conferences**—A total of 9,749 children were examined in the child health conferences sponsored by the state department of health in 1934. Of these 2,490 were free from conditions in need of correction. 1,465 were underweight or gave other evidence of malnutrition, 3,492 needed dental attention. Unfavorable conditions of the lungs were noted in fifty-nine and of the heart in 245. In the 651 conferences held, 417 communities were represented. Medical treatments were not given but children needing care were referred to their own physicians and prompt correction was urged.

**Birth and Deaths in 1934**—There were 6,631 more births than deaths in Maryland in 1934, according to the state health department. For the year a total of 27,584 births was recorded and 20,953 deaths. There were twelve deaths in each thousand of the total population; this was offset by sixteen births, the report stated. The degenerative diseases of middle age and of the older age groups were responsible for 11,110 deaths, more than half of the total number at all ages and from all causes. Heart disease led the list of causes with a total of 4,502, then diseases of the kidneys, 2,347; cancer, 2,122; cerebral hemorrhage, 1,742; and diabetes, 397 deaths. Tuberculosis was responsible for 1,333.

### MASSACHUSETTS

**Communicable Diseases Decline**—Figures released by the state health department to the newspapers indicate that communicable diseases notably decreased in 1934. There were 631 cases of diphtheria as compared with 1,041 for 1933. A new low point was noted for typhoid, with 135 cases as against 162. Only seventy-five cases of infantile paralysis were reported, as compared with 353 the previous year. Scarlet fever, with 8,393 cases, reached the lowest level recorded since 1922, and for the second consecutive year no smallpox was reported. Measles, however, on account of the widespread epidemic in the eastern half of the state in the early part of the year, reached the highest level ever recorded, with 44,818 cases. The percentage of deaths was lower than ever previously recorded except in 1933.

**Society News**—The Massachusetts Medical Society is making a survey of the adequacy of medical service in the state. When the data have been tabulated from questionnaires, a report will be published.—Dr Paul R. Withington, Milton, was elected president of the Massachusetts Association of Boards of Health at its annual meeting, January 31.—Speakers before the New England Heart Association in Boston, March 25, included Drs Maurice A. Lesser on 'Primary Bilateral Pulmonary Thrombosis' and Frederick H. Pratt 'A Transitional Region Between Skeletal and Cardiac Muscle.'—Speakers before the Springfield Academy of Medicine, February 12, were Drs Rosco G. Leland, Chicago, and Nathan B. Van Etten, New York, on medical economics.—A symposium on the surgical treatment of pulmonary tuberculosis constituted the program of the Plymouth District Medical Society, March 21; speakers were Drs Bradford H. Pierce, Roy F. Littlehale, John A. McCarthy, Ebenezer K. Jenkins, South Hanson, and George A. Moore, Brockton.—Dr Jacob Kaminsky, Waltham, addressed the Middlesex East District Medical Association, March 13, on 'Physiopathologic Factors in the Treatment of Pulmonary Tuberculosis.'—The Harvard Medical Society was addressed, March 26, by Drs Joseph T. Wearn, Cleveland, on 'The Circulation in Normal and Hypertrophied Hearts' and Claude S. Beck, Cleveland, 'Establishment of Collateral Blood Channels to the Heart by Operation.'

### MICHIGAN

**Graduate Courses**—The Michigan State Medical Society and the department of graduate medicine of the University of Michigan, Ann Arbor, are cooperating in a series of graduate courses, which began April 1. The courses will cover electrocardiographic diagnosis, surgery and diseases of the blood and blood-forming organs among other subjects, and will extend over a period of several weeks.

**Society News**—Dr Cleveland J. White, Chicago, addressed the Calhoun County Medical Society, March 5, on 'Diagnosis and Modern Treatment of Eczematoid Eruptions of the Skin, with Special Reference to Ringworm and Allergic Dermatitis.'—George E. Brand, LL.B., president of the Detroit Bar Association, addressed a joint meeting of this group with the Wayne County Medical Society, February 25, in Detroit. His subject was 'Common Problems Facing Law and Medicine.' The medical society devoted its meeting, March 18, to a symposium on tuberculosis; speakers were Drs Bruce H. Douglas, Eldwin R. Witwer, and Willard B. Howes.—Dr Arthur E. Schiller, Detroit, addressed the East Side Physicians' Association, March 14, on 'Allergy in Skin Diseases.'

**Cancer Survey**—The prevalence of cancer in rural areas in Michigan will be determined in a survey to be undertaken by the state department of health under a grant from the U. S. Public Health Service. Only full time county or district health departments will be included in the survey, which will be carried out by Dr Harold Kessler, Alpena. Practicing physicians will be consulted to ascertain such information as the number of cases of cancer known to them, age and sex distribution, and the location and type of the lesion. This survey follows one recently carried on in hospitals by Dr Frank L. Rector, field representative, American Society for the Control of Cancer.

### MINNESOTA

**Symposium on Malignancy**—The annual symposium on malignancy of the Minneapolis Surgical Society was held at the auditorium of the Hennepin County Medical Society, April 4. Drs Martin Nordland, president, and Kenneth Bulkley, chairman, made introductory remarks and the scientific program was presented by the following physicians:

Stephen H. Baxter, Melanoma.  
Martin Nordland, Malignancy of the Thyroid.  
Theodore H. Sweetser, Malignancy of the Urinary Tract.  
Frederick A. Olson, Organization of Hospital Service for Diagnosis and Treatment of Malignancy.  
Stanley R. Maxeiner, Carcinoma of the Stomach.  
James A. Johnson, Treatment of Carcinoma of the Rectum by Caute-ry in Patients of Advanced Age and Other Poor Surgical Risks.

Dr Frederick A. Olson was elected president of the society recently. Dr Richard R. Cranmer, vice president, and Dr Edward A. Regnier, secretary.

### MISSISSIPPI

**Personal**—Dr John C. McGuire, at various times in charge of county health departments in Kentucky, has been named full time director of the Copiah County Health Department, succeeding Dr James T. Gooze, who recently resigned to become assistant state health director of Florida.

**Trend of Death Rates**—Death rates from the five major preventable diseases and the five major causes of death not subject directly to public health control for the period 1914-1933, were recently studied by the Mississippi Board of Health. In the former group (tuberculosis, malaria, pellagra, typhoid and diphtheria) a total of 5,530 deaths was recorded in 1914 against 2,546 in 1933, a decrease of 54 per cent. In the group not subject to public health control (heart disease, nephritis, cancer, homicide and automobile accidents), 3,276 deaths were reported in 1914 as against 5,346 in 1933, an increase of 63 per cent. The board points out that a comparison of the two groups shows that deaths from the five causes not under public health control are increasing at a rate 9 per cent faster than the deaths from the five preventable diseases are decreasing.

### MISSOURI

**Medical Library**—The library of the late Dr Jacob Geiger, professor emeritus of surgery, St. Louis University School of Medicine, will form the nucleus of a medical library now being planned by the Buchanan County Medical Society. Dr Geiger's collection has been donated to the society by his family. The late physician was dean and professor of surgery at Ensforth Medical College from 1883 to 1914 and a past president of the Missouri State Medical Association.

**Memorial to Dr Jackson**—The Jackson County Medical Society met at the Kansas City General Hospital, Kansas City, March 26, to honor the memory of Dr Jabez N. Jackson.



who died March 18. Speakers included Judge James F. Goodrich who spoke on 'Julius Jackson Surgeon and Citizen,' and the following physicians:

Frank C. Neff His Influence on Local Medicine  
Frank D. Dickson His Personal Qualities and Character  
Frank A. Teichner His Influence on National Medicine  
John M. Frankenkner His Hobbies and Recreations  
Ruford G. Hamilton President of the American Medical Association

**Dr. Doisy Awarded Medal**—The St. Louis Medical Society presented a medal and certificate of award to Edward A. Doisy, Ph.D., professor of biochemistry, St. Louis University School of Medicine at a meeting March 19. Dr. Doisy is known particularly for his work on the estrogenic hormones and for the isolation and preparation of them. Philip A. Shaffer, Ph.D., professor of biological chemistry, Washington University School of Medicine, St. Louis, made an address before the medal was presented. The award of merit was established by the society in 1925. The recipient must be recommended by the medical faculties of both St. Louis and Washington universities and must be unanimously elected by open vote of the council at the annual meeting. The first award was made in 1927, when it was given jointly to Drs. I. L. A. Graham, Glover H. Copher, Warren H. Cole and Sherwood Moore in recognition of their work on gallbladder visualization.

## NEBRASKA

**Society News**—Dr. Ralph A. Reis, Chicago, addressed the Lancaster County Medical Society, Lincoln, March 5 on 'Some Aspects of the Conduct of Normal Labor.'—Dr. Chester Q. Thompson, Omaha, among others, addressed the Tri County Medical Society of Dodge, Washington and Burt counties, February 25, on blood transfusion.—Drs. Floyd S. Clarke and Gustave W. Dishong, Omaha, addressed the Southwestern Nebraska Medical Society, February 14, in McCook on 'Nephritis in Children' and 'The Nervous Patient and the Physician,' respectively.—Dr. Emil Novak, Baltimore, addressed the Omaha-Douglas County Medical Society, Omaha, March 6, on 'The Endocrines in Gynecology and Obstetrics.'

## NEVADA

**Annual Registration Due May 1**—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the board of medical examiners, on or before May 1, a tax of \$2. Failure to do so operates to forfeit a licensee's right to practice medicine and his license can be reinstated thereafter only on the payment of a \$10 penalty.

## NEW JERSEY

**Graduate Course in Endocrinology**—Drs. Roy G. Hoskins, director of research, Memorial Foundation for Neuro-Endocrine Research, Harvard University Medical School, Boston, and Joseph M. Looney, director of laboratories, Memorial Foundation for Neuro-Endocrine Research, Worcester State Hospital, Worcester, Mass., conducted a graduate course in endocrinology, sponsored by the Somerset County Medical Society, the state medical society and Rutgers University in February and March. Two sessions each were held in Skillman and Trenton, one each in Marlboro and Morristown.

## NEW YORK

**Bill Enacted**—A 445 has been enacted as chapter 266, Laws 1935, safeguarding the distribution of dangerous caustic or corrosive substances as defined in the federal caustic poison act, by requiring their labeling as poison.

**Bills Passed**—A 1861 has passed the assembly, proposing to amend the laws relating to the practice of chiropody by designating the practice of chiropody as the practice of podiatry and by creating an independent board of podiatry examiners. S 1816 has passed the senate, proposing to accord to charitable and governmental hospitals treating persons injured through the fault of others liens on all claims, rights of action, judgments, settlements or compromises accruing to the injured persons by reason of their injuries.

**Buffalo Alumni Meeting**—The annual spring clinical day of the Alumni Association of the University of Buffalo School of Medicine will be held April 20. Following is the program:

Dr. William Wayne Babcock Philadelphia Improvement in Management of Appendicitis  
Dr. Udo J. Wile Ann Arbor Mich. Skin Manifestations of Idiopathic Crazy to Common Drugs  
Dr. Foster Kennedy New York Relation of Neurology and Psychiatry to General Medicine  
Dr. Julius H. Hess Chicago Chronic Intestinal Indigestion in Children  
Celiac Disease  
Dr. Russell L. Haden Cleveland Agranulocytosis  
Dr. P. Brooke Bland Philadelphia Uterine Hemorrhage

## New York City

**Alumni Reunion**—Alumni Day will be held at Long Island College of Medicine, Brooklyn, April 27. At the morning session Dr. Paul A. O'Leary, Rochester, Minn., will speak on 'Modern Treatment of Syphilis', at luncheon Dr. Henry Wallace of the class of 1890 will give reminiscences and at the annual banquet in the evening the speaker will be Dr. William Alanson White, superintendent, St. Elizabeth's Hospital, Washington, D. C.

**Sentenced for Defrauding Students**—Two men were convicted recently of obtaining \$500 from one premedical student and \$900 from another by promising to have them admitted to medical schools. Beard John Dupree was sentenced to a term of from six months to three years in the New York County Penitentiary and Martin J. Phillips, a term of three months in the workhouse. During their trial, signed agreements between the defendants and the students were produced in evidence, containing legal contracts for these services. The scheme was exposed through the activities of Prof. William C. MacTavish of New York University.

**Society News**—Speakers before the Medical Society of the County of New York, March 25, were Louis I. Dublin, Ph.D., on 'Favorable Aspects of Heart Disease', Dr. John R. Paul, New Haven, Conn., 'Rheumatic Heart Disease' and Dr. Paul D. White, Boston, 'Coronary Disease and Coronary Thrombosis in Youth'.—Speakers at a meeting of the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, March 23, were Drs. Emil Novak, Baltimore, on 'Sterility and Endocrines', Frederic Bierhoff, 'Impotence in the Adult and Adolescent', Charles F. Geschickter, Baltimore, 'The Breast and the Sex Hormones' and Gerard L. Moench, 'The Problem of Human Sterility'.—The meeting of the Bronx County Medical Society, March 20, was devoted to discussions of fractures by Drs. Edward R. Cunniffe, Milton R. Bookman, Edwin A. Spies and Samuel Kleinberg.

**Group Hospitalization Plan**—The United Hospital Fund announces completion of plans for launching a group hospitalization plan among approved hospitals in the metropolitan area. Frank Van Dyk, manager of the Associated Hospitals of Essex County, Newark, N. J., has been named executive head of the plan, which will be operated by the Associated Hospital Service of New York, a new nonprofit corporation organized under the auspices of the United Hospital Fund. Salaried persons and wage earners are eligible to participate, their dependents may be included later, it was said. The cost will be \$10 a year entitling the subscriber to three weeks of semiprivate hospital care on recommendation of his private physician. The physician's fee is not included. The new plan is the result of two years' study by a committee appointed in December 1932. Officers of the governing organization are Karl Eilers, president of Lenox Hill Hospital, president Stanley Resor, member of the board of Manhattan Eye, Ear and Throat Hospital, and Dr. Walter T. Dannreuther, vice presidents, and Homer Wickenden, general director of the United Hospital Fund, secretary. More than fifty hospitals have been accepted for charter membership, it was announced April 1.

## NORTH CAROLINA

**Bills Introduced**—H 769, to amend the osteopathic practice act, proposes to permit osteopaths to dispense and prescribe drugs. S 411 proposes to prohibit the sale of bichloride of mercury except on prescription of a person licensed to write prescriptions. H 829, to amend the medical practice act, proposes, in effect to permit the board of medical examiners to hold their meetings in whatever city or cities in the state they desire. The present law requires at least one meeting annually to be held in Raleigh.

## OKLAHOMA

**Personal**—Dr. Allen C. Kramer, Tulsa, has been appointed health officer of Tulsa County, succeeding Dr. Thomas W. Stallings.—Dr. Ernest L. Bagby, Vinita, has been appointed superintendent of the Oklahoma Institution for the Feeble-minded. End. Dr. Bagby was formerly superintendent of the Western Oklahoma Hospital, Supply.

**Bills Introduced**—S 349 to amend the medical practice act, proposes (1) to require the board of medical examiners to hold regular meetings on the second Wednesday in June and December of each year, rather than the second Tuesday in March and September, and (2) to authorize the board to revoke the license of any licensee who has been convicted of any felony in or without the state of Oklahoma, rather than

as the present law provides, authorizing it to revoke the license of any licensee who is serving a penalty on a felony or of any offense involving moral turpitude S 347 proposes to repeal the law regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act

## OREGON

**The Oregon Pharmacy Act**—THE JOURNAL, March 9, commented on the provision of the Oregon pharmacy practice act, approved February 21, 1935 (Laws, 1935, ch 55), that nothing in it should be construed to prevent the personal administration of drugs and medicines carried by physicians dentists or veterinarians, "to supply the immediate needs of their patients." The chairman of the legislative committee of the Oregon State Pharmaceutical Association calls attention to another provision that nothing in the act shall interfere with licensed physicians and dentists supplying their own patients with such remedies as they may desire, provided that the physician or dentist does not keep a pharmacy or drug store. The provision authorizing practitioners of medicine or dentistry to supply remedies to their patients will presumably be construed to supplement and broaden the provision that limits physicians and dentists to the personal administration of drugs and medicines carried by them.

## PENNSYLVANIA

**District Meeting**—Dr Morris Fishbein Chicago editor of THE JOURNAL will give an address at the annual banquet of the Tenth Council District Meeting of the Medical Society of the State of Pennsylvania in Beaver Falls, May 9 on "Plans for Social Security." Among speakers at the scientific sessions will be Drs Bernard Fantus Chicago on "The Therapy of Colon Stasis," and Richard B Cattell, Boston, "Diagnosis and Treatment of Cancer of the Colon and Rectum."

**Bills Introduced**—S 769, to amend the medical practice act, proposes (1) to designate the Bureau of Medical Education and Licensure as the Board of Medical Education and Licensure, (2) to require an applicant for a license to be a high school graduate and to have had two years (rather than one year) of college credits in chemistry, biology and physics prior to medical study, (3) to require an applicant to have had one year of internship but to eliminate the provision in the present law which requires that during that year of internship the applicant must have attended or participated in attending not less than six confinements, (4) to require 'applicants foreign to the territory of the United States' to 'present a certificate of United States citizenship or a declaration of intention' (5) to provide that the provisions of the act shall not apply to any one actually serving as a "student intern under the supervision of the medical or surgical staff of any legally incorporated hospital" and to provide that the act shall be construed as applying to hospitals employing on salary graduate interns whose services are confined to said institutions when they assume individual responsibility in the care of patients", and (6) to permit the board to revoke or suspend a license 'upon satisfactory proof of grossly unethical practice, of misleading public advertisements, or of any form of pretense which might induce citizens to become a prey to professional exploitation' H 1959 proposes a system of compulsory and voluntary sickness insurance. The benefits proposed are to consist of cash and all forms of medical and dental service. Persons employed at other than manual labor" and receiving wages in excess of \$60 a week, farm laborers and persons employed by an employer having less than three employees in personal or domestic service are excluded from the compulsory insurance of the bill but are entitled to participate in the voluntary insurance. H 1759, to amend the medical practice act, proposes to require the bureau of medical education and licensure to license, after examination, practitioners of various schools of drugless therapy, enumerating specifically practitioners of chiropractic, naprathv," spondylotherapy, suggestive therapeutics, metaphysics, vita therapy, magnetic healing, naturopathy and physiotherapy. The bureau is to appoint three persons now licensed in drugless therapy from a list of seven names submitted by the Pennsylvania Association of Licensed Drugless Therapists, who are to conduct such examinations as in their judgment they deem necessary to determine the fitness of the particular applicant. H 1772 proposes to make it a ground for divorce for either spouse to be hopelessly and incurably insane." H 1730 proposes to require state-aided hospitals to admit any indigent person who is seriously ill and who requires hospitalization. Every state-aided hospital caring for such an indigent person is to be compensated by the state.

## Philadelphia

**Medical College News**—Charles-Edward Amory Winslow, Dr P H, Anna M R Lauder professor of public health, Yale University School of Medicine, New Haven, Conn., delivered the Potter Memorial Lecture at Jefferson Medical College, March 29, on "A Physician of Two Centuries Ago Richard Mead and His Contributions to Epidemiology."

**Anniversary of Maimonides**—The chapters of Phi Delta Epsilon and Phi Lambda Kappa at the University of Pennsylvania, Temple University, Jefferson Medical College and Hahnemann Medical College sponsored a public meeting, March 30, to celebrate the octocentennial anniversary of the birth of Maimonides. Speakers were Dr Victor Robinson, New York, on "Maimonides the Physician," Rabbi William H Fine, "Maimonides the Rabbi," and Isaac Husik, Ph.D., professor of philosophy, University of Pennsylvania, "Maimonides the Philosopher."

**Swindler Voluntarily Dislocates Vertebra**—A Philadelphia hospital reports the case of a man who sought medical attention for alleged injury received in a fall from a bus. Roentgen and clinical examination revealed a dislocation of the first cervical vertebra. The man refused morphine and anesthesia insisting that the dislocation be reduced without either. He was placed in bed with traction and it was planned to make a cast in a few days. During the period of traction he communicated with the bus company and demanded \$10,000 damages but suddenly settled his claim for \$200. He then got out of bed left the hospital and has not been heard of since. Investigation by the bus company revealed a long police record under a variety of names. In Philadelphia he gave the name James L Carter of Oakland, Calif., and a companion claimed to be his brother. San Francisco authorities sent a photograph of one Donald Carlyle who was identified in Philadelphia as Carter. In California he had collected \$60 from a street car company because of an alleged injury to his wrist. Under the name of Albert Monroe he had received \$250 on a fraudulent claim from a bus company in Los Angeles. The records indicated that he had been arrested other times on the Pacific Coast, as well as in St Paul and that he was wanted in Washington, D C in connection with a forgery under the name Donald Del Ruth. Other aliases listed in San Francisco include Patrick J Hollev, Buddy Ryan, Pat Ryan, C. Malone and Ben F Tilley. Carter is from 25 to 30 years old, 6 feet tall with brown hair. He is smooth shaven and weighs about 160 pounds. He said he was a photographer. His companion is from 22 to 25 years old about 5 feet 7 inches tall, with dark brown hair, and weighs about 140 pounds. None of the records show that this man has presented a dislocation of the neck in any of his former activities, but the physicians who attended him in Philadelphia were of the opinion that this was not his initial performance.

## Pittsburgh

**Annual Meeting**—The Allegheny County Medical Society held its annual meeting at the Hotel Schenley, April 2. After demonstrations of allergic patients Dr William V Mullin, Cleveland, discussed "Treatment of Sinus Disease, with Particular Reference to Allergy of the Upper Respiratory Tract." At the banquet in the evening Dr Howard W Haggard, associate professor of physiology, Yale University, made an address on "Medicine and the Public."

## SOUTH CAROLINA

**Bill Passed**—S 204 has passed the senate and the house, proposing to amend the insurance law so as to authorize any ten or more persons to associate themselves together as a mutual protection association for the indemnifying of each other for losses on the assessment plan, and not for profit, "to insure the lives or health of members against death or disability by accident or disease, or hospitalization benefits."

**Special Meeting of House of Delegates**—The house of delegates of the South Carolina Medical Association held a special meeting in Columbia, March 5, to hear the report of delegates to the special meeting of the House of Delegates of the American Medical Association. The report of the reference committee at the Chicago meeting was unanimously endorsed and a committee was appointed to act in cooperation with the American Medical Association and committees from other state associations in the study of economic problems. The committee includes Drs Robert S Cathcart, Charleston, James W Jervey Greenville, Thomas A Pitts, Columbia, Charles R May, Bennettsville, and William R Wallace Chester.

**State Medical Meeting in Florence**—The eighty-seventh annual session of the South Carolina Medical Association will be held in Florence, April 23-25. Invited guests will be Drs.

Henricus J. Stander, New York, who will speak on "Nephritis in Pregnancy." William B. Castle, Boston, "Diagnosis and Treatment of Anemia and Certain Associated Deficiency Diseases," and Temple S. Fay, Philadelphia, "Head Injuries: Their Management and Treatment." South Carolina physicians listed on the preliminary program include:

Dr. James Richard Allison, Columbia, "The Practical Management of Aene Vulgaris";  
Dr. Kenneth M. Lynch, Charleston, "Malignant Melanoma";  
Dr. Lucius Emmett Madden, Columbia, "Suppurative Pericarditis";  
Dr. George T. Tyler, Jr., Greenville, "Sulphuremic Abscess";  
Dr. Olin B. Chamberlain, Charleston, "Early Diagnosis of Chronic Arthritis";  
Dr. Austin T. Moore, Columbia, "Fracture of the Hip Joint (Intra capsular)—A New Method of Skeletal Fixation."

The South Carolina Public Health Association will hold its meeting April 23 and the women's auxiliary, April 24.

## WISCONSIN

**Bill Introduced**—A 1933 proposes to make it the duty of the county board of supervisors of every county to provide medical, dental and hospital care and treatment for all persons receiving relief in the county and to set aside such funds as may be necessary to preserve the health of such persons.

**Personal**—Dr. Charlotte J. Calvert, supervisor of the bureau of child welfare of the state board of health since 1929 and a member of the staff since 1925, retired to private life March 1.—Dr. John C. Wright, Antigo, was made honorary secretary of the Langlade County Medical Society on his retirement in February as active secretary after many years service.

**Fellowships for Research in Cancer**—Drs. Fred L. Mohs and Harold P. Rusch, Madison, have been appointed to research fellowships at the University of Wisconsin School of Medicine under the fund recently left to the university by Miss Jennie Bowman. A special committee is investigating the possibility of expanding cancer research at the university under the \$450,000 bequest, which at present yields an income of \$12,000 a year.

**Society News**—Dr. Herman L. Kretschmer, Chicago, addressed the Milwaukee Roentgen Ray Society in Milwaukee, February 1, on "Roentgen-Ray Problems in Pediatric Urology."—At a meeting of the Milwaukee Society of Clinical Surgery, February 25, speakers were Drs. Herman A. Heise, Milwaukee, on "Blood Transfusion in Emergency Surgery," Ralph M. Waters, Madison, "Anesthesia in Emergency Cases" and Frederick A. Besley, Waukegan, Ill., "Treatment of Compound Fractures."—Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, addressed the Brown-Kewaunee-Door Counties Medical Society, Green Bay, February 9, on "Our Changing Times."

## PUERTO RICO

**Tuberculosis Clinic on Wheels**—The health department of Puerto Rico has had built a special 1½ ton Dodge truck for use in its tuberculosis service. There is a compartment containing the x-ray apparatus and a special cot for the patient while being photographed. In this compartment also are the developing tanks which may be made light proof by means of special shutters, and storage space for photographic plates. In the rear of the truck are cabinets and drawers for storing medical supplies, a 30 gallon water tank and a sink. A motor driven fan supplies fresh air to both sections of the truck, and a special generator driven from the transmission take-off furnishes electric power for the x-ray machine.



## GENERAL

**Society News**—The American Heart Association will meet in Atlantic City June 11 and not June 6 as noted in THE JOURNAL, April 6.—The National Congress of Parents and Teachers will hold its annual meeting in Miami, Fla., April 29-May 3.—The American Urological Association will meet in San Francisco, June 25-28, in conjunction with the Western Branch Society.

**Anatomists Meet in St. Louis**—The American Association of Anatomists will hold its fifty-first session at Washington University School of Medicine, St. Louis, April 18-20. Dr. Warren H. Lewis, Baltimore, will deliver his presidential address at the annual banquet at the Hotel Chase, Friday evening, April 19, on "Normal and Malignant Cells." A feature of the program will be a symposium on "The Relation of the Pituitary to Reproduction," presented by Aura E. Severinghaus, Ph.D., New York; Frederick L. Hisaw, Ph.D., Madison, Wis.; Carl R. Moore, Ph.D., Chicago, and Warren O. Nelson, Ph.D., Chicago.

**Another Impostor**—A man using the name Maguire is reported to have called on physicians in several cities attempting to borrow money. Introducing himself as the brother-in-law of Dr. Winford H. Smith, director of the Johns Hopkins Hospital, Baltimore, he tells of an automobile accident and a fine that has taken all his cash. He asks for a small loan to enable him to reach home. He is described as being between 60 and 65 years of age, with thin light hair and eyes, and neatly dressed. A small wrinkle or scar runs downward and outward about an inch from the right side of the mouth. Several teeth are missing from his right lower jaw, leaving a conspicuous discolored canine tooth. He is said to have operated in Rochester, N. Y., Columbus, Ohio, and Montreal within the past year.

**A Film to Instruct Mothers**—"Around the Clock with You and Your Baby" is the title of a motion picture to educate mothers in the care of the new-born, produced by the department of obstetrics and gynecology of the University of Southern California at Los Angeles under the direction of Drs. Lyle G. McNeile and Donald G. Tollefson. The care and feeding of infants as it should be done in the average home, as well as advice for mothers own health, is shown in detail. The film 35 mm in three reels, requires about thirty-five minutes to show. It may be lent without charge for an indefinite time to any ethical hospital, if shown at least twice a week and a report of the number of showings and the number of persons who viewed the film is forwarded once a month. Further information may be obtained by writing Dr. Tollefson, 511 South Bonnie Brae Street, Los Angeles.

**Immigrant Physicians in 1934**—Records of the U. S. Bureau of Immigration show that during the fiscal year ended June 30, 1934 the United States admitted 353 immigrant aliens who gave their occupation as physician. Although the number of all immigrants has been reduced from 279,678 in 1929 to 29,470 in 1934, the number of physicians in 1934 was almost as great as that for 1929, 398. For the intervening years the numbers were 390 in 1930, 329 in 1931, 259 in 1932, and 187 in 1933. By far the greatest number (160) came from Germany in 1934 and the greatest number to settle in any one place remained in New York, 190. Among the group were 163 Jewish physicians. American consular officers abroad, who must determine in each case whether a prospective immigrant is admissible to the United States, may allow a physician to enter the United States in his professional capacity even if the quota restrictions are exhausted, but he is required to present proof that he has sufficient income and resources to keep him from becoming a public charge.

**American College of Physicians**—The nineteenth annual clinical session of the American College of Physicians will be held in Philadelphia, April 29-May 3, with general headquarters at the Municipal Auditorium. A clinical program will make up the general sessions, to be held at eleven hospitals and some of the medical schools in the city. A departure this year is a series of morning lectures, which, according to the program, is presented as an elective, as a whole or for individual days in place of the hospital clinics. These lectures will be presented daily and will be devoted to four general topics: diseases of the bones and joints, neurology, bronchopulmonary diseases and endocrinology. The annual convocation will be held Wednesday evening May 1, when the John Phillips Memorial Medal will be presented. Following the convocation ceremony Dr. Leo Loeb, professor of pathology, Washington University School of Medicine, St. Louis, will speak on "The Thyroid-Stimulating Hormone of the Anterior Pituitary Gland," and Dr. Jonathan C. Meakins, Montreal, will deliver his presidential address. There will be a smoker, Monday evening, and the annual banquet will be held Thursday evening. On the latter occasion, Dr. Alfred Stengel, Philadelphia, will be toastmaster, and Hon. Roland S. Morris, president, American Philosophical Society and ex-ambassador to Japan, will give an address on "The Present Unrest in the Far East." With special emphasis placed on clinics, the program this year gives a place to consideration of the fundamental aspects of physiology and biochemistry besides the more practical problems of medicine.

**Medical Bills in Congress**—Changes in Status. H. R. 7260 introduced by Representative Doughton, North Carolina, April 4 and reported to the House, April 5, with recommendation that it pass is a redraft of the so-called Wagner-Doughton-Lewis Social Security Bill. The redraft omits from its title all reference to "illness." The original social security bill proposed to establish a Social Insurance Board, which, among other things, was to be authorized to make recommendations with respect to health insurance. In the redraft of the bill the name of the board has been changed to "Social Security Board," and no duty devolves on the board to study and make recommendations specifically with respect to health insurance.

Corporations organized and operated exclusively for religious, charitable, scientific, literary or educational purposes no part of the net earnings of which inures to the benefit of any private shareholder or individual, are not liable to the assessments provided in the redraft for old age or unemployment benefits, nor, apparently, are employees of such corporations to be entitled to such benefits. The redraft provides, as did the original bill, federal subsidies, contingent on state plans being acceptable to federal agencies, to promote maternal and infant welfare, to care for crippled or dependent children, to provide for child welfare services, and for the development of state and local health work. *Bills Introduced* H R 7124, introduced (by request) by Representative Hennings, Missouri proposes to authorize the erection of an addition to the existing veterans facility at Jefferson Barracks, Missouri. H R 7130, introduced by Representative Nichols, Oklahoma proposes to authorize the erection of additional facilities to the existing veterans' facility at Muskogee, Okla. H R 7134, introduced by Representative Utterback, Iowa proposes to authorize the erection of an addition to the existing veterans facility at Knoxville, Iowa. H R 7135 introduced by Representative Gulmer, South Carolina, proposes to authorize the erection of an addition to the existing veterans facility at Columbia S C. H R 7156 introduced by Representative Scrugham Nevada and S 2455 introduced by Senator McCarran Nevada, propose to authorize the erection of a veterans hospital in Nevada. H R 7163, introduced by Representative Fenerty Pennsylvania, proposes to authorize the erection of an addition to the existing veterans' facility in the District of Columbia. H R 7169 introduced by Representative Church Illinois, proposes to erect an addition to the existing veterans' facility at North Chicago, Ill. H R 7200 introduced by Representative Kinzer Pennsylvania, proposes to erect an addition to the existing veterans' facility at Coatesville, Pa. H R 7232 introduced by Representative West Texas, proposes to erect a veterans hospital in Texas. H R 7234 introduced (by request) by Representative Christianson Minnesota proposes to authorize the erection of an addition to the existing veterans facility at Minneapolis. H R 7261, introduced by Representative Carter California proposes to authorize the erection of an addition to the existing veterans facility at Livermore, Calif.

### FOREIGN

**New Editor of Tuberculosis Journal**—Dr Lancelot S. T. Burrell was recently appointed editor of the *British Journal of Tuberculosis* and various changes in the form of the publication have been made beginning with the January issue. It will be the policy henceforth to emphasize the practical as opposed to the purely theoretical, according to an announcement. A department to be known as 'Consultations' and another, "Problems in Applied Medicine," are now included in addition to original articles society proceedings abstracts and book reviews.

**Chadwick Medal Awarded**—Col William P. MacArthur, late of the Royal Army Medical Corps received, February 18, the Chadwick Gold Medal and Prize of £100 awarded every five years to the medical officer of the navy army or air force who has most distinguished himself during that period in promoting the health of the men of the service to which he belongs. Following the ceremony, the twenty-third annual series of Chadwick Lectures was inaugurated by W. A. Robson, barrister-at-law with an address on the evolution of public health during the past hundred years.

**Congress on Industrial Accidents**—The American delegation to the seventh International Congress on Industrial Accidents and Diseases to be held in Brussels, Belgium, July 22-27, will leave New York July 8 and will visit London Amsterdam, The Hague, Paris, and optionally Budapest. Physicians interested in the congress or in the medical tour may receive information from the secretary for America Dr Richard Kovacs, 1100 Park Avenue New York. Dr Fred H. Albee, New York, is chairman of the American committee for the section on accidents and Dr Emory R. Hayhurst Columbus, Ohio, for industrial diseases.

### CORRECTIONS

**Antirachitic Cow's Milk**—In the article by Gerstenberger, Horesh, Van Horn, Krauss and Bethke in *THE JOURNAL*, March 9, the heading of table 6, on page 817, should have read Comparative Vitamin D Potencies of Butter Fat from Y Milk and from L Milk (Curative Method).

**Months Instead of Years**—On page 998 of the article by Dr Novak in *THE JOURNAL*, March 23, the statement that Engelbach reported satisfactory growth results in a pituitary dwarf in whom treatment was carried out 'for nine and a half years' should read 'for nine and a half months'.

## Government Services

### Increase of 6,264 Patients in Veterans' Hospitals

Continuous adjustments in benefits authorized to war veterans and their dependents were in process during the fiscal year ended June 30, 1934, according to the annual report of the Veterans' Administration. Changes brought about under the law enacted March 20, 1933, had been placed in operation when the statute of March 28, 1934, was enacted, restoring many of the provisions that had been in effect before the Economy Act. The Board of Veterans' Appeals, established Dec 1, 1933 to review claims, had rendered decisions in 7,523 cases and had pending 7,358 at the end of the fiscal year. The total hospital load of the Veterans' Administration at the close of the year was 40,059, an increase of 6,264 over the previous year, largely the result of liberalization of the provisions of the Economy Act, the entire increase occurred in the group of patients with non-service connected disabilities. The report states that with the exception of 1932 this patient population is the highest recorded in any year since 1917, when hospitalization for World War veterans was first authorized. Classified according to service there were among the patients 35,754 veterans of the World War, 2,229 Spanish American War, 194 Civil War, 97, other wars and expeditions, and 1,171 peace time service. Of the World War veterans only 11,799 were being treated for disabilities of service origin. Of all patients in the hospitals 56 per cent were suffering from neuropsychiatric diseases, 13 per cent from tuberculosis and 31 per cent from general medical and surgical conditions. In June 1923 the percentages were respectively 39, 41 and 20. The number of hospital admissions during the year was 63,900, the lowest recorded since 1920. The drop was due to the law of March 20, 1933 which denied hospitalization for non-service connected disabilities of a temporary nature, operations of choice and similar conditions. During the last part of the year following the enactment of the more liberal law of March 1934 there was a material increase, it was said. Of the admissions 42,475 were for general medical and surgical conditions, 8,889 for pulmonary tuberculosis, 5,695 for psychotic and mental diseases and 6,841 for other neuropsychiatric disorders. The total number of patients in the various hospitals during the year was 108,676, of whom 58,713 were discharged after an average of 122 inpatient days. Deaths totaled 5,334 of which 2,901 occurred among patients under treatment for general conditions, 1,660 for pulmonary tuberculosis, and 773 for neuropsychiatric diseases. Of those among general patients, more than 38 per cent were caused by diseases of the circulatory system and approximately 30 per cent by malignant tumors and diseases of the genito urinary system. The veteran population under domiciliary care at the end of the fiscal year totaled 9,404 as compared with 11,187 the previous year. There were 8,305 admissions of which 85 per cent were for non-service connected disabilities and 9,806 discharges after an average period of five months' care. The total number of beds controlled by the Veterans' Administration in both hospital and domiciliary facilities June 30, 1934, was 66,839. Seven new facilities were opened with beds as follows: Fayetteville, Ark. 258; Des Moines Iowa, 300; Wichita, Kan., 166; Biloxi, Miss. 207; Batavia, N. Y., 297; Roseburg Ore., 191; and Cheyenne, Wyo., 108. Domiciliary facilities were opened at Biloxi and Roseburg, with 350 beds each. Since the end of the year under report, two facilities have been completed at San Francisco, 334 beds, and at Roanoke, Va. 472 beds. Plans were approved for conversion of the facility at Danville, Ill., into a neuropsychiatric hospital. The field facilities of the administration made 559,554 physical examinations for outpatient purposes, a decrease of 790,898 from the previous year. Treatments furnished totaled 575,816 as compared with 830,115 the previous year. As a result of the Economy Act of March 20, 1933, the number of emergency officers of the World War entitled to retirement pay was reduced from 6,304 to 1,595; the law having limited this benefit to those whose disabilities resulted directly from military or naval service. The net operating expense for all hospitals was \$32,620,447.39, and for domiciliary facilities \$3,648,607.60. The per diem cost of operation for hospitals was estimated to be \$2.51, and for domiciliary facilities 97 cents. The actual net disbursements of the administration for all purposes during the year aggregated \$594,022,058.08. At the end of the year there were 34,890 employees on the rolls, 5,210 in the central office and 29,770 at field stations whose gross annual salaries amounted to \$55,810,584.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 16, 1935

#### The Aging of the English Population

Again the figures of the registrar general show that as a people the English are growing older as a result of the falling birth and death rates. The birth rate for 1934 was 14.8 per thousand of population. In the last thirty odd years the rate has been halved. This fall is without parallel in the history of this or any other country. The infant death rate in 1934 was 59 per thousand live births in the quinquennium 1901-1905 it was 138. The general death rate has also been falling steadily. In the quinquennium 1901-1905 it was 16.1 per thousand of population, in 1934 it was 11.8 which was 0.4 above that for 1933, the lowest on record. The increasing aging of the population is shown by the proportion of the persons over the age of 70 years per 10,000 of the total. In 1911 they numbered 297 in 1921, 344, in 1931, 426 and in 1932 434. The registrar general therefore describes the increase in the number of old people as 'an outstanding feature of our vital statistics.'

#### The Eradication of Rabies from Great Britain

Many years ago a courageous home secretary introduced, in the face of angry opposition from dog owners, the compulsory muzzling of all dogs. As rabies could not then be passed on from animal to animal, the disease became extinct after a time. But as rabies exists on the continent of Europe it would sooner or later be introduced by imported dogs when the muzzling period was over. This was prevented by a six months period of quarantine for all imported dogs which is still in force. In the house of commons the minister for agriculture stated that five years has elapsed since the last case of rabies imported from Europe and four and three fourths from the rest of the world. He was asked whether he would reduce the period of quarantine. He would not do so, as experience had shown the six months to be necessary. Since 1919 twelve dogs imported from abroad have developed rabies while in quarantine, four of these between the fourth and the sixth month.

#### Escape from Wrecked Submarines

Great attention has been given by the admiralty to the problem of the escape from submarines, and a considerable advance has been made. Because of the successful use of the Davis escape apparatus, by which five men were rescued from the Poseidon in 1931, all submarines are furnished with escape apparatus, in the use of which the men of the submarine service are trained by means of a specially designed tank. A great improvement has been made on the earlier method. Each submarine is now provided with two escape chambers, which are built against the main bulkheads fore and aft and rise from the floor of the ship to the outer casing through which a hatch opens directly into the sea. The escape chambers are in the main gangway and can be brought into use by closing watertight doors, which give access to the adjacent compartments of the submarine. To ensure speed in case of emergency, all the controls of a chamber are triplicated.

In case of accident the procedure is for two men to enter the chamber wearing the Davis apparatus which is a sort of diving dress, close the water-tight doors, flood the chamber with water from the sea, and, when the water has risen far enough, open the upper hatch and by rising through it escape to the surface. The hatch is then closed and the chamber emptied by draining the water from it into the bilges. Two other men enter the chamber and the procedure is repeated.

The escape chamber system has several advantages over the one that it has replaced, not the least being a much greater speed in operation. Two men can be sent to the surface every five minutes, while those waiting to escape do not have to stand in a flooded compartment with water up to their necks. For training purposes escape chambers have been constructed at the submarine depot, Portsmouth, where men are instructed. The course of instruction is thorough and includes practice in using the escape chambers and the Davis apparatus, methods of breathing under water to avoid caisson disease, and what to do after floating to the surface from a wrecked submarine. All the men in the submarine service are to go through a course of escape training yearly as a "refresher." For this purpose the admiralty has built a training tank at Hong-Kong and another at Malta.

### PARIS

(From Our Regular Correspondent)

March 8, 1935

#### Kidney Complications During Gold Treatment of Tuberculosis

At the Dec 7, 1934, meeting of the Societe medicale des hopitaux, the subject of kidney complications during the gold treatment of pulmonary tuberculosis was discussed. Many tuberculosis specialists have been of the opinion that slight evidences of renal intolerance to gold salts, especially an albuminuria, ought not to be considered an indication for interrupting the treatment, because the albuminuria is only transitory and disappears spontaneously. This view is less favored at present than it was one or two years ago.

Bourgeois and his associates now report a case in which two previous series of treatments with the gold salts was accompanied by a slight albuminuria. Up to the time of beginning a third series, the patient had been given a total of 55 Gm of gold. Two days after the disappearance of the albuminuria, just as the gold treatment was begun again, the patient presented all the clinical signs of an acute nephritis, with edema of the eyelids and both feet, oliguria, fever, dyspnea, delirium, ascites and gallop rhythm of the heart. These receded rapidly following treatment. There was now no albuminuria, however, and the blood urea rose only to 43 mg per hundred cubic centimeters. Death occurred about six months later, following a severe hemoptysis. The kidneys showed the lesions of acute nephritis in the process of resolution. On chemical analysis, some of the renal tubules showed the presence of gold enclosed in the epithelium of these tubules. A total of 115 mg of gold was found in the kidneys. Bourgeois and his associates state that one ought not to continue to employ the gold salts in pulmonary tuberculosis, whenever an albuminuria occurs. In the discussion, Etienne Bernard stated that doses (total) of as high as from 60 to 80 Gm of the gold salts are tolerated without any accompanying albuminuria or rise in the blood urea. If renal complications occur, there must have existed some previous evidences of nephritis, hence one should search for these before beginning the gold treatment.

Justin-Besançon stated that, as the result of experimental study, an antidote had been found not only against acute intoxication due to the salts of gold but also to that of other toxic metals, including lead, mercury, uranium and bismuth. This antidote is sodium methyl sulphoxalate, which does not exhibit any toxic properties when injected into rabbits that have been given a lethal dose of sodium gold thiosulphate. This may prevent in the future any toxic effects of the gold salts.

Coste raised the question whether, in view of the case report of Bourgeois, one ought not to discontinue the gold treatment as soon as an albuminuria appears. One must consider the various diseases in which gold therapy is being employed.

Cases of chronic arthritis, which are usually very intolerant to the use of gold salts, rarely show any signs of nephritis even though a transitory albuminuria is observed. On the other hand, patients with pulmonary tuberculosis show evidences of nephritis from time to time, especially at the beginning of the gold treatment. One might think that polypeptide intoxication, which favors an amyloid degeneration of the kidneys, is followed by a special degree of "renal fragility." He would be far more inclined to discontinue the use of gold salts as soon as an albuminuria appeared.

In closing, Bourgeois said that the frequency of albuminuria in gold therapy is absolutely independent of the single or total dose. The renal complications should be placed in the same category as the ocular, blood and hemorrhage accidents. A search for a certain predisposition to renal complications had not thrown any light on the question. Of fifty-six cases that had shown slight evidence of renal lesions before the gold treatment had been begun, only one third had not shown renal complications. The other two thirds had shown all varieties of accidents due to the gold salts. Of eight cases of severe nephritis occurring during such therapy, four had previously shown evidences of nephritis. He would advise an estimation of the blood urea in every case before beginning the treatment.

#### Fatal Nephritis Following Gold Salt Injection

At the Dec. 21, 1934, meeting of the Societe medicale des hopitaux, Olmer and Sarradon reported a case in which a man, aged 37, entered the hospital with physical signs of a pulmonary tuberculosis involving the left apex and to a lesser extent of the base of the right lung. The sputum was positive for tubercle bacilli. The examination of the urine revealed nothing abnormal, especially no albumin or casts. The result of the blood urea examination, which proved to be 70 mg per hundred cubic centimeters, was not known until the day following the first treatment. A single intramuscular injection of 0.05 Gm of a gold salt was given. The following day the urine contained 9 Gm per liter of albumin, but no casts. The albuminuria rose rapidly in amount during the next few days, and the blood urea increased to 300 mg per hundred cubic centimeters. The patient died eight days after this single injection of the gold preparation, in uremic coma. No edema had ever been noted but there was a marked decrease in the urine output, only 250 cc in twenty-four hours. The blood pressure never attained a level higher than 110 systolic and 70 diastolic. The only conclusion to be drawn is that the acute toxic nephritis was due to the gold treatment in a patient who had a renal intolerance for this metal. Although such accidents are infrequent, it teaches one that a complete examination, with every known renal function test, should be made before beginning a gold salt treatment. Unfortunately, in this case, the relatively high blood urea, 70 mg per hundred cubic centimeters, was not reported from the laboratory until the day following the initial single and fatal dose.

#### Auric Nephritis and Amylosis

At the Dec. 21, 1934, meeting of the Societe medicale des hopitaux, Coste and associates reported the case of a man, aged 24, who entered the service of Prof. Leon Bernard with physical signs of pulmonary tuberculosis involving both lungs. Frequent examinations of the urine revealed nothing abnormal. Feb. 16, 1934, he was given 5 mg of a gold salt. The following days, gradually increasing edema of the lower extremities, marked albuminuria and recurrence of a previously existing diarrhea were noted. The latter symptom increased in severity and was accompanied by headache, stupor, anorexia and occasional emesis. The blood pressure remained constantly between 100 and 110 systolic and 50 and 65 diastolic. The heart sounds became fainter and the somnolence increased until

death, one month after the beginning of the gold salt therapy. The blood urea, from February 24 to March 3, had risen from 47 mg to 86 mg per hundred cubic centimeters. The total amount of the gold salts given was only 0.05 Gm. The necropsy revealed a large, pale liver with fatty infiltration but no amyloid changes, but in the kidneys there were extensive amyloid degenerative lesions of the glomeruli without evidences of changes indicative of an acute or chronic nephritis. The amyloid degeneration probably antedated the gold treatment, but no one can deny that the gold salt may not have precipitated acute amyloid changes, as reported by Dubrow.

#### Death Following Gold Treatment for Tuberculosis

At the January 18 meeting of the Societe medicale des hopitaux, Bourgeois and his associates added another fatal case following gold therapy for pulmonary tuberculosis. A man aged 34, had a nonevolutive involvement of the right upper lobe. Injections of a gold salt were begun in April 1934. An urticaria of the trunk and arms followed the first injection of 0.05 Gm, so the doses were decreased to 0.025 Gm, given once a week. The last injection was given November 2, and the total up to that date was 54 Gm of gold sodium thiosulphate. The last injection was followed by a papular eruption over the right shoulder and upper arm, as well as by a diffuse polyneuritis of motor paralysis type, which increased until a complete paraplegia was noted. Lumbar puncture did not throw any light on the etiology of the Landry syndrome (ascending paralysis). The patient died, November 17, with symptoms of asphyxia of bulbar origin. No exacerbation of the pulmonary lesions accompanied the polyneuritis, hence the authors feel that the gold salt alone was responsible. The urticaria following the first injection was already an evidence of intolerance to gold therapy. Such a sign has been observed by others but does not recur with the injection of gradually increasing amounts.

#### BERLIN

(From Our Regular Correspondent)

Feb 18, 1935

#### Health Insurance in 1933

Recent letters contained reports on the system of health insurance in vogue in Germany (THE JOURNAL, Nov. 10, 1934, p. 1463) also on the local *krankenkassen* which include the great majority of the insured (THE JOURNAL, January 26, p. 331). In the meantime the federal bureau of statistics has published further information on the year 1933.

The number of individual services rose in 1933 to almost 40,000,000 cases. About 4,000,000 more cases were treated in 1933 than in 1932. The main cause for this was the influenza epidemic of the spring of 1933. The number of cases of illness associated with incapacity for work was distinctly fewer. For each 4.5 cases there was one case with incapacity for work. The total number of such cases for the period 1929-1933 was as follows: 1929, 12,410,000; 1930, 8,653,000; 1931, 7,096,000; 1932, 5,357,000; and 1933, 6,083,000. It is evident, therefore, that the number of cases of illness with incapacity for work was in 1933 less than half that of 1929, although, by reason of the influenza, 1933 showed an increase over 1932. The average duration of the illness showed a tendency to increase: 1929, 25.8 days; 1930, 28.9 days; 1931, 29.8 days; 1932, 30.3 days; and 1933, 25.6 days. The reduction of the number of days in 1933 as against 1932 was also doubtless due to the influenza. The number of cases associated with incapacity for work was about the same in the two sexes but the illnesses of the female members were of longer duration. The number of cases in which financial aid to puerperants was granted has shown a downward trend since 1928: 1928, 810,808; 1929, 802,656; 1930, 788,391; 1931, 686,743; 1932, 599,198; and 1933, 543,330.



The federal bureau of statistics regards this fact as an indication that the economic distress rested most heavily on the strata of the population that were insured in the health insurance associations (*Krankenkassen*), the strata that, at the same time contributed most to the preservation of the numerical status of the population. Likewise the number of death benefits has decreased from 1929 to 1933. 1929, 243,108; 1930, 214,935; 1931, 200,082; 1932, 122,711; and 1933, 125,837. The increase in 1933 was only 2.4 per cent, although the total number of deaths in the German Reich increased by 4.5 per cent. This smaller increase is due to the fact that, owing to the economic crisis chiefly the older workmen in many instances have been deprived of their jobs and for that reason have gradually given up their health insurance. The total expenditure of the German *Krankenkassen* dropped from 1,217,000,000 marks (\$486,800,000) in 1932 to 1,180,900,000 marks (\$472,360,000) in 1933. The expenditures for sick benefits likewise decreased in 1933. A comparison over the five year period 1929-1933 follows: 1929, 1,740,500,000 marks; 1930, 1,523,800,000; 1931, 1,226,800,000; 1932, 857,900,000; and 1933, 835,400,000. Sick benefits provide for the treatment of patients by licensed physicians, dental treatment medicines, hospital care domiciliary care house money, cash allowances pocket money and financial aid for convalescents. The cash allowances ranged as follows: 1929, 684,000,000 marks; 1930, 509,000,000; 1931, 369,000,000; 1932, 220,000,000; and 1933, 201,000,000. The expenditures for cash allowances to patients have thus dropped since 1929 to less than one third. The same trend may be observed in the expenditures for medicines and for hospital care. Thus the expenditures for medicines dropped from 237,800,000 marks in 1929 to 113,000,000 in 1933 and the expenditures for hospital care declined from 274,000,000 marks in 1929 to 176,000,000 in 1933. A similar decline was noted in the expenditures for medical care: 1929, 410,000,000 marks; 1930, 393,000,000; 1931, 328,000,000; 1932, 258,000,000; and 1933, 251,000,000. The administrative expenditures dropped from 130,000,000 marks in 1929 to 111,000,000 in 1933. The cost per member was 6.21 marks in 1929 and 6.13 marks in 1933. The receipts decreased even more than the expenditures. The receipts of the entire body of *Krankenkassen* (except the *ersatzkassen*) amounted in 1929 to 2,109,000,000 marks; 1930, 1,922,000,000; 1931, 1,429,000,000; 1932, 1,078,000,000; and 1933, 1,031,000,000. The receipts thus fell off since 1929 by more than 1,000,000,000 marks. The dues per member were 97.90 marks in 1929 and 59.52 marks in 1933. In 1933 the highest receipts per member were reported by the marine *Krankenkasse* (102.72 marks) and the miners *Krankenkassen* (94.27 marks). The lowest receipts were found in the rural *Krankenkassen* (40.43 marks), which for a number of years have had the most difficult status of all the *Krankenkassen*. The property holdings or net worth of the *Krankenkassen* amounted in 1933 to more than 800,000,000 marks; the reserve funds increased from 408,300,000 marks to 436,400,000 marks. The reserve funds amount now to 30 per cent of the average annual expenditures during the previous three years (the minimal legal reserve is 25 per cent of the average expenditures of the previous three years).

#### The Saliva and Immunity to Diphtheria

The explanation given by Behring a number of years ago for diphtheria immunity (presence of a sufficiently large amount of antitoxin in the blood) does not hold good as Professor Dold, hygienist of Tübingen, has pointed out in face of the fact that there are animals which, in spite of marked parenteral (subepithelial) sensitiveness to diphtheria bacilli and their poison and in spite of the absence of demonstrable quantities of diphtheria antitoxin in the blood, do not spontaneously contract pharyngeal or nasal diphtheria nor can they be made

to develop diphtheria by a massive experimental infection of the pharyngeal and nasal mucous membranes with virulent and toxic diphtheria bacilli. It is evident, therefore, that in these cases other protective mechanisms must be present. Of these, the protective action of the saliva and of the nasal secretion is doubtless the most important. Likewise the saliva of human beings (of adults and of the older school children) possesses such protective mechanisms capable of combating toxic diphtheria bacilli. It may serve to check their development, it may kill them after they have developed or (in the event of long continued action) it may transform them into diphtheroids or into pseudo diphtheria bacilli, whereas the diphtheria toxin is not made inactive by human saliva. In establishing immunity to diphtheria and in connection with its origin and spread, this action of the saliva (presence or absence of these protective mechanisms) must be at least of equal importance with the antitoxin content of the blood for, ahead of the antitoxic immunity of the blood, which constitutes, as it were, the second and last reserve force, the first line of defense is formed by the saliva or the nasal secretion, with the described antibacterial protective mechanisms. The therapeutic value of the antitoxin serum is, of course, in no wise affected by these observations.

#### Back-to-Nature Nutrition and Protein Metabolism

The subject of back-to nature nutrition and protein metabolism was recently discussed by Professor Bickel before the Berlin Medical Society. In view of the tendency manifest in Germany to practice nature cures and to introduce the tenets of popular medicine into every possible field, a discussion of this kind was at this time peculiarly opportune. In primitive and civilized man, Bickel pointed out, a mixed form of nutrition such as corresponds to the nature of man, has always been in the foreground. A one-sided nutrition, when found, is nearly always dependent on external influences or, in other words, is forced. An exclusive diet of raw foods cannot be regarded as a natural diet. For optimal nutrition, vegetable protein must always be supplemented by animal protein. In the experiments of Hindhede, with a limited nitrogen intake the nitrogen balance is preserved only by compensatory limitation of all combustion processes. Thereby the C/N quotient is abnormally increased and the quality of all oxidation processes is reduced. Bickel designated this as "dysoxidative carbonuria." It appears even when the nitrogen balance is still positive and it increases when the nitrogen balance drops to the negative side. An increase of protein leaves the quotient normal and uninfluenced, hence natural nutrition does not require a strict limitation of the protein intake. Not all forms of protein are of equal value. The low and the average values are assignable to the vegetable proteins, and the high values to the animal proteins. If human beings or animals are nourished with proteins having only average or low values, such nutrition may be designated as of low quality, and the increase of body weight will be inadequate, there will be a defective resistance to infections; the nitrogen balance will be negative, and dysoxidative carbonuria will appear. If one feeds, for example lentil protein, combined with amino-acids, an increase of the carbonuria will be brought about, even though large quantities of amino acids are added to the diet. Addition of amino acids to a mixed diet that is in itself adequate or substitution of amino-acids for a portion of the nutritional protein, likewise leads generally to carbonuria.

#### The Health Record Book

In response to a request of the Amt für Volksgesundheit of the national-socialist party, a health record book comprising sanitary blanks for three periods of life has been issued, namely, for the period of infancy and the preschool age for



the period of growth, from ages 6 to 18, and for the adult period from ages 19 to 65. The tasks of the Amt für Volksgesundheit lie chiefly in the field of health service, health education and health leadership and constitute a supplementation of the measures of the central government, which deal mainly with health building and health preservation. The Amt für Volksgesundheit intervenes more promptly, long before the central government can get into action. It acts also in those cases in which the functions of the health insurance system and the state have become exhausted. Its goal is to reach every person and to improve the health and the working capacity of every one, so far as possible, within the limits of his hereditary biologic and racial aptitudes. For that purpose it is necessary to observe a person in association with his family. Hence the examination of the family must be more emphasized, and the old type of house physician must again be cultivated.

#### Merger of German Neurologic Societies

The Gesellschaft Deutscher Nervenärzte and the Deutscher Verein der Psychiatrie have merged under the title "Gesellschaft Deutscher Neurologen und Psychiater," although each of the two resulting departments will retain a certain measure of independence. The psychiatric department will absorb also the Deutscher Verband für psychische Hygiene und Rassenhygiene. Professor Rüdin of Munich has been appointed "federal director."

#### ITALY

(From Our Regular Correspondent)

Jan 31, 1935

#### Congress of Occupational Medicine

The eleventh Congresso nazionale di medicina del lavoro was held recently in Turin. The first paper on the program, dealing with "Work on the Sea," was presented by Prof. Nicolo Castellino, occupant of the chair of occupational medicine (medicina del lavoro) at the University of Naples. He considered the diet of seamen, pointing out the present deficiencies and suggesting dietary tables calling for a greater consumption of protein substances and a diminution of carbohydrates, which are now used in excess. The author stressed the frequency of venereal diseases among seamen and proposed the adoption of prophylactic measures similar to those used in the army. The two disorders especially common in seamen are rheumatism and cardiovascular disturbances. Although rheumatism is caused by the nature of the surroundings in which the men are employed, in evaluating the relations between the organism and the disease it is necessary to take account also of the individual factor, for it is evident that every one has the type of rheumatism for which his organic peculiarities prepare the way. To explain the origin of cardiovascular diseases, the speaker stated that it is necessary to take account of the rapid changes in the weather and in the atmospheric pressure, of the fatigue poisons, and of the action that excessive perspiration exerts on the walls of the blood vessels. As seamen live in an atmosphere saturated with chlorides and iodine vapors, they commonly present physiologic hyperthyroidism. This observation should lead to the application of an energetic prophylaxis and to a more careful selection of men suitable to the calling. Diseases of the respiratory apparatus are next in order among those that attack seamen. In their causation humidity and fog are important causative factors, as they may constitute the vehicle of infectious microorganisms and harmful vapors. Congestive diseases of the pulmonary tree predominate, whereas tuberculous disorders are rare.

Professor Quarelli spoke on the subject "Work on the Sea and on Fresh Water Bodies," considering especially the dis-

eases of fishermen. These may arise (1) from the excessive or the peculiar nature of the work, (2) from the environment, or (3) from the postures, compressions and motions involved in the work. Among the disorders referable to postures and to working positions, importance attaches to the erect or to the sitting posture that the fisherman must constantly assume in certain fishing places. Varices of the leg are frequent, also a certain amount of deviation and deformation of the dorsal portion of the spinal column in rowers and in those whose duty it is to draw in the nets to the shore. Among the disorders of compression may be mentioned the marked hollowing out of the right subclavicular fossa in boatmen, dyskinesia and cramps. Among the types of disease due to the environment, the speaker mentioned certain endemico infectious disorders, those ascribable to the necessity of living exclusively on the fruits of fishing in some localities, scabious or purulent dermatosis, injuries due to inoculations of poison by fish and *Coelentera*, and malaria among those who work in localities in which anophelism is endemic.

Professor Micheli, senator, director of the Clinica medica in Turin, took as his subject "Exogenic Superinfection in Relation to the Question of Occupational Tuberculosis." The question has been in the foreground for several years but is still unsettled, being connected, on the one hand, with the question as to whether or not pulmonary tuberculosis that develops in persons employed in the aid of tuberculous patients may be regarded as an occupational disease, and, on the other hand, with subjects of scientific and practical interest, such as phthisiogenesis and prophylaxis. The author shares the opinions of the school that holds that so-called tuberculosis of adults has an endogenic origin. He is led to this conception by arguments of various nature, as the frequency of bacillema, and the presence of live and vital germs in the tracheobronchial glands even when they are calcified, from which the germs themselves easily enter the blood stream. Modern theories on immunity affirm that, while the organism may be capable of overcoming readily the first tuberculous infection, it does not succeed in destroying the germs that the infection brought into the organism, for such germs remain alive even in the cicatricial processes of calcification. "Early infiltration," according to the speaker, is the expression of the exacerbation of small preexisting foci, surrounded by an area of exudative inflammation.

Professor Ranelletti of Rome spoke on poisoning due to carbon disulphide, pointing out that in such cases the principal morbid manifestations concern the nervous system. These present themselves in the form of a psychosis of a maniacal, confusional or demential type, polyneuritis that involves all four limbs. The localizations of polyneuritis may affect also the nerves and the flexor muscles. This is an important characteristic for the differential diagnosis as against pleuritis of a different nature.

Dr. Ando Gianotti considered the neurovegetative and endocrine changes that are observed in poisoning due to carbon disulphide, with especial reference to the adrenal capsules. He concluded that under such conditions there are a special state of lability of the parasympathetic system and evident endocrine changes that affect particularly the genitalia, the islands of Langerhans, and the adrenal cortex.

Dr. Di Donna spoke on the hygienic prevention of sulphocarbonism, a question that is today important owing to the wide industrial use of carbon disulphide. Prophylaxis may be accomplished either by preventing the gas from spreading into the work rooms or by having the workmen put on gas masks and protective garments.

As the last official speaker, Professor Guglianetti described the injuries that result to the eye through overuse and constitute eye strain. One of the most typical occupational dis-

cases is the myasthenia of miners. Among the diseases due to the environment of the workman may be mentioned those produced by defective light or by radiations, such as cataract in men working near hot fires and in glass blowers and the eye lesions due to roentgen rays. Also in association with crisson disease there are eye changes, and disorders of the visual apparatus may be due to the direct action of gas, vapors or dust contained in the air of the workman's environment or to the action of war gases.

Holstein spoke on the intoxication states due to mercury, which are observed in some hat factories. Vigham referred to disturbances in workmen who apply spray varnishes to automobile bodies, pointing out that the digestive apparatus is most commonly affected, together with liver involvement. The changes in the blood were the least marked.

Naples was chosen as the meeting place for the next congress. The following subjects will be discussed: (1) pathology and hygiene of noises; (2) insurance against occupational diseases after three years' trial, and (3) occupational poisonings due to the use of new chemical products.

## VIENNA

(From Our Regular Correspondent)

Feb 9 1935

### Results of the Operation for Gallstones

At one of the recent sessions of the Vienna Medical Society, Prof. Dr. Finsterer discussed the results of the operation for gallstones. In order to judge correctly the results secured, not only the immediate results of the operation but also the permanent results must be considered. The early operation (under age 40), as recommended by Enderlilen and Hotz, is still rejected by many internists, which Professor Finsterer regards as an error, for the mortality of the interval operation, and also of the early operation in an acute attack, associated with fever, in patients under 40 years of age, is lower than in patients from 50 to 60 years old. Finsterer reported that in his own series of cases he had only two deaths in 136 interval operations, and no deaths in thirty-nine cholecystectomies performed in the acute stage in patients under 40. The speaker stated, however, that in the interval operation the age of the patient, in his opinion is not important. In thirty-nine patients whose ages ranged from 60 to 79 he had but one death. In his own series of cases the age was of slight importance in the acute stage. In the 40-50 age group all his twenty-nine cases ended in recovery; in the 50-60 age group the mortality was 9 per cent in thirty-one cases, but in the 60-70 age group only 5 per cent in a series of nineteen patients, in seven patients more than 70 years old, with gangrene of the gallbladder, the mortality rose to 28 per cent. The early operation in an acute febrile attack (within forty-eight hours after the beginning of the attack) gave good results (forty-six cases with 2 per cent mortality), whereas the late operation in a series of seventy-nine cases gave more than 6 per cent mortality. Hence the early operation is safer than a waiting policy. It may be observed that cholecystectomy gives better results than cholecystostomy (118 cases with three deaths as against seven cases with three deaths). These figures agree closely with the experiences of many other operators. But if the patients are not brought to the physician until necrosis of the pancreas or perforation peritonitis has developed, the operation is to be sure, still indicated, but the results are then poor (sixteen deaths in eighteen cases). In stone of the choledochus the prognosis depends on the degree and the duration of the obstruction but also on the operation. The results are excellent in simultaneous cholecystectomy and supraduodenal choledochoduodenostomy (seventy cases with 7 per cent mortality) particularly in elderly persons (twenty cases with 5 per cent mortality). Aged patients, more than 70 years old, reacted surprisingly well,

all six cases ending in recovery. The results of choledochus suture are not so good (eleven cases with one death), and very bad in hepaticus drainage (eighteen cases with more than 22 per cent mortality). It is important that the anastomosis be planned on generous lines, in order that, immediately after the operation, all the bile may again enter the intestine. Finsterer designates as an acute attack only the febrile attack with a temperature of at least 38 C (100.4 F). In such cases, because of the possibility of a later complication, it is better not to delay the operation long. For the intervention he does not use general (ether) anesthesia but only paravertebral or splanchnicus anesthesia. To this fact he ascribes his good results in aged patients. The total elimination of ether does away with postoperative pneumonia and the damage to the liver. In his own series of ninety-three cases in which the patients were more than 60 years of age, pneumonia was entirely absent.

The permanent results were remarkably good in cholecystectomy in the acute febrile stage, for, of seventy cases in which the operation dates back from three to twenty years, 91 per cent (sixty-four patients) are free from symptoms. In this series four patients have a slight hyperacidity, and only two patients complain again of symptoms. In one case in a supplementary operation no stones but a cholangitis was found. A second patient had a duodenal ulcer. A recent gastric resection brought permanent freedom from pain (sixteen years after the original operation). In the interval operation the results are not so good, for of 178 patients only 142 are free from pain (80 per cent). Twelve patients have at times slight symptoms but have regained their complete working capacity. Twenty-four patients, however, have at times rather severe symptoms, but in only two cases is the pain ascribable to cholangitis; in the other cases various causes are responsible (ulcer, colitis). In chronic cholangitis without stones the results are poor (of thirty-four patients only 66 per cent were cured, while in 17 per cent no cure was effected). In stone of the choledochus the permanent results after hepaticus drainage or suture of the choledochus are not satisfactory (of thirteen patients only five recovered, while three died). On the other hand, the permanent results of choledochoduodenostomy were very good (of forty-two patients, thirty-seven, or 88 per cent, have been well for periods ranging from three to twelve years; three have slight symptoms, and only two remained uncured). The charge that this operation incurs a danger of an ascending infection is unfounded. Finsterer presented several patients who had undergone this intervention with success. The precondition of a permanent result is that the anastomosis shall remain wide open; hence a longitudinal incision along the choledochus and likewise along the duodenum must be made. The bad results are due, in 50 per cent of the cases, to a duodenal ulcer, whereas cholangitis is present in only about 25 per cent of all cases, or 4 per cent of the operations. A comparison with the sparse statistics on cases treated by internists reveals that, even with institution of a strict diet, in only 40 to 50 per cent was a reasonably permanent freedom from symptoms effected, and that from 16 to 25 per cent died without operation from their gallstone disease, or, because of a dangerous complication, were operated on a second time, whereas in the operations including all complications, a mortality of from 45 to 65 per cent was recorded. In 87 per cent, however, complete recovery, extending in some cases over a period of twenty years, was secured. The other cases showed a 4 per cent incidence of persistent cholangitis. The remaining patients suffered from a duodenal ulcer, colitis, renal stone and the like. The results of operation are thus much better than those of internal treatment, but with the cooperation of the internist they might be still better if the value of the early operation in the younger years and also the value of the early operation in the acute febrile stage become more generally recognized, and if the

surgeon during the intervention even in the presence of stone, will look carefully for concomitant disorders particularly duodenal ulcer, and will treat also these operatively

During the discussion following the presentation of the paper, it was apparent that a large majority of the surgeons agreed, to a great extent with the statements of the speaker Prof Dr Ewald remarked that the question of early operation in gallstone disease reminded him of a similar discussion, thirty-five years ago, on the problem of early operation in appendicitis This question, also, was answered in favor of the radical point of view Professor Moszkowicz uttered an interesting warning against a surgical intervention immediately after a roentgen examination The agents used in connection with a roentgen examination are not indifferent to the organism hence from six to eight days should intervene between a roentgen examination and an operation

#### Suicide Statistics for 1934

A compilation of the suicides for 1934 (including unsuccessful attempts) has just been published and gives a good insight into conditions in Vienna in recent years From these statistics it appears that since 1930 the number of persons weary of life's struggle has been decreasing Whereas in 1930 the number was 3,065 and in 1933 still 2,825, it dropped last year to 2,507, 1,219 men and 1,288 women The number of successful attempts was 1,019 (592 men and 427 women) Nearly all age groups were represented from a 10-year-old boy to an 83-year-old woman The most important causes for the attempt were economic distress and unemployment 413 cases family quarrels 366, sickness 344 mental disturbance, 182 unfavorable physical conditions 169 unhappy love affairs 165 fear of punishment 67, and grief over the death of near relatives or friends 51 The cause remained unexplained in 745 cases Both sexes showed a predilection for poison considerably more than half of the suicides were accomplished by means of illuminating gas (544) 225 preferred death by hanging, 98 used firearms 78 persons sought death by leaping from great heights, 52 by drowning, 9 by the use of a chopping or cutting weapon, 12 persons voluntarily allowed themselves to be run over, and one man chose a death by burning It is interesting to note that in the winter months the number of suicides (498) was distinctly fewer than in summer (521) In the months of March, April and May, more than 100 suicides were recorded in September and December only 70 each The number of attempted suicides among the women was much greater than among the men

#### Marriages

ROBERT PARK JR. Beaver Falls, Pa to Miss Marjorie Lee Sprye of High Point N C, in Brooklyn, February 16

ANGUS C MEAGHER Toppenish, Wash to Miss Glenna Lee Pratt of Yakima at Butte, Mont, Dec 29, 1934

HENRY SHIRLEY MILLETT, Brooklyn to Miss Annie Ostrom Alexander of New York February 11

HOMER A WHITTINGTON, Natchez, Miss, to Miss Elizabeth Wood of Brookhaven, February 5

PAUL A BREHM, Milwaukee, to Miss Mary Elizabeth Harrison of New York, January 21

SIGMOND I SHAPIRO Warren Ohio, to Miss Ruth E Leopold of Youngstown, March 13

HERBERT S RAINES to Miss Margaret P Swartz, both of Philadelphia, March 4

ALEXANDER L STEARNS to Miss Elizabeth J Day, both of Chicago, March 24

AMERICO FERLITA to Miss Nina Tagliarini both of Tampa, Fla, February 28

KELLIE N JOSEPH, Decatur, Ala, to Miss Dell Ivie of Alto, Ga March 23

#### Deaths

Edgar Moore Green of Easton, Pa, University of Pennsylvania Department of Medicine, Philadelphia 1886 past president of the Northampton County Medical Society, fellow of the American College of Physicians formerly member of the state board of medical education and licensure at one time member and president of the board of education internist on the consulting staff of St Luke's Hospital Bethlehem life member of the board of trustees of Lafayette College, aged 72 died, March 9, of arteriosclerosis

Thomas Cook Stellwagen of Philadelphia, Jefferson Medical College of Philadelphia, 1903, professor of genito-urinary surgery at his alma mater, member of the American Urological Association, member and past president of the American Association of Genito-Urinary Surgeons served during the World War aged 55 at various times on the staffs of the Philadelphia General Hospital St Joseph's Hospital, Jewish Hospital and the Jefferson Hospital where he died, March 15 of angina pectoris

Mary Gage Day of Kingston, N Y, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888, member of the Associated Anesthetists of the United States and Canada on the staff of the Benedictine Hospital on the staff and member of the board of managers of the Ulster County Tuberculosis Hospital and member of the courtesy staff of the Kingston City Hospital, aged 77, died, March 7 in St Petersburg Fla of injuries received in an automobile accident

Harold Gould Garwood, Denver Johns Hopkins University School of Medicine Baltimore 1904 fellow of the American College of Surgeons served during the World War formerly instructor in surgery, University of Colorado School of Medicine at various times on the staffs of the Colorado General Denver General St Luke's and Children's hospitals aged 59 died March 8 in the Station Hospital United States Army Fort Sill Okla, of lobar pneumonia

Colman Ward Cutler of New York College of Physicians and Surgeons, Medical Department of Columbia College New York 1889, member of the board of directors of the National Society for the Prevention of Blindness aged 72 at various times on the staffs of the New York Hospital Woman's Hospital St Mary's Hospital for Children and St Luke's Hospital where he died March 17, of arteriosclerotic heart disease and cerebral hemorrhage

Thomas McKean Thompson McKennan of Pittsburgh, University of Pennsylvania Department of Medicine, Philadelphia 1882 professor of neurology University of Pittsburgh School of Medicine member of the American Neurological Association and the Association for Research in Nervous and Mental Disease aged 75 neurologist to St Francis Hospital, where he died February 16 of lobar pneumonia

William Egleston, Hartselle, S C, University of Nashville (Tenn) Medical Department, 1898 member and president of the South Carolina Medical Association, past president and secretary of the Darlington County Medical Society, chairman of the South Carolina State Board of Health served during the World War, aged 61, died, March 24, of cerebral thrombosis

Henry William Kice of Dover N J University of the City of New York Medical Department 1888 at one time secretary of the Union County Medical Society formerly mayor, member of the board of health and board of education and medical inspector of the public schools of Wharton aged 74 died, March 6, of arteriosclerosis and carcinoma of the prostate

Joseph Taylor Griest, St Louis Barnes Medical College, St Louis, 1909 member of the Missouri State Medical Association formerly professor of chemistry and toxicology at his alma mater and professor of toxicology and clinical medicine, National University of Arts and Sciences Medical Department, aged 55, died, March 2, of bronchopneumonia

Charles Fletcher Milligan of Clayton, N M University Medical College of Kansas City, 1906 president of the New Mexico Medical Society, secretary and past president of the Union County Medical Society on the staff of St. Joseph Hospital aged 55 died suddenly February 2 of epidemic (lethargic) encephalitis

Theodore Engelbach of Grand Isle, La. Tulane University of Louisiana Medical Department, New Orleans, 1894, also a pharmacist acting assistant surgeon U S Public Health Service, deputy coroner and justice of the peace aged 78 died, February 26, of acute pyelonephritis and bilateral bronchopneumonia

**John Martin Birkner**, Lincoln, Neb. Missouri Medical College, St. Louis, 1886, at one time professor of military surgery and clinical surgery, Nebraska College of Medicine served during the World War on the staff of St. Elizabeth's Hospital, aged 78, died, February 24, in a local hospital of hypostatic pneumonia.

**Louis W. Dean**, Utica, N. Y. New York Homeopathic Medical College and Hospital, 1890, fellow of the American College of Surgeons, formerly on the staffs of the Utica General and Utica Homeopathic hospitals, aged 76, died suddenly, March 2 in Charlottesville, Va., of heart disease and arteriosclerosis.

**Jacob F. Hultgen** & Chicago Northwestern University Medical School Chicago, 1900 formerly professor of clinical medicine, Loyola University School of Medicine, veteran of the Spanish-American War, on the staff of the Evangelical Hospital, aged 62, died March 12, of carcinoma of the prostate.

**John Garrett Wilson**, Perth Amboy, N. J. University of Pennsylvania Department of Medicine Philadelphia 1876 member of the Medical Society of New Jersey for many years on the staff of the Perth Amboy General Hospital, aged 82, died, March 9, of arteriosclerosis and pulmonary edema.

**Hugo Christian Herman Schroeder** & Granite City, Ill. Hahnemann Medical College and Hospital, Chicago 1909 past president of the Madison County Medical Society on the staff of St. Elizabeth's Hospital, aged 49, died February 25, in the De Paul Hospital, St. Louis, of heart disease.

**Millard Winfield Baysinger**, Chicago Missouri Medical College, St. Louis, 1883 University of the City of New York Medical Department, 1891, aged 77, died, February 24, of hypertension, chronic nephritis and uremia.

**Charles Haddon Spurgeon**, Terre Haute Ind. Indiana University School of Medicine, Indianapolis, 1923, member of the Indiana State Medical Association, on the staff of the Union Hospital, aged 54, died, February 22, of coronary thrombosis.

**Arthur Aratoon Basil**, Johnstown, Pa. Jefferson Medical College of Philadelphia 1908, member of the Medical Society of the State of Pennsylvania, served during the World War, aged 54, died, February 25, of arteriosclerosis and chronic nephritis.

**Cephas C. Greiner**, Pemberville Ohio Chicago Homeopathic Medical College, 1896 member of the Ohio State Medical Association, aged 71, died February 23, in the Community Hospital, Fremont, of injuries received in an automobile accident.

**John Love Davis**, Watertown, Tenn. Vanderbilt University School of Medicine, Nashville, 1893, member of the Tennessee State Medical Association for many years health officer of Watertown, aged 69, died, February 22, of cerebral sclerosis.

**Frank M. McClelland**, Franklin Pa., Western Reserve University Medical Department Cleveland 1887 member of the Medical Society of the State of Pennsylvania, aged 75, died February 4, at his home in Utica of heart disease.

**Harvey S. Smith** & East St. Louis Ill. Marion Sims College of Medicine, St. Louis, 1899, past president of St. Clair County Medical Society, formerly member of the board of education, aged 60, died, February 13, of heart disease.

**Victor Lyall Goodwill**, Charlottetown P. E. I., Canada Queen's University Faculty of Medicine, Kingston Ont. 1899, member of the American Psychiatric Association, aged 60, died, February 26, of coronary thrombosis.

**Malcolm Lamson McInnes**, Toledo Ohio Loyola University School of Medicine Chicago, 1931, aged 32 on the staffs of the Flower Hospital and the Mercy Hospital, where he died, January 27, of tuberculosis.

**Edward A. Stierberger** & Union Mo. Marion-Sims College of Medicine, St. Louis, 1897, president and formerly secretary of the Franklin County Medical Society, aged 59, died, February 20, of heart disease.

**Arthur McKendree Frost**, Mount Vernon, Ill. Physio-Medical College of Indiana Indianapolis, 1888, aged 74, died, February 1, in the Anna (Ill.) State Hospital, as the result of a cerebral hemorrhage.

**Joseph Croshor Boggs**, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1890 served during the World War, aged 67, died, February 21, in San Antonio, Texas, of coronary occlusion.

**Eleanor Alice Tebeau**, Howard, R. I. Tufts College Medical School Boston, 1932, assistant physician to the State Infirmary, aged 29, died, Dec. 20 1934, in Cranston, of intestinal obstruction.

**Myron H. Williams**, Mango, Fla., Medical College of Ohio, Cincinnati, 1879, aged 80, died, February 24, in the Methodist Hospital, Indianapolis, of prostatic hypertrophy and arteriosclerosis.

**Louis Valmore Masse**, Warren, Ont., Canada, School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1894, aged 61, died, January 25, of pleurisy.

**George Andrew Stock**, Outwood, Ky., Jefferson Medical College of Philadelphia, 1898, on the staff of the Veterans' Administration Facility, aged 58, died, February 2, of uremia and nephritis.

**Edmund Felix Taake**, Seattle, St. Louis University School of Medicine 1905, member of the Washington State Medical Association, aged 59, died, February 8, of carcinoma of the pancreas.

**Ira E. Parker**, Dryden Mich., Detroit College of Medicine, 1885 member of the Michigan State Medical Society, aged 74, died suddenly, in February, at St. Petersburg, Fla., of heart disease.

**Leslie Montague Winn**, Fulton, N. Y. College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891, aged 67, died, March 4, of cerebral hemorrhage.

**William S. Gregory**, St. Joseph, Mo. Northwestern Medical College, St. Joseph, 1893 Central Medical College of St. Joseph, 1896, aged 85, died, January 29, of prostatectomy.

**John Milton Sims**, Macedonia, Ill., St. Louis College of Physicians and Surgeons, 1895, member of the Illinois State Medical Society, aged 75, died, March 2, of heart disease.

**Agnes Virginia Fuller**, Chicago, Hahnemann Medical College and Hospital, Chicago, 1902, aged 72, died suddenly, March 7, of cerebral hemorrhage and diabetes mellitus.

**Henry William Clausen**, St. Louis, Barnes Medical College, St. Louis, 1894, aged 72, died, February 22, in the Firmin Desloge Hospital, of adenocarcinoma of the rectum.

**John C. Derbofen** & New Orleans Tulane University of Louisiana Medical Department, New Orleans, 1899, aged 63, died January 11, of influenza and heart disease.

**Edmond Alfred Genereux**, New York, Harvard University Medical School, Boston, 1915 served during the World War, aged 46, died, March 3, of heart disease.

**Temple K. Brown**, Portland, Mich., Detroit College of Medicine, 1907, aged 55, died, February 26, in St. Lawrence Hospital, Lansing, of rupture of the pancreas.

**Robert Lee Boyd** & Russellville, Ky. University of Louisville Medical Department, 1890, aged 70, died, February 26, of diabetes mellitus and cerebral hemorrhage.

**Perryman F. Page Jr.**, Taft, Calif., Vanderbilt University School of Medicine, Nashville, Tenn., 1909, aged 55, died, January 14 in Bakersfield, of acute myelitis.

**Isaac Walter Hodgins**, Pottsville, Pa., Jefferson Medical College of Philadelphia, 1894, aged 64, was found dead in his office, March 8, of heart disease.

**J. W. Weber**, Lewisville, Ohio Starling Medical College, Columbus, 1882, formerly county health officer, aged 75, died, March 9, of coronary occlusion.

**Stephen Francis Donovan**, Derby, Conn., College of Physicians and Surgeons, Baltimore, 1902, aged 55, died, February 21, of heart disease.

**Truitt H. Nelson**, Alamo, Ga., University of the South Medical Department, Seawee, Tenn., 1906, aged 52, died, February 3, of heart disease.

**Dominic John Gardetto**, Milwaukee, Marquette University School of Medicine, Milwaukee, 1921, aged 39, died, March 5, of injuries received in a fall.

**Harry Jackson Knapp**, Perryville, Mo., St. Louis College of Physicians and Surgeons, 1901, aged 68, died recently, of carcinoma of the stomach.

**Charles R. Davis**, Baltimore, University of Maryland School of Medicine, Baltimore, 1890, aged 76, died, January 16, of chronic nephritis.

**W. J. Walker**, Tiptonville, Tenn. (licensed in Tennessee in 1889) aged 71, died, Dec. 17, 1934, in Dyersburg, of heart disease.

**John H. Durham**, Durant, Okla., Hospital College of Medicine, Louisville, Ky., 1898, aged 62, died recently, of pneumonia.

**William R. Edwards**, Roscoe, Ga., Southern Medical College, Atlanta 1891, aged 74, died, March 4, of pneumonia.

**Richard L. Falley**, Bible Grove, Ill., St. Paul Medical College 1886, aged 75, died, February 26, of heart disease.

## Correspondence

### COD LIVER OIL

To the Editor—I have just read the editorials in THE JOURNAL, March 16 and 23, entitled "Cod Liver Oil" (p 926) and "Variations in Behavior of Vitamin D" (p 1008). Each of these articles makes prominent reference to the recent publication from this laboratory, in which a physiologic difference between the vitamin D of cod liver oil and the vitamin D of bluefin tuna liver oil was demonstrated. Unfortunately, there is an error in each of these editorial interpretations, to which attention should be called.

The first editorial states that "perhaps the most striking support for the peculiar efficacy of cod liver oil has been recently brought forward by Bills, Massengale and Imboden, who found that blue fin tuna liver oil with 40 000 units of vitamin D per gram was only one sixth as effective when assayed with chicks as was cod liver oil with only 100 units of vitamin D per gram." The second editorial, in discussing the viosterol-cod liver oil anomaly, says "A still more striking instance of discrepancy between these two widely used sources of the antirachitic factor has been cited by Bills, Massengale and Imboden. They compared cod liver oil with about 100 units per gram with blue fin tuna liver oil with 40 000 units per gram (both oils assayed with rats) on the basis of the behavior in chicks, the blue fin tuna oil was only a sixth as effective as was the cod liver oil."

The wrong impression which a reader of these editorials would get is that a given quantity of bluefin tuna liver oil, despite its relatively enormous potency when assayed with rats, is but one-sixth as effective for chicks as is the same quantity of cod liver oil. Our published work states most explicitly (and repeatedly) that the comparison was made on a 'rat unit for rat unit' basis. Thus, while it is true that one rat unit of bluefin tuna liver oil is only about one-sixth as effective for chickens as is one rat unit of cod liver oil, it is also true that one gram or one drop of bluefin tuna liver oil is many times more effective for chickens than is one gram or one drop of cod liver oil, the reason for this being that the former contains a vastly greater unitage per gram than the latter. Applying the necessary arithmetic, one finds that the bluefin tuna liver oil, which is 400 times as potent as cod liver oil in vitamin D for the rat, is one sixth of 400, or  $66\frac{2}{3}$  times, as potent, gram for gram, for the chicken.

It is no simple matter to keep one's thoughts straight when considering the distinctions between the several forms of vitamin D. One is never justified in saying that one form is more, or less, potent than another, unless one makes the species comparison clear. For instance, in the present case, if the species employed for standardization of the oils had been the chicken, and the species for comparison had been the rat, it would have resulted that, chicken unit for chicken unit, bluefin tuna liver oil is six times more effective than cod liver oil for the rat. The same argument, of course, applies to comparisons of viosterol and cod liver oil, in which the species difference is even greater than between the two fish oils.

It may not be amiss to emphasize at this point what I have already indicated in my recent monograph in *Physiological Reviews* namely that the human infant resembles the rat much more closely than it resembles the chicken as regards its response to different kinds of vitamin D. If the reverse were true the chicken rather than the rat would be the animal of choice in making assays of such products as viosterol and bluefin tuna liver oil when these agents were intended for human medication.

A second, minor error appears in the editorial of March 23 in which the first sentence in which our paper is mentioned leads the reader to think that our present work is "a still more striking instance of the discrepancy between these two widely used sources of the antirachitic factor" (referring to cod liver oil and viosterol). If our work is a striking instance of anything, it is of the multiple nature of vitamin D, but surely the present paper had nothing to do with viosterol.

CHARLES E. BILLS,  
Research Laboratory,  
Mead Johnson & Co.,  
Evansville, Ind.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### USE OF TETANUS ANTITOXIN

To the Editor—I am anxious to find out: 1. What is the difference in the value of the intravenous and intraspinal injections of tetanus antitoxin? 2. If it is injected into the spinal canal will it not quicker neutralize the toxins attached to the nerve cells than in the intravenous route? 3. Are not the toxins liberated by the tetanus bacillus carried to the nerve cells of the cord almost wholly by the lymphatic system and not by the blood stream? 4. Is it considered that there is much more danger to the patient by intraspinal than by intravenous injections and is it common to have a temperature of from 105 to 107 follow intraspinal injections of from 20 000 to 30 000 units? 5. When the antitoxin is injected into the canal how is it taken up in the cord in order to neutralize the toxins attached to the nerve cells? 6. How much antitoxin in a tetanus patient should one usually inject? How often repeat and for what number of days? 7. If a desensitizing dose should give the patient a reaction in an active case of tetanus how should one proceed? If you are unable to answer all these questions for me could you give me any information where I can get the latest writings on tetanus or the addresses of any medical men who have written recent papers on this subject?

M. D. Illinois

ANSWER—1 and 2. It is not known whether the intravenous or the intraspinal injection of tetanus antitoxin is the more effective or whether the antitoxin reaches the affected nerve cells if at all, sooner if it is injected intraspinally. Indeed, there is grave doubt whether the antitoxin can neutralize the toxin after it has united with the nerve cell.

3. It has been thought that tetanus toxin does not reach the nerve cells by way of the blood but by way of the axis cylinder of motor nerves. Recently Abel (*Science* 79:63 [Jan. 26], 121 [Feb. 9] 1934), from reexamination of the evidence and from the results of his own investigations, has concluded that tetanus toxin reaches the central nervous system only by way of the arterial blood. It would be difficult to explain how the toxin could reach the nerve centers from the peripheral parts of the body by the way of the lymphatic system.

4. The intraspinal injection of appropriate amounts of antitoxin is not regarded as more dangerous to the patient than the intravenous injection. The amount of the intraspinal injection is governed by the amount of cerebrospinal fluid withdrawn beforehand. The number of antitoxic units introduced with each intraspinal injection will depend on the antitoxic strength of the serum. It does not seem to be a common experience that the temperature rises after intraspinal injection.

5. It is not known just what happens with the antitoxin after it is injected into the spinal canal. Probably most of it is absorbed into the blood.

6 and 7. In treating tetanus, no time must be lost in excising or cleansing completely the infected area in order to remove as promptly and thoroughly as possible the source of the toxin. The treatment with antitoxic serum, which is not a general success, seems to be based on the principle of introducing rapidly as much serum as can be done with safety by intraspinal as well as by intravenous or intramuscular injection. Details of serum may be found in the articles by F. W. Weed (The Medical Department of the United States Army in the World War 2:289, 1927) and by W. J. Stone (A Text-Book of Medicine by American Authors, edited by Russell L. Cecil, 1933, p. 123). Weed recommends that at least 5 000 units of tetanus antitoxin be given intrathecally as soon as possible. The injection should be repeated in twelve hours if the first injection does not contain 5 000 units. At the same time from 8,000 to 16,000 units is to be given intramuscularly. Both these injections

tions may be repeated daily for two or three days. Stone recommends the intravenous injection of 30,000 units thirty minutes after a desensitizing subcutaneous injection of 1 cc. If symptoms of uraphylaxis develop the intravenous injection should be suspended for three hours, after which the patient will probably be desensitized and can usually receive the full dose. Injection of 30,000 units intraspinally follows the intravenous injection. These injections are repeated on the second and third days and possibly also on the fourth. It is advised to inject 10,000 units intramuscularly on the eighth day to prevent a recurrence of symptoms from dormant bacilli or spores. For patients who react to a desensitizing dose of serum it has been recommended also that antitoxic serum be injected subcutaneously every half hour beginning with 0.03 cc and doubling with each injection until 25 cc has been injected, then in four hours 40 cc may be given and in six hours 100 cc (C W McClure in *Oxford Medicine* 5 202 1928). A report on the results of the treatment of tetanus by J K Calvin and A H Goldberg, appeared in *THE JOURNAL*, June 21 1930, page 1977.

#### PAIN REFERRED TO RENAL AREA

To the Editor—A woman aged 45 a widow had pyelocystitis in April of this year. Following the usual course of treatment the infection subsided, but there was recurrence. At this time a cystoscopic study was made which showed trigonitis normal kidney function and bacteria from both ureters (nongonorrheal) and normal pyelo ureterograms. Following an irrigation of the renal pelvis and continuation of antiseptic treatment the infection completely disappeared. In the last three months the patient has been having severe colicky pain rotating between the bladder and the kidneys or involving them at the same time. There has never been any further pus in the urine in catheterized specimens nor have bacteria been present. Roentgenograms do not show stricture of the ureters. In spite of no strictures being demonstrable the ureters have been dilated three times and the renal pelvis lavaged. This has given no relief. A urologist in consultation called this condition a renal dyskinesia and since the patient is at the menopause suggested that ovarian extract be given hypodermically. This also failed to give relief. Atropine has been tried with negative results. Only morphine has relieved the pain. The attacks of pain in the last month have become more and more frequent and pain is now practically continuous. I am unable to find this complication mentioned in medical literature and would appreciate some references as to the nature of the complication and suggestions for treatment. M D Washington

ANSWER.—In reporting the clinical data the correspondent makes no mention of whether there is any evidence of renal stasis as shown by an estimation of residual urine in the renal pelvis or by means of urography. If there is no evidence of pyelectasis or ureterectasis, and judging from the description given there is none, it would be open to question whether the patient's pain is of renal origin. Pain of renal origin is rarely of a continuous nature, even though stasis may be present.

Although much has been written concerning pain of renal origin when evidence of pathologic change cannot be found there are comparatively few data to prove that such a condition exists. Relief of pain referred to the renal area has been reported following renal sympathectomy, but it has not been proved that the specific operation was the only factor in bringing about such relief. Among the articles that have been written on this subject may be mentioned 'Resection of the Nerves of the Kidney for Nephralgia and Small Hydronephroses' by E Papin and L Ambar (J Urol 11 337 [April] 1924) and 'Renal Sympathectomy,' by E Hess (*Pennsylvania M J* 33 741 [Aug] 1930).

One might well infer from the clinical description that the pain in this case is of extrarenal origin and if all other clinical lesions have been carefully excluded, one would be justified in assuming that it is of a functional nature. In the absence of pyelectasis, general treatment on a functional rather than an organic basis would seem advisable.

#### TUBERCULOUS PHLEBITIS

To the Editor—I have a case proved by biopsy to be tuberculosis of the anterior tibial vein. I can find no one to advise me as to how to handle it. If you have any literature on the subject or can direct me as to where to get advice I will be greatly appreciative of it.

R H COWLEY M D Berea Ky

ANSWER.—Tuberculous phlebitis has been repeatedly described by pathologists, chiefly since the classic description of Weigert on the venous tubercle in 1882. But not many clinical reports are known on the subject, most of them being in the European literature. Benda, one of the foremost students of vascular tuberculosis differentiates a periphlebitis, spreading in continuity from tuberculous foci in the neighborhood and invading the layers of the vein from the outside, from an endophlebitis or intimal tubercle, producing an endothelial erosion and secondary thrombosis. To these two avenues of infection Liebermeister

has added a possible invasion through the vasa vasorum, producing focal necrosis in the media and occurring near tuberculous foci, and a mode of infection through the lymphatics producing an exudative or caseous periphlebitis, occurring in the brim and retina, producing hemorrhages, infarcts and metastases to other veins.

In the given case, one would wish to know whether or not some other tuberculous infection of skin, tendon sheath or bone might not have invaded the vein secondarily. Assuming, however that the correspondent is dealing with a true vascular tuberculosis originating in the intima and producing a phlebitis obliterans, the management would depend mainly on the general status of the patient. Is there a massive pulmonary tuberculosis? Is there evidence of miliary tuberculosis? What is the patient's age? Generally speaking, if the patient is in good condition and the tuberculous phlebitis localized to one area, the most rational treatment would be a complete surgical excision. Should this be impossible because of the extent of the lesion or the existence of active tuberculous foci elsewhere in the body, roentgen irradiation of the tuberculous vein combined with a high saphenous ligation might be tried. The greatest danger in this type of lesion would be a sudden vascular dissemination of tuberculous bacilli leading to miliary tuberculosis. Finally if the patient is in a stage of disseminated tuberculosis in which the tuberculous phlebitis is just a partial picture any treatment outside of complete rest and general care would seem futile. The recent literature on the pathology of tuberculous phlebitis with references to older workers can be found in Löwenstein, E. Tuberkel-bacillämie und Gefäßtuberkulose, *Zentralbl f Bakt* 123 287 (April) 1933.

#### DIET IN ESOPHAGEAL STENOSIS

To the Editor—Kindly outline a diet for a boy aged 5 years suffering from complete stenosis of the esophagus who has to be fed through a gastrostomy opening. GEORGE A CAMPBELL M D Ottawa Ont

ANSWER.—A diet for a 5 year old boy with a complete stenosis of the esophagus, who must be fed through a gastrostomy opening into his stomach must be ample enough to provide for maintenance as well as for growth. The properly balanced amounts of carbohydrate, protein fat, minerals, vitamins and water should be contained in the diet of this child, in the same quantities and proportions as for the normal 5 year old.

The dietary may include milk eggs, vegetable soups, vegetables cereals, fruits, meats, fish, orange juice and cod liver oil. In these cases, however, even a well balanced, sufficient diet may fail to cause normal gain in weight and general nutrition may suffer. Chevalier Jackson (*Arch Pediat* 40 324 [May] 1923) has pointed out that if in these cases the child is allowed to masticate the food and spit the fluid food mixed with saliva into a funnel attached to the gastrostomy tube, an immediate improvement in nutrition and gain in weight follows. He concluded that under normal conditions a considerable amount of saliva is conveyed to the stomach between meals as well as that which is mixed and swallowed with the food and that the addition of the saliva to the food of those children was a desirable procedure.

#### FEEDING EXPERIMENTS WITH RATS

To the Editor—I am sponsoring a feeding experiment in the high school here with white rats. I should like to have general instructions for conducting such an experiment, the diets and so on. Can tooth defects be produced in rats as well as in puppies? If so how? Any information will be welcome and appreciated.

D W MATTHAEI M D Fessenden N D

ANSWER.—Rats should be selected of the same age, sex, and weight to be given the different types of diet. They should be about 28 days old and weigh about 40 Gm.

There should be a separate cage for each type of diet. The cages may be made by the students, wire screening being used for the sides of the cage a pie tin for the top, and a larger basin or pan for the bottom. Discarded cold cream jars or other small cups may be used for holding food and water. Clean newspapers may be used for covering the bottom. These papers should be changed daily, and the food and water cups kept filled.

The number and types of diets fed will depend on the age and interests of the students. In the first experiment it is best to compare but two or possibly three diets and to have these applicable to the group in question. The simplest and most effective one is to give one rat bread and water, the other bread and milk. The rats should be weighed at the beginning of the experiment and weekly thereafter, and their weight curves charted. When the difference between the two has become very marked (about two or three weeks) milk may



be added to the diet of the bread and water rat, and his progress followed. If it seems wise, milk may also be removed from the diet of the bread and milk rat.

Other types of diets typical in the community or luncheons chosen in the school lunchroom may also be used, as, for example, (1) bread, meat, potato, sugar, (2) whole wheat bread, vegetables, fruits, meat, (3) bread, butter, meat, vegetables, fruits, milk. These experiments will not show results as early or as spectacularly as the simple one described and will need to be carried out for a longer time. They are, however, well adapted to high school students. So far as possible the experiments should be planned and carried out by the students.

Tooth defects cannot be produced in rats and puppies, at least under conditions of experimentation possible in a schoolroom. The chief effects that can be observed are those of growth and general appearance, such as brightness of eyes, sleekness of fur and the like.

A complete set of directions for details of such experiments, including directions for making cages for the rats, has been prepared by Mrs. Ethel Martin of the National Dairy Council. Copies may be secured by writing the organization, 111 North Canal Street, Butler Brothers Building, Chicago.

#### CONSTITUENTS OF DENTAL PUS

*To the Editor*—A lay friend, an incorrigible microscopist, is asking embarrassing questions. Pointing to leukocytes in a fresh dark field of dental pus, he wants to know whether the sparkling particles with a brownish shimmie to be seen in the cytoplasm are phagocytized particles of extraneous material or what. Further, he asks whether the presence of these vibrant points is fraught with significance concerning the life, health or death of the containing cell, if not how one can tell, distinguish and diagnose a live leukocyte from a dead pus cell by its appearance or behavior. He also asks what the swarms of highly motile spirilla are in the dental pus, the length about equal to the diameter of a leukocyte. They are occasionally seen in a dense huddle. Does this pertain to their reproductive activities? Is it likely that they are pathogenic?

DON HASTINGS DUFFIE, M.D. Central Lake Mich.

**ANSWER**—White blood cells known as granulocytes originate in the bone marrow and pass into the blood vessels by their own motility. They also pass through the vessel walls when attracted by infection or foreign bodies or certain chemical agents with a positive chemotaxis. They are living cells with lobed nuclei and hence are called polymorphonuclear cells. They possess ameboid movement and can pass through the blood capillaries into the various tissues of the body. This is especially the case in so called pyogenic infections.

The pyogenic bacteria attract the leukocytes in sufficient numbers to cause suppuration. The white cells are also phagocytic and can engulf bacteria and other foreign particles. The mobility, ameboid movement and ingestion of bacteria and other particles are evidence of life in the leukocytes. These phenomena can be studied *in vitro*. The brownian movement displayed by the specific granules of the leukocytes is not characteristic of life. Many minute particles in suspension display a dancing or brownian movement. The granules stain with certain stains and are called neutrophilic, eosinophilic and basophilic. They are present in cells of bone marrow origin after they mature to the myelocyte stage or the adult granulocytes. These granules also take peroxidase stains which distinguish them from other blood cells. Phagocytized particles may be found in leukocytes, especially bacteria, red blood cells or foreign particles.

Many spirilla are found in dental pus, also various cocci, as streptococci, staphylococci and pneumococci. The most common spirilla are *Vibrio sputigenus*, *Spirochaeta microdentium* and *macrodentium*, *Treponema mucosum*, and the spirochetes of Vincent's infection known as *Spirochaeta vincenti*. In syphilitic primary or secondary mouth lesions, *Spirochaeta pallida* can be demonstrated with the dark field.

#### MALDEVELOPMENT OF EAR

*To the Editor*—I delivered a primipara of a living female child in breech presentation. The child, weighing  $7\frac{1}{2}$  pounds (3400 Gm.) was apparently normal. This morning the woman taking care of the case called to my attention the right ear, the outer auricle of which is not as fully developed as the left. On closer examination there is no development as regards the canal or a tumor that can be determined externally, and the auricle is slightly underdeveloped. The left ear is normal in all respects. Is there anything to be done now or later or is this primarily maldevelopment?

WILLIAM KLANN, M.D. Wellington, Ohio

**ANSWER**—The deformity is due to a lack of development of the auricle and the external auditory canal. However, this does not give any information regarding the actual hearing ability of the child so far as the inner ear is concerned. In some of these cases there is also lack of development of the middle or possibly the inner ear, in which case the hearing would be either very defective or wholly absent. In so young a child it is impos-

sible to test the hearing properly, but when it can be done in later years it will be time enough then to decide whether a plastic operation should be done. The latter is usually performed for esthetic purposes, not as an aid to hearing. Even if there is an absence of the external auditory canal, the hearing is usually quite good if the middle and inner ear are well developed. At the present time no operative work is indicated.

#### COCCIDIOIDAL GRANULOMA

*To the Editor*—Information is desired regarding possibilities and probabilities of industrial origin of two cases of coccidioid granuloma that recently occurred in this vicinity. Two men employed on a construction job digging a pipe line died from a disease diagnosed as coccidioid granuloma. Question has come up whether or not the industrial hazard, as from the inhalation of dust or the spread of the disease from one man to another is a factor. If published please omit my name and city.

M. D., California.

**ANSWER**—Coccidioid granuloma is an acute infectious disease due to *Coccidioides immitis*. Some doubt still exists as to this organism being a protozoan or a mold. It is stated widely to be closely related to *Oidia* and *Hyphomycetes*. The greater number of cases have appeared in California and particularly in the San Joaquin Valley. Frequently it is termed 'California disease'. Infection takes place with fair frequency among raw fruit handlers. This at once suggests the possibility of an occupational origin when present in this class of workers. The organism or at least its spores has been detected in the soil by Stewart and Meyers. This in turn makes possible the association of the disease among ditch diggers with an occupational origin, particularly in the state of California. Inhalation of the spores possibly constitutes the commonest mode of entry into the body. Pulmonary lesions are the commonest encountered. Transmission from animal to animal is well known and from man to man is uncertain but is regarded as within reason, as the organisms are readily found in the discharge from lesions and, in the case of skin lesions, probably are easily transferred from person to person. The two deaths mentioned among pipe line trench diggers may practically be associated with work as the source if the organism or its spores may be detected along the ditch area. If not found the situation becomes one of speculation and conjecture. General information may be found in the following publications:

- Dickson E. C. Oidiomycosis in California with Especial Reference to Coccidioid Granuloma. *Arch. Int. Med.* 16: 1028 (Dec.) 1915.  
Gardner S. J. *California State J. Med.* 2: 386 1904.  
Wolbach S. B. *Boston M. & S. J.* 172: 14 1915.  
Brown P. K. and Cummins W. T. A Differential Study of Coccidioid Granuloma and Blastomycosis. *Arch. Int. Med.* 15: 608 (April) 1915.  
MacNeil W. J. and Taylor R. R. *J. M. Research* 30: 261 1914.

#### INFECTION OF BOWEL WITH CHEESE MITES

*To the Editor*—A woman aged 24 has been having diarrhea with from five to eight stools a day for the past three months. The stools are watery, not offensive and show no trace of blood. Microscopic examination of the stool shows the presence in great numbers of *Tyroglyphus siro* (cheese mites) both in the adult and in the encysted form. Could this be causing the excessive diarrhea and if so what is the treatment for it? I can find only the slightest reference to it in the books I have. I would appreciate anything you might suggest in the line of treatment. I would appreciate a reply as soon as possible since the patient is becoming quite anemic.

H. B. SPAULDING, M.D. Ralston, Okla.

**ANSWER**—Mite infestation in the human intestine, genital tract and skin has been reported widely, but not frequently, especially among the handlers of dried fruits, copra and cereals in whom the mites produce a dermatitis. Intestinal infestations have recently been reviewed by Hinman and Kampmeier. The cheese mite *Tyroglyphus siro* Linn., notorious for its abundance in the 'Altenburg mite cheese,' has been charged with producing intestinal disorders in those who have eaten too much of this delicacy. Banks has named a mite found in cheese in the United States *Tyroglyphus americanus*. The two authors referred to report two cases of diarrhea associated with an abundance of mites (*Tyroglyphus longior* Gervais) in the stools. In one of these cases the diarrhea was accompanied by scattered rectal ulcers negative for amebae. The mites disappeared from the feces and formed stools were reported after six days of controlled diet in the hospital. Continuous reinfestation from eating mite-contaminated food has been suggested as the cause of the continuation of the symptoms. The articles mentioned are as follows:

- Hinman E. H. and Kampmeier R. H. Intestinal Acariasis Due to *Tyroglyphus longior* Gervais. *Am. J. Trop. Med.* 14: 355 (July) 1934.  
Kampmeier R. H. and Hinman E. H. Mite Infestation in the Human Intestine. *South. M. J.* 27: 273 (March) 1934.



## POLIUS IN MICHIGAN

*To the Editor*—Can you offer any private information as to climatic and local atmospheric conditions of Alpena Mich. as it would influence a person afflicted with hay fever and asthma? A relative of mine a professional man is now living in Chicago where he suffers greatly from his thorn in the flesh. He has been told that Alpena Mich. is free from hay fever and that a change to that locality will probably prove very beneficial to him. In hopes that his condition may be improved by taking up his residence in Alpena he is considering moving there. I shall greatly appreciate your opinion regarding the local conditions prevailing in Alpena as they may be likely to influence a hay fever and asthmatic patient.

F O GIERE MD Minneapolis

*ANSWER*—In offering an opinion on the climatic and local atmospheric conditions of Alpena Mich. we are limiting this answer to a consideration of the probable incidence of ragweed pollen and are disregarding such factors as temperature and humidity which in hay fever at least are not regarded as of prime importance.

A report that any locality in northern Michigan is free from hay fever is a rather broad statement but the suggestion that the change would prove beneficial is probably true. No statistics on the pollen content of the air for the immediate vicinity of Alpena during the fall season are available, but it is known that ragweed pollen is almost as prevalent at Bay City (100 miles south of Alpena) as in Chicago. More than likely, however, conditions at Alpena are more like those found at Petoskey and St Ignace, where the concentration of pollen during the fall season is only about one seventh as much as in Chicago. It is possible that prevailing southwest winds coming from the land would bring more ragweed pollen to Alpena than to Petoskey. At the latter place, most of the pollen encountered is not produced locally but is blown to the vicinity when the wind happens to be from the southwest south or southeast. One could expect at least eight or ten days of hay fever symptoms each season at Alpena. Localities that are entirely free from ragweed pollen should be considered before deciding on a change of residence.

MAYONNAISE RECIPE WITH LIQUID PETROLATUM—  
DEXTROSE IN SCLEROSING SOLUTIONS

*To the Editor*—Please give a recipe for making mayonnaise with petrolatum (or other dressing) as used in some reduction diets. Dextrose in 5 per cent solution is used as a sclerosing agent in the treatment of varicose veins. When the same solution and strength are used intra-venously in the arm to combat shock or prior to operation why does it not subsequently sclerose and close this vein? Please omit name.

MD Washington

*ANSWER*—Mayonnaise suitable for a reduction diet may be made after this formula:

- 1 egg
- 2 cupfuls of liquid petrolatum
- 1 teaspoonful of salt
- 1 teaspoonful of mustard
- Paprika to taste
- Made into an emulsion

It is 50 per cent rather than 5 per cent of dextrose solution that is employed for producing sclerosis of varicose veins. Even 50 per cent solution may be injected intravenously without producing sclerosis, by delivering it drop by drop (which minimizes the effect on the intima) and by introducing it into a vein the circulation of which is active so that the blood current dilutes it at once. There is little current in a varicose vein and the sclerosing injection is given in such a way as to secure maximum local action on the intima.

## HEAD INJURIES WITH SLOUGH OF BRAIN TISSUE

*To the Editor*—Mrs W. aged 45 was brought into the hospital after being struck by an automobile. She was unconscious and there was bleeding from the right ear and right side of the nose associated with spinal fluid. Also she passed a large piece of brain tissue with other small particles of tissue from the right ear. She was unconscious for ten days and since then has gradually improved each day, both physically and mentally. Roentgen examination reveals a linear fracture about 4 inches in length involving the posterior portion of the right parietal bone extending into the region of the middle fossa of the skull and the base of the skull. Please advise me as to the prognosis of the future and whether or not there are many cases on record in which patients have lived after a fractured skull with the passage of brain tissue.

WILLIAM S WEISMAN MD Forest Hills Mass

*ANSWER*—It is not rare for patients who have sustained a severe skull fracture to slough out small pieces of contused brain, although this is of course by no means common. It is difficult to answer the question as to prognosis without knowing more as to the patient's exact condition at present and as to the length of time that has elapsed since the injury. One

sees comparatively minor head injuries that produce rather major mental and neurotic changes and one also sees cases in which extensive mechanical damage has failed to produce any permanent mental disability worthy of note.

## POSSIBILITY OF NEGRO CHILD FROM WHITE PARENTS

*To the Editor*—Several of my acquaintances know of many supposedly authentic instances in which two white parents have begotten Negro children and have discovered later that there was some small percentage of Negro blood in one of the parents. It is my contention that such occurrences are very improbable or impossible as the inheritance of human skin pigmentation does not follow Mendel's law so simply as is the case with the hair pigmentation of rabbits and other animals but that human skin pigmentation is always very nearly a blend of that of the parents. I would appreciate an expression of your opinion regarding this matter. Please omit name.

MD Minnesota

*ANSWER*—Studies by the Davenports on the genetics of skin color in Negro-white crosses indicate that two nearly white hybrid parents can have offspring somewhat darker than themselves, but it is not genetically possible for nonhybrid white parents to have 'Negro children' unless a melanin mutation should occur. Such mutations are extremely rare, if they occur at all. The appearance of a Negro child from white 'parents' has a simpler explanation, which will occur to any one.

## OLIVE OIL AND ELIMINATION

*To the Editor*—I understand that some able physicians recommend a teaspoonful of olive oil before meals four times daily for successful correction of faulty elimination with a trace of salt to render it more palatable if preferred. It is said that if the patient is underweight he is restored to normal and if overweight is reduced to normal height and age considered. There appears a widespread prejudice against olive oil under the impression that it invariably increases weight. Your opinion or that of others would be much appreciated.

J W RIECKE MD St Louis

*ANSWER*—A teaspoonful of olive oil four times daily before meals would hardly serve as a cure for constipation because, according to most authorities, about 97 per cent would be digested and used in the upper part of the bowel. Accordingly, but little would be left either to increase the volume of the feces or to lubricate the colon. Four teaspoonfuls of olive oil could hardly affect a person's weight much because if all of the fat was digested it would give the body about 200 calories. The addition of 200 calories to the diet could hardly put much weight on a thin person.

## PUERPERAL SEPSIS AND APPENDICITIS

*To the Editor*—In your treatment of puerperal sepsis and appendicitis with abscess formation (THE JOURNAL January 12 p 136) you state three methods of drainage: posterior vaginal section, extraperitoneal with incision just above Poupart's ligament, and if either of these are impossible you advise laparotomy. All would agree with this treatment especially in appendicitis but in puerperal sepsis I think it would be wise to advise to wait for the abscess to point in the cul-de-sac or broad ligament. Also should you not have added to your treatment the use of the Elliott machine to aid in the localization of the abscess? Would there be any effect from large amounts of alcohol other than its food-value and its use as an appetizer? Quinine may merit some of its past reputation. Its action is probably the same as that of ergot and of solution of pituitary which you recommend.

A MORGAN DEARMAN MD Parkersburg W Va

## RIDING HEAD FORWARD ON TRAINS

*To the Editor*—In regard to the query of D A Laird PhD (THE JOURNAL March 9) as to the reason for the head forward position in train berths one reason not mentioned in your reply has seemed to me to be that with the usual ventilation, smoke, cinders, dust and drafts are more of an annoyance with the head to the rear of the berth of a moving train. However, it has always seemed to me that the probability of skull and neck injuries from sudden impact in head on collisions must constitute a real danger with the head forward position as now used. It would be really interesting to know to what extent head and neck injuries do occur under such conditions with the head forward. Please omit name.

MD California

## HISTAMINE IN URTICARIA

*To the Editor*—In Queries and Minor Notes in THE JOURNAL January 26 page 340 C G Gray asks about the use of histamine in the treatment of urticaria. Your reply states that search of the literature fails to reveal any article dealing with the use of histamine injection in the treatment of seasonal urticaria or any other form of urticaria. Permit me to call your attention to the Use of Histamine in the Treatment of Pruritus by Ernestine and Banks THE JOURNAL Feb 4 1933 page 328.

E H BOYER MD Clinton, Iowa

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** *Written (Group B candidates)* The examination will be held in various cities throughout the country April 29 *Oral (Group A and Group B candidates)* New York June 10 Sec Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** *Final oral and clinical examination (Group A and Group B candidates)* Atlantic City N J June 10 11 *Application lists close* May 1 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** Philadelphia June 8 and New York June 10 Sec Dr William H Wilder, 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N J June 10 and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** Philadelphia June 7-8 Sec Dr Walter Freeman, 1726 Eye St N W Washington D C

**AMERICAN BOARD OF RADIOLOGY** San Francisco May 10-12 and Atlantic City N J June 8-10 Sec Dr Byrl R Kirklin Mayo Clinic Rochester Minn

**ARKANSAS** *Basic Science* Little Rock May 6 Sec Mr Louis F Gebauer 701 Main St Little Rock *Regular* Little Rock May 14 Sec Dr A S Buchanan Prescott *Eclectic* Little Rock May 14 Sec Dr L L Marshall 820 W 14th St Little Rock

**CALIFORNIA** *Reciprocity* San Francisco May 15 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**MINNESOTA** Minneapolis April 16-18 Sec Dr E J Engberg 350 St Peter St St Paul

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24-26 and Sept 16-18 Ex. Sec., Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** *Basic Science* Omaha May 7-8 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEVADA** Carson City May 6 Sec Dr Edward E Hamer Carson City

**OREGON** *Basic Science* Portland May 18 Sec Mr Charles D Byrne, University of Oregon Eugene

### New Jersey October Examination

Dr James J McGuire, secretary, State Board of Medical Examiners of New Jersey, reports the written examination held in Trenton, Oct 16-17, 1934 The examination covered 9 subjects and included 90 questions An average of 75 per cent was required to pass Forty-seven candidates were examined, 44 of whom passed and 3 failed The following schools were represented

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1932)		90.7
George Washington University School of Medicine	(1933)		80.8
Georgetown University School of Medicine	(1933)		76.6
78.2 78.4 78.6 80.3			
Howard University College of Medicine	(1933)	75.5	79.8
Loyola University School of Medicine	(1933)		77.1
(1934) 83.2 83.6 89			
University of Maryland School of Medicine and College of Physicians and Surgeons	(1933)		83
Harvard University Medical School	(1933)		86.2
University of Minnesota Medical School	(1934)		78.2
St. Louis University School of Medicine	(1933)	79.2	80
Columbia University College of Physicians and Surgeons	(1933)		89.3
Long Island College of Medicine	(1932) 86.6	(1933)	89.4
New York University University and Bellevue Hospital Medical College	(1930) 86.5 (1933)	82.8 85.3	91
Hahnemann Med College and Hospital of Philadelphia	(1932)		81.4
(1933) 83.7			
Jefferson Medical College of Philadelphia	(1933)		78.7
Temple University School of Medicine	(1933)	82.6 82.7	83.4
University of Pennsylvania School of Medicine	(1932)		82.1
Karl Franzens Universität Medizinische Fakultät Graz	(1927)		75
Austria	(1918)		75.7*
Medizinische Fakultät der Universität Wien	(1923)		82.2
Universität Heidelberg Medizinische Fakultät	(1928)		82.5
Regia Università degli Studi di Firenze Facoltà di Medicina e Chirurgia	(1928)		80.8
Regia Università degli Studi di Genova Facoltà di Medicina e Chirurgia	(1924)		75
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1930) 75 (1933)		79.1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1929) 76 (1933)		85*
Regia Università di Torino Facoltà di Medicina e Chirurgia	(1933)		85.1
University of St Andrews Scotland	(1933)		
School	FAILED	Year Grad	Per Cent
McGill University Faculty of Medicine	(1915)		59
Magyar Királyi Pazmanyi Petrus Tudományegyetem Orvosi Fakultása Budapest	(1929)		65.2*
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1925)		56.4

### New Jersey Endorsement Report

Dr James J McGuire, secretary, State Board of Medical Examiners of New Jersey, reports 157 physicians licensed by endorsement during 1934 The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	of
Yale University School of Medicine	(1932)		New York
George Washington University School of Medicine	(1932)		New York
Georgetown University School of Medicine	(1922) (1931) New York (1930) D C (1933)		
Maryland			
Howard University College of Medicine	(1930)		New York
Emory University School of Medicine	(1927)		Georgia
University of Georgia Medical Department	(1917)		Penn.
Chicago College of Medicine and Surgery	(1911)		Michigan
(1913) Illinois			
Chicago Medical School	(1926)		Illinois
Rush Medical College	(1934) N B M Ex.		
School of Medicine of the Division of the Biological Sciences	(1931)		New York
University of Illinois College of Medicine	(1928)		Illinois
Indiana University School of Medicine	(1918)		Indiana
State University of Iowa College of Medicine	(1932 4) (1931) Iowa		New York
University of Louisville Medical Department	(1919)		New York
University of Louisville School of Medicine	(1931) N B M Ex.		
Johns Hopkins University School of Medicine	(1915)		New York
(1927) N B M Ex.			
Southern Homeopathic Medical College Maryland	(1897)		New York
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)		New York
(1930) (1932 4) (1933 2) Maryland			
Boston University School of Medicine	(1928), (1932) N B M Ex.		
(1932) New York			
Harvard University Medical School	(1931 3) (1932) N B M Ex.		
University of Michigan Medical School	(1932)		Michigan
University of Minnesota Medical School	(1931)		Minnesota
Kansas City College of Medicine and Surgery	Missouri (1918)		Arkansas
St. Louis College of Physicians and Surgeons	Missouri (1926)		Colorado
St. Louis University School of Medicine	(1912) (1933 2)		Missouri
Washington University School of Medicine	(1933) N B M Ex. (1932 2)		Missouri
Columbia University College of Physicians and Surgeons	(1919), (1930) (1931 2) (1932) New York, (1926) (1930) (1932 2) (1933) N B M Ex.		
Cornell University Medical College	(1925)		
(1930) N B M Ex (1920) (1928) (1931 3) (1932) New York			
Fordham University School of Medicine	(1916)		New York
Long Island College of Medicine	(1932)		New York
New York Homeopathic Medical College and Flower Hospital	(1929)		
(1930) (1932) (1933 2) New York			
New York University University and Bellevue Hospital Medical College	(1919) (1929 2) (1930 2) (1932 3) (1933 3)		N B M Ex.
New York			
Syracuse University College of Medicine	(1922)		
(1930) (1933) New York			
University of Buffalo School of Medicine	(1933)		New York
Leonard Medical School N Car	(1913) W Virginia		
Eclectic Medical College Ohio	(1929)		Ohio
Ohio State University College of Medicine	(1931 2)		Ohio
University of Cincinnati College of Medicine	(1925) N Carolina		
Western Reserve University School of Medicine	(1933)		Ohio
University of Oklahoma School of Medicine	(1928)		Ohio
(1929) (1933) Oklahoma			
University of Oregon Medical School	(1925)		California
Hahnemann Medical College and Hospital of Philadelphia	(1913) (1927)		Penn.
(1927) (1933) Delaware (1932) New York (1933)			
Maryland			
Jefferson Medical College of Philadelphia	(1916)		New York
(1928) (1930 2) Pennsylvania (1931) North Carolina (1933) Ohio			
Medico-Chirurgical College of Philadelphia	(1909)		Penn.
Temple University School of Medicine	(1919)		
(1925) (1932 2) Pennsylvania			
University of Pennsylvania School of Medicine	(1929)		
(1930) N B M Ex (1927) (1932) Pennsylvania			
Medical College of the State of South Carolina	(1931)		S Carolina
University of Tennessee College of Medicine	(1930)		Tennessee
University of Vermont College of Medicine	(1921)		New York
(1931) (1932) (1933 6) Vermont			
Medical College of Virginia	(1933)		Alabama
(1929) (1931) (1932) (1933) Virginia			
University of Virginia Department of Medicine	(1929) N B M Ex.		
Queen's University Faculty of Medicine	(1918)		New York
University of Western Ontario Medical School	(1925)		Oregon
(1927) Michigan			
McGill University Faculty of Medicine	(1909)		New York
University of Adelaide Faculty of Medicine	(1923)		New York
Medizinische Fakultät der Universität Wien	(1929) W Virginia		
Magyar Királyi Ferencz Jozsef Tudományegyetem Orvostudományi Kara Szeged Hungary	(1911)*		Illinois
Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia	(1931)		New York
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1931)		New York
University of Edinburgh Faculty of Medicine	(1933)		New York
University of St Andrews Scotland	(1933)		New York

\* Verification of graduation in process

## Book Notices

**Physiology in Modern Medicine** By J. J. R. Macleod M.B. B.Sc. D.Sc. Regius Professor of Physiology in the University of Aberdeen Scotland. Assisted in the present edition by Philip Bard Professor of Physiology Johns Hopkins University School of Medicine Edward I. Carter Adjunct Professor of Medicine Johns Hopkins University J. M. D. Olmsted Professor of Physiology University of California J. M. Peterson Lecturer in Experimental Physiology University of Aberdeen and N. B. Taylor Professor of Physiology, University of Toronto. Seventh edition. Cloth. Price \$6.00. Pp. 1154, with 297 illustrations. St. Louis: C. V. Mosby Company 1935.

In the preface to the latest edition of this standard work it was pointed out by Professor Macleod that the word "biochemistry" was removed from the title because the subject to which it applies has expanded greatly and has now become a science associated with physiology rather than a part of physiology. Also in the new edition the bibliography has been placed at the end of the volume instead of at the end of each section. The bibliography has also been brought down to the present and made more complete. In the new revision the section on the neuromuscular and central nervous systems has been completely rewritten by a new author, as has also the section on circulation. This book has made itself an excellent place in the literature of medicine. If there are any specific criticisms to be made they concern the inadequacy of the index, which is far too limited for a work of this scope and also the fact that repeated printings have resulted in enough wear and tear to the type to demand a complete resetting before another edition is undertaken. The alternate light and dark lines resulting from the insertion of the new material give the book an exceedingly spotty appearance.

**Biologische Untersuchungen über Farbstoffe** Band I. Von Dr. Ivano Matsuo Professor der Medizin in Kyoto. Cloth. Pp. 404 with illustrations. Kyoto 1934.

This is a collection of papers by Dr. Matsuo and his students. It is to be completed by the publication of a second volume, the table of contents of which is given. The series will make much of this valuable material available to the accidental reader for the first time, as many of the articles were originally published in Japanese. After a section of summarization, detailed studies are included on the physical chemistry, pharmacology and excretion of dyes. Under physical chemistry are included studies by electrophoresis of 113 acid and eighty-one basic dyes. There are also studies of the diffusibility and lipid solubility of dyes and of their behavior in the presence of different serums, of erythrocytes and in organ extracts, with interesting but restrained conclusions about the influence of these factors. By far the largest part of the volume is devoted to dye excretion by the liver and kidneys. This is studied experimentally with a number of dyes under normal conditions and with many modifications, including India ink injections, bile duct ligation, splenectomy, liver damage with drugs, parasites, bacterial toxins or poison gases, or renal damage with poisons or after the extirpation of one or both kidneys. The use of azorubin S is recommended for liver function tests, but no mention is made of bromsulphalein. One of the most interesting papers is Takahashi's experimental study of a long series of drugs in biliary infections. In general he found that the basic dyes exerted more bactericidal action than the acid dyes with the exception of mercurochrome, which showed striking bactericidal action, which was reduced by long contact with bile. Of the large number of dyes so studied which did not include flumerin only nine remained bactericidal after excretion through the liver. Studies in patients demonstrated the bactericidal action of acriflavine hydrochloride and of mercurochrome on typhoid bacilli, which was confirmed for mercurochrome in three of the experiments with rabbits given cholecystitis with typhoid bacilli. Flavocid exerted the strongest bactericidal action against *B. coli* and staphylococci as compared with acriflavine hydrochloride and mercurochrome. One is impressed by the enormous amount of carefully organized work represented by these papers, which should be available for reference for all workers in this field. It should be noted that the experiments seem to have been done with commercial dyes, impurities in which might be sources of error. Nevertheless, the book presents a mass

of material that should be of value for future work. It is in no sense a general review and therefore lacks certain comprehensive discussions that might be of value, and it is bibliographically incomplete. It is to be hoped that a good index will be included in the second volume, as this is indispensable for complete usefulness.

**The Struggle for Existence** By G. F. Gause Zoological Institute of the University of Moscow. Cloth. Price \$7. Pp. 163 with 41 illustrations. Baltimore: Williams & Wilkins Company 1934.

This attempt at a mathematical analysis of the processes of natural selection comes from the Laboratory of Ecology of the University of Moscow, but its genesis is traceable to the teachings and investigations of Dr. Raymond Pearl on the laws of population. In his foreword Dr. Pearl deplores the pitiful meagerness of all the attempts to portray the mechanics of natural selection by experimental and statistical methods since Darwin published his *Origin of Species* in 1859.

Population problems are basically biologic. They deal with the struggle for existence and natural selection, which are aspects of the dynamics of population dealing with birth rates, death rates, and interrelations of organisms in mixed populations. Since they are dynamic, they lend themselves to measurement and thus to mathematical analysis.

The author recognizes the difficulties in his path, the complexity of biologic problems, the determination of the types of mathematical procedures to fit the problems in hand, and the interpretation of the significance of the results. Nevertheless, he makes a beginning with a homogeneous population of the simplest types of organisms in an isolated and controlled environment. His results lead to the conclusion that the Verhulst-Pearl logistic curve expresses quantitatively the struggle for existence that takes place between individuals within a homogeneous group.

From this simplified basis he next proceeds to analyze the competition between two different kinds of yeast cells mingled in one culture medium and finds that his results coincide with Volterra's equation and express competition between species in terms of the growing population themselves. He interjects the caution that "Only in those cases, where the results deduced from equations are confirmed by the data obtained through entirely different methods, by a direct study of the factors limiting growth, can we be sure of the correctness of the quantitative theories." If the properties of two species growing separately, i.e., their coefficients of geometric increase, their maximal volumes, and alcohol production per unit of volume when alcohol limits the growth, are determined and these values are connected into a theoretical equation of the struggle for existence, one can calculate in what proportion a certain limited amount of energy will be distributed between the populations of two competing species. This means that one can calculate theoretically the growth of species and their maximal volumes in a mixed population. The equation of the struggle for existence expresses the idea that a potential geometric increase of each species in every infinitesimal interval of time is realized only up to a certain degree depending on the unutilized opportunity for growth at that moment, and that the species possesses certain coefficients of seizing this unutilized opportunity. These results hold only under aerobic conditions, owing to the fact that under anaerobic conditions waste products complicate the situation.

The competition between two species of ciliate Protozoa for a common food supply lends itself to mathematical analysis. In the first period the two species compete for the still unutilized sources of energy. The proportion in which this energy is distributed between the two species is determined by the system of Volterra's differential equations of competition, but the coefficients of the struggle for existence in these equations change during the growth of the population and become more complicated. In the second period there is a redistribution of the completely seized energy between the two species, which is again controlled by the differential equations of competition. The species with the greater value of the coefficient of multiplication eventually drives out the one with a lesser value.

A study of a protozoan population consisting of a predator and its prey did not exhibit the classic oscillations in numbers assumed by Lotka and Volterra but was to be explained by

special biologic adaptations. In another combination lacking such adaptation, the expected oscillations occurred.

It is to be noted that in all these elementary studies of population the organisms are isolated under control and are presumably exempt from disease (except such as may possibly be due to genetic defects). In nature one of the great factors in the destruction of the individual is disease. This too has a selective action and resistance to it a survival value. How far the higher mathematics of the study of populations will aid in the analysis of these still greater complications resulting from the introduction of the pathogene into the struggle for existence, only the future can reveal.

**Langographie cérébrale. Ses applications et résultats en anatomie physiologie et clinique.** Par FÉLIX MOUTZ, professeur de neurologie à la Faculté de médecine de Lillebonne. Paper. Price 90 francs. Pp 327 with 192 illustrations. Paris: Masson & Cie 1931.

This work on cerebral angiography represents the author's experience with the method over a period of three years. The present volume is the result of the author's attempt to visualize the cerebral arteries radiographically but the perfection of his technic and his many unique applications of the method have enabled him to produce a beautiful series of roentgenograms illustrating the localization and diagnosis of brain tumors, cerebral varices, aneurysms of the cerebral arteries and angiomas. He has also been able to demonstrate many interesting anatomic features of the cerebral circulation such as the passage of the opaque solution through the arterial circulation, the capillaries and the veins. He further demonstrates the meningeal circulation. By a series of films made at short intervals after the injection of the opaque solution many unusual roentgenograms are produced to illustrate the cerebral circulation. Formerly the author used a 25 per cent solution of sodium iodide for the injection preceded by the administration of phenobarbital and morphine. With this technic untoward results were encountered in cases of arteriosclerosis, toxemias and uremias. With the introduction of thorium dioxide sol as an opaque medium the author carried out a series of experiments to determine the effect of this solution when injected into the skin under the skin and intramuscularly. No undesirable reactions were encountered. Since limiting himself to the use of this medium for angiography, the author has found no undesirable reactions even in the types of cases in which the sodium iodide produced undesirable reactions. The technic consists essentially in cutting down on the common carotid artery and with a small caliber needle injecting from 0.5 to 1 cc of solution. If there is no reaction he completes the injection of from 8 to 13 cc of the thorium dioxide sol. Films are made at intervals of one second during the injection, a rapid exposure of about one-tenth second being used. The illustrations are unusually clear and interesting and they definitely demonstrate such unusual entities as cerebral varices, angiomas, vascular and avascular tumors and hydrocephalus. This volume represents an excellent atlas on the subject. While of special interest to the neurologist, neurosurgeon and radiologist, the book will be of unusual interest to any one interested in a really epochal advance in the diagnosis of intracranial lesions.

**Modern Operative Surgery.** Edited by G. Grey Turner, M.S., F.R.C.S., F.A.C.S., Senior Hon. Surgeon, Royal Infirmary, Newcastle upon Tyne. In two volumes. Second edition. Fabrikoid. Price \$16 per set. Pp 868, 896 with 871 illustrations. Baltimore: William Wood & Company 1934.

This is a symposium by twenty-seven British surgeons. The first edition was issued in 1925 by H. W. Carson and is now revised by G. G. Turner. It is the result of an attempt to present to the profession an authoritative survey of the whole range of modern surgical operations, including those on the eye, ear, nose, throat and nervous system. The closely written text furnishes details of preoperative preparations and points out difficulties and dangers arising during or after surgical procedures. Overlapping, nearly unavoidable in a cooperative work, has been reduced to a minimum but one is surprised to note an unevenness and lack of balance in the consideration allotted to various subjects. The surgery of the spinal cord and the sympathetic system, for example, is described in great detail. On the other hand such an important subject as thyroidectomy has been treated in a stepmotherly fashion, the discussion of indications for blood transfusions is meager and new apparatus

is not described. Of the many solutions used for injection of varicose veins only sodium salicylate and quinine and urea are cited. In the chapter on intestinal obstruction the diagnostic value of roentgenograms and the therapeutic value of transduodenal decompression with the nasal catheter have not been pointed out. The subject of hernias is inadequately covered, one looks in vain for a description of Ferguson's or Girard's operation. The value of the resectoscope in prostatic surgery is not discussed. Placing of bibliographic references in the text and not at the foot of the page is disturbing. Furthermore references are made almost exclusively to publications twenty or more years old. The quality of illustrations is mediocre and their style old-fashioned. Several chapters particularly those written or revised by Turner, are excellent, sections on abdominal surgery and neurosurgery are well presented. The aim and scope of this work are so large that space probably did not allow a more detailed description of the technic; therefore the book will have its greatest appeal to a young surgeon for whom in spite of its minor flaws it will furnish an immense wealth of information in lucid sequence.

**L'année électro radiologique.** Par MOREL KAHN avec la collaboration de MM. C. Bonte, A. Devols, C. Duclaux, T. Fainsilber, H. Flechgold, J. Guillemin, R. Humbert, I. Marques, W. Strouzer et L. Stuhl. Première année. Paper. Price 40 francs. Pp 232 with 23 illustrations. Paris: Masson & Cie 1931.

This is the first of a series of year books on electroradiology written by the author and a number of collaborators. The more recent contributions to the field of diagnostic roentgenology are discussed in the first chapter. Of special interest are the recent advances in soft tissue radiography, intravenous urography, the Proetz displacement method for the visualization of the nasal sinuses and mucosal relief examination of the gastro-intestinal tract. The section on radiotherapy presents some interesting contributions on the use of roentgenotherapy in acute inflammatory processes. The Coutard method for the radiologic management of cancer is discussed. A chapter dealing with the complications arising from the use of radium in the management of carcinoma of the uterus is interesting and important. Finally there is a summary of the question of 500,000 volt therapy. The third section of the book deals with the more recent contributions in the field of physical therapy and the final chapter presents a rather novel idea in giving an outline of the more important international radiologic meetings of the year. The book will be of interest especially to the radiologist.

**The Treatment of Common Female Ailments.** By FREDERICK JOHN MCCANN, M.D., F.R.C.S., F.C.O.G., Consulting Surgeon, Samaritan Free Hospital for Women, London. Third edition. Cloth. Price \$1.75. Pp 379. Baltimore: William Wood & Company 1934.

The demand for this work by the general practitioner provided the opportunity for complete revision and additional new material. This edition contains a great deal of useful information ably presented augmented by illustrative case reports from the author's personal experience. The subject of medical gynecology is fairly well covered and each subject is treated from the standpoint of practical management.

The book is well organized, is printed on good paper with readable type, and is fairly free from errors. The statement "the clotting of menstrual blood is said to be due to a tryptic ferment contained in the premenstrual secretion of the uterine glands" (p. 72) is one exception. The author probably means that the nonclotting is due to the action of a tryptic ferment, in accordance with the view of Oskar Frankl. Another error is found on page 115 in the discussion of vaginitis, *Trichomonas vaginalis* being mentioned in place of *Trichomonas vaginalis*. It is regrettable that he did not dwell at greater length on this form of vaginitis, which is encountered so commonly and which has proved so refractory to treatment.

His advice in the use of the operation of curettage in menorrhagia is sound, but his opinion regarding the role of alcohol and the use of contraceptives in the causation of menorrhagia may be challenged.

Wholesome advice is given to the physician concerning the upbringing and education of girls in the chapter on the prevention of female ailments.

The book will be found useful to physicians in general practice. It is not illustrated.

**Physiologie et physio-pathologie du système réticulo endothélial** Par Albert H. Du Bois, chef de clinique à la clinique médicale universitaire de Gendres. Préface du Professeur M. Roch. Papier. Price 36 francs. Pp 204. Paris: Masson & Cie 1934

In this monograph the author reviews many of the contributions to the subject of the reticulo endothelial system particularly those made between the years 1925 and 1930. The bibliography of 588 papers will be of value to all workers in the field. The book consists of eighteen chapters in which such phases as the morphology of the mesenchymal tissues, achievements of vital staining, and the physiologic and pathologic activities of reticulo endothelial tissues are considered. The presentation is more descriptive than analytic but represents an enormous amount of labor in assembling the more recent evidence concerning the important functions of the active mesenchyme. Particular emphasis is placed on the relationship to immunity, allergy, abnormalities of lipid metabolism and chemotherapy. The style is simple and direct and the index has been carefully compiled. The monograph is an excellent summary of progress during a five year period of significant activity in the development of the reticulo endothelial concept.

**The Clinical Aspects of Visceral Neurology with Special Reference to the Surgery of the Sympathetic Nervous System** By W. K. Livingston M.D. Clinical Associate in Surgery University of Oregon Medical School. Cloth. Price \$7. Pp 214 with 46 illustrations. Springfield Ill. & Baltimore: Charles C. Thomas 1934

This monograph is based on the author's personal observation of 300 cases requiring visceral nerve surgery studied closely before and after operation. Livingston divides his subject matter into three parts: the structure and functions of the visceral nervous system, clinical conditions treated by visceral nerve surgery and surgical procedures. The first part contains the structure and functions of the visceral nervous system which is further divided into four chapters in which the anatomy of the visceral nervous system, physiology and pharmacology, visceral pain and the normal regulation of blood vessel function are discussed in simple and easily understandable language. The second part is divided into five chapters in which the clinical conditions treated by visceral nerve surgery are discussed. The author describes cases of Raynaud's disease, erythromelalgia, scleroderma, hypertension and occlusive diseases of the blood vessels in which operation was performed and gives the results obtained. The postoperative results of cases of chronic arthritis, angina pectoris and pelvic disorders are also given. The last part consists of a discussion of the prognostic methods used in determining the status of the involved areas and the mechanism and technique of the various surgical procedures used on the sympathetic and the somatic nervous system. There is an excellent bibliography for the student interested in visceral neurology and the surgery of the sympathetic nervous system. Many of the author's views on the physiology of the visceral nervous system are controversial but he pleads for more work in this regard in the hope that these controversial points may be settled accurately.

**A Manual of Biochemistry** By J. F. McClendon, Professor of Physiological Chemistry University of Minnesota Medical School. Cloth. Price \$5. Pp 381 with 56 illustrations. New York: John Wiley & Sons Inc. London: Chapman & Hall Ltd 1934

The title and size of this book would lead one to expect an elementary, brief and practical textbook of biochemistry. The work is exceedingly elementary and brief in some respects but it becomes rather involved and specialized in others. The book is unique in many respects. This uniqueness resides in the author's curious style, in the lack of orderly presentation in many exceedingly misleading statements in the peculiar order of presentation, in the questionable choice of material and in the addition of rather inappropriate and often poorly reproduced illustrations. The text is divided into six parts. Part I is a disconnected introduction covering a great variety of factors. Part II, entitled 'Inorganic' includes most of the inorganic elements, radiation in therapeutics and permutit in water softening. Part III, entitled 'Organic' develops too briefly the chemistry of carbohydrates, lipins and proteins. One wonders why benzoic acid is included under proteins and why citrullin is never referred to even in discussing urea formation in a later chapter. Part IV, entitled "Nitrogenous Bases, curiously

includes hematin, bilirubin and chlorophyll. The composition of foods, digestion, metabolism and excretion are treated with entirely too much brevity, only two and one half pages on metabolism. One wonders again why one paragraph is devoted to the entire endocrine system in the section on excretion. Part V is devoted to an unorganized collection of laboratory experiments often again of peculiar choice for a textbook of this scope and grade. Part VI is an alphabetically arranged list of some thousand substances from sodium to water with their more common physical and physiologic properties. Such important substances as glycuronic acid, theelin, theelol, citrullin, saccharase and emulsin are omitted, while such an odd substance as cimicic acid, which "occurs in bedbugs," is listed.

**Dennoch Landerzti! Erfahrungen und Betrachtungen aus der Praxis** Von Dr. August Heider. Second edition. Paper. Price 4.80 marks. Pp 229. Munchen: Verlag der aerztlichen Rundschau Otto Gmelin 1933

This book is written by a country doctor in the Black Forest of Baden. Living in Koenigsfeld he practices throughout a large highland district embracing ten hamlets and a considerable peasant population. He is also chief of a sanatorium and a children's home and physician in charge of a large private school. Well trained by six years of assistantship in the universities and clinics of Freiburg, Munich, Bonn, Marburg and Heidelberg, he has also profited by a large professional experience and a talent for observation to form independent judgments of a great number of medical problems of all kinds that present themselves to general practitioners. He discusses with many interesting illustrations psychotherapy, the sex problems, homophobia toward which he is quite sympathetic, and the relation of country doctors to medical schools and clinics. He then gives his experiences and methods of treatment in obstetrics, dietary problems, allergic disorders, blood transfusion, hypertension, infectious diseases, tuberculosis and the psychoses. Although a few of the author's theories and therapeutic recommendations may not be in accordance with the general opinions of the majority of physicians, the book will interest both rural and city practitioners who will equally admire the author's striking verbal pictures and his shrewd observations on modes of medical practice.

**Voluntary Sterilization** By C. P. Blacker M.C. M.A. M.D. General Secretary of the Eugenic Society. Cloth. Price \$1.75. Pp 145. New York & London: Oxford University Press 1934

This volume begins with a history of sterilization in England, leading up to the sterilization bill, which has resulted from the so called Brock report. There is a brief statement as to the nature of sterilization operations and then a general discussion of laws relating to sterilization. This concludes with the statement that 'the social injustice which arises from the present uncertain state of the law about sterilization is one of the strongest arguments in favor of the whole subject being cleared up by the passing of a carefully drafted sterilization law'. There follows a chapter on hereditary defects and diseases and then a discussion of the fertility of the defective producing classes.

In his discussion of sterilization in other countries, Dr. Blacker indicates the highly confused situation that exists in the United States. The explanation of the situation seems to be that the enthusiasm of small groups secured the passage of legislation for which there was no general demand and no sufficient backing of public opinion. Sterilization laws will succeed only when public opinion is enlisted to support them. The objections to sterilization are marshaled in a chapter with this title, the volume concluding with an analysis of the available literature on the inheritance of mental deficiency.

**Old Age—Medically Considered. A Series of Papers by Medical Authorities on the Physical and Dietetic Treatment of Diseases and Disabilities of Old Age** By Medical Authorities. With a foreword by R. King Brown B.A. M.D. D.P.H. Reprinted from the British Journal of Physical Medicine. Paper. Price 3/- Pp 96 with illustrations. London: Actinic Press Ltd 1934

This volume is a collection of articles previously published in the *British Journal of Physical Medicine*. It is full of practical advice relative to the care of the aged, written by a number of competent British authorities. The essays are quite short but sufficiently long to provide innumerable excellent suggestions.

## Medicolegal

**Workmen's Compensation Acts Pulmonary Asbestosis an "Injury by Accident," Not an Occupational Disease**—McNeely brought a common law action for damages against his employer, the Carolina Asbestos Company. He alleged that the atmosphere in the room in which he worked for some fifteen months was heavily impregnated with asbestos dust, that his employer negligently failed to provide a dust or suction system or any proper ventilating system, and that because of the employer's negligence he inhaled such quantities of asbestos dust during his employment that he became afflicted with pulmonary asbestosis. The trial court holding that the workman's disability was compensable under the workmen's compensation act of North Carolina and that he should have proceeded thereunder rather than at common law, rendered judgment for the employer. McNeely then appealed to the Supreme Court of North Carolina.

The workman contended that the workmen's compensation act applies only to an 'injury by accident' arising out of an employment. Since pulmonary asbestosis, he argued, develops slowly and progressively, it is an occupational disease and not an 'injury by accident' and is not, therefore, covered by the compensation act. The term 'occupational disease,' said the Supreme Court, has been variously defined and interpreted in judicial decisions and textbooks. Schneider in his 'Workmen's Compensation Law,' vol 1 (ed 2), p 644, states that

A disease contracted in the usual and ordinary course of events which from the common experience of humanity is known to be incidental to a particular employment is an occupational disease and not within the contemplation of the Workmen's Compensation Law.

And the Supreme Court of Iowa, in *Gay v. Hocking Coal Co.*, 184 Iowa 949, 169 N. W. 360, said that

An 'occupational disease' suffered by a servant or employee if it means anything as distinguished from a disease caused or superinduced by an actionable wrong or injury, is neither more nor less than a disease which is the usual incident or result of the particular employment in which the workman is engaged as distinguished from one which is caused or brought about by the employer's failure in his duty to furnish him a safe place to work. If the employer fails to provide a reasonably safe place to work or fails to observe the specific requirements of the statute with respect thereto and as a result of such neglect the employee is injured the liability of such employer cannot be avoided by calling such injury an occupational disease or by showing that disease of that nature is often the accompaniment or result of such employment, even when all due care has been exercised by the employer.

Assuming the correctness of these definitions, continued the Supreme Court, and considering the facts of this case, it is obvious that McNeely's ailment was not an occupational disease. He testified that he had worked in a similar capacity in another asbestos plant for about eleven years prior to his employment with the defendant without suffering any ill effects from the work. His injury, then, was not produced by the inherent nature of his work itself, and classifiable as an occupational disease, but was produced rather by the active negligence of the employer in failing to maintain a dust or suction system such as is in general use in other asbestos plants.

The Supreme Court moreover concluded that McNeely's ailment or injury was accidental within the meaning of the compensation act. In *Conrad v. Cook-Lewis Foundry Co.*, 198 N. C. 723, 153 S. E. 266 said the court, this court, in construing the term "injury by accident, as used in the workmen's compensation act, said

The word accident as used here has been defined as an unlooked for and untoward event which is not expected or designed by the person who suffers the injury.

It seems to be generally conceded that if a workman should suddenly inhale air laden with any destructive agencies producing injury immediately, or within a short period of time, such injury would be deemed to be accidental or an injury by accident. It does not seem continued the court, that the time element should be controlling. If so the courts are forced into a field of speculation in an effort to determine what standard of time shall be adopted in determining the rights of the parties.

It would not seem that the unexpected, unforeseen and therefore accidental inhalation of deleterious matter could be deprived of its accidental quality by the mere consideration of whether it took five days or five months to produce the injury.

For the reasons stated, the court concluded that McNeely's injury was compensable under the act and that he had no right to proceed at common law. It accordingly affirmed the judgment of the lower court in favor of the employer—*McNeely v. Carolina Asbestos Co. (N. C.)*, 174 S. E. 509.

## Society Proceedings

### COMING MEETINGS

- Alabama Medical Association of the State of Mobile, April 16-18.  
Dr D. I. Cannon 519 Dexter Avenue, Montgomery Secretary
- American Academy of Pediatrics New York June 7-8 Dr Clifford G. Grulee 636 Church Street Evanston Ill. Secretary
- American Association for the Study of Neoplastic Diseases Baltimore April 18-20 Dr Eugene R. Whitmore 2139 Wyoming Avenue N. W., Washington D. C. Secretary
- American Association for Thoracic Surgery New York June 3-5 Dr Duff S. Allen 3720 Washington Boulevard St. Louis Secretary
- American Association of Anatomists St. Louis, April 18-20 Dr George W. Corner University of Rochester School of Medicine Rochester N. Y. Secretary
- American Association of Pathologists and Bacteriologists New York April 18-19 Dr Howard T. Karsner 2085 Adelbert Road Cleveland, Secretary
- American Association of the History of Medicine Atlantic City May 6 Dr Edward J. G. Beardsley 1919 Spruce Street Philadelphia, Secretary
- American Association on Mental Deficiency Chicago April 25-27 Dr Groves B. Smith Beverly Farms Godfrey Ill. Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Longwood Drive Boston Secretary
- American College of Physicians Philadelphia April 29-May 3 Mr E. R. Loveland 133 South 36th Street Philadelphia Executive Secretary
- American Dermatological Association White Sulphur Springs W. Va., May 2-4 Dr William H. Guy, 500 Penn. Avenue Pittsburgh, Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C. Wright 1601 35th Street N. W., Washington D. C. Secretary
- American Gynecological Society Hot Springs Va. May 27-29 Dr Otto H. Schwarz 630 South Kingshighway Boulevard St. Louis Secretary
- American Laryngological Association Toronto Canada, May 29-31 Dr William V. Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto, Canada June 3-5 Dr Robert L. Loughran Sharon Conn. Secretary
- American Neurological Association Montreal Canada June 3-5 Dr Henry Alsop Riley 117 East 72d Street New York Secretary
- American Ophthalmological Society, Hot Springs Va. June 5-7 Dr J. Milton Griscam 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5-8 Dr Ralph K. Ghormley Mayo Clinic Rochester Minn. Secretary
- American Otolological Society Toronto Canada May 27-29 Dr Thomas J. Harris 104 East 40th Street New York Secretary
- American Pediatric Society Cleveland May 2-4 Dr Hugh McCulloch 325 North Euclid Avenue St. Louis Secretary
- American Psychiatric Association, Washington D. C. May 13-17 Dr William C. Sandy State Education Building Harrisburg Pa. Secretary
- American Society for Clinical Investigation Atlantic City May 6 Dr H. L. Blumgart 330 Brookline Avenue Boston Secretary
- American Society of Clinical Pathologists Atlantic City N. J. June 7-9 Dr A. S. Giordano 531 North Main Street South Bend Ind. Secretary
- American Surgical Association Boston June 6-8 Dr Vernon C. David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City N. J. June 7-8 Dr Oscar B. Hunter 1835 Eye Street N. W. Washington D. C. Secretary
- Arizona State Medical Association Phoenix April 25-27 Dr D. F. Harbridge 15 East Monroe Street Phoenix Secretary
- Arkansas Medical Society Fort Smith April 15-17 Dr W. R. Brooksber 602 Garrison Avenue Fort Smith Secretary
- Association of American Physicians Atlantic City May 7-8 Dr James H. Means Massachusetts General Hospital Boston Secretary
- California Medical Association Yosemite May 13-16 Dr F. C. Warnshuis 450 Sutter Street San Francisco Secretary
- Connecticut State Medical Society New Haven May 22-23 Dr C. W. Comfort Jr. 27 Elm Street New Haven, Secretary
- District of Columbia Medical Society of the Washington, May 1 Dr C. B. Conklin 1718 M Street N. W. Washington Secretary
- Florida Medical Association Ocala May 13-15 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Georgia Medical Association of Atlanta May 7-10 Dr Allen H. Bunce 139 Forrest Avenue N. E. Atlanta Secretary
- Illinois State Medical Society Rockford May 21-23 Dr Harold M. Camp Lahl Building Monmouth Secretary
- Iowa State Medical Society Davenport May 8-10 Dr Robert L. Parker 3510 Sixth Avenue Des Moines Secretary
- Kansas Medical Society Salina May 8-10 Mr Clarence Munns Stormont Building Topeka Executive Secretary
- Louisiana State Medical Society New Orleans April 29-May 1 Dr P. T. Talbot 1430 Tulane Avenue New Orleans Secretary



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Massachusetts Medical Society, Boston June 35 Dr Alexander S Legg 8 The Fenway, Boston Acting Secretary  
Mississippi State Medical Association Biloxi May 14 16 Dr T M Dye McWilliams Building Clarksdale Secretary  
Missouri State Medical Association Excelsior Springs May 6 9 Dr F J Goodwin 634 North Grand Boulevard St Louis Secretary  
National Association of Private Psychiatric Hospitals Washington D C June 1 Dr James M O'Neill St Vincent's Retreat Harrison N Y Secretary  
Nebraska State Medical Association Omaha May 14 16 Dr R B Adams Center McKinley Building Lincoln Secretary  
New Hampshire Medical Society Manchester May 7 8 Dr Carleton R Metcalf 5 South State Street Concord Secretary  
New Jersey, Medical Society of Atlantic City April 30 May 2 Dr J B Morrison 66 Mulford Avenue Newark Secretary  
New York Medical Society of the State of Albany May 13 15 Dr Daniel S Dougherty 2 Last 103d Street New York Secretary  
North Carolina Medical Society of the State of Pinehurst May 6 8 Dr L B McBrayer Southern Pines Secretary  
North Dakota State Medical Association Minot May 27 28 Dr Albert W Skelley 20 1/2 Broadway, Fargo Secretary  
Oklahoma State Medical Association Oklahoma City May 13 15 Dr L S Willour 203 Ainsworth Building McAlester Secretary  
Rhode Island Medical Society Providence June 6 Dr J W Leech, 167 Angell Street Providence Secretary  
South Carolina Medical Association Florence, April 23 25 Dr E A Hines Seneca Secretary  
South Dakota State Medical Association Pierre May 13 15 Dr John F D Cook Langford Secretary  
Texas State Medical Association of Dallas May 13 16 Dr Holman Taylor, 208 Medical Arts Building Fort Worth Secretary  
West Virginia State Medical Association Wheeling May 6-8 Mr Joe W Savage Public Library Building Charleston Executive Secretary

## Current Medical Literature

### AMERICAN

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\*Titles marked with an asterisk (\*) are abstracted below.

### American Review of Tuberculosis, New York

31 121 260 (Feb.) 1935

- Röntgen Ray Appearance of Lung Fields in Atelectatic Bronchiectasis R H Overholt Boston—p 121  
New Operating Thoracoscope H I Goodman New York—p 134  
The Question of When Artificial Pneumothorax Should Be Discontinued. P Dufault and A Laroche Rutland Mass—p 139  
Hypersensitivity to Novocain in Artificial Pneumothorax Therapy W M MacKay Waltham, Mass—p 147  
Apical Localization of Pulmonary Tuberculosis Pulmonary Tissues as Excretory Organs for Tubercle Bacilli J J Hurwich and G Milles, Chicago—p 151  
Acute Subapical Versus Insidious Apical Tuberculosis III Report of One Thousand Cases B H Douglas J P Nalbant and M Pinner Northville, Mich—p 162  
Stability of Colony Morphology and Pathogenicity of BCG Dorothy M Behner New York—p 174  
Reinfection Among Tuberculo Allergic Doctors and Nurses at Fitzsimons Hospital W C Pollock and J H Forsee Denver—p 203  
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Psychic Element in Etiology of Tuberculosis M J Breuer, Lincoln Neb—p 233  
\*Giant Saccular Bulla of Lung Report of Case with Discussion of Its Formation. W Haymaker and A A Karan Wallum Lake R I—p 240

**Röntgen Appearance of Lung Fields in Atelectatic Bronchiectasis**—Overholt illustrates, by reporting three cases, that evidence of bronchiectasis affecting the left lower lobe may be seen in the plain roentgenogram as secondary effects produced in the upper lobes. These secondary effects are revealed in the plain roentgenogram as a difference in density of the lung fields (indicating distention of the upper lobe on the affected side) and as an inequality in the position of the diaphragm best seen in the lateral roentgenogram. When such changes are seen in the ordinary postero-anterior and lateral views, by inference an atelectatic bronchiectasis of the lower

lobe should be suspected. It is not always necessary, therefore, to visualize an involved lobe behind the heart shadow. Undoubtedly there are many similar cases, in sanatoriums and elsewhere, which present cough, expectoration, occasional hemoptysis, negative sputum and roentgenograms that are inconclusive. A close study of the plain roentgenogram may reveal changes indicative of a shrunken bronchiectatic lobe behind the shadow of the heart. The investigation then can be supplemented by bronchoscopy and bronchography to confirm the diagnosis.

**When Artificial Pneumothorax Should Be Discontinued**—In an endeavor to state when pneumothorax should be discontinued, Dufault and Laroche review the situation and summarize its status. 1 Abandonment of pneumothorax is advocated first of all to prevent the permanent loss of function that might result from a long standing state of collapse. This argument does not stand after a moment of reflection. The healthy areas remain practically unchanged and readily resume their function whenever allowed to unfold, regardless of the duration of their immobilization. Their elasticity has not been impaired. The diseased tissues alone are incapable of reexpansion, provided sufficient proliferative organization has taken place. 2 The inconvenience to the patient becomes pressing when he contemplates leaving the sanatorium. Where shall he have his refills? 3 Unless the refills are obtained from a state or county sanatorium or from a free clinic they are somewhat costly, and the prospect of continuing them for several years is not a cheerful one to the patient of moderate or small means. This can always be arranged somehow. It should not be forgotten that the cost of illness and invalidism is still a greater burden to the patient or to his community than that of treatment. One or the other has to pay. 4 The danger of embolism, of pleural shock or of infection must be mentioned. The eventualities in store for the reexpanded lung are considered. Complete excision of the pathologic process, were it possible, would be the ideal solution. In the meantime, the best that can be done is to keep the diseased areas under control by artificial collapse and to make such a collapse as complete, as effective and as lasting as possible. Fibrotic bands and calcified nodules, which are the final stages of healing throughout the necrotic areas, are only walling in the bacilli and, at their best, can be nothing but scars, of no use whatever to the function of ventilation. Their untimely release is fraught with danger. This feeling is being implicitly expressed every time a phrenic exeresis or thoracoplasty is performed with the view of adding to the duration of a pneumothorax. 5 The condition of the lung before collapse is one of the deciding factors when reexpansion is considered. An objection often raised to the establishment of pneumothorax in early lesions is that it should be kept in reserve in case of future breakdowns. The authors advocate the institution of a collapse from the beginning and suggest its continuance until one feels satisfied that complete absorption has taken place. In simple exudations and recent infiltrations without visible cavities the leading authorities seem to agree that from two to three years of collapse counting from the time the sputum turned negative, should be sufficient. This is the minimal duration of pneumothorax, with the exception of bilateral cases, when the question is altogether different. It is granted that durable results have been obtained in a shorter time but their percentage is relatively small. In the case of an older, fibrocaseous lesion, with thick walled cavities, a minimum of from five to seven years is required. That period is not arbitrarily set. It is based on the slow process of healing in tuberculosis. It is also substantiated by surveys of reexpanded cases followed from two to ten years.

**Giant Saccular Bulla of Lung**—Haymaker and Karan report a case of a giant bulla projecting beyond the limits of the lung in the form of a sac. It is part of the picture of compensatory emphysema complicating pulmonary tuberculo-fibroid disease. There is presumptive evidence that an interlobar fibrous pleural band was in a large measure instrumental in causing the bulla to attain such a large size. They describe the mechanical effect of such a fibrous band on an early bulla in the contralateral lung in detail to illustrate the development that presumably took place in the incipient stage of the giant bulla.



## Archives of Dermatology and Syphilology, Chicago

31 159 290 (Feb.) 1935

- Rosacea like Tuberculid of Lewandowsky G M MacKee and M B Sulzberger New York —p 159
- Rosacea like Tuberculosis Review of Literature with Report of Five Cases U J Wile and F H Grauer Ann Arbor Mich —p 174
- Improved (Paraffin Section) Method for Dopa Reaction with Considerations of Dopa Positive Cell as Studied by This Method S W Becker L L Praver and H Thatcher Chicago —p 190
- \*Acrodermatitis Chronica Atrophicans S E Sweitzer and C W Laymon Minneapolis —p 196
- Iellagra in India Report of Case C Panja Calcutta India —p 213
- \*New Immunologic Reaction for Diagnosis of Lymphogranuloma Inguinale Preliminary Report F Reiss Shanghai China —p 215
- Membrane Method for Determining Fungicidal Action of Chemicals Its Clinical Implications H Sharlit New York —p 217
- \*Use of Maize Oil (Unsaturated Fatty Acids) in Treatment of Eczema Preliminary Report T Cornbleet with collaboration of E R Pace Chicago —p 224

**Acrodermatitis Chronica Atrophicans**—Sweitzer and Laymon call attention to some of the more unusual features of acrodermatitis chronica atrophicans and present five illustrative cases. One case showed almost universal atrophy of the skin with fibrous nodules, arthritis deformans atrophy of bone ulnar bands scleroderma-like changes with ulceration and extensive atrophy of the mucous membranes of the tongue, mouth and vagina. This involvement of the mucosa was most unusual. In another case, both diffuse and macular atrophy with ballooning were present. Two cases well illustrated the scleroderma-like changes, one of them being further complicated by ulceration. The last case demonstrated the odd association of acrodermatitis chronica atrophicans with lichen planus. The authors conclude that acrodermatitis chronica atrophicans is a chronic progressive disease that begins with inflammation and infiltration goes on to atrophy and is often complicated by degeneration or hypertrophic changes well exemplified in this series of cases. They were unable to determine any etiologic factor and, as has been the common experience in the past, therapy is of no avail.

**New Immunologic Reaction for Diagnosis of Lymphogranuloma Inguinale**—Reiss shows that the serum of patients with lymphogranuloma inguinale has antigenic properties. He submits a new immunologic reaction for the diagnosis of lymphogranuloma inguinale based on the antigenic properties of such serum. The absence of antibodies in the serum is evident, because, when the serum is combined with the Frei antigen, instead of neutralization he has observed an increase in the reaction. Blood was taken in clinically typical cases verified by a positive Frei reaction. The serum was separated mixed with a 0.5 per cent solution of phenol and kept in the icebox. Before the test was attempted, the serum was proved to be sterile culturally. The author performed the experiment in six cases, with uniform results. Tests were made with the following preparations: (1) for the control a 0.5 per cent solution of phenol in physiologic solution of sodium chloride; (2) the Frei antigen; (3) a mixture of 0.05 cc of Frei antigen with 0.05 cc. of blood serum from a patient with lymphogranuloma inguinale (injected intradermally) and (4) 0.1 cc of blood serum from a patient with lymphogranuloma inguinale (injected intradermally).

**Maize Oil in Treatment of Eczema**—Cornbleet treated eighty-seven cases of eczema with maize oil with gratifying results. A few of the patients had asthma and this was benefited in some as well as the eczema. The improvement seems permanent, and there have been few relapses in the four and a half years since the treatment has been used. A number of patients who had had eczema since infancy have remained well for as long as three years. By eczema is meant the condition generally referred to as allergic eczema exudative and diathetic eczema, Besnier's prurigo or generalized neurodermatitis. In most of the author's patients the condition commenced in infancy and continued indefinitely with alternating exacerbations and relatively quiescent intervals during which the skin at the usual sites was thickened scaly and pigmented. The patients were more than 5 years of age and for the most part were adolescent boys and girls and young adults. Before the use of the oil was commenced, it was ascertained that the patient would not recover easily or at least not on standard therapy. In a few cases local adjuvant measures were used to relieve itching.

The average time necessary to achieve a clinical cure is from twelve to eighteen months. The maize oil was given orally. The patient began taking one tablespoonful before or after meals, whenever he tolerated it best. The dose was increased gradually until four tablespoonfuls was taken three times a day. The author used an especially refined maize oil which is less disagreeable to the taste and is tolerated better than that bought in the open market. The oil when taken slightly chilled is more palatable.

## Archives of Neurology and Psychiatry, Chicago

33 247-452 (Feb.) 1935

- Cranial and Cervical Chordomas Clinical and Histologic Study A W Adson J W Kernohan and H W Woltman Rochester Minn —p 247
- Nuclei of Posterior Tuniculi in Macacus Rhesus Anatomic and Experimental Investigation A Ferraro and S E Barrera New York —p 262
- Cerebral Circulation XXXV Comparative Effect of Ergotamine Tartrate on Arteries in Pia Dura and Skin of Cats J L Pool and G I Nason Boston —p 276
- Sacrocoecygeal Chordomas Clinical and Pathologic Study Eleanor M Fletcher H W Woltman and A W Adson Rochester Minn —p 283
- Cerebral Function in Visual Motor Patterns in Organic Disease of the Brain Including Dementia Paralytica Alcoholic Psychoses Traumatic Psychoses and Acute Confusional States Lauretta Bender New York —p 300
- \*Calcium Content of Cerebrospinal Fluid Blood Serum and Serum Ultrafiltrate Its Relation to Clinical Findings in Eighty Neuropsychiatric Patients J J Michaels Boston and Olive M Searle Ann Arbor Mich —p 330
- Pharmacodynamic Investigation of Autonomic Nervous System in Schizophrenia I Effect of Intravenous Injections of Epinephrine on Blood Pressure and Pulse Rate II Freeman and H T Carmichael Worcester Mass —p 342
- \*Experimentally Produced Convulsions Effect on Thujone Convulsions of Insulin and of Variations in Water Content of Brain H M Keith Montreal —p 353
- Choked Disk and Papillitis Differential Diagnosis by Protein Content of Aqueous E Selinger Chicago —p 360
- Feeling of Unreality as a Differential Symptom of Mild Depressions J C Yaskin Philadelphia —p 368

**Calcium Content of Cerebrospinal Fluid, Blood Serum and Serum Ultrafiltrate**—Michaels and Searle compared the calcium content of the blood and the cerebrospinal fluid with that of an ultrafiltrate of the serum. Their series, in which these three determinations were made simultaneously, consists of eighty cases in which eighteen various neuropsychiatric diagnoses were made. In conditions of nervous instability various somatic and neurologic deviations vasomotor instability and retinal endarteritis, the calcium observations were not different from those in cases that did not present these conditions. The constitutional type (asthenic, athletic or pyknic), weight-height index, sex, age, blood pressure and intelligence quotient could not be correlated. The ratios of diffused to non diffused calcium and the permeability quotients were within normal limits. It seems strongly indicated that one obtain blood and spinal fluids simultaneously and study the inter relationship of the calcium partitions with the values for other substances in these fluids especially the amounts of inorganic phosphates and other inorganic elements and of proteins and, above all the potassium-calcium ratios. The intensive study of fewer cases with repeated studies of individual cases to ascertain normal fluctuations, especially when the clinical manifestations may be evanescent and transitory, is desirable. Prolonged persistent studies throughout the various phases of an illness as it occurs in the evolution of a psychosis, especially in epilepsy, are also necessary. A multidimensional point of view implying knowledge of the integration and intricate intercorrelations and interdependence of all the levels of the personality is essential for any valuable contribution in the realm of calcium metabolism in patients with neuropsychiatric disorders.

**Effect on Thujone Convulsions of Insulin and of Variations in Water Content of Brain**—Keith observed that the administration of large amounts of water by stomach tube, accompanied by repeated subcutaneous injections of pitressin, causes spontaneous convulsions in rabbits with an increase in the water content of the brain and makes them much more susceptible to thujone convulsions. Pitressin alone given in repeated subcutaneous injections does not increase the water content of the brain but does increase to a slight extent the animals' susceptibility to thujone convulsions. Distilled water given by stomach tube in large amounts increases, to some

extent, the susceptibility of the rabbit to thujone convulsions and, to a considerable extent the water content of the brain. The production of a maximal increase in the water content of the rabbit's brain by means of intravenous injection of hypotonic solution of sodium chloride does not increase the animal's susceptibility to thujone convulsions. The production of insulin hypoglycemia to the point at which spontaneous convulsions occur makes rabbits more susceptible to thujone convulsions and there is some increase in the water content of the brain accompanying this procedure. Hypoglycemic convulsions and convulsions produced by the administration of water or water and pitressin do not inhibit the convulsant action of thujone. Whatever the factor may be that increases the animal's susceptibility to convulsions it is evidently not the increase in the water content of the brain.

### Canadian Medical Association Journal, Montreal

32: 117-212 (Feb.) 1935

- Inclusion Blepharitis S. H. McKee Montreal—p. 119  
Dislocation of Radiocarpal Joint F. J. Tees Montreal—p. 122  
Polycythemia Vera with Especial Reference to Nervous Manifestations  
Analysis of Nine Cases L. J. Adams Montreal—p. 128  
Further Observations Following Administration of Tetanus Toxoid  
P. A. T. Sneath and E. C. Kerslake Toronto—p. 132  
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Calcium Therapy in Tropical Diseases Pauline Beregoff Montreal—p. 177  
Conjugal Psychopathy and Psychoneuroses H. C. Moorhouse Brockville Ont.—p. 178  
Uniovular Twins Schizophrenia and Tuberculosis G. E. Reed Montreal—p. 180

### Polycythemia Vera and Nervous Manifestations—

Adams reports nine cases of polycythemia vera, in six of which medical advice was sought for symptoms referable to the nervous system (headache, dizziness and paresthesia). The length of time under observation varied from six months to eleven years. In one case a cerebral decompression was performed for a suspected brain tumor. The differential diagnosis was difficult because of the presence of a preceding injury to the skull. The three cases in which there were abdominal complaints also offered diagnostic difficulties as evidenced by fruitless surgical procedures. The average age of onset of symptoms in eight cases was fifty years. In one case in addition to ascites an extensive recurring hydrothorax was present. Three patients had an associated hypertension at the time the polycythemia was recognized. It is impossible in each instance to state which condition occurred first. Two patients observed over a long period of time in the hospital, received treatment which reduced the red blood count, resulting in marked symptomatic improvement, but failed to lower the blood pressure. In all three cases the heart was found to be normal in size. Splenomegaly was present in every case which with the blood picture formed the criteria for diagnosis. In addition the liver was palpable in all except one. The tendency to bleed was exemplified by its occurrence in all cases except one. Every patient subjected to surgical procedures suffered from postoperative hemorrhage. Therefore every known or suspected case of polycythemia should be admitted to the hospital prior to an operation of any kind including tooth extractions. Treatment consisted in the use of phenylhydrazine hydrochloride and roentgen irradiation. Roentgen therapy in repeated small doses over the long bones, as recommended by Pack and Craver, has been the method of choice in recent years.

**Observations Following Administration of Tetanus Toxoid**—Sneath and Kerslake state that the demonstration of residual amounts of tetanus antitoxin in the blood serums of twenty-five out of twenty-seven adults a year after the injection

of three doses of tetanus toxoid is of distinct value as an indication of the persistence of this antitoxin induced by active immunization. There is definite evidence that a secondary stimulus with tetanus toxoid induces not only the rapid development of tetanus antitoxin in man but also an enhancement of antitoxin titer within a week, on an average of about twenty times that of the residual amounts found a year after three doses of toxoid. Since three days after the prophylactic injection of 1500 American units of tetanus antitoxin the blood serum of man has been shown to contain from 0.1 to 0.25 unit per cubic centimeter, it is evident that within a week of the secondary stimulus thirteen persons of a group of fourteen developed at least the equivalent of that afforded by a prophylactic dose of antitoxin. The serum titer of the same persons continued after a month to show antitoxin at levels sufficient to retain this degree of protection. Although one of the group failed to develop antitoxin to this level, there is no doubt that it was possible in this instance to induce the early development of a measurable amount of antitoxin as a result of a secondary stimulus, whereas it was not possible to show that such followed the first series of toxoid injections.

### Johns Hopkins Hospital Bulletin, Baltimore

58: 61-116 (Feb.) 1935

- Effect of Alcohol on Cortical and Subcortical Activity Measured by Conditioned Reflex Method W. H. Gantt Baltimore—p. 61  
Researches on Tetanus II. Toxin of *Bacillus Tetani* Is Not Transferred to Central Nervous System by Any Component of Peripheral Nerve Trunks J. J. Abel, E. A. Evans Jr., B. Hampel and F. C. Lee Baltimore—p. 84

### Journal of Bacteriology, Baltimore

29: 91-222 (Feb.) 1935

- Serendipity M. J. Rosenau Boston—p. 91  
Protractor for Computing Growth Rate of Bacteria O. Rabin and M. M. Mason, Ithaca N. Y.—p. 99  
Comparison of Maximal Growth Rates of Various Bacteria Under Optimal Conditions M. M. Mason Ithaca N. Y.—p. 103  
Fibrinolytic Activity of Hemolytic Streptococci in Relation to Source of Strains and to Cultural Reactions W. S. Tillett Baltimore—p. 111  
The Morgan Bacillus E. O. Jordan, R. R. Crawford and Josephine McDoom Chicago—p. 131  
Precipitation of Bacterial Polysaccharides with Calcium Phosphate Pneumococcus L. D. Felton, Gladys Kauffmann and Helene J. Stahl Boston—p. 149  
Comparative Studies of Presumptive Test Mediums for *Coli* Aerogenes Group of Bacteria I. V. Shunk Chapel Hill N. C.—p. 163  
Studies on Anaerobic Bacteria III. Historical Review and Technique of Culture of Certain Thermophilic Anaerobes I. S. McClung Madison Wis.—p. 173  
Id. IV. Taxonomy of Cultures of Thermophilic Species Causing Swells of Canned Foods L. S. McClung Madison Wis.—p. 189  
Studies of Certain Factors Influencing Size of Bacterial Population J. P. Cleary, P. J. Beard and C. E. Clifton San Francisco—p. 205  
Some Properties of Bacterial Inhibitory Substance Produced by a Mold R. D. Reid, State College Pa.—p. 215

**Comparison of Presumptive Test Mediums for *Coli* Aerogenes Group of Bacteria**—Shunk tested pure culture strains of *Escherichia Aerobacter* and *Citrobacter* from thirty subjects 201 strains in all for gas formation in plain lactose broth, brilliant green lactose peptone bile, crystal violet buffered broth and fuchsin broth. When small inoculums were used (less than fifty organisms per tube) lactose broth and brilliant green lactose peptone bile gave positive tests after twenty-four hours of incubation at 37 C for all the 201 strains. In crystal violet broth after forty-eight hours of incubation with similar small inoculums only 49 per cent of these strains gave positive tests. From only five persons of the thirty did all strains produce as much as 10 per cent of gas in forty-eight hours, and all strains from five others failed to form gas in the same period of incubation. Few strains formed gas in fuchsin broth when small inoculums were used and with relatively large inoculums only thirty-three of the 201 strains formed gas in forty-eight hours. When small inoculums of a dye sensitive strain of *Escherichia* were added to the crystal violet broth and the tubes were also inoculated with a loop of a culture of a greenish fluorescent water organism, the fluorescent bacterium so modified the medium that this strain was able to produce gas in forty-eight hours or less. Fewer failures to get gas formation in the presence of *Escherichia*-*Aerobacter* organisms in water samples are to be expected than the poor showing of this medium when tested by pure culture strains would indicate.

## Journal of Biological Chemistry, Baltimore

108:323 606 (Feb.) 1935 Partial Index

- New Method for Determination of Acid Base Balance in Food Materials J Davidson and J A LeClerc, Washington D C—p 337
- Effect of Anterior Pituitary Growth Hormone on Protein Metabolism N K Schaffer and M Lee Boston—p 355
- Studies on Ketosis V Comparative Glycogenic and Ketolytic Action of Glucose and Some Carbohydrate Intermediates Inez Shapiro, Los Angeles—p 373
- \*Studies of Incurable Rickets II Role of Local Factor and of Viosterol in Pathogenesis of Rickets Due to Beryllium A E Sobel, A R Goldfarb and B Kramer Brooklyn—p 395
- Hydrogen Ion Concentration of Contents of Small Intestine C S Robinson with assistance of R Johnson and M Cogan Nashville, Tenn—p 403
- Factors Influencing Activity of Fungus Lipase D Kirsh New Brunswick N J—p 421
- Nutritive Value of Fatty Acids of Lard and Some of Their Esters S Lepkovsky R A Ouer and H M Evans Berkeley Calif—p 431
- Effect of Insulin on Excretion of Allantoin by Normal Dog P S Larson and I L Chaikoff Berkeley Calif—p 457
- State of Cholesterol and Nature of Cholesterol Protein Complex in Pathologic Body Fluids M Bruger New York—p 463
- Micro-method for Estimation of Fat Soluble Ester Glycerol Contained in Lymph S Freeman and T E Friedemann Chicago—p 471
- New Formed Hemoglobin and Protein Catabolism in Anemic Dog F S Daft Frieda S Robschelt Robbins and G H Whipple Rochester N Y—p 487
- Hydrolysis of Glycogen by Muscles and Liver Extracts A Carruthers Peiping China—p 535
- Method for Quantitative Determination of Ascorbic Acid (Vitamin C) Vitamin C Content of Various Plant and Animal Tissues II Tauber and I S Kleiner New York—p 563
- Effective Method of Extracting Vitamin B S Itter Elsa R Orent and E V McCollum Baltimore—p 571
- Simplified Method for Preparing Lactoflavine and Study of Its Growth Effect S Itter Elsa R Orent and E V McCollum Baltimore—p 579
- Ergot Alkaloids IV Cleavage of Ergotinine with Sodium and Butyl Alcohol W A Jacobs and L C Craig New York—p 595

**Viosterol in Pathogenesis of Rickets Due to Beryllium.**—Sobel and his associates made comparative observations of in vitro calcifications of bones obtained from rats with beryllium and calcium rickets. They found that there was a marked diminution in the calcifying power of bones of animals suffering from beryllium rickets. The bones of rats receiving viosterol in addition to a beryllium rickets-producing diet showed similar diminution of in vitro calcifying ability. Although the administration of viosterol failed to prevent the development of rickets in rats receiving beryllium, it nevertheless resulted in a rise of the calcium-phosphorus product in the serum.

## Journal of Nervous and Mental Disease, New York

81 125 244 (Feb.) 1935

- Nucleus of Darkschewitsch and Nucleus Interstitialis in the Brain of Man W R Ingram and S W Ranson Chicago—p 125
- \*Specificity of Streptococci Isolated in Studies of Diseases of Nervous System Experimental Reproduction of Persistent Sneezing and Convulsions E C Rosenow Rochester Minn—p 138
- Psychopharmacology of Sodium Amytal M W Thorner Norristown Pa—p 161
- \*Cortical Autonomic Epilepsy J W Watts and C H Frazier Philadelphia—p 168
- Neurologic Aspects of Uveoparotid Fever P M Levin Chicago—p 176

**Specificity of Streptococci Isolated in Studies of Diseases of Nervous System.**—The absence of streptococci in cultures of the brain and blood in sixty-two rabbits that had been given injections of sterile filtrates or dead streptococci makes it clear that the streptococci isolated by Rosenow from rabbits that had been given injections of living streptococci were not secondary contaminants from the air or elsewhere. The characteristic cataphoretic time and velocity and virulence, and specific serologic properties also prove their identity. In the case of persistent sneezing, the striking similarity between the symptoms obtained in animals and those of the patient were not limited to reproduction of the chief symptom persistent sneezing but included important concomitant symptoms, such as attacks of great restlessness and stormy respirations expiratory grunting mucous rattle in the throat and alternation of periods of abnormal excitation with periods of moderate drowsiness or marked lethargy. In no instance were these results obtained under like conditions with streptococci derived from patients who were used as controls, or with streptococci derived from the patient with persistent sneezing some time after

recovery, or with this streptococcus after aerobic cultivation, or in a long series of similar experiments with streptococci derived from patients with other diseases. Only a few animals that received injections of streptococci in a study of a series of cases of respiratory arrhythmia were seen to sneeze. The degree and duration of symptoms following injection, especially of the heat-killed organisms and filtrates of active cultures, were quantitatively roughly proportional to the dose injected. The impulse of sneezing was of central origin and was apparently due to lesions resembling those of encephalitis chiefly in the medulla surrounding the fourth ventricle. The active principle was soluble in ether and was destroyed by boiling. The principle was retained through as high as thirty-nine rapidly repeated subcultures in dextrose-brain broth, through four successive animal passages, and for thirty days at 35 C. on sealed blood-agar slants. It was lost after several aerobic blood-agar platings. These facts, and the fact that no other cases occurred, suggest that the "sneeze-producing" principle and other specific features of this streptococcus represented acquired properties of streptococci normally present in the throat and that these properties were subsequently lost in the throat of the patient as in the test tube.

**Cortical Autonomic Epilepsy.**—Watts and Frazier point out that recent studies on autonomic representation in the cortex point to an explanation of the long recognized visceral symptoms and signs associated with focal seizures and occurring as an aura or independently. Nausea and vomiting of increased intracranial pressure are, of course, not of localizing importance. However, in focal epilepsy, especially in the absence of increased intracranial pressure, visceral phenomena may assume some significance. As illustrations of these visceral phenomena the authors discuss two cases in which manifestations such as nausea, epigastric distress and vomiting presumably aborted or were substituted for epileptic convulsions. They postulate that the neuron discharge sometimes manifested itself through the gastro-intestinal musculature and sometimes through the skeletal musculature. In the first case nausea followed by vomiting aborted individual epileptic convulsions. In the other case several focal convulsions occurred, followed by an interval of four years in which there were periodic attacks of nausea and vomiting but no convulsions. After four years the characteristic convulsive seizures were resumed. Nausea and vomiting may be considered the result of neuron discharge from the motor autonomic portion of the cerebral cortex. Epigastric auras and other abdominal sensations usually are not so called referred sensations but probably arise from vigorous and perhaps abnormal movements of the gastro-intestinal tract. Insufficient work has been done to know what part of the human cortex contains autonomic representation.

## Medical Bull. of Veterans' Adm., Washington, D C

11 185 284 (Jan.) 1935

- Some General Considerations of Pulmonary Surgery H P Reid—p 185
- Classification and Treatment of Anemias P B Matz—p 194
- Spontaneous Pneumothorax A Schomer and D E Ehrlich—p 206
- \*Superdiathermy in Treatment of Dementia Paralytica J G Cullins, H P Morgan and W Seymour—p 217
- Diathermy in Treatment of Neurosyphilis O L Nelson—p 223
- Mental Deficiency E M Levy—p 229
- Habit Training D Goode—p 237
- Pilonidal Cyst L B Kline—p 241
- Encephalitis Lethargica Report of Six Cases Treated with Hyperimmunized Rabbit Brain H L Flowers—p 247
- Observation for Seizures J N Perkins—p 253
- Codine in Treatment of Advanced Pulmonary Tuberculosis J P Wood—p 256
- Nineteen Cases of Pneumonia in Members of the Civilian Conservation Corps with No Deaths F L Borglum—p 258

**Superdiathermy in Treatment of Dementia Paralytica.**—Cullins and his associates employed hyperpyrexia extensively in the treatment of patients suffering from dementia paralytica, whenever it was thought that the patient would cooperate to any degree. Since 1932, seventy-eight parietic patients have been given malarial therapy. No deaths have followed this form of treatment. Their conclusions are that malarial inoculations are the treatment of choice in all cases of dementia paralytica in which barring contraindications it is possible to administer this type of therapy. When a patient is encountered who will be unable to withstand the rigors of an illness such as

malaria superdiathermy may be instituted. In the last three years 205 patients have been treated with superdiathermy requiring 1,771 treatments. Discontinuance was necessary in only eight cases because of slight burns and in twenty-nine others in which cyanosis, rapid heart action or general restlessness developed. Diathermy was not administered more than twice a year to any patient. A course of ten treatments was arbitrarily instituted and was followed throughout the series. An attempt was made to maintain a total of sixty hours of fever with a temperature ranging from 104 to 106 F throughout the course. The temperature can be reduced by opening the covers from the feet and legs and from round the neck. If necessary the patient's feet and legs can be cooled by the application of towels and cool water. After the temperature has decreased to the desired point the feet and legs may be covered again and the temperature allowed to remain at the desired level. A comparatively large number of patients derived considerable benefit from this form of therapy in that the majority of them showed unmistakable evidences of improvement characterized by changes in weight behavior, blood and spinal fluid. The period of life expectancy has been prolonged in a number of these patients and they have generally improved otherwise. It is difficult to state the exact therapeutic agent that was instrumental in bringing about the improvement because the majority of the patients had been treated before they arrived at the hospital. A certain number had been treated by malaria others had been treated by diathermy and others by a combination of antisyphilitic remedies. There are many reasons for the belief that superdiathermy has its place in the treatment of neurosyphilitic patients and that malaria and chemotherapy also have their advantages and disadvantages. There seems to be little doubt as to the efficacy of malaria, and undoubtedly the administration of this form of therapy is of paramount importance, while superdiathermy probably occupies a place second only to malaria.

### New England Journal of Medicine, Boston

212:183-228 (Jan 31) 1935

- Association of Pylephlebitis and Appendicitis W H Snyder M G Hall and A W Allen Boston—p 183  
Studies on Ovarian Dysfunction I Hormone Measuring Sticks Available for Clinical Use and Values Obtained on Normal Individuals F Albright J A Halsted and Elizabeth Cloney Boston—p 192  
Bronchiectasis as Source of Scarlet Fever Dissemination H Spencer Wellesley Mass—p 196  
Strangulation (Torsion) of Gallbladder with Perforation and Gangrene in Boy of Seventeen Report of Case E Blank Fitchburg Mass—p 197  
Insect Bite Followed by Gas Gangrene in a Diabetic Report of Case J R Barry West Roxbury Mass—p 198  
Attempt to Secure X-Ray Examination of Uncooperative Tuberculous Contact H R Edwards New York—p 198

212:229-282 (Feb 7) 1935

- Tidal Drainage of Urinary Bladder Preliminary Report of This Method of Treatment as Applied to Cord Bladders with Description of Apparatus D Munro and J Hahn Boston—p 229  
\*Diaphragmatic Hernia at Esophageal Hiatus the Short Esophagus and Thoracic Stomach P E Truesdale, Fall River Mass—p 240  
Studies on Ovarian Dysfunction II Application of Hormone Measuring Sticks to Sorting Out and to Treatment of Various Types of Amenorrhea F Albright and J A Halsted Boston—p 250  
\*Comparison of Yeast Milk and Irradiated Milk in Treatment of Infantile Rickets E T Wyman R C Eley Boston J W M Bunker and R S Harris Cambridge, Mass—p 257

**Diaphragmatic Hernia at Esophageal Hiatus, the Short Esophagus and Thoracic Stomach**—Truesdale presents the fourth case of hiatus hernia of the diaphragm treated surgically by a thoracic approach which has resulted in partial relief of symptoms and cannot be termed a cure. A comparative study of his specimens with illustrations in the works of other investigators prompts him to offer a new theory as to the origin of congenital short esophagus and thoracic stomach. 1 The enlarged esophageal hiatus or any other congenital aperture in the diaphragm occurs as a result of embryologic failure of fusion. 2 Almost invariably, thoracic stomach is the result of herniation through a congenital hiatus hernia and may occur at any time after birth. 3 The short esophagus is the result of cessation of traction on it by the stomach which has assumed a position in the thorax. In many instances a short esophagus of a few centimeters is the result of inflammatory changes at its lower end. Reasonably accurate deductions as to the posi-

tion of the stomach and the length of the esophagus can be made only by careful observation at the operating table or at necropsy.

**Comparison of Yeast Milk and Irradiated Milk in Treatment of Infantile Rickets**—Wyman and his co-workers selected six infants having active rickets, who on admission to the hospital were placed in a separate ward and during a preliminary period were given a simple caloric adequate diet, without antirachitic supplement, to make certain that healing was not taking place, after which the milk in the diet of three infants was replaced by irradiated milk and that of the other three infants was replaced by yeast milk. During the test period roentgenograms and blood analyses were made frequently. The six infants showed healing within four weeks when fed from 26 to 32 ounces of vitamin D milk daily, irrespective of whether it was irradiated milk of 50 units or yeast-fed cow's milk of from 60 to 65 units per quart. Roentgenologically there is no obvious difference in the clinical antirachitic value of the two types of milk. All the cases showed a calcium phosphorus product of less than 40 when the vitamin milk was first administered. The progressive increase of this product throughout the duration of the test is indicated. The general trend of the curves is substantially the same for all groups. If the rate of increase of the serum calcium phosphorus product is an index of the rate of recovery from rickets, there is nothing to choose between the rates of recovery on the two kinds of milk used.

### Northwest Medicine, Seattle

34:37-74 (Feb) 1935

- Outbreak of Dysentery Caused by the Sonne Type of Bacillus H J Sears J B Bilderback C G Ashley and Martha Rohner Portland Ore—p 37  
Endoscopic Prostatic Resections W J Pennock Spokane, Wash—p 42  
Epidemic Parotitis Complicated by Acute Appendicitis W B Seelye Seattle—p 44  
\*Tannic Acid Silver Nitrate Treatment of Burns Method of Minimizing Shock and Toxemia and Shortening Convalescence A G Bettman, Portland Ore—p 46  
Arachnidism Black Widow Spider Poisoning C B Philip Hamilton Mont—p 52  
Foreign Protein Therapy Its Present Status in Otorhinolaryngology E A Woods Ashland Ore—p 55  
Resuscitation of the Asphyxiated F L Wood Lynden Wash—p 59  
Multiple Sclerosis Report of Case in Boy of Fifteen C. A. Veasey Sr Spokane Wash—p 60

**Tannic Acid Silver Nitrate Treatment of Burns**—Bettman submits an improvement on the tannic acid method of treating burns. The method consists in the use of a 5 per cent solution of tannic acid followed by a 10 per cent solution of silver nitrate. He states that far better results are obtained and lists the following advantages: 1 The saving of lives that would be lost through the slower method of tanning. 2 The immediate stopping of the loss of body fluids, thereby preventing the consequent concentration of the blood. 3 The immediate prevention or very definite minimizing of shock. 4 The immediate prevention of the absorption of toxic products. 5 The prevention of infection by the short period of application of moisture and the early drying of the tanned tissues. 6 The saving of the kidneys and other organs from the effects of fluid concentration and the absorption of toxins and infection. 7 The greater comfort of the patient. 8 Safe carrying of the patient past the first twenty-four hours, which is the most critical period following a serious burn. 9 Avoidance of the second critical period, that of infection and late absorption of toxic products. 10 The simplification of the nursing problem, especially in the first twenty-four hours. 11 The prevention of further breaking down of tissues, which results from long application of wet dressings. 12 The prevention of chilling, which also results from the long application of cold, wet dressings. 13 The formation of a thin, flexible coagulum. 14 The speedy healing of the burned areas with a shortened period of hospitalization. 15 The prevention or minimizing of heavy contracting scars by early, rapid healing in the absence of infection. 16 The lessening of the amount of skin grafting and secondary corrective surgery necessary. The author has treated twenty-one cases with gratifying results except in the case of a man of 77 who had an 80 per cent burn and who died ten hours after the accident.

## Psychiatric Quarterly, Albany, N Y

9 1180 (Jan) 1935

- Research and Teaching Activities of Psychiatric Institute During Past Year C O Cheney, New York—p 5
- Acidophilus Milk Therapy N Kopeloff, New York—p 20
- Clinical Work in State Schools for Mental Defectives H W Potter New York—p 27
- \*Blood Cerebrospinal Fluid Barrier with Especial Reference to Changes in General Paralysis and in Dementia Praecox J H Masserman Baltimore—p 48
- Prevalence of Mental Diseases Among Urban and Rural Populations of New York State B Malzberg Albany N Y—p 55
- Effect of Intercurrent Somatic Disease on Manic Depressive Reactions I R Wolberg, Kings Park, N Y—p 88
- What Happens to Mental Patients After Discharge from Hospital R G Fuller Albany N Y—p 95
- Treatment of Psychoneurosis in State Hospitals H H Berman, Ogdensburg N Y—p 105
- Some Clinical Manifestations of Traumatic Decerebration A J Rosanoff Los Angeles—p 116
- Hereditary and Environmental Factors in Causation of Dementia Praecox and Manic Depressive Psychoses H M Pollock B Malzberg and R G Fuller Albany, N Y—p 129

**Blood-Cerebrospinal Fluid Barrier**—Masserman gave twenty-eight parietic and twenty-two schizophrenic patients 0.01 Gm of sodium bromide by mouth per pound of body weight three times a day for five days, after which the bromide content of the blood, spinal fluid and cisternal fluid was determined. Analysis (by the method of Walter) of the data showed that the mean bromide contents of both the lumbar and the cisternal fluid of the parietic group exceeded those of the schizophrenic group by  $3.64 \pm 0.0983$  and  $3.29 \pm 0.604$  mg per hundred cubic centimeters indicating a significantly lowered blood-cerebrospinal fluid barrier permeability to bromides in dementia paralytica as contrasted with schizophrenia. That the barrier permeability in dementia paralytica is lower than normal whereas in schizophrenia it is abnormally high is indicated by contrasting the blood cerebrospinal fluid ratios of both psychotic groups with those of a group of normals reported by Malamud. The latter comparisons may not be determinative because of the possibly different technic employed.

## Virginia Medical Monthly, Richmond

61 625 684 (Feb) 1935

- Heart Disease Fundamentals in Physiology and Pathology of Circulation R A Morrison Abingdon—p 626
- Id Arrhythmias D B Stuart Roanoke—p 631
- Id Congestive Heart Failure W P Jackson Roanoke—p 635
- Coronary Thrombosis W I Owens Pulaski—p 638
- Collapse Therapy in Pulmonary Tuberculosis J B Nicholls and L R Broome Catawba Sanatorium—p 639
- Drug Idiosyncrasy and Neutropenia. Regena Cook Beck Richmond—p 643
- Evipal Anesthesia C S White and J L Collins Washington D C—p 647
- Surgical Treatment of Retinal Detachment with Electrocoagulation C A Young Roanoke—p 650
- \*Recurrent Rheumatic Fever with Pericarditis Terminating in Septicemia Report of Case with Necropsy and Experimental Bacteriologic Studies W M Yater and O F Hedley Washington D C—p 654
- Appendicitis Versus Its Complications G H Reese Petersburg—p 659
- Observations in Management of One Hundred Consecutive Cataract Operations E G Gill and J A Pilcher Jr Roanoke—p 663
- Abdominal Emergencies M H Todd Norfolk—p 665
- Acute Congestive Glaucoma in a Previously Hypotonic Eye Case Report R H Courtney Richmond—p 667

**Recurrent Rheumatic Fever with Pericarditis Terminating in Septicemia.**—Yater and Hedley cite a case in which attacks of rheumatic fever recurred for a year and a half and were alleviated by salicylate therapy and in one of which there was pericarditis with effusion. During one of these attacks of polyarthritis, manifestations of septicemia developed suddenly which did not respond to salicylates. Blood cultures showed flourishing growths of alpha prime streptococci. At necropsy there was evidence of healed pericarditis and a purulent peritoneal effusion of unexplained origin. Experimental bacteriologic studies with monkeys and rabbits showed that the organism isolated from the patient's blood was extremely virulent and produced in many of the animals arthritis and ulcerative vegetative endocarditis. The relationship to rheumatic fever of streptococci in the general circulation or infected tissues is still a question. Many of the earlier workers occasionally obtained streptococci on blood culture or on culture of joint fluids. These were hailed as possible etiologic agents. In no instances have these claims been substantiated.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Dermatology and Syphilis, London

47 51 84 (Feb) 1935

- \*Psoriasisform Carcinoma of Skin L. Savatard—p 51
- Eczema J T Ingram—p 64

**Psoriasiform Carcinoma of Skin**—In 1930 Savatard suggested that intra-epidermal carcinomas of the skin differed only from the more usual carcinomas of epidermal origin in that their intra-epidermal growth was prolonged and that, though they may at some period proliferate within the cutis with tumor formation, they may never do so or they may atrophy in part or in whole, that the ordinary epithelioma also originates intra-epidermally, but proliferation within the cutis with tumor formation so rapidly supervenes that its intra-epidermal spread is obliterated, yet if examined at an early stage lateral intra-epidermal spread, as well as downward proliferation within the cutis, can be appreciated, though the intra-epidermal spread is not characterized by the same morphologic cellular change as is the case in these chronic superficial lesions. He also indicated that unless the fact that these superficial, apparently benign lesions are carcinomas confined for the most part within the epidermis, and not precarcinomas, was recognized, a true conception of the pathogenesis of carcinoma of the skin would not prevail. Having observed several new cases he concludes that: 1 The psoriasisform carcinoma is a chronic superficial carcinoma of the skin. 2 It may be either intra-epidermal or intra-epithelial. In the former the neoplasia affects the epidermis alone, while in the latter the epidermal disturbance is associated with a similar hyperplasia within the sweat ducts and glands. 3 Paget's disease of the nipple is usually an intra-epithelial carcinoma affecting the mammary ducts as well as the skin round the nipple, but it may be a purely intra-epidermal carcinoma without lesions of the duct. 4 "Extramammary" Paget's disease is usually an intra-epidermal carcinoma, though in the rarer cases, when sweat ducts and glands are involved, it must be considered as being intra-epithelial. Such cases correspond to the usual mammary type. 5 Histologic evidence indicates that the psoriasisform carcinoma spreads not by permeation of tumor cells into the surrounding healthy epidermis but by what may be termed a cancerous metaplasia of adjacent normal cells.

## British Journal of Ophthalmology, London

19 65 128 (Feb) 1935

- Congenital Coloboma of Macula Together with Account of Familial Occurrence of Bilateral Macular Coloboma in Association with Apical Dystrophy of Hands and Feet A Sorsby—p 65
- Improvement in Technic of Vogt's Method of Skeleton Free Radiography of Bulb Creation of Exophthalmos Marguerite Kaelin Sulzer—p 91
- Inflammatory Pseudotumor of Orbit Case T Colley—p 93
- New Therapeutic Diathermy Electrode F W Law—p 96
- Refractive Error of Twins F W Law—p 99
- Some Practical Points in Treatment of Simple Detachment of Retina H Ridley—p 101
- \*Intracorneal Injections of Cyanide of Mercury in Trachomatous Pannus E S Shalom—p 107

**Intracorneal Injections of Mercuric Cyanide in Trachomatous Pannus**—Shalom treated twenty-five cases of severe pannus rebellious to previous treatment by intracorneal injections of mercuric cyanide. Under local anesthesia of a 1 per cent solution of pantocain an eye speculum is introduced and a 1 cc record syringe containing 0.5 cc of 1,000 mercuric cyanide is fitted with a very fine needle. The patient is asked to look downward, and with the eye of the needle turned toward the cornea the needle is introduced tangentially into the corneal substance about 1 mm. from the limbus, usually in the upper part of the cornea where the pannus is thickest. A few drops of the solution are injected slowly. The cornea at once assumes a grayish opaque color which spreads from the upper part of the cornea downward, the extent depending on the amount of solution injected. The needle is withdrawn, the speculum is removed and the eye may be left open or bandaged. The whole procedure is painless. The twenty-five patients operated on continued receiving daily local treatment in the outpatient dispensaries. Two months later five showed a recur-

rence of the pannus in a much milder form. They received intracorneal injections and when examined four months later showed macroscopically clear corneas. In three cases although the pannus infiltration had disappeared two months after the operation fine blood vessels could still be seen running in the cornea. Ten cases examined by the slit lamp showed that the pannus had decreased quantitatively and qualitatively but trachomatous vascularization was still present in all.

### British Journal of Radiology, London

8: 65-116 (Feb.) 1935

Tissue Culture II Its Application to Radiologic Research I G Spear—p. 68  
Osteochondritis J F Brailsford—p. 87

### Lancet, London

1: 129-186 (Jan. 19) 1935

Treatment of Malignant Disease in Upper Jaw W D Harmer—p. 129  
Observations on Rickets W Sheldon—p. 134  
Immunization Against Diphtheria by Means of Single Dose of Alum Precipitated Toxoid (A P T) E A Underwood—p. 137  
Indications for Clinical Use of Progesterin Standardized Corpus Luteum Extract P M F Bishop F Cook and A C Hampson—p. 139  
Renal Dwarfism Associated with Valvular Obstruction of Posterior Urethra R W B Ellis—p. 142  
Experiment in First Class Protein H C C Mann with introduction by F G Hopkins—p. 145  
Transitory Reduplication of Second Tricuspid Sound as Sole Sign of Coronary Thrombosis J H Williams—p. 147

**Treatment of Malignant Disease in Upper Jaw**—Harmer states that the combination of surgery, diathermy and irradiation marks the great advance that has been made in the treatment of malignant disease of the upper jaw. A large percentage of his cases (110) have been advanced, some of them hopeless, so that treatment was given merely for palliation, and yet nearly a third of the carcinoma patients are living, two for two years, five for three years, one for four years and six for five years or more. Half the sarcoma patients are alive, and those who survive for more than one year usually remain free from disease for long periods, and although only two of the endothelioma patients are now living, four others survived for more than three years.

**Clinical Use of Progesterin**—Bishop and his associates indicate the underlying principles by which they have been guided in their use of progesterin. After a consideration of the interrelations of the pituitary, ovary and uterus they suggest the use of progesterin in 1. Habitual abortion: the injection of 1 rabbit unit daily for two months commencing a month before the usual time of abortion. 2. Threatened abortion: steps should be taken to determine, as far as possible, whether the fetus is still alive, and then 1 rabbit unit of progesterin should be administered daily until signs of threatened abortion have disappeared. 3. Functional menorrhagia, progesterin should be given in combination with anterior pituitary extracts. The anterior pituitary factor should be administered continuously by injections of up to 500 rat units three times a week in the course of two months. The course may be repeated after an interval of a month or two. In the premenstrual phase and during the actual time of the bleeding the anterior pituitary extract should be given daily, together with 1 rabbit unit of progesterin. 4. Dysmenorrhea: 1 rabbit unit of progesterin should be given daily, commencing as soon as the pain appears or a day or two before if possible and continuing until the period ceases. 5. Uterine hypoplasia, scanty infrequent menses and amenorrhea, the result of treatment in these cases can best be evaluated by measuring the length of the uterus with a sound. Treatment should consist of 250,000 international units of estrogenic substance (in the form of dihydro estrin benzoate) injected on the first, fourth, eighth, eleventh and fifteenth days of the course, a total of two and one-half million units being given. On the nineteenth, twentieth, twenty-first, twenty-second and twenty-third days 1 rabbit unit of progesterin is administered. Menstrual bleeding commences on any day up to ten days after the last injection of progesterin. This course should be repeated once, and about a fortnight later the length of the uterus should be measured again. The authors have been concerned solely with the endocrine causes of these cases of functional disorders of menstruation and pregnancy but they

point out that other predisposing factors should not be neglected in treating these patients. The three most important considerations are the necessity for excluding organic lesions of the pelvic organs, the difficulty of obtaining an accurate and reasonable history and of assessing subjective symptoms, and the difficulty of determining the degree of psychologic disturbance.

**Transitory Reduplication of Second Tricuspid Sound**—Williams reports a case of coronary thrombosis of the T<sub>1</sub> type in which a striking reduplication of the tricuspid second sound occurred for four days after the closure. This was the only sign of cardiac abnormality, as the history of the coronary attack was not obtained until after electrocardiographic diagnosis had been made, owing to the patient's apprehension. As a result of this apprehension and the otherwise normal observations on examination of the heart, the patient might reasonably have been dismissed as having no abnormal condition and allowed to return to ordinary work probably with disastrous results. The view is put forward that a transitory reduplication of the tricuspid second sound is highly suggestive of coronary thrombosis and that any patient showing this sign after a fainting attack should be submitted to expert electrocardiographic examination before being allowed to return to his usual duties.

### South African Medical Journal, Cape Town

9: 1-32 (Jan. 12) 1935

Malaria Control in the Transvaal S Annecke—p. 3  
Recent Observations on Sex Physiology in Sheep J Quinlan—p. 7  
Intussusception P Hack—p. 11  
Xerophthalmia and Its Treatment New Indication for Central Tarsorrhaphy H de Villiers—p. 13  
Posttraumatic Psychosis M J Cohen—p. 15

**Xerophthalmia and Its Treatment**—In cases of xerophthalmia in which the cornea was involved and in which the prognosis seemed particularly bad and little or no improvement could be seen in spite of lengthy treatment, de Villiers performed a central tarsorrhaphy in addition to the cod liver oil treatment. It seemed a logical operation to do to (1) reduce the exposure of the eye, (2) increase the temperature of the cornea, (3) increase the humidity of the corneal surface and eliminate the desiccating influence of the air and (4) reduce the exposure of the eye to the bright light in short to increase the vitality of the affected cornea. The number of cases in which it was done from a statistical point of view was negligible, but the results were sufficiently good to encourage the author to recommend the operation in cases of xerophthalmia in which the cornea is involved, as an addition to the usual treatment. The adhesion can be divided at any time later and the lids function again in the normal manner.

### Journal of Oriental Medicine, South Manchuria

22: 1-20 (Jan.) 1935

Correction Factors of Birth and Death Rates in Various Countries S Kawahito and S Hashizume—p. 1  
Experimental Studies on Pathogenesis of Giant Cell Produced by Foreign Body M Maeta—p. 5  
Size of Hyoid Bone in the Chinese K Miyashita—p. 6  
Study on History of Bacteria Artificially Introduced into Body and Factors of Infection Report III Effect of Cooling Body on Infection of Streptococcus Hemolyticus Scarlatinosus and Diplococcus Pneumoniae N Nishikawa—p. 7  
Effect of Local Warming and Cooling of Skin on Cutaneous Insensible Perspiration K Takahara—p. 8  
Influence of Ultraviolet Rays on Sedimentation Speed of Erythrocytes M Murayama—p. 9  
Etiologic Study on Endemic Goiter in Jehol T Kodama S Suzuki and S Masayama—p. 11  
Consumption of Oxygen by Acting Sweat Glands K Akamoto—p. 13  
Studies on Refining Toxin of Absorption Method of Aluminum Hydroxide Part IV Toxin of Staphylococcus Albus M Yato—p. 14  
Roentgenograms of Chest of Forty Four Children with Tuberculous Meningitis Y Matsuura—p. 14  
Experimental Studies on Transmission Mechanism of Typhus Virus by Body Lice S Masayama—p. 15  
Vallate Lingual Papilla in the Chinese K Miyashita—p. 17  
Hydrogen Ion Concentration Within Histocytes in Their Storing and Phagocytic Functions Part I Phagocytosis and Dissimilation of Starch Particles S Hatano S Iwata T Mori S Namba H Ryo M Arai S Baba T Goto S Yasutake and S Hamamoto—p. 19  
Sedimentation Speed of Blood in Alveolar Pyorrhea T Hosaka—p. 20



**Journal d'Urologie Med et Chirurgicale, Paris**

38: 481 584 (Dec) 1934

- Extravasations of Calix N Hortolomei M Ornstein Streja and T Burgele —p 481  
Solitary Cysts of Kidney L Lindenfeld —p 506  
\*New Combined Dye Test for Functional Examination of Kidney G Jasienksi —p 518  
Primary Urinary Bladder Tuberculosis A Valerio —p 530

**Dye Test for Examination of Renal Function**—Jasienksi discusses several dyes in relation to their reflection of the functional condition of the kidneys. Indigo carmine is not retained in the body, is not decomposed and does not lose its coloring qualities. It is eliminated in the urine without change and almost quantitatively. Several conclusions may thus be drawn from the use of this dye in estimations of renal function. The most important of these is when the renal disorder is unilateral, in which case it may be concluded that the elimination of the dye is normal or that it is slower or weaker than that of the opposite kidney, or that it is completely absent. Trypan red is a colloidal dye that does not pass through a membranous filter and is not eliminated by the bile or normal kidney. Introduced into the circulation, it remains for a long time in the organism. Introduced into the circulation immediately before cystoscopy, it is a means of determining whether both kidneys eliminate albumin or whether this elimination is confined to one kidney. The author believes that the qualities of the two dyes when combined clarify an unusually large number of facts concerning renal function. If the kidney eliminates only indigo carmine, it is really healthy. If it is permeable to both dyes, it is diseased. If the elimination is limited to trypan red, the renal parenchyma is seriously damaged. Finally, if no dye is eliminated, some structural abnormality or blockage is the probable explanation.

**Presse Médicale, Paris**

43 217 240 (Feb 9) 1935

- Treatment of Acute Pancreatitis P Brocq —p 217  
\*Action of Some Cortical Extracts of Kidney on Urea Retention D M Gomez —p 219  
Mechanism of Diuresis Produced by Organic Mercurial Compounds B-G Bouyoucos —p 221

**Action of Cortical Extracts on Urea Retention**—Gomez injected from 3 to 4 cc of a fresh extract of renal cortex intramuscularly or subcutaneously into thirty-seven patients. The injections were repeated daily for from five to seven days. The patients had an elevated level of blood urea and showed other evidences of renal insufficiency such as nocturnal pollakiuria and albuminuric retinitis. All had arterial hypertension. They were observed for a considerable period previous to the initiation of therapy and, if they required a low protein diet, they were watched until after stabilization of the humoral state. In twenty-four of thirty-five patients there was a true decrease in blood urea from twenty-four to forty-eight hours after the end of treatment. In eight patients there was no change and in three there was a slight increase of blood urea. In the eight or ten days following there remained a diminished urea level in twenty-six of thirty-three patients. In seven cases the urea remained at the same level as before treatment. A month or six weeks later there was a decrease in fourteen of the fifteen patients followed. In one there was an increase. Between the second and fifth months, only eight cases were studied. In four the urea remained lowered and in four it had returned to the earlier level. Subjectively, improvement was the rule.

**Policlinico, Rome**

42 85 132 (Feb 15) 1935 Surgical Section

- Experimental Reproduction of Bronchiectasis E Fiorini —p 85  
Liponecrosis of Breast with Xanthomatous Degeneration B Paggi —p 102  
\*Primary Perithelioma of Liver Case G Selvaggi —p 116

**Primary Perithelioma of Liver**—Selvaggi regards perithelioma as a variety of malignant mesenchymal tumor with histologic, morphologic and clinical characteristics that permit its differentiation from the other forms of mesenchymal tumors. Primary perithelioma or sarcoma of the liver is rare. It can be differentiated from primary cancer of the liver by its objective data. The liver is greatly enlarged and has a nodular nongranular surface. There is neither ascites nor jaundice. The

fever is continuous and high, the urine is free of biliary pigments, the evolution of the condition is rapid and acute, and the condition is exceptional in the aged. Primary cancer, on the contrary, gives the following data. The liver is normal, nodular, granulous and cirrhotic, ascites and jaundice are frequent and intense, there is slight or no fever, the urine contains abundant biliary pigments, evolution is slower than in sarcoma, and the condition is exceptional in youth but common in old age. The prognosis of perithelioma of the liver is fatal. Up to the present, both medical and surgical treatment have proved unsatisfactory. Roentgen treatment is harmless and gives good results as a palliative treatment.

**Semana Medica, Buenos Aires**

42 237 316 (Jan 24) 1935 Partial Index

- Medical and Surgical Collapse Therapy in Pulmonary Tuberculosis C Mainini and M V Pozzo —p 237  
\*Pitres Inverted Sign in Pleuromediastinopulmonary Neoplasms. R. Novaro and H J d Amato —p 244  
Panmyelophthisis Due to Chrysotherapy Splenectomy Case L de Marval and G Bomchil —p 247  
\*Cystic Spinal Arachnitis Causing Medulloradicular Compression. R. Soto Romay —p 251  
Ectopic Pregnancy D E Caravias —p 260  
Hernia of Spiegelian Semilunar Line in the New Born Case A J Scopinaro —p 284

**Cystic Spinal Arachnitis**—Soto Romay says that cystic spinal arachnitis is frequent. The disease does not constitute an anatomoclinical entity among other clinical processes resulting in medulloradicular compression. The varied symptoms and the conflicting results of the investigations are the characteristics for a diagnosis of presumption, especially if either trauma or tuberculosis, the most frequent etiologic factors of the disease, exists in the history of the patient. In cases in which cystic spinal arachnitis is suspected to be the cause of any medulloradicular compression, early operation is indicated. The meningeal involvement is secondary to the radicular lesion and may be avoided by an early operation. The surgical treatment aims at reestablishing the communication of the subarachnoidal space, which is important for the protection of the neuraxis and should be followed by medical treatment to control the etiologic factor causing the disease.

**Beiträge zur Klinik der Tuberkulose, Berlin**

86: 1 36 (Jan 25) 1935

- Culture Demonstration of Tubercle Bacilli from Blood of Patients with Pulmonary Tuberculosis by Using Fluid Culture Medium According to Kirchner T Uesaka —p 1  
Ten Years Experiences with Collapse Therapy of Pulmonary Tuberculosis N Tallyai Röth —p 5  
Complement Fixation in Tuberculosis L Nékam Jr —p 13  
Cystoid Multiple Tuberculous Osteitis (Jungling's Disease) and Tubercloid Tissue Changes in Other Organs W Heyden —p 23  
\*Endogenic Reinfection in Pulmonary Tuberculosis. M Eltze —p 30.  
Head's Zones in Pulmonary Tuberculosis Marie von Babarczy —p 33.

**Endogenic Reinfection in Pulmonary Tuberculosis**—Eltze describes a case of active pulmonary tuberculosis, which is probably the result of an endogenic reinfection of an old calcified primary focus. The activity of the old primary complex was indicated by the increased sedimentation speed of the erythrocytes before other symptoms became manifest. The author points out that the transmission of a tuberculous inflammation from the primary complex to the pulmonary tissue is a rather frequent occurrence in children but not in adults, although the calcified primary focus has connections with the organism by way of the lymph stream. The interlobar space adjacent to the primary focus became involved, as a tuberculous exudate developed. Interlobar adhesions are frequently observable in roentgenograms. They are not necessarily the result of tuberculosis, but whenever they are found tuberculosis should be thought of. Whether in addition there were primary tuberculous foci in the apical regions, which could not be observed, cannot be definitely decided. The observation that in adults a new tuberculous process may develop outside the apical region, near an old, calcified, primary focus, and in the absence of an infraclavicular infiltrate is an important observation. It is difficult to decide whether the tuberculous pulmonary process should be considered an endogenic or an exogenic reinfection. Nevertheless, the fact that the process developed near the old primary focus makes an endogenic reinfection from an old primary focus seem most probable.



Deutsche Zeitschrift für Nervenheilkunde, Berlin

175:81-184 (Jan 22) 1935

- \*Pleocytosis in Cerebrospinal Fluid in Course of Cerebral Tumors J Rothfeld—p 90
- Casualistic Contribution to Pathology of Spatial Determination of Reality A Auerberg—p 106
- Histopathology of Dorsal Vagus Nucleus (Demonstrated on Alcoholic Poliencephalitis) H U Guizetti—p 129
- Acute Optic Neuromyelitis A A Popow—p 142
- Central Problem of Research on Hysteria H Rehder—p 159
- \*Chronic Trophedema (Nonne-Milroy-Meige's Disease) T Langsteiner and G Stiefler—p 170

Pleocytosis in Cerebrospinal Fluid in Cerebral Tumors

—Rothfeld maintains that the condition of the cerebrospinal fluid may vary greatly in patients with cerebral tumors. In some instances the fluid is entirely normal while in others the number of cells, the protein content and the colloid reactions may undergo changes. A number of authors consider a normal cerebrospinal fluid or a slight lymphocytosis characteristic for cerebral tumor. However in recent years attention has been called to cases with pleocytosis. A case of severe lymphocytosis reported by Scharpf is especially noteworthy because the histologic examination of the tumor disclosed necrotic foci with disintegrating cells. The author observed a number of cases of cerebral tumor in which the pleocytosis gave difficulties in the differentiation of suppurating meningitis from cerebral abscess. In order to determine whether the pleocytosis in the course of a cerebral tumor is actually due to inflammatory manifestations or to disintegration of the tumor or to its localization the author decided to compare the cases of pleocytosis with those in which the cerebrospinal fluid was normal. On the basis of the aspects of the cerebrospinal fluid he was able to differentiate three groups. The first group comprised cases of pleocytosis, with positive protein and positive colloidal gold reactions, some of these patients had cerebral tumors and in others the tumor was in the posterior cranial fossa. The patients belonging to the second group had normal cerebrospinal fluid. In the third group the cerebrospinal fluid presented the compression syndrome. The author reaches the conclusion that pleocytosis in the cerebrospinal fluid of patients with cerebral tumor is not a rare occurrence, for he observed it in 27.6 per cent of the cases. He found that for the development of pleocytosis it is necessary that the tumor be in connection with the ventricular system and that it contain disintegrating and inflammatory processes. In the absence of one of these factors there is no pleocytosis, and the fluid is either normal or presents the syndrome of compression. Proliferation of the tumor into the subarachnoidal space or into the meninges does not necessarily produce pleocytosis. The author concludes from this that if the cerebrospinal fluid shows a pleocytosis in the course of cerebral tumors, it may be assumed that the tumor has reached the ventricular system and contains processes of disintegration and inflammation, provided the tumor is not localized in the posterior cranial fossa. A normal cerebrospinal fluid or the compression syndrome does not permit conclusions about a relation of the tumor to the ventricular system or about processes in the tumor tissue.

**Chronic Trophedema**—Langsteiner and Stiefler describe three cases of noncongenital chronic trophedema. The first case was that of a youth, aged 19. In this case the trophedema involved both legs. According to the statements of the mother of the patient, the swelling appeared first on the right member when the boy was 6 months old, and on the left member six months later. Subsequently the swelling increased. In the course of the second year, and several times later, erysipelas-like symptoms developed on the lower extremities, and, following these attacks, a slight enlargement of the members became evident. In 1926 a phlegmon developed on the right leg and was surgically treated, and during the following year a suppurating fistula developed on the left knee. Healing of the wound after incision was extremely slow. The patient never complained of pain in the lower extremities, and walking was not noticeably impaired. He had a rather feminine type of hair growth and a mild degree of hypogenitalism. The other two cases observed by the authors concerned two sisters. In both, only the left of the lower extremities was involved. There was a quantitative reduction of the electrical irritability in the diseased region. The "wheal time" was shortened in

the edematous region. Tests also revealed an increased disintegration of the thyroid and the ovaries and a greatly increased disintegration of the anterior lobe of the hypophysis, factors that are indicative of an involvement of the endocrine glands. The case history of the first of the two sisters is particularly noteworthy because it demonstrates the uselessness of the various surgical interventions and shows that the wearing of suitable bandages is the most satisfactory measure. The authors review several theories on the etiology of trophedema and then mention the different types that were differentiated by Courtellemont. They state that they consider the various eponymic terms (Milroy's, Milroy-Nonne's, or Milroy-Nonne-Meige's disease) less desirable than the term "chronic trophedema." According to the particular type this term can then be further specified by adding congenital, hereditary or familial.

Klinische Wochenschrift, Berlin

14:217-256 (Feb 16) 1935 Partial Index

- Protein and Chloride Metabolism After Operations J T R Schreuder Jr and W Bar—p 219
- \*Diabetic Cataract and Insulin Therapy R Braun—p 222
- \*Water Intoxication and Water Diuresis in Adrenal Insufficiency Significance of Adrenals for Osmoregulation R Rigler—p 227
- Studies on Nature and Application of Electrophoresis H Rutenbeck—p 228
- \*Course of Blood Ammonia Curve Following Intravenous Glycine Tolerance Test in Liver Diseases R Kohn and L Stein—p 233
- \*Action of Congo Red in Pernicious Anemia M Massa and G Zolezzi—p 235
- Culture of Tubercle Bacilli from Laryngeal Smears J Schramek and P Hegedus—p 237

**Diabetic Cataract and Insulin Therapy**—Braun shows that diabetic cataract is not necessarily the result of a shifting in the osmotic equilibrium between the lens and the aqueous humor of the eye, nor does he think that the acid intoxication of the organism in severe diabetes is the causal factor. He believes that other still unknown factors play a part and that the question of predisposition should be given attention. Large doses of insulin do not damage the lens. On the contrary, it has been demonstrated that under the influence of large doses of insulin advanced opacities of the lens may rapidly disappear.

**Significance of Adrenals in Water Exchange**—Rigler states that the osmotic pressure of the cellular contents of mammals is constant and amounts to about 8 atmospheres. Since this pressure is subject to disturbances from numerous factors, precise regulatory mechanisms are required to maintain it. The author cites observations indicating that the adrenals play an important part in this regulation. In a water tolerance test on adrenalectomized adult mice he observed an extremely limited excretion of water (only one tenth of that of the controls). He assumes the possibility of the existence of accessory adrenals in animals that survive adrenalectomy for longer periods. The exclusion of the adrenal function can evidently be partly compensated by a suitable regulation of the temperature of the moisture content of the air and of the food. In the feeding of these animals the sodium chloride intake is important. However, even these apparently normal animals show an insufficiency as soon as their osmoregulation is taxed by a water tolerance test. Symptoms develop that correspond to those of 'water intoxication' and the animals die in convulsions. The author assumes a possible analogy to eclampsia. For Addison's disease he concludes from these observations that the restricted intake of hypotonic fluids and the treatment with sodium chloride might prove effective.

**Blood Ammonia Following Glycine Tolerance Test in Liver Diseases**—After stressing the importance of the liver in the intermediate metabolism, particularly in the deamidization of the amino acids and in the formation of urea, Kohn and Stein report their studies on the ammonia content of the blood following intravenous administration of glycine to persons with and without diseases of the liver. By using a homogeneous amino acid, the physiologic conditions were adhered to closer than by using ammonia salts. The injection was given while the persons were fasting. As a rule, 3 Gm of glycine was dissolved in 20 cc. of distilled water, the mixture was sterilized and then injected. The first blood specimens were withdrawn five and twenty minutes after the injection.

In persons without disease of the liver, the ammonia content of the blood reached its maximum from sixty to seventy minutes after the injection. In diffuse diseases of the liver the course of the ammonia curve showed the following abnormalities: 1 In the majority of these patients, the maximum was reached much later (from 110 to 120 minutes after the injection). 2 In a second type (rather rare) the increase in the ammonia content was prompt, but the decrease was slow. 3 In a few cases in which other tests of the hepatic function had also been negative, a normal deamidization curve was noted in spite of diffuse hepatic disease. The authors admit that this method permits no differential diagnostic conclusions about the nature of the hepatic disorder.

**Congo Red in Pernicious Anemia**—The accidental observation that the blood status of a patient with pernicious anemia improved following the injection of congo red induced Massa and Zolezzi to try this treatment. They employed a 0.5 per cent solution of congo red in a 0.5 per cent solution of sodium chloride prepared in the following manner: Three Gm of congo red was placed in 600 cc of distilled water, to which 3 Gm. of sodium chloride had been added. This mixture was heated almost to the boiling point and after twenty-four hours was filtered through paper. The filtrate was poured into ampules of 20 cc and was sterilized in the autoclave for ten minutes under a pressure of from 0.75 to 1 atmosphere. The authors emphasize that the solution should be clear. The injections (at first from 16 to 20 cc and later from 9 to 10 cc) were given intravenously either daily or every second day in a series consisting of five or six injections. After an interval of several days, a new series was given. The total number of injections varied between fifteen and thirty-eight. In summarizing the results the authors state that in nine cases of pernicious anemia and in two presenting a symptomatology similar to that of pernicious anemia the injections of congo red produced an almost normal blood status. In three other cases of pernicious anemia the combined use of liver and of congo red had favorable effects and the authors emphasize that the quantity of liver alone was not sufficient to produce this result. In three other cases the congo red injections produced no noticeable effect, and liver treatment had to be resorted to.

### Medizinische Klinik, Berlin

31: 165 196 (Feb 8) 1935 Partial Index

**Pathogenesis** Differential Diagnosis and Treatment of Acute Epididymitis F Dietel—p 165

**Is It Justified to Consider Blood Protein as a Specific Organ?** E Kylin—p 171

**Paradoxical Shadow in Pneumothorax** F Fleischner—p 179

**Inflammation of Salivary Glands as Relapse of German Measles** Poelchau—p 180

**Local Anesthesia in Opening of Paratonsillar Abscesses**—p 181

**Blood Protein as Special Organ**—Kylin discusses the physicochemical aspects of the blood proteins and emphasizes the difficulties encountered when attempts are made to differentiate between fibrinogen and globulin, on the one hand, and between globulin and albumin, on the other hand. Investigators have pointed out that precipitation and solubility cannot serve as a basis of differentiation, and Bennhold compared the blood protein bodies to the rays of the spectrum, in that the adjoining units gradually blend into one another. Svedberg, however, computed different molecular weights for the different proteins. The author's own studies seemed to corroborate Bennhold's opinion. He discusses the clinical significance of the blood proteins and stresses particularly their adsorptive or vehicle function. He shows that, if the serum proteins are to be considered a specific organ, it should be possible to find disease conditions that are due to an insufficiency of this organ. He calls attention to the significance of the serum proteins in the water and sodium chloride exchange of the organism. Then he cites factors that seem to indicate a relationship between an increase in globulin and infectious diseases and he believes that the insufficiency of the blood proteins plays an important part in allergic disorders. He concludes that the blood proteins may be considered a special organ but emphasizes that the studies on this organ are only in their beginning stage and that further research is necessary.

### Münchener medizinische Wochenschrift, Munich

82: 203 242 (Feb 7) 1935 Partial Index

**Against Pessimism in Treatment of Cancer** A Hintze—p 210  
**Bacterial Infection in Light of Biologic Observation.** F O Hönig—p 213

**Traumatic Leukemia and Priapism** O Rösler—p 217

**Testis Hormone in Treatment of Disturbances in Micturition.** G Bodechtel—p 219

**Chemotherapy of Erysipelas During Childhood** L Gmelin—p 221

**Simple Treatment of Bronchitis** W Doreck—p 222

**Traumatic Leukemia and Priapism**—Rösler reports the case of a man, aged 38, whose history disclosed malaria contracted during the war and not entirely overcome until 1925 and gas poisoning contracted in 1931 in the course of working with copper ore. While working as a miner, he was injured by a tool that was driven with force against the root of the penis. He felt nauseated for a short period, but a hematoma did not appear. About thirty-three hours after the accident, the penis and the perineum became extremely painful. Then the penis became stiff and swollen, urination was painful, and the temperature increased. Twenty days after the trauma, the patient complained of severe pains in the left epigastrium and the examination revealed a tumor of the spleen which increased rapidly. The blood showed an enormous increase in the number of leukocytes. The erect penis was sensitive to pressure. The spleen was irradiated with roentgen rays. The priapism showed signs of improvement after the first irradiation of the spleen. After three series of five irradiations each, the leukocytes decreased from 357,000 to 34,800 and the swelling of the penis as well as that of the spleen decreased. When after several months the action of the roentgen rays seemed to decrease arsenic injections were begun and the number of leukocytes became reduced again. The author admits that malaria as well as gas poisoning may cause leukemia but points out that both disorders had existed so long ago that they can hardly be considered etiologic factors, particularly since the patient had been in perfect health for several years previous to the trauma. He thinks that the rapid development of the priapism indicates that in the beginning it was purely traumatic and only later became leukemic, and that there is a connection between the trauma and the leukemia.

### Wiener klinische Wochenschrift, Vienna

48: 161 192 (Feb 8) 1935 Partial Index

**Aspects of Rare Forms of Cutaneous Carcinoma** E Riecke—p 162

**Radium in Treatment of Leukemias** L Arzt—p 166

**Blood Threads** L Kumer and F J Lang—p 171

**Congenital Pachyonychia (Type Riehl)** L Kumer and H O Loos—p 174

**Prophylaxis of Tetanus in Burns** P Fasal—p 181

**Increased Ray Sensitivity of Skin During Menstruation** L Freund—p 182

**Rare Forms of Cutaneous Carcinoma**—Riecke describes the history of a woman, aged 62, who stated that a year previously a nodule appeared on her thigh. The nodule became enlarged and suppurated and, in spite of treatment, the condition became more severe. After an erysipelas like process, new nodules appeared and a severe swelling developed in the flexure of the groin, which finally perforated. New nodules appeared repeatedly and always took the same course. They became soft, disintegrated and exuded a serous fluid. In the differentiation of this process the possibility of a syphilitic gumma had to be considered the more so since the physician, under whose care the woman was at first, considered it as such. However, the Wassermann reaction was negative and the process did not have the brownish red marginal zone peculiar to syphilitic gummas. Blastomycosis and tuberculosis could likewise be excluded. In view of a similar observation, described many years ago by Riehl, cutaneous carcinoma was thought of. Histologic examination revealed a basocellular carcinoma, the origin of which because of its advanced stage, could not be detected. In Riehl's case the cyst formation developed in the fatty tissue and in the muscles. There were smaller and larger cysts with a smooth inner surface and a uniform covering of thin, flat cells. Their development did not correspond to the necrobiosis that produces softening in the parenchyma of a cancer but was traced to the combined influence of the carcinoma and the edema of the lower extremities.

ties. In the case here described, the vascular dilatations and the cyst formations in the noncarcinomatous regions indicated the influence of stasis, whereas the incurable dilatations, within the region of the neoplasm, exemplified a regressive metamorphosis of the carcinomatous parenchyma.

**Congenital Pachyonychia (Type Riehl)**—Kumer and Loos describe their observations on twenty three cases of congenital pachyonychia. All these patients show thickened finger and toe nails, symmetrical insular keratomas on the plantar surfaces, follicular keratoses on other parts of the body, oral leukokeratosis (with the formation of whitish spots on the dorsum of the tongue and on the angles of the mouth) and hoarseness. It was possible to trace the heredity of the pachyonychia through five generations. The transmission was dominant. The ratio of healthy persons and diseased ones was fifty two to twenty-three. Thirteen of the patients were men and ten women. On the basis of their own observations and of those reported in the literature the authors differentiate three types. To the first types belong the cases in which pachyonychia concurs with symmetrical callosities and keratoses of other parts of the skin. To the second type those in which, in addition to the aforementioned symptoms, there is oral leukokeratosis (type Riehl), to the third type those which show, in addition to pachyonychia, symmetrical tyomas and keratoses of other parts of the skin and also cornification anomalies of the cornea.

**Sensitivity of Skin During Menstruation**—Freund observed women who, shortly before and during the menstrual period showed a greater sensitivity to rays than they did ordinarily. He assumes that abnormal circulatory conditions of the skin, the irritability of the vasomotor apparatus and the greater permeability of the vascular walls, which accompany certain conditions in the female genitalia, play a part in this phenomenon. He admits however, that various physical and chemical factors may cause the same disturbance at other times. He considers it possible that many of the cutaneous disturbances, known as menstrual dermatoses, are due to the fact that an endogenic or exogenic factor acts on the vessels, the reactivity of which has become increased. As a result of this increased sensitivity, pathologic changes appear in the skin in response to slight noxae that ordinarily would not lead to clinical manifestations. The author concludes from these observations that it is necessary to exercise especial caution when irradiations are given shortly before and during menstruation. On the other hand, he considers it possible that internal organs which otherwise do not readily react to ray therapy may do so during the menstrual period. He admits, however, that an increased reactivity is not necessarily accompanied by an increased therapeutic effect.

### Zeitschrift für das Gesamte Neurologie und Psychiatrie, Berlin

152:1144 (Jan 24) 1935 Partial Index

- Extension of Clinical Diagnosis of Cerebrospinal Fluid by Cell Picture of Cerebrospinal Fluid J Hempel—p 1  
Choreic Syndrome of Right Upper Extremity as Manifestation of Mono-symptomatic Cerebral Syphilis F T Munzer—p 12  
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Further Studies on C Vitamin in Brain and Cerebrospinal Fluid F Plant and M Bulow—p 84  
Results of Fourth Series of Measurements on Connection Between Radioactivity and Goiter T Lang—p 107

**Choreic Syndrome as Manifestation of Cerebral Syphilis**—Münzer gives the history of a man aged 45, who contracted syphilis thirteen years ago. Immediately after and repeatedly in the next five years the patient was given anti-syphilitic treatment. About thirteen years after contracting the disease (six weeks before consulting the author) the patient developed motor unrest in the right arm, which had all the characteristics of a choreic hyperkinesia. The unrest becomes manifest as primary, isolated or combined movements that occasionally, by synchronous appearance present the aspect of complicated "motor complexes." Whereas the course of the isolated movements corresponds more to that of Huntington's chorea, the tempo of the motor complexes is more rapid and occasionally resembles a hurling movement. There also exist hypotonia of the same extremity, facial paresis circumscribed

paresthesias in the region of the right thumb and slight increase in the right achilles tendon reflex. Examination of the cerebrospinal fluid revealed the typical aspects of cerebral syphilis. The sudden onset of the hyperkinesia and the fact that it was limited to one extremity makes chorea, due to a focal lesion, seem probable. To be sure, the question of the localization of the focus cannot be answered. In view of the facial paresis and perhaps also of the circumscribed paresthesias of the right thumb the author thinks that a pathologic process in the left optic thalamus or its surroundings is most likely. This would explain also the increase in the achilles tendon reflex. The patient was subjected to fever therapy and subsequently to treatment with neosarsphenamine. These measures effected considerable improvement. The author concludes that this case contradicts those authors who doubt that choreic motor disturbances may be caused by focal syphilitic processes.

**Connection Between Radioactivity and Goiter**—Lang employed the Elster-Deitel wire activation method in order to determine the amount of products of radioactive disintegration in the atmosphere, particularly in the lower layers, in order to be able to estimate the amount of radioactive gases (radon, thoron and actinon). As the amounts of these gases are influenced by the ground, he made tests in regions with certain geologic-petrographic characteristics. He found again, as he had in previous tests that the atmosphere has the highest values of radioactivity in regions in which goiter is endemic. The values are lower in regions in which goiter is less frequent, and regions that are free from endemic goiter have the lowest values.

### Zentralblatt für Gynäkologie, Leipzig

59:305-368 (Feb 9) 1935

- \*Treatment of Gonorrhea with Living Vaccine W Schultz—p 306  
Operative Therapy of Chronic Inflammatory Disorders of Adnexa G Halter—p 310  
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Differential Diagnosis of Cystic Tumors of Female Sex Apparatus by Means of Morphologic Examination of Dried Drop of Cystic Fluid A W Hochloff—p 321  
\*Fecal Concretions Simulating Tumors of Ovary W Fischer—p 324  
Melanoblastoma of Vulva Z Ruffel—p 326

**Treatment of Gonorrhea with Living Vaccine**—At Schultz's clinic, treatment with living vaccine has been used since 1930. At first he employed living vaccine, obtained from Berlin and prepared on ascites agar from material obtained from new cases of gonorrhea in men. The organisms had undergone two or, at the most, five passages. Thinking that transportation might impair the efficacy of the vaccines, the author later used suspensions prepared shortly before use from the slant agar cultures. Three or four small injections were given subcutaneously into the thigh in fanlike arrangement. In the evening or on the day following the injection, exhaustion was felt by some patients and occasionally subfebrile temperatures developed. After one or three days, an infiltration formed at the site of injection. As a rule, the inflammation disappeared again in from eight to twelve days. In a few cases an abscess formed, which was opened by puncture. The pus contained only gonococci. Focal reactions and changes in the uterine adnexa were not observed. When three days had elapsed after the injection the local and resorbent treatment was resumed again and after ten or fourteen days the injection was repeated. In extremely refractory cases a third and fourth injection may become necessary. The first specimens to test the cure were taken three weeks after the first injection. The author agrees with other observers in considering menstruation a biologic provocation. Consequently he arranges it so that the menstruation precedes the taking of the last specimen. After twelve negative preparations have been secured, the patient is discharged as supposedly cured, but control tests are again made after the three subsequent menstruations. If all these tests prove negative the patient is considered cured. The author obtained more than 70 per cent of cures in 169 cases. The treatment was employed in chronic, not in new, cases. According to other reports, the treatment is of value also in acute cases of gonorrheal arthritis. That the virulence cannot be determined in advance is a disadvantage of the treatment. However, the author emphasizes that in thousands of injections he has never observed a gonorrheal sepsis,

although he admits that other clinics have rejected the treatment with living vaccine

**Fecal Concretions Simulating Tumors of Ovary**—After citing cases from the literature, in which fecal concretions were mistaken for ovarian tumors, Fischer describes a case. Examination revealed to the right of the uterus two stone-hard, free movable bodies, about the size of walnuts, and one such body to the left of the uterus. Examinations on different days always revealed the same formations. The hardness of the bodies seemed to indicate dermoids. Roentgenoscopy disclosed in the small pelvis four spherical bodies. Enemas and cathartics were without effect. The diagnosis of ovarian tumors was given up when, in the course of an examination under anesthesia, it was discovered that the formations had no connection with the ovaries. Finally, four fecal concretions were removed through the rectum. Sectioning of the concretions revealed circular stratification. The author stresses the importance of a thorough examination under anesthesia in case of suspected disorders of the genitalia.

### Sovetskaya Klinika, Moscow

19: 283 597 (No 107 108) 1933 Partial Index

Heart and Surgical Intervention P N Nikolaev—p 283

\*Diabetes and Surgical Intervention I N Rybushkin and G F Kalmykov—p 289

\*Blood Transfusion N I Livshits—p 300

Perspectives of Surgical Intervention in Clinical Forms of Pulmonary Tuberculosis V L Eynis—p 309

\*Abscess of Pouch of Douglas After Appendectomy V S Mayat E M Gindin Finkinshteyn—p 520

**Diabetes and Surgical Intervention**—Rybushkin and Kalmykov state that the prognosis of surgical interventions in diabetic patients has been definitely improved by the introduction of insulin and proper diet. Such treatment calls for cooperation of the surgeon with the internist. The preoperative treatment is particularly effective in operations for conditions not caused by diabetes. The operative indications for intercurrent disorders may therefore be made much broader than heretofore. Because of serious complications, primary as well as secondary gangrene still constitutes a grave condition. Conservative treatment of gangrene in diabetic patients calls for the greatest awareness of the danger incurred. When amputation is definitely indicated, further delay is not permissible. Local anesthesia is preferable. The influence of blood transfusion on the postoperative alterations in diabetic patients has not been investigated. It has been suggested that the blood of donors fed on a rich carbohydrate diet before the transfusion will lower the blood sugar in a diabetic recipient.

**Blood Transfusion**—Livshits states that the proper time for blood transfusion in patients having cancer is after the operative removal of the tumor. He advises against transfusion in inoperable cancer, since the transfusion stimulates the growth of the tumor and accelerates its breaking down. The effect of blood transfusion in diffuse peritonitis is negligible. The effect in suppurative processes is favorable and is manifested by the improvement of the general condition and more rapid healing of the lesion. The author warns against blood transfusion in tuberculous patients. His experience suggests that activation of the latent tuberculous process is likely to take place. Among prophylactic measures the advisability of one person determining the groups and reexamining the serums is stressed. Group determination of the donor and recipient must be repeated just before the transfusion, as well as the test for biologic compatibility of the two. The transfusion is to be interrupted at once if the patient evinces even the slightest pain or discomfort.

**Abscess of Pouch of Douglas After Appendectomy**—Mayat and Gindin-Finkinshteyn report an incidence of abscess in the pouch of Douglas following operation for acute appendicitis in 3.2 per cent of their material (311 cases). They state that the formation of the complication was observed principally in cases in which there were severe pathologic changes in the appendix. Early appendectomy lowers the incidence of this complication. Neither drainage nor primary closure of the abdominal incision without a drain appeared to have a determining effect on the incidence of formation of the abscess in the pouch of Douglas. Among the early symp-

toms the author noted paresis of the external sphincter of the anus and urinary symptoms, such as retention and tenesmus. Rise of temperature and of leukocytosis after an appendectomy are important from a diagnostic point of view. Digital rectal palpation determines the diagnosis of abscess in the pouch of Douglas. Rectal digital palpation must be practiced in all febrile patients after appendectomy. The best method of treatment of the abscess is by incision of the bulging anterior wall of the rectum. In women it may be accomplished by incision of the posterior vaginal wall. The operation is performed under ether or local anesthesia. The late results of the operative treatment are quite satisfactory.

### Hospitalstudende, Copenhagen

78: 113-140 (Jan 29) 1935

\*Renal Disorder in Chronic Alcoholism F Vogelius—p 121

Intestinal Canal as Depot of Cevitamic Acid. E Jacobsen—p 131

**Renal Disorder in Chronic Alcoholism**—Vogelius states that Strauss's function test disclosed a disturbance in renal secretion in forty out of fifty cases of confirmed alcoholism. Renal sclerosis was not manifested. Subjective and objective symptoms of nephritis were absent. A slight albumin reaction in the urine, which was often confirmed in these patients and especially in other previously examined alcoholic addicts immediately after hospitalization, practically always disappeared after a day or two in bed but is to be regarded as a sign of slight renal injury due to alcohol intoxication. The renal disturbance took on a grave form in only the minority of the cases and did not on the whole stamp the general picture. A definite tendency to disappearance of the disturbance was seen when the patients lived under favorable conditions. The investigations show, however, that indulgence in alcohol greatly exposes the kidneys to injurious action, contributing to the general breaking down of the organism due to the misuse of alcohol. Examination in thirty-three of the cases revealed gastric achylia in about 50 per cent, polyneuritis, alcoholic amblyopia and dementia were common complications, and dyspepsia and eclampsia somewhat more infrequent, while hematemesis appeared only occasionally, symptoms of cirrhosis of the liver were not established in any case.

### Ugeskrift for Læger, Copenhagen

97: 133 162 (Jan 31) 1935

Certain Irregularities of Roentgenogram in Direct Pyelography with Especial Regard to Resulting Remnant Shadows K. Overgaard—p 133

\*Serous Meningitis in Epidemic Parotitis G F Johansen—p 137

\*Cowpox Infection in Man A Kristjansen—p 141

Milkers' Nodules Infection from False Cowpox by Paravaccinal Virus P Bonnevie—p 143

Remarks on New Hemostatic Trombisol Leo (Thrombin Solutum) E. Møller Christensen—p 147

**Serous Meningitis in Epidemic Parotitis**—Johansen reports four certain cases, together with one case of serous meningitis without inflammation of the parotid but with epidemiologic conditions supporting the same etiology. The meningeal symptoms in the four set in at an early stage of the disorder, in three of the cases even preceding the inflammation of the parotid. While the clinical signs of meningitis soon disappeared, constant changes in the spinal fluid persisted after several weeks. Since cases of encephalitis with deeper brain lesions following epidemic parotitis have been reported, rest in bed for several weeks is advocated for patients with parotitis meningitis, in spite of the fact that the subjective symptoms usually disappear in a few days.

**Cowpox Infection in Man**—In the first of the two typical cases of milkers' dermatosis described by Kristjansen, in persons who had been milking cows with cowpox, the disease was localized only to the port of entry in the hand, in the second, an extensive secondary metastatic exanthem of erythema multiforme type developed.

### CORRECTION

**American Journal of Digestive Diseases and Nutrition**—In Current Medical Literature in THE JOURNAL, March 30, the correct title of the second periodical on page 1191 is *American Journal of Digestive Diseases and Nutrition*.

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## THE TREATMENT OF PELLAGRA

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CLEVELAND

It has been known for a long time that pellagra is characterized by remissions and relapses and that the mild cases promptly improve after the assimilation of an adequate diet. Goldberger and his co-workers<sup>1</sup> have produced, prevented and sometimes cured pellagra and have recommended yeast as a specific therapeutic agent.<sup>10</sup> Many diets, drugs and minerals have been advocated by others as certain cures for the disease.<sup>2</sup> In spite of the application of these recommended methods of treatment all workers agree that the prognosis is very grave for the severely ill pellagrin and that the mortality rate in the advanced stages of the disease is extremely high. It was shown in a previous publication<sup>3</sup> that the mortality rate in a series of seventy-three cases of pellagra was 54 per cent despite the fact that all of the patients were given hospital care and offered a highly nutritious diet usually supplemented by yeast. This high death rate is in keeping with that of other hospitals admitting the severely ill.<sup>4</sup> In contrast to the mortality rate of 54 per cent described in the previous series of seventy-three pellagrins, the mortality rate has been reduced to 6 per cent in a second series of 125 severely ill<sup>5</sup> by means of the therapeutic measure described in the present communication. The cause of death of each patient in the present series of 125 cases was due, at least in part, to a coexisting disease condition.

It is my purpose in this paper to describe a method of treatment that was found highly successful in the management of the 125 cases of severe pellagra,

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1 (a) Goldberger Joseph, Wheeler G A and Sydenstricker Edgar. Relation of Diet to Pellagra Incidence. Pub Health Rep 35:648 (March 19) 1920. (b) Goldberger Joseph and Wheeler G A. Experimental Production of Pellagra in Human Beings by Means of Diet Bull 120, Hyg Lab U S P H S Feb 7 1920. (c) Goldberger Joseph, Wheeler G A, Lillie R D and Rogers L M. A Further Study of Butter, Fresh Beef and Yeast as Pellagra Preventives with Consideration of the Relation of Factor P P of Pellagra (and Blacktongue of Dogs) to Vitamin B. Pub Health Rep 41:297 (Feb 19) 1926.

2 Niles G M. A Discussion of the Therapy of Pellagra. M J & Rec 125:513 (April 20) 1927. Wilson J F. Arspenamine in Pellagra. Report of 100 Cases, paper read before the section on Dermatology and Syphilology of the Southern Medical Association, Miami, Fla. Nov 22 1929. Boggs T R and Padgett P. Pellagra. Bull Johns Hopkins Hosp 50:21 (Jan.) 1932.

3 Spies T D and De Wolf H F. Observations on Etiological Relationship of Severe Alcoholism to Pellagra. Am J M Sc 188:521 (Oct.) 1933.

4 Illinois Pellagra Commission. Pellagra in Illinois. Arch Int Med 10:123 (Aug.) 1912. Niles G M. Pellagra. Philadelphia W B Saunders Company 1912. p 124.

5 Each readmission of a severely ill pellagrin was counted in both series as a separate case. The incidence of recurrence in the first series was 10 per cent as compared with 37 per cent in the second group. Were the recurrences not considered as separate cases and only the results of the first hospital admission considered, the percentage of deaths in both studies would have been lower. (It is well known that the prognosis becomes worse with each recurrence of the disease.)

admitted to a clinic for the study of that disease. For four months preceding the formation of this clinic the patients with severe central nervous system involvement persisting vomiting and intractable diarrhea had been treated in the usual recommended manner, but under this treatment the disease progressed and the patient died. By this time methods had been found that were effective in treating the somewhat less severely diseased pellagrin. These methods were then applied to all patients in order to decrease, if possible, the mortality rate of the entire series of severe cases.

The successful treatment of pellagra is governed by the rigid application of certain general and specific therapeutic measures. They are so interwoven in the care of the patient that success depends on the effectiveness of both. In order to make the specific measures more effective, the following general ones must be carried out.

### GENERAL PRINCIPLES OF TREATMENT

In the first place, adequate professional and nursing care are essential. All patients with pellagra must have sufficient rest and those who are severely ill must be confined to bed until their improvement warrants additional freedom. Large doses of sedatives are often necessary to accomplish this, but under no condition should they be given in amounts large enough to interfere with the patient's cooperation over long periods of time. Secondly, professional care is essential in order that the pellagrin may receive a well balanced diet containing 4,000 calories or more each day. In the most severely diseased patients the physician must supervise every detail of food intake to make sure that an adequate diet is utilized. It is often necessary for him to cooperate with and instruct the attending nurse and dietitian to see that the food is given in proper amounts at specified times. The physician must see the patient often so that the amount of food lost through vomiting or diarrhea may be evaluated and corresponding additional amounts given. Good nursing care conserves the patient's strength, thus making it possible for him to obtain more rest, which helps promote the effective use of ingested food. Adequate professional and nursing care are also necessary in the local treatment of the lesions, which often makes the patient feel more comfortable and for that reason is desirable, though not necessary in effecting the cure. It need not be said that coexisting diseases must be treated as well as the pellagrous condition itself.

### SPECIFIC THERAPEUTIC AGENTS

1 *Yeast*—This material is highly efficacious in the treatment of many cases of pellagra and can be given to mildly and moderately diseased pellagrins. Many of them refuse to take yeast, however, because of its

disagreeable odor and taste, and some learn that it predisposes to vomiting and diarrhea and consequently refuse it. When given in adequate amounts, averaging from 75 to 100 Gm of the dry powder daily, it promotes a desire for food, a feeling of well being, and healing of the lesions. Patients tolerate it best when it is given in doses of from 10 to 20 Gm at intervals of from three to four hours in a glass of either iced milk or iced eggnog until the required daily dose is administered. It is advisable to discontinue yeast therapy when persistent vomiting or intractable diarrhea develops. If the patient already has these symptoms, some other specific curative substance should have preference. On the other hand, if none of the other specific therapeutic agents are available, frequent small doses of yeast should be given, as it is likely that some of the material will be retained until the disease has improved or other therapeutic agents have been obtained.

2 *Desiccated Hog Stomach (Ventriculin)*—This complex substance is composed of defatted, desiccated walls of pig's stomach and has been shown by Sturgis and Isaacs<sup>6</sup> and Sharp<sup>7</sup> to be effective in the treatment of pernicious anemia. The indications for its use in the treatment of pellagra are the same as those for the use of yeast and, when given in adequate amounts, elicits a similar response. Desiccated hog stomach has the advantage of being somewhat less distasteful than yeast and does not have the laxative properties. As with the administration of yeast, patients take desiccated hog stomach best when it is given in doses of 20 Gm, well stirred into 200 cc of iced milk or eggnog at intervals of three or four hours until the full dose of 200 Gm or so daily is taken.

3 *Wheat Germ*—This substance is also efficacious in the treatment of pellagra and should be given in amounts ranging from 250 to 300 Gm daily. It is palatable and does not provoke vomiting or diarrhea to the extent that yeast does. In general, the indications for its use are the same as those for desiccated hog stomach.

4 *Liver Extract*—This substance may be given orally or parenterally.

The oral administration of from 75 to 100 Gm of liver extract each day rapidly cures the great majority of patients with pellagra. This preparation is highly palatable and may be given in the same manner as yeast or desiccated hog stomach. It is always a useful supplement to the daily diet of the pellagrins and usually does not cause diarrhea or provoke vomiting.

The parenteral liver extract should be used whenever the patient is dangerously ill. Frequent injections of large amounts of parenteral liver extract are indicated in all patients with persistent vomiting, intractable diarrhea and severe stomatitis. Although these symptoms can often be treated satisfactorily according to the general principles of the care of the patient and by the use of other specific therapeutic agents, the injection of adequate amounts of parenteral liver extract definitely shortens the convalescence and at times proves to be a life saving measure. When liver extract is administered intravenously, it should be given daily in from three to five doses of 20 cc each. This treatment must be continued until the patient shows definite improvement and is able to take sufficient

food supplemented by yeast, desiccated hog stomach, wheat germ or oral liver extract to insure uneventful convalescence.

The specific treatment of pellagra is most successful when one resorts to the parenteral injection of liver extract and the simultaneous administration of large amounts of special antipellagic materials by mouth. In the treatment of pellagra the choice of any one of the therapeutic agents should be based on the advisability of the material, the severity of the disease, and the ability of the patient to cooperate. All agents must be given in large amounts in order to remit the disease quickly and in every instance the general principles for treating pellagra must be rigidly applied.

#### TREATMENT OF SPECIAL SYMPTOMS

1 *Stomatitis and Glossitis*—More than 50 per cent of the patients with severe pellagra have glossitis and stomatitis. Often the patient refuses to eat because of the painful process of chewing and swallowing food. The physician and patient must realize that the tremendous swelling and reddening of the mucous membranes and tongue will in all instances quickly subside following the assimilation of an adequate amount of a specific therapeutic agent. Mouth washes make the patient feel better and for that reason should be used several times each day. Practically all patients with severe pellagra of the oral cavity have a secondary but extensive infection with Vincent's organisms,<sup>8</sup> and at times the inexperienced observer fails to recognize the underlying pellagrous condition with the result that antipellagic treatment is not begun immediately and the condition progresses. The teeth should be brushed gently, since severe hemorrhages often occur. Regardless of how severely involved the mucous membranes and tongue become, if the patient can and will take an adequate diet the lesions will usually disappear. The lack of improvement or the progression of the oral changes definitely indicates inadequate or improper treatment.

2 *Diarrhea*—About 60 per cent of the patients with severe pellagra have marked diarrhea,<sup>8</sup> characterized by frequent, large, foul smelling, liquid stools. This condition is exceedingly difficult to treat and yet its persistence is detrimental to the patient. Tincture of opium, 2 cc per dose up to 10 or 12 cc. a day, sometimes assists in checking the number of bowel movements. It should always be given but is particularly indicated whenever a sedative is required. Yeast sometimes increases the diarrhea and for that reason should not be given when other therapeutic agents are available. The administration of a cathartic is naturally avoided under all circumstances. After the pellagrins start definite recovery, the number of stools slowly diminishes and the fecal material becomes more formed and less odorous. Thus it can be clearly seen that, in order to treat the diarrhea, it is necessary to cure the patient of pellagra, for then, and then only, will the diarrhea cease.

3 *Vomiting*—Approximately two thirds of the severe cases of pellagra present persistent vomiting characterized by the retching of mucus and any material that may have been ingested.<sup>8</sup> Even cold water may provoke vomiting, and at times it occurs despite the fact that no food has been taken by mouth for days. The treatment is absolute bed rest and frequent feedings in from 10 to 15 cc amounts of iced

6 Sturgis C. C. and Isaacs Raphael. Desiccated Stomach in the Treatment of Pernicious Anemia. J. A. M. A. 93:747 (Sept. 7) 1929.  
7 Sharp E. A. An Antianemic Factor in Desiccated Stomach. J. A. M. A. 93:749 (Sept. 7) 1929.

8 Spies T. D. Unpublished observations.



fluids, such as egg-nogs, malted milk or ginger ale, given very slowly at intervals of from ten to fifteen minutes. These feedings should be supplemented by from 4 to 5 Gm of desiccated hog stomach, yeast, liver extract or wheat germ until the required daily dosage is given. If the patient refuses these materials or cannot retain them, parenteral liver extract should be given immediately. In all instances, as soon as the vomiting subsides the caloric intake should be increased to 4,500 calories a day by supplementing a well balanced diet with egg-nogs or malted milk, to which one of the specific curative agents has been added in sufficient quantities. If vomiting persists or has persisted for a long time prior to the patient's entering the hospital, subcutaneous injections of physiologic solution of sodium chloride can be given slowly to maintain the state of water and salt balance. The persistent vomiting of pellagra can usually be stopped, but if it continues the patient rapidly becomes worse and the prognosis is more grave.

4 *Abdominal Pain*—An occasional pellagrin enters the hospital with severe abdominal pain, and, as soon as it can be determined definitely that the pain is not caused by a surgical condition, tincture of opium should be given for relief. Abdominal pain in cases of severe pellagra, strangely enough, is usually observed after convalescence begins. This pain is generalized, often severe, and usually somewhat intermittent in character. Since many of the patients soon learn that the ingestion of food definitely increases the abdominal discomfort, they refuse to continue eating, in which case their cooperation can be regained by the generous but not excessive use of opium for a short time.

5 *Nervous System*—More than two thirds of the patients with severe pellagra have manifestations of central nervous system involvement,<sup>8</sup> peripheral neuritis or a combination of the two. The changes referable to "central neuritis" are characterized by confusion, disorientation, hallucination, dementia and mania. The manifestations often vary from day to day and even from hour to hour, and the patients may recover quickly or after a long period. Contrary to the general experience, the patients in this clinic have nearly always improved (90 per cent), though in some instances months of treatment were required. It is most difficult to achieve proper cooperation in some of these individuals and one may have to use the stomach tube and other methods in order to feed them. Naturally, sedatives are indicated in the maniacal type but should not be given in doses sufficiently large to render the patient stuporous over long periods of time, for this lessens the ingestion of food and the possibility of escaping infection. These individuals should have a caloric intake of 4,500 calories a day supplemented by ample quantities of a specific therapeutic substance, and they must be protected in order to avoid injury to themselves or others. The patient who once becomes mentally clear for a period of several days is unlikely to become deranged again unless he has a recurrence of the disease.

Peripheral neuritis is one of the most excruciatingly painful of all symptoms associated with pellagra. It usually occurs in the feet and legs, although at times in the hands and arms. It is characterized by hyperesthesia and alterations of the reflexes. While the neuritis is sometimes one of the presenting symptoms of the disease, it usually occurs after convalescence has begun. Large doses of sedatives are necessary for sleep. This condition often leads to a depressed state, and

unless the patients are kept cheerful many of them will obtain large amounts of whisky or drugs, which may interfere with the desire for food and later prove to be detrimental. Ice bags and local medications containing phenol or menthol serve as temporary expedients and convince the patient that an attempt is being made to relieve his suffering. The signs and symptoms of neuritis may clear quickly or may last for weeks or months, but there is always a complete return of function provided the pellagrins receive adequate calories of a well balanced diet supplemented by one of the specific therapeutic agents. In the severe cases, physical therapy has a therapeutic usefulness.

As yet it has not been determined whether the injections of liver extract cure neuritis. Even though this material may have no direct therapeutic effect on the disturbance in the nervous system, it is conceivable that it might be indirectly beneficial in that it heals the gastro-intestinal tract, which in turn is able to absorb something from the food that might be capable of curing the mental and neurologic symptoms. It must be constantly kept in mind that, even when the patient with severe pellagra receives such a powerful therapeutic agent as large doses of parenteral liver extract, he should also have an adequate diet and rest. His complications and coexisting diseases should be given particular attention as well. It has been found that the small amounts of parenteral liver extract which are so effective in the treatment of pernicious anemia are too small to remit the severe case of pellagra.

6 *Anemia*—More than 60 per cent of the patients with severe pellagra have a definite anemia.<sup>8</sup> About one third of the patients with anemia have a type characterized by a low color index, while others have an anemia with a high color index and an increased cell volume. The treatment of either one of these types is not an acute emergency and is best begun during the convalescent period. The great majority of individuals improve slowly after receiving an adequate diet. In others, the administration of large amounts of iron hastens the remission of anemia, but the patients with diarrhea must not be given iron until they begin to recover.

7 *Dermatitis*—The characteristic dermatitis of pellagra is of great importance in the diagnosis of the disease. It may occur on any part of the body but is usually found over areas of irritation such as the hands, wrists, elbows, neck, under the breasts, knees, feet, and in the perineal region. These lesions heal easily (often even when the patient receives a diet low in pellagra-preventive material), so they cannot be used as a prognostic index except under one condition, namely, when the patient is receiving treatment and the skin lesions continue to progress for several days, the patient either is not receiving adequate therapy or is not utilizing the given material. The skin lesions of pellagra improve rapidly whenever suitable general therapeutic measures are applied, so that local treatments are never necessary unless secondary infection occurs. Mild antiseptics, however, such as potassium permanganate, 1:5,000 solution used as soaks or on sponges, often give the patient some relief and tend to diminish crust formation and secondary infection. After the skin lesions have begun to heal, the liberal application of ointment of rose water or olive oil prevents pruritus to some degree and increases desquamation.

The treatment of pellagra should not end with the return of health, for the disease relapses easily. The pellagrin must be observed at least once a month in



order to be certain that he is ingesting and assimilating large amounts of a well rounded diet. It requires special attention to afford protection to these patients when they have such predisposing conditions as poverty, chronic alcoholism, acute and chronic infectious diseases, poor teeth, diseases of the gastro-intestinal tract, diabetes, dietary idiosyncrasies, renal disease, surgical operations, insanity, pregnancy and lactation. For example, a quart of milk or 6 ounces of lean meat, when given as supplements to the diet, will usually prevent the development of the disease. Large amounts of turnips, tomatoes and green peas are also effective as aids to the diet.

## COMMENT

By the personal application of the principles of treatment outlined, the mortality rate in a series of 125 severely diseased pellagrins was lowered (from 54 per cent in an earlier series) to 6 per cent. The rate of 6 per cent includes every patient with lesions of pellagra, regardless of other disease conditions such as pneumonia, uremia and diabetes, who died during hospitalization even though the pellagrous lesions had healed prior to death.

During the time the mental symptoms of pellagra were being observed, eight patients with delirium tremens but without pellagra were studied also. The patients in each group usually gave a history of heavy imbibition of alcoholic beverages over a long period, followed by the ingestion of smaller and smaller amounts of food. Since delirium tremens and pellagra often follow chronic alcoholic addiction and since the neurologic signs and symptoms of the two conditions are clinically indistinguishable in our series,<sup>8</sup> it seems possible that the nervous system of the patient with delirium tremens may be involved in a manner somewhat similar to that of the pellagrin who has mental symptoms. Unless delirium tremens is a manifestation of an intracranial pellagrous condition, no patient died from uncomplicated pellagra in our series.

Complete studies including postmortem examinations showed that two of the eight patients dying in this series had extensive bilateral lobar pneumonia, one uremia, one diabetic coma, one delirium tremens and bilateral infarction of the adrenals, one a large pulmonary infarction, one rheumatic heart disease and delirium tremens, and the other manifestations of delirium tremens. It is of general medical interest that three of the eight patients who died had definite cirrhotic changes of the liver.

All patients in these two groups entered either the Cleveland City Hospital or the Lakeside Hospital, and the general type of patient was the same. More than 95 per cent of all individuals in each series imbibed heavily of alcoholic beverages, and pellagra developed secondary to failure of food ingestion,<sup>9</sup> so the predisposing condition was the same in all instances. The disease represented in each series had the same pathogenesis and predisposing condition and was of similar severity with comparable complications. Were this not so, the present economic situation would have to be considered a factor. It is well known that pellagrins are prone to have recurrences of their disease and, since more of them have been successfully treated in this study, the incidence of recurrence is naturally greater than in the previous series (37 per cent as compared to 10 per cent). It is generally agreed that the prognosis becomes more grave with each recurrence of the disease, so the higher number of recurrences in the present series would tend to increase the mortality rate

in general if all other conditions were equal. It has been shown in the present study that the mortality rate of comparable series of pellagrins was lowered from 54 per cent to 6 per cent by careful personal attention to details of general care, specific therapy, and treatment of complications and coexisting disease. Pellagra could not be considered the sole cause of death in any one of the eight patients who died, as each had extensive involvement of vital organs by other disease processes. In nearly every instance the pathologic changes of fatal disease other than pellagra were ample explanation for death. In four of the cases the pellagrous lesions had healed prior to death.

## SUMMARY

It is shown in the present study that the severely diseased pellagrin can usually be cured of his disease, provided he receives sufficient amounts of a potent specific therapeutic agent, adequate rest, food and nursing care. In many instances treatment of the complications and coexisting diseases is essential.

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THE SPONTANEOUS HEALING OF  
RENAL TUBERCULOSIS

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From the time that Albarran popularized nephrectomy for the treatment of renal tuberculosis and Wildbolz proved the incontestable superiority of such surgery over the expectant or hygienic treatment of this disease, urologists have vainly sought a pathologic specimen of healed caseating renal tuberculosis with out total destruction of the kidney. To the urologist the tuberculous kidney has behaved like a lymph node. Once it begins to break down it is physiologically lost.

Yet all the while there have been two hitches in the theoretical aspects of the case.

1 The pathologists, aware of the gallant enthusiasm that characterizes surgical theory and practice, have withheld their final judgment. To a pathologist everything is possible. Why not?

2 A few cases have been seen by the urologist, and many have been studied in tuberculosis sanatoriums, of what might be called tuberculous bacilluria. These did not seem to conform to the rule. Such bacilluria may be defined as a condition generally characterized by the appearance in the urine obtained by catheter from one or both ureters of a number—perhaps a considerable number—of acid-fast bacilli, toxic to the guinea-pig. The urine may contain a few red cells and a few pus cells. The patient has no subjective symptoms. The pyelogram shows no deformity. The kidney function is not notably impaired. Most important of all, the lesion may heal, cells and bacilli disappear from the urine and the patient remain well thereafter. Or if the patient dies of concurrent pulmonary tuberculosis or other cause, section reveals no lesion in the "tuberculous" kidney.

In the latter event the pathologist accepts the case as one of healed renal tuberculosis and thinks no more about it. But the urologist comes forward with a choice among several pretty theories.

1 "The healthy kidney can transmut living tubercle bacilli." This is pathologic heresy. A living cell does

not transmit living tubercle bacilli. Moreover, a sufficient number of these cases have shown pus and red cells in the urine to prove there is a lesion—somewhere.

2. Thus the urologist must either grant that renal tuberculosis does heal without total destruction—indeed, without any gross destruction—of the kidney or allege a contamination from tuberculosis elsewhere in the urinary tract, probably in the prostate. This will not hold either certainly not in women.

The cases are so rare that until Medlar made his observations the situation stood thus, urology obstinate pathology patient. In a practice covering thirty-five years and going back to the pre-nephrectomy period I have encountered but one case of tubercle bacilluria and but four patients who having been assured by competent authority (three of them confirmed by guinea-pig) that they had renal tuberculosis (were well and not nephrectomized), when I last saw them.

CASE 1—Acid-fast bacilli in the urine twenty years ago. No symptoms. I removed the patient's hypertrophied prostate last year. He is well.

CASE 2—Schlingensweit made the diagnosis by guinea pig. I saw the young woman a year later with typical elusive ulcers. There were no bacilli. Renal function was perfect. (A doubtful case.)

CASE 3—A young trained nurse with pain in right loin. Diagnosis by pig (I saw the lesions). Movable kidney. Nephrectomy. No tuberculosis.

CASE 4—Red cells and acid-fast bacilli by smear. Nephrectomy advised but not performed. The patient then consulted me. I have watched him for four years. The urine is normal. Pyelogram negative. Health perfect. Repeated search reveals no acid-fast bacilli.

CASE 5—Man aged 39. Left nephrectomy by me in 1913. The kidney was actively tuberculous. The urine from the right ureter contained no pus, no bacilli by smear. Two guinea pigs were inoculated with urine from the right ureter, one developed tuberculosis, the other did not. Within the next year the patient developed bilateral epididymal tuberculosis and active pulmonary tuberculosis. These were promptly controlled. The patient is alive and well today, in his sixty-first year, twenty-one years after the nephrectomy.

Let me add a note on my one case of exclusively prostatic tuberculosis.

CASE 6—Man. In 1919 bladder symptoms (age 37 years). In 1920 pus and acid-fast bacilli in the urine. The prostate was palpably inflamed. In 1923 cystoscopy was negative, no pus or acid-fast bacilli from either kidney. Bladder urine in two glasses first glass purulent second glass free from pus. In 1924 suprapubic excision of tight bladder neck reported tuberculosis. In 1934 the prostate felt approximately normal. There has been relief of symptoms since operation. No acid-fast bacilli on repeated examinations but still pus in first urine passed. In 1934 he remains well.

Such cases are subject to various interpretations and are not calculated to compose the points of view of laboratory and clinic. Indeed still further confusion is introduced by the periods of quiescence of surgical renal tuberculosis. I have reported two such cases<sup>2</sup> at intervals respectively of three and six years, one of which showed no cells or bacilli in the urine during the interval. I can now add a third, silent for three or four years.

CASE 7—A woman, aged 21 in 1915. Three months bladder symptoms, pain in right loin, hematuria. Pus and numerous acid-fast bacilli. Typical tuberculous lesion about the right ureter mouth. Urine from the left ureter was normal. Nephrectomy was refused. She became spontaneously well.

She drove a motor transport in New York during the war. Married. Symptoms recurred in 1919. In 1923 urinalysis showed red blood cells. No tubercle bacilli by smear or pig. Cystoscopy by Bugbee negative. Pyelogram showed absence of upper calices, dilatation of lower calices. "Function of left kidney five times that of right."<sup>3</sup> Nephrectomy by Bugbee. Typical tuberculosis.

Into this confusion steps Medlar with what should be a clear light. By infinite pains and complete serial section of kidneys from patients showing renal tubercle bacilluria he demonstrates that:

1. Renal tuberculosis is originally a hematogenous lesion, doubtless usually bilateral.

2. There is always a period of initial clinical quiescence (doubtless often lasting several years) during which either:

(a) These lesions heal in one or both kidneys. This is renal bacilluria. Let it be given the term nonsurgical renal tuberculosis.

(b) In one or both kidneys gross destruction of tissue (caseation and so on) occurs. This is surgical renal tuberculosis. The urologist of my generation still regards this as essentially a progressive destructive lesion, requiring nephrectomy to save the patient's life, although most exceptionally (in some 2 to 4 per cent of cases) resulting only in pathologic nephrectomy and not spreading to other organs.

But the pathologists remain unconvinced. Medlar himself seems to encourage clinicians to defer nephrectomy while they tinker with hygiene and quartz lights in the bladder. To me this is dreadful. Even if the nonsurgical kidney may show some minute necrosis and yet ultimately heal, this does not invalidate the surgical position that a tuberculous kidney that shows deformity by pyelogram requires nephrectomy,<sup>4</sup> not hasty nephrectomy but surely prompt nephrectomy.

Let the urologists who are being seduced to dally with this destructive thus fatal, disease beware. The surgically tuberculous kidney is doomed and even pathologic nephrectomy, rare as it is, often fails to mean healing of the tuberculosis.

CASE 8—Diagnosis of pyonephrosis due to stone in lower ureter. Nephrectomy. The kidney tissue replaced almost wholly by sclerotic fat. The cut surface was smooth and glistening and showed white strands outlining irregular, pink lobules which had yellow fatty centers. A much compressed piece of kidney substance at the upper pole. There was little in the mass to distinguish it as kidney. A number of round tubercles, coagulation necrosis, giant cells.<sup>5</sup> This therefore is a pathologic nephrectomy, yet the tuberculosis is unhealed.

Contemplate, indeed, what a pathologist means by healed renal tuberculosis. He means that the tuberculosis has healed without destroying the kidney. If the lesion is a surgical one and the kidney has been destroyed by a mixed infection, the pyogenic element destroying the tuberculosis as well as the kidney, that will pass and justly, with the pathologist as healing of renal tuberculosis without total destruction of the kidney by the tuberculosis. But such a finis does not amuse the clinician.

3 Bugbee. Tr. Am. A. G. U. Surgeons 17: 95, 1924.

4 Obviously I do not wish to confuse the text with the problem of treatment of bilateral surgical renal tuberculosis. A patient of mine thanks to ureterostomy lives today with a single tuberculous kidney ten and one-half years after his nephrectomy but he will die of his disease. The longest survival I have seen was twenty years from nephrectomy though the patient had active bladder symptoms throughout that time sadly impaired renal function and incessant bacilluria.

5 Bugbee. Tr. Am. A. G. U. Surgeons 17: 1924.

1 Keyes E. L. J. Urology 14: 385 (Oct.) 1925.

2 Keyes E. L. Tr. Am. Ass'n 7: 17, 1913.

Here is an example. The patient died of pyonephrosis, renal insufficiency and gangrene of the bladder due primarily to renal (and prostatic) tuberculosis. Yet the pyonephrotic kidney shows only scattered, calcified, healed lesions of tuberculosis—the strictures in the ureter nicely proving the character of the calcified renal lesions. The pathologist accepts this as healed tuberculosis without total destruction of the kidney yet, I repeat, the patient died of pyonephrosis.

**CASE 9—History**—C L, a man, aged 61, admitted Jan 26, 1934, complained of retention of urine and was actually utterly emaciated, dehydrated, semiconscious, moribund. There was a history that fifteen years before he had retention of urine relieved by some form of operation possibly on the bladder neck, possibly an internal urethrotomy. The symptoms were relieved for two years but since that time he had had frequent and difficult urination from time to time and had to be catheterized with increasing frequency until seven weeks before admission complete retention of urine definitely set in and he was treated by intermittent catheterization, under which he daily grew worse until he was brought to the hospital in the condition outlined. Physical examination revealed a blood pressure of 110 systolic, 70 diastolic, a few enlarged cervical nodes moist rales scattered over both lungs but most marked at the right base, a prostate from which pus could be extruded and of which the right lobe was twice the normal size a bladder distended with urine above the pubes the urine watery and muddy with pus. The blood urea was 141 mg, blood sugar 150, the Kline test for syphilis was negative.

Carcinoma of the prostate was suspected. Roentgen examination of the pelvis and chest showed no bony metastases but revealed healed tuberculosis of both lungs.

An indwelling catheter was placed and bladder irrigation was done but the urine was so muddy that the catheter could not be kept patent. The next day, therefore, under local anesthesia with the aid of incomplete nitrous oxide anesthesia (in order to control the patient's delirium) a rapid suprapubic cystostomy was done. The finger was swept about the bladder but no tumor of the bladder or prostate was identified. Two shallow diverticula were felt and the persistent thick pus in the urine was noted. A tube was left both in the suprapubic wound and in the urethra. Warm boric acid continuous irrigation of the bladder was kept up through these and in addition to the hypodermoclyses that had previously been instituted a cannula was tied into the median basilic vein and in the course of twenty-four hours 4,000 cc of 10 per cent dextrose solution was given intravenously and this dehydration treatment continued in lesser intensity throughout the illness.

Under this treatment in forty-eight hours the blood urea fell from 141 to 59 mg. A day later it stood at 115 and on the sixth day after operation at 81 mg. Meanwhile the patient had become comatose and developed hiccup, which could not be controlled even by inhalation of carbon dioxide. The urinary output fell from 1,200 to 400 cc a day and on the eleventh day after admission and the tenth day after operation (Feb 7, 1934) the patient died.

**Autopsy**—The right kidney weighed 180 Gm, with some adherent perirenal fat. It was somewhat larger than usual and the capsule would not strip from it. The entire kidney presented a lobulated vacuolated appearance and felt fluctuant. On section the parenchyma was greatly reduced, the medulla and cortex measuring only 1 cm. at the thickest portion.

The remainder of the kidney was made up of tremendously dilated kidney pelvis and calices containing thick yellow pus. The mucosa of the pelvis and calices was greatly thickened.

Leading from the kidney was a greatly dilated and tortuous ureter with a mucosa similar to that of the kidney pelvis. The ureter had no organic obstruction except the kinking and it entered the bladder through a greatly widened ureteral orifice.

The left kidney weighed 75 Gm. It was much smaller than the right kidney and also felt fluctuant. On section it was composed of merely a thin capsule of fibrous tissue containing very thick pus. This apparently inspissated purulent material was of a whitish yellow, opaque color and was almost pasty in consistency. A part of the lining of the vacuoles composing this

kidney was partially calcified and some of the pasty content had a gritty character. The kidney pelvis, of which the described sacs were extensions, presented a fibrous, rough, thick mucosa and could not be demonstrated to communicate with the ureter. This ureter was much shorter than the right. It had a lumpy, nodular appearance through its course to the bladder and in many areas its lumen was obliterated. The dilated portions forming the nodules contained a gritty, apparently calcified, whitish yellow, heavy, pasty material. No probe could be passed from the ureter to the bladder.

The bladder was greatly scarred and shrunken. The mucosa was hemorrhagic, edematous and thickened, and it presented two vacuolar offshoots in its fundus, each about 0.5 cm. in diameter, communicating with the bladder by an ostium approximately 0.5 cm. in diameter. The capacity of the bladder was 30 cc. The urethral outlet was unobstructed. The opening of the left ureter could not be found. The right ureteral orifice was as described.

The prostate was slightly enlarged. On cross section there was seen to be in each lateral lobe a nodule composed of several small yellowish nodules, each larger nodule being approximately 1 cm. in diameter.

The seminal vesicles and vasa were not remarkable. The right epididymis contained at the end joining the vas a firm nodule approximately 1.5 cm. in diameter and section of this revealed it to be composed of a brownish yellow purulent material, which was gritty to feel. The left epididymis and both testes were not unusual.

The lungs weighed 735 Gm. At each apex was a fibrous tag where the visceral and parietal pleura were adherent to each other and beneath these were moderate sized depressed scars in the lung tissue. The lungs appeared to contain less pigment than usual and had a billowy blown out appearance, containing many large subpleural blebs. Over the posterior part of the right lower lobe was a depressed red area, and whereas the rest of the lungs felt crepitant this area had a less crepitant, fleshy, feel. Throughout both upper lobes, especially near the apexes, were many hard apparently calcareous nodules the largest of which were approximately 1 cm. in diameter. The tracheobronchial lymph nodes were not unusual, some just below the bifurcation of the trachea were almost completely calcified. One along the right side of the trachea immediately above the right bronchus was partly calcified.

Microscopic examination of the prostate showed two distinct processes. In each lateral lobe there was a circumscribed nodule of glandular tissue in which the acini were lined by a tall columnar one or two layered epithelium containing many papillary infoldings. Into many of these acini there had been marked epithelial degeneration, and many corpora amylacea also were found. The other process was one associated in varying degrees of intensity with lymphocytic, monocytic and plasma cell infiltration of large areas of the organ with an acidophilic necrosis of the more central parts of the areas with a loss of the architecture of the organ here. A similar infiltration was found to surround many of the glandular acini and their ducts. Most striking, however, was the bilateral presence of foci of monocytes and lymphocytes surrounding caseating areas of epithelioid cells and containing giant cells, constituting typical active tubercles.

The middle lobes of the lung showed marked emphysematous changes with widely dilated alveoli, which had in some areas broken into one another, with the broken ends possessing club shaped enlargements.

The lower lobe of the right lung showed a moderate degree of congestion with a filling of alveoli by mononuclear and polymorphonuclear leukocytes in many areas and here and there hemorrhage into the alveoli. The subpleural and interlobular tissues were edematous and the alveolar walls were somewhat thickened.

The right kidney showed a marked diminution of the cortex and medulla with bands of infiltrating lymphocytes scattered through them extending from the pelvis to the medulla. The whole section showed evidence of glomerular and tubular damage. In the worst affected area the glomeruli were only hyaline nodules, and the subadjacent tubules were atrophied or absent. Less advanced changes were found elsewhere, with a

greater or less degree of thickening of Bowman's capsule and diminution in size of the glomerular vessels showing a moderate to advanced degree of hyaline intimal thickening. There was no histologic evidence of tuberculosis.

The bladder mucosa was almost entirely lacking and the small remnants that were to be found were necrotic. The submucosa was edematous and massively infiltrated with wandering cells, most of which were polymorphonuclear leukocytes. In the muscular coat of the bladder there was a moderate degree of lymphocytic and monocytic perivascular infiltration. Just outside the bladder wall were two areas of dense lymphocytic and monocytic accumulation with epithelioid cells in their central portions and some necrosis of the latter. One of these nodules contained a giant cell.

Spermatogenesis was relatively inactive.

The lipid content of the adrenal, as judged by the vacuolization of the cortical cells, was very high, but nothing else of note was to be found.

There was very slight thickening of the larger arterioles of the heart. In several areas near the epicardial surface of the heart were small foci in which the muscle fibers had been interrupted by a process producing fibrous tissue which in some instances was infiltrated with lymphocytes, monocytes and a few polymorphonuclear leukocytes. These resembled small areas of infarction.

The right epididymis was not unusual save for some very deeply basophilic granules resembling calcium deposits in some of the tubules.

The sections of the left kidney were taken through that part of the organ showing the most kidney tissue. There was everywhere replacement of renal tissue by dense fibrous tissue, and the connective tissue thickening in the region of the pelvis was very conspicuous. Scattered diffusely through the connective tissue were small accumulations of lymphocytes. Nothing resembling giant cells or epithelioid cells was to be found. The few renal elements remaining consisted in part of dilated tubules and other more normal appearing tubules which, however, contained an acidophilic coagulation in their lumens. There were a few glomeruli of apparently normal structure but there were many that existed only as fibrous nodules. The intima of all the blood vessels of the sections was greatly thickened.

The mucosa of the left ureter was necrotic and the submucosa was very remarkably thickened by fibrous tissue, most of which was hyalinized. Scattered very sparsely through the latter and through the muscularis were a few lymphocytes, a little more numerous about the adventitial blood vessels.

In the pancreas in some areas there was a very slight increase in connective tissue elements but there were no noteworthy changes.

The spleen weighed 120 Gm. It was remarkably congested and the blood throughout had escaped from the sinuses and had in many areas lost its cellular detail. There was a conspicuous hyperplasia of the mononuclear elements and the malpighian corpuscles were slightly reduced in size and were edematous. The blood vessels possessed moderate to marked arteriolar and arterial intimal thickening.

Culture of the heart blood was sterile. Cultures of the right and left kidneys yielded *B. coli-communis* and enterococci.

The pathologic diagnosis of the significant lesions was gangrene of the bladder, bilateral pyonephrosis, calcareous grit in the right kidney, cardiac infarcts, active prostatic and perivesical tuberculosis, healed tuberculosis of both lungs (superinfection), left kidney, left ureter and right epididymis.

This, I feel, is a good example of a surgical renal tuberculosis for which nephrectomy years ago should have prolonged the patient's life. Yet pathologically it was a healed partial surgical tuberculosis of the kidney.

#### COMMENT

1 Medlar has shown that renal tuberculosis begins as a nonsurgical lesion that frequently heals.

2 This lesion may be identified clinically as a tuberculous bacilluria (as defined in the text).

3 Surgical renal tuberculosis, characterized by gross changes shown by pyelography, is clinically a progressive disease with a fatal termination unless interrupted by nephrectomy.

4 The pyelogram discloses surgical tuberculosis. The earlier the nephrectomy, the greater the probability of cure.

5 The healing of surgical renal tuberculosis by pathologic nephrectomy is extremely rare and, even with the kidney function gone, active tuberculosis may persist.

6 The pathologist will continue to accept cases like case 9 as evidence of healed partial surgical tuberculosis of the kidney. To the urologist such cases have no interest, for

7 Though surgical renal tuberculosis may remain latent for long periods of time, latency is extremely rare and even in its most complete form, i. e., latency due to complete physiologic destruction of the kidney, the tuberculosis may still actually be active.

8 The curative treatment of renal tuberculosis—old and new—is nephrectomy.

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## THE STATUS OF THE KIDNEYS IN ALKALOSIS

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It is an established fact that the kidneys play an important part in maintaining the acid-base equilibrium and thus also in maintaining a constant  $p_H$  in the blood and tissues. When this renal function is impaired, the acid-base mechanism is more readily disturbed and the compensating mechanism is more subject to deflection by the ingestion of either acid or basic salts. Conversely, primary renal impairment is very frequently accentuated by overzealous administration of acid or basic salts. We frequently hear of and see instances of depletion of the alkali reserve resulting in compensated or uncompensated acidosis, but rarely do we consider a depletion of the acid reserve with compensated or uncompensated alkalosis and the distressing symptoms associated with this condition. Our present paper concerns itself primarily with the relationships of renal function to alkalosis resulting from the administration of alkalis.

It was early recognized that it was dangerous to administer alkalis to a person whose kidneys had been injured, in amounts sufficient to neutralize gastric acidity. Palmer and Henderson<sup>1</sup> gave 4 Gm of sodium bicarbonate to individuals and then checked the  $p_H$  of the urine at intervals of one and two hours. Normal individuals gave evidence of a maximal rise in  $p_H$  in one hour, a few gave evidence of a delayed maximal rise in the  $p_H$  of the urine, and the remainder gave no response to administration of the alkali. Members of the latter group had nephritis. Several ingested from 12 to 112 Gm of sodium bicarbonate before a change of urinary  $p_H$  was noted. Sellards<sup>2</sup> and later Palmer and Van

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<sup>1</sup> Palmer W. W. and Henderson L. J. Clinical Studies on Acid Base Equilibrium. *Nature of Acidosis*. Arch. Int. Med. 12: 153-170 (Aug.) 1913.

<sup>2</sup> Sellards A. W. The Determination of the Equilibrium in the Human Body Between Acids and Bases with Especial Reference to Acidosis and Nephropathies. Bull. Johns Hopkins Hosp. 23: 289-302 1912.

Slyke<sup>3</sup> noted that among normal people the ingestion of from 5 to 10 Gm of sodium bicarbonate turned the urine alkaline, at which time the carbon dioxide combining power of the blood plasma was 71 volumes per cent plus or minus 5 per cent. Most of the pathologic urines examined did not become alkaline until a much higher carbon dioxide combining power was present. Palmer and others<sup>4</sup> noted that when the blood urea was elevated, a larger amount of sodium bicarbonate was required before the urine became alkaline. They explained the variations in amounts of ingested alkali necessary to make the urine alkaline by variations in degree of disturbance of the acid-base regulatory mechanism of the kidney. They found no close relationship between this function and the phenolsulphonphthalein output or the height of blood urea.

Hardt and Rivers<sup>5</sup> first described, in a very complete manner, the toxic manifestations following alkaline treatment of peptic ulcer, associated with renal changes, increased blood urea, and a normal or increased carbon dioxide combining power of the blood. In three of their sixteen cases of alkalosis definite previous renal injury had been present. They felt that patients with duodenal ulcer and with pathologic changes in the kidneys were more inclined to have toxic manifestations and to a much greater degree, than those who did not have such renal changes. Others since that time have reported cases of alkalosis following ingestion of alkali in which impaired renal function was known to have been present before.<sup>6</sup> Hardt and Rivers felt that renal injury either inflammatory or vascular in origin increased the tendency to alkalosis on administration of alkali. No definite opinion exists as to the cause for the remaining cases of alkalosis in which the condition is unassociated with pathologic changes in the kidneys. Rafsky, Schwartz and Kruger<sup>7</sup> and Hardt<sup>8</sup> felt that many of these patients were sensitive to alkali and that by proper administration, beginning with small doses and gradually increasing the dose alkalosis would not develop. Addis and his co-workers<sup>9</sup> placed a group of rats on a diet containing 4 per cent sodium bicarbonate for a third of their average lifetime. Of the twenty-four rats in the group, seven had hydronephrosis. All twenty-four presented evidence of microscopic, and many of gross, hematuria, in contrast to groups of rats on an acid diet and a group on a neutral diet the animals composing which had normal urine. At postmortem examination no apparent microscopic difference in the kidneys was seen in the three groups. No other data could be found favoring renal injury by use of alkali. Gatewood and his associates<sup>10</sup> did not recognize nephritis in any

case in which alkalosis developed later, nor did they recognize evidence of renal injury from the use of alkali in any case in their series.

The recognition of this condition is important, not only from the standpoint of immediate care, but also from that of future care. Jordan and Kiefer<sup>11</sup> found that 30 per cent of sixty patients unsuccessfully treated medically had had alkalosis. Twenty-three of these patients suffered recurrence of symptoms within one year. They felt that a definite relation existed between hypertension, arteriosclerosis and vascular nephritis since more than one half of the patients in their group were so afflicted.

#### MATERIAL FOR STUDY

Seven cases were studied in which there were definite symptoms and serologic evidences of alkalosis following intensive use of alkali in the treatment of peptic ulcer.

Although each case will be considered separately later, a few general points first will be made. The patients were all men between 30 and 49 years of age, save one (patient 3), who was 70. This patient had a perforating carcinoma of the stomach. In case 4 an ulcer was not demonstrable either clinically or roentgenologically. The remaining patients had duodenal ulcers. None had a previous history of nephritis. The blood pressure was normal in six of the seven cases. Patients 2 and 3 had palpable peripheral sclerosis graded 1 and 2 respectively. A mild to moderate degree of anemia was present in each case save cases 2 and 7. Five of the patients were admitted to the hospital in a state of alkalosis which had followed the daily ingestion of from 15 to 60 Gm of alkali for from two to four months. In cases 2 and 7, alkalosis developed in the hospital while the patients were on a modified Sippy regimen, receiving about 14 to 16 Gm of alkali daily. The symptoms of distaste for milk, anorexia, nausea and vomiting, weakness, nervousness, mental confusion, dull steady headache, polydipsia and polyuria, numbness and tingling, cramps and, in several instances, tetany were quite outstanding in these cases. The carbon dioxide combining power of the blood ranged from 69 to 84 volumes per cent. We considered any carbon dioxide combining power of 65 volumes per cent or more as being indicative of alkalosis.<sup>1</sup> Impaired renal function was indicated by a value for blood urea of 45 mg or more per hundred cubic centimeters, a return of 45 per cent of phenolsulphonphthalein or less, serum sulphates of 5.5 mg or more per hundred cubic centimeters, and a urea clearance of less than 40 cc of blood cleared per minute (Van Slyke). Other evidence of renal injury was denoted by protein, casts or erythrocytes in the urine.

#### REPORT OF CASES

**CASE 1**—A man aged 30, had a ten year history of duodenal ulcer but none of nephritis. Two months prior to his registration at the clinic symptoms of ulcer had become more acute and he had increased his intake of alkali to from 1 to 1½ ounces (30 to 45 Gm) of sodium bicarbonate daily. Ten days later he had symptoms of weakness, dyspnea on exertion, frontal headache, nocturia one or two times, mental confusion, emotional instability and a feeling of uncertainty and vertigo and a profound distaste for milk and a craving for salt.

On examination his face was flushed, he appeared to be depressed and he was confused mentally. The blood pressure in millimeters of mercury was 160 systolic and 100 diastolic.

11 Jordan, Sara M. and Kiefer, E. D. Factors Influencing Progress in the Medical Treatment of Duodenal Ulcer. *Am J Surg* 16: 472-482 (March) 1932.

12 This figure was determined because, in a large series of cases of peptic ulcer in which symptoms of alkalosis developed the carbon dioxide combining power was 65 volumes per cent or more.

3 Palmer W. W. and Van Slyke, D. D. Studies of Acidosis. IX. Relationship Between Alkali Retention and Alkali Reserve in Normal and Pathologic Individuals. *J Biol Chem* 32:499-507 (Oct) 1917.

4 Palmer W. W., Salvesen, Harald and Jackson, Henry Jr. Relationship Between the Plasma Bicarbonate and Urinary Acidity Following the Administration of Sodium Bicarbonate. *J Biol Chem* 45:101-111 (Dec) 1920.

5 Hardt L. L. and Rivers, A. B. Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer. *Arch Int Med* 31:171-180 (Feb) 1923.

6 Brown, G. E., Eusterman, G. B., Hartman, H. R. and Rowntree, L. G. Toxic Nephritis in Pyloric and Duodenal Obstruction. Renal Insufficiency Complicating Gastric Tetany. *Arch Int Med* 32:425-455 (Sept) 1923. Ellis, A. W. M. Disturbance of Acid-Base Equilibrium of the Blood to the Alkaline Side. *Alkalæmia Quart J Med* 17:405-423 (July) 1924.

7 Rafsky, H. A., Schwartz, Louis and Kruger, A. W. The Relation of Alkalosis to Peptic Ulcer. *J A M A* 99:1582-1586 (Nov 5) 1932.

8 Hardt L. L. J. in discussion on Rafsky, Schwartz and Kruger.

9 Addis, Thomas, MacKay, E. M. and MacKay, Lois L. The Effect on the Kidney of the Long Continued Administration of Diets Containing an Excess of Certain Food Elements. *J Biol Chem* 71:157-166 (Dec) 1926.

10 Gatewood, W. E., Gaebler, O. H., Muntwyler, Edward and Myers, V. C. Alkalosis in Patients with Peptic Ulcer. *Arch Int Med* 42:79-105 (July) 1928.

The heart measured 3 cm to the right and 10 cm to the left of the median line. There was palpable peripheral sclerosis of grade 1. The arterioles of the ocular fundi were constricted, but there was no evidence of sclerosis of the retinal arteries. The specific gravity of the urine was from 1.005 to 1.010 and the urine contained protein graded 2. There was a return of 15 per cent of the phenolsulphonphthalein injected; the value for blood urea was 134 mg, for creatinine 5 mg, and for chlorides 495 mg per hundred cubic centimeters for carbon dioxide combining power 79 volumes per cent and for blood sulphates 10.5 mg per hundred cubic centimeters. The value for hemoglobin and the erythrocyte count were normal. Gastric analysis revealed a free hydrochloric acid value of 18 total acidity of 64, and a content of 150 cc. Fluoroscopic examination of the stomach and duodenum disclosed a duodenal ulcer with obstruction and marked dilatation of the stomach.

The patient was put on an ulcer regimen. Tribasic calcium phosphate was administered instead of sodium bicarbonate as alkali. Daily intravenous injections of 10 per cent dextrose and 1 per cent sodium chloride solution were given together with from 2 to 3 liters of fluid by mouth. Eleven days after admission the value for the blood urea was down to 48 mg per hundred cubic centimeters, the carbon dioxide combining power to 65 volumes per cent and the chlorides up to 611 mg per hundred cubic centimeters. The return of phenolsulphonphthalein was 15 per cent and the protein in the urine remained at grade 1 to 2 with low specific gravity. All toxic symptoms had disappeared. Posterior gastro-enterostomy was performed and convalescence was uneventful. On the patient's dismissal from the hospital fifteen days after operation the value for urea was 44 mg and for creatinine 17 mg per hundred cubic centimeters, the carbon dioxide combining power was 58 volumes per cent, urea clearance was 191 cc of blood cleared per minute, and the urine still contained albumin graded 2, the specific gravity of the urine ranged from 1.010 to 1.016. It is impossible to say how much renal injury was present before the onset of toxicity produced by alkalosis, but it is probable that renal function was impaired to a considerable extent and that this condition was augmented by the administration of large amounts of alkali and, concurrently, that alkalosis was aggravated by impaired renal function.

**CASE 2**—A man aged 38, gave a history of ulcer of two years' duration, but there was no previous history of renal disease. On admission to the hospital analysis of the gastric content revealed a total acidity of 80 free hydrochloric acid of 72 and a content of 205 cc. Fluoroscopic examination of the stomach and duodenum disclosed a duodenal ulcer. The urine had a specific gravity of 1.023, it contained albumin graded 0 and casts graded 2.

The patient was placed on an ulcer diet with eight alkali powders a day. On the fourth day the value for blood urea was 30 mg per hundred cubic centimeters and the urea clearance 67.6 cc of blood cleared per minute. Five days after the patient's admission polydipsia and polyuria developed and the patient drank from 3 to 5 liters of fluid daily, the urinary output was from 2 to 3.5 liters in twenty-four hours. He also had a bad taste in his mouth, with distaste for milk. On the seventh day milk tasted worse, he complained of pain in the calf of the right leg, and he felt weak, giddy and tired. Chvostek's sign was positive. A test of hepatic function gave negative results. At this time the carbon dioxide combining power of the blood was 79.6 volumes per cent, chlorides were 553 mg per hundred cubic centimeters, and the return of phenolsulphonphthalein was 35 per cent. The urine contained protein graded 2, its specific gravity was 1.011 on a routine specimen and fell to only 1.005 on a dilution test.

Alkaline powders were changed to tribasic calcium phosphate 12 Gm daily and calcium chloride, 4 Gm daily. The fluid intake was raised to 3 liters daily. The symptoms of toxicity from alkalosis disappeared gradually, the distaste for milk being the last symptom to leave, on the seventh day. At the time of the patient's dismissal seven days later the urine still contained albumin graded 1, its specific gravity was 1.011, and the serum sulphates were a little elevated, being 57 mg per hundred cubic centimeters. It is probable that this patient had a latent type of impaired renal function which, under ordinary circumstances, was not of clinical significance.

**CASE 3**—A man, aged 70, gave a three year history of ulcer symptoms, this condition had become much worse during the three months prior to admission. A roentgenogram of the stomach revealed a large perforated ulcer, high on the lesser curvature, with an accessory pocket, this ulcer was thought to be malignant. Total acidity was 56 and free hydrochloric acid 44. The patient had been taking considerable sodium bicarbonate for relief of pain.

On admission the patient presented symptoms of nausea and vomiting and had a marked distaste for milk. On examination the blood pressure in millimeters of mercury was 120 systolic and 75 diastolic. There was palpable peripheral sclerosis graded 2. The carbon dioxide combining power of the blood plasma was 84 volumes per cent, and the value for blood urea 32 mg and for chlorides 594 mg per hundred cubic centimeters. The value for hemoglobin was 91 Gm per hundred cubic centimeters, erythrocytes numbered 3,800,000 per cubic millimeter of blood and the urine contained protein graded 1 and numerous casts. The specific gravity of the urine ranged from 1.007 to 1.030.

On a carefully controlled ulcer diet together with restriction of alkalis the toxic symptoms cleared up and the pains from ulcer were controlled. Two weeks later the patient was comfortable. On analysis the return of phenolsulphonphthalein was 75 per cent, the value for blood urea 40 mg per hundred cubic centimeters, the urea clearance 71 cc of blood cleared per minute and serum sulphates 51 mg per hundred cubic centimeters. The patient continued on medical management, at his own request despite the possibility of the lesion being malignant. One and a half months later the condition of his kidneys was again evaluated. The value for blood urea at this time was 58 mg per hundred cubic centimeters, the urea clearance was 25 cc of blood cleared per minute, serum sulphates were 62 mg per hundred cubic centimeters, the carbon dioxide combining power of the blood plasma was 58 volumes per cent, blood chlorides were 611 mg per hundred cubic centimeters, and the return of phenolsulphonphthalein was 35 per cent. The patient's symptoms had increased. An exploratory operation was performed and he was found to have an inoperable carcinoma of the stomach graded 4 for which a palliative gastro-enterostomy with entero-anastomosis was done.

This patient undoubtedly had a moderate degree of renal insufficiency probably on a vascular basis, which condition made alkalis less tolerable and resulted in increased renal impairment. The delayed rise in the value for blood urea is of interest and this phenomenon is also frequently observed in cases of acidosis.

**CASE 4**—A man, aged 35 gave a history of gastric distress of fifteen years duration. He had been treated for duodenal ulcer. Prior to coming to the clinic he had been taking from 1 to 2 ounces (30 to 60 Gm) of alkali powders a day for several weeks. A week before admission he had had nausea, vomiting, anorexia, vertigo and headache. Roentgenograms of the stomach and esophagus at the clinic gave negative results. No acid was found in the first fluid aspirated from the stomach but at one and a quarter hours the total acidity was 38 and the free hydrochloric acid 24. The patient was reported to have spasm of the cardia. The urine contained albumin graded 2 and its specific gravity ranged from 1.005 to 1.010. The value for blood urea was 146 mg, for creatinine 7.2 mg and for chlorides 527 mg per hundred cubic centimeters. The concentration of hemoglobin was 85 per cent and erythrocytes numbered 4,120,000 per cubic millimeter of blood. Unfortunately the value for the carbon dioxide combining power was not estimated on admission. The urea clearance was 139 cc of blood cleared per minute and the sulphate clearance was 10.5 cc of blood cleared per minute. The return of phenolsulphonphthalein was 35 per cent.

The patient was put to bed and took fluids by mouth up to 7 liters a day which he tolerated very well. He passed as much as 7,400 cc of urine in twenty-four hours and the output was consistently more than 3 liters a day. Toxic symptoms cleared up remarkably and in six days the value for urea was 34 mg, for creatinine 2.0 mg, and for chlorides 617 mg per hundred cubic centimeters and the carbon dioxide combining power was 47.5 volumes per cent. Before dismissal and after tonsillectomy the value for urea was 18 mg and for sulphates



39 mg per hundred cubic centimeters, and the urea clearance was 455 cc of blood cleared per minute. The urine continued to contain protein and was of low specific gravity, even when normal amounts were passed. Undoubtedly this was a case of renal impairment, aggravated by alkalosis. It is doubtful whether alkalosis would have occurred if renal function had been adequate.

**CASE 5**—A man, aged 48, presented a history of an intermittent type of ulcer distress for seven years, during the last year the condition had become much more persistent and severe. Eight months prior to admission he had had three gastro-intestinal hemorrhages, these had been associated with fainting and had been followed by tarry stools. He had obtained relief from epigastric pain with milk and alkaline powders and he had resorted to the liberal administration of these, taking from six to eight powders daily.

At the time of admission the patient complained of faintness, headaches, anorexia, and a distaste for milk. The urine had a specific gravity of 1.008 and it contained protein graded 1. The value for hemoglobin was 4.6 Gm per hundred cubic centimeters and erythrocytes numbered 2,860,000 and leukocytes 6,900 per cubic millimeter of blood. The value for blood urea was 78 mg per hundred cubic centimeters, the return of phenol-sulphonphthalein was 30 per cent, the carbon dioxide combining power was 75.8 volumes per cent, and the blood chlorides were 585 mg per hundred cubic centimeters. A test of hepatic function revealed no dye retention.

The patient was given daily intravenous injections of 1,000 cc of a 10 per cent dextrose and 1 per cent saline solution. His fluid intake was kept between 3 and 4 liters a day. Three transfusions were given, and he was put on an ulcer diet, together with restricted alkaline powders to control pain. On gastric analysis the total acidity was 34 and the free hydrochloric acid 0. Two weeks after admission the value for urea had fallen to 26 mg per hundred cubic centimeters. The value for hemoglobin was 8.2 Gm per hundred cubic centimeters and erythrocytes numbered 3,500,000 per cubic millimeter of blood. The carbon dioxide combining power was 60.7 volumes per cent and the blood chlorides were 635 mg per hundred cubic centimeters. The urine contained protein graded 1, and its specific gravity was 1.006. The patient was operated on and a perforating duodenal ulcer was found on the posterior wall. Posterior gastro-enterostomy was done and convalescence was uneventful. Seven days after operation the value for blood urea was 35 mg per hundred cubic centimeters, the urea clearance was 365 cc. of blood cleared per minute, sulphates were 59 mg per hundred cubic centimeters, the carbon dioxide combining power was 47.5 volumes per cent, and the chlorides were 635 mg per hundred cubic centimeters. Protein graded 1 persisted in the urine. The return of phenol-sulphonphthalein was 35 per cent. These postoperative studies of renal function lead one to believe that a mild impairment of the renal function was present and that it was of fundamental importance in the production of alkalosis.

**CASE 6**—A man, aged 46, gave a history of duodenal ulcer of two years' duration, with hematemesis six weeks prior to his admission to the clinic, since then he had been taking from 8 to 10 teaspoonfuls of alkali powder a day. For about a week prior to admission he had vomited once or twice a day, and he had felt quite dizzy and weak most of the time. Nervousness, irritability, forgetfulness and frequent fronto-occipital headaches had been experienced during this period.

At the time of admission the urine contained protein graded 1, and its specific gravity was 1.013. The value for hemoglobin was 14.7 Gm per hundred cubic centimeters, and erythrocytes numbered 4,060,000 and leukocytes 8,000 per cubic millimeter of blood. The value for urea was 130 mg, for creatinine 25 mg, and for chlorides 503 mg per hundred cubic centimeters, the carbon dioxide combining power of the blood plasma was 72.1 volumes per cent. Analysis of the gastric content showed a total acidity of 80 and free hydrochloric acid of 56. The patient's condition did not permit roentgenologic examination of the stomach. Ten per cent dextrose and 1 per cent salt solution was administered intravenously daily, and the fluid intake was maintained at between 3,500 and 4,500 cc daily. Seven days after the patient's admission the value for urea was 26 mg per hundred cubic centimeters, the urea clear-

ance was 48 cc. of blood cleared per minute, blood sulphates were 43 mg per hundred cubic centimeters and the carbon dioxide combining power was 52.8 volumes per cent. The highest specific gravity of the urine was 1.026, the lowest specific gravity in the dilution test 1.004. The urine contained protein graded 1 in three of five tests. The total output of urine in twenty-four hours during this period ranged from 2,000 to 4,300 cc.

An exploratory operation was performed and a subacute bleeding duodenal ulcer was found, for which duodenojejunotomy, reconstruction of the pyloric outlet, and knife excision of the ulcer were done. Convalescence was uneventful. It is difficult to say just how much renal injury was present at the time the value for urea was 130 mg and that for creatinine was 25 mg per hundred cubic centimeters. There undoubtedly was renal insufficiency. However, the values were rapidly restored so that in seven days all tests of renal function that were made gave normal values. One must conclude that renal injury in this case was acute but minimal in degree. The patient returned two years later, at which time urinalysis gave negative results and the value for blood urea was 34 mg per hundred cubic centimeters.

**CASE 7**—A man aged 46, gave a history of intermittent symptoms of duodenal ulcer for two years. On examination, the urine had a specific gravity of 1.028, it was negative for protein or casts. The value for hemoglobin was 17.2 Gm per hundred cubic centimeters, and erythrocytes numbered 4,510,000 and leukocytes 5,100 per cubic millimeter of blood. Roentgenologic examination of the stomach revealed a duodenal ulcer. Analysis of gastric content showed a total acidity of 86 and free hydrochloric acid of 30. The value for blood urea was 20 mg per hundred cubic centimeters.

The patient was given hourly feedings of milk and cream together with 16 Gm of alkaline powders daily. On the fifth day after admission he complained of a dry mouth, of an after taste following ingestion of the powders, that the milk was sour, and of general malaise. On the seventh day he refused his milk because it made him sick. The value for blood urea was 20 mg per hundred cubic centimeters. Urinalysis gave negative results. Cream soup, custard and cereals were given. All symptoms became worse. On the tenth day the patient vomited. At this time the value for urea was 50 mg per hundred cubic centimeters, the urea clearance was 30 cc. of blood cleared per minute, the carbon dioxide combining power was 70 volumes per cent, and blood chlorides were 553 mg and serum sulphates 9.2 mg per hundred cubic centimeters. The powders were discontinued and mucin and tribasic calcium phosphate were given instead. On the fifteenth day the patient was free from symptoms. Studies of renal function at this time showed urea 26 mg per hundred cubic centimeters, urea clearance 60 cc. of blood cleared per minute, blood sulphates 43 mg per hundred cubic centimeters, and a return of phenol-sulphonphthalein of 50 per cent. The dilution test revealed a good output of urine, with 1.001 as the lowest specific gravity. The test of hepatic function showed negative dye retention. Protein, casts and erythrocytes were absent in the urine during the entire period of observation.

It is difficult to explain the alkalosis in this case on the basis of previous renal impairment, since before and after the period of alkalosis no impairment of renal function was demonstrated.

#### COMMENT

Alkalosis is relatively uncommon in the treatment of peptic ulcer. However, the possibility of its occurrence should be kept constantly in mind. The phenomenon usually comes on gradually. The symptoms of distaste for milk, the patient claiming that it is sour, of headache and of weakness are constant, and they occur early. They are noted in the period of compensated alkalosis prior to the characteristic changes in blood chemistry that follow. Later, the other symptoms just referred to appear. Impaired renal function was demonstrated in all the cases during alkalosis. No data were available regarding the previous renal status of the patients. Two of the patients had definitely associated vascular changes.



It is important that the status of the kidneys should be determined in each case before the patient is placed on alkaline powders. If impairment exists, alkaline treatment will probably be unsatisfactory, as has also been pointed out by Jordan and Kiefer. In these cases alkalosis may be rectified by smaller doses of alkalis or by replacement of such alkalis with mucin or tribasic calcium phosphate, with satisfactory control of the symptoms and acids. It must however, be remembered that administration of these substances may also result in toxemia. The mucin, being a protein may in the presence of impaired renal function produce renal insufficiency. In case 7 renal studies gave normal results prior to and following alkalosis, yet with the ingestion of alkalis the carbon dioxide combining power rose to 70 volumes per cent and there was definite renal insufficiency. Neither does the development of alkalosis and renal insufficiency in case 6 seem to be explained by the assumption of a previous renal lesion for, subsequent to toxemia, the patient had normal renal function. The kidney has many functions, and it may be normal in one and deficient in another of these functions. Palmer and Henderson noted delayed excretion of alkali among individuals who apparently had normal renal function.

The question of injury of a normal kidney by prolonged administration of alkalis arises. The work of Addis and the MacKays has been referred to. Stieglitz<sup>13</sup> is of the opinion that renal injury may result from prolonged administration of alkalis. No definite observations have been made on man in this regard. Recently a patient with duodenal ulcer came under our observation who for years had consumed pounds of both calcium carbonate and sodium bicarbonate every week. No evidence of impaired renal function could be detected.

It is not implied in this paper that alkalosis cannot occur unless there is previous renal injury but rather that, in the presence of renal insufficiency, the threshold of safety is less, and not only that alkalosis is more easily produced in the presence of a preexisting renal injury but also that renal injury is increased concurrently with alkalosis, and thus a vicious cycle is set up. It is to be emphasized that neither basic nor acid salts can be administered with impunity in the presence of renal impairment.<sup>14</sup> In the presence of normal renal function, the buffer mechanism maintaining the acid base equilibrium can absorb the assault of either acidifying or basic salts with little or no variation. Furthermore, one should not lose sight of the fact that the liver plays an important part in maintaining the acid base equilibrium and that, in the presence of hepatic insufficiency, this is much more easily disturbed, as is evidenced by the intolerance, in cases of cirrhosis, to ingestion of either acid or basic salts.

#### SUMMARY

Seven cases of alkalosis were due to administration of alkali in the treatment of peptic ulcer. Evidence of impaired renal function was found in five cases after the alkalosis had been rectified. Previously impaired renal function is an important etiologic factor in alkalosis, and it should be considered in the treatment of peptic ulcer with alkali.

## CLINICAL SPECTROSCOPY

SEVENTY CASES OF GENERALIZED ARGYROSIS FOLLOWING ORGANIC AND COLLOIDAL SILVER MEDICATION, INCLUDING A BIOSPECTROMETRIC ANALYSIS OF TEN CASES

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The alarming increase of argyrosis leaves little doubt as to our purpose in this report. There has been an accumulation of indubitable clinical evidence which makes it imperative to present before those who prescribe, dispense or use these drugs the danger entailed therein. It must be emphasized that within the past year, following intranasal applications with Argyrol and Neo-Silvol in fifteen children under 10 years of age, an argyrosis developed. Ten of these fifteen children were girls. All these children will present throughout their lives a conspicuous and permanent bluish or slate-gray discoloration that will select them as objects of whispered comments by friends and strangers. At present there is no treatment for argyria.

The obvious responsibility for this injudicious medication rests with the circularized advertisements by the various manufacturers to the physicians, for example, they say:

Argyrol solution, in any strength, may be used in the throat, nose and ear as often as the physician desires, with perfect safety and freedom from irritation. The usual method is to apply a 25 to 50 per cent solution once daily, and to give the patient a 10 to 25 per cent solution for home use in the atomizer in cases where home treatment is desirable.

Internal administration of argyrol, because of the fact that it is non-toxic, is extensively employed in the treatment of gastric ulcer, chronic gastritis, persistent vomiting, typhoid fever and ulcerative enteritis. One capsule, containing five (5) grains of argyrol, followed by a glass of water, should be administered two or three times daily. Neo-Silvol is now quite generally recognized as a valuable therapeutic agent as attested by its growing bibliography and the increasing demand for it.

The injections of Silver-Salvarsan may be given every four days and continued until the desired therapeutic results have been obtained.

The Council on Pharmacy and Chemistry of the American Medical Association omitted argyrol from New and Nonofficial Remedies in 1928, with the following explanation:

The firm presented no satisfactory evidence for the therapeutic claims in question and refused to mention the pharmacopoeial name on the labels and advertising of Argyrol. The Council therefore voted to omit Argyrol from New and Nonofficial Remedies. W. A. Puckner, Secretary.<sup>1</sup>

During the period from 1914 to 1928 thirteen cases of generalized argyria were reported following peroral pharyngeal and intranasal treatment with organic and colloidal silver compounds. Since 1928, however, an additional twenty-seven cases have been reported and observed or an increase of more than 100 per cent within the past five years. Approximately 30 per cent of the cases occurred in persons under 40 years of age and 20 per cent in children under 10 years of age. The sex distribution was about equal. Argyria developed

<sup>13</sup> Stieglitz, E. J. Alkalosis and Renal Injury. *Arch. Int. Med.* 41: 10-17 (Jan.) 1928.

<sup>14</sup> Binger, M. W., and Keith, N. M. The Effects of Diuretics in Different Types of Edema. *J. A. M. A.* 101: 2009-2015 (Dec. 23) 1933.

From the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital, Columbia University, under the direction of Dr. George Miller Mackee.

<sup>1</sup> Argyrol Omitted from N. N. R. Reports of the Council on Pharmacy and Chemistry. *J. A. M. A.* 90: 849 (March 17) 1928.

TABLE 1—Generalized Argyria Cases Following Peroral, Nasal and Pharyngeal Medication with Organic and Colloidal Silver Compounds

	Cases	Age	Sex	Method of Medication	Duration of Treatment	Appearance of Argyria	Medication*
Smith C M Arch Dermat & Syph 10:68 1927	J M	26	Q	Intranasal	3 years	2 years ago	Lunisol
Lundy O J Illinois M J 63:173 1933	R R	49	Q	Intranasal	3 years	4 years ago	Neo-Silvol
Woodward M R Am J Dis Child 47:1046, 1933	B V	7	Q	Intranasal	4 years	2 years ago	Neo-Silvol
	B C	5	Q	Intranasal	3 years	Not known	Neo-Silvol
	I R	8	Q	Intranasal	6 years	2 years ago	Neo-Silvol
Royster L T I Pediat 1:736 1933	G L	5	Q	Intranasal	Several years	3 years ago	Neo-Silvol
Wise Fred Personal communication to the authors	T R	4	Q	Intranasal	2 years	2 years ago	Neo-Silvol
McIntosh Rustin Personal communication to the authors	R L	4	Q	Intranasal	1 year	1 year ago	Neo-Silvol
	R S	5	Q	Intranasal	1 year	2 years ago	Neo-Silvol
Berkley H K J A M A 102:202 1934	B P	10	Q	Intranasal	2 years	Not known	Neo-Silvol
	V F	7	Q	Intranasal	0 years	Not known	Neo-Silvol
Fraser I F Personal communication to the authors	D S	6	Q	Intranasal	4 years	1 year ago	Neo-Silvol
MacKee G M Private patient	(a)	57	Q	Intranasal	2 months	4 years ago	Neo-Silvol
Thornhill G F Personal communication to the authors	(b)	5	Q	Intranasal	Several years	Not known	Neo-Silvol
	(c)	3	Q	Intranasal	Several years	Not known	Neo-Silvol
	(c)	8	Q	Intranasal	Several years	Not known	Argyrol
Crispin A M J A M A 62:1394 1914				Peroral	4 years	Not known	Collargol
Tobler T Schweiz med Wchnschr 52: 774 1922				Peroral	1 month	10 years ago	Collargol
Gernez, Houcke and Cuvelier Ann de méd lég 12:261 1932				Peroral	2-4 years	1 year ago	Collargol
Goldstein H I J A M A 77:1514 1921	T R	54	Q	Pharyngeal	1 year	8 years ago	Argyrol
Zacks M A Laryngoscope 43:680 1933	E C	10	Q	Intranasal	6 years	2 years ago	Argyrol
Freilick E B and Dorne M Illinois M J 51:467 1927	A M	33	Q	Peroral	5 years	2 years ago	Argyrol
Odell A G Clifton M Bull 17:4 1929	(a)	Q	Q	Intranasal	Several years	Not known	Argyrol
	(b)	Q	Q	Intranasal	2 years	Several years ago	Argyrol
	(c)	Q	Q	pharyngeal			
Davis T D Virginia M Monthly 51:154 1924	(a)	63	Q	Peroral	Not known	Not known	Argyrol
	(b)	49	Q	Intranasal	Not known	Not known	Argyrol
Jones M Laryngoscope 35:33 1925	(a)	42	Q	Gums	11 years	Not known	Argyrol
Stillians A W and Lawless T K Arch Dermat & Syph 17:153 1923	(a)	Q	Q	Intranasal	8 years	3 years ago	Argyrol
Jamieson R C Arch Dermat & Syph 14:493 1926	(a)	Q	Q	Peroral	1 year	13 years ago	Argyrol
Chargin Arch Dermat & Syph 11:400 1925	B M	55	Q	Intranasal	10 months	Not known	Argyrol
Kelly I D cited by Welles R S Arch Dermat & Syph 8:244 1923	O S	39	Q	pharyngeal	Several years	3 years ago	Neo-Silvol
Fox Howard Arch Dermat & Syph 22:381 1930	(a)	Q	Q	Pharyngeal	Several years	Not known	Argyrol
	H V	28	Q	Intranasal	1 year	3 years ago	Argyrol
Williams Arch Dermat & Syph 14:484 1926				pharyngeal			
Wise Fred Arch Dermat & Syph 20:624 1934	B G	49	Q	Intranasal	5 years	3 years ago	Argyrol
Klauder J V Arch Dermat & Syph 27:713, 1933	W F	39	Q	Intranasal	5 years	3 years ago	Argyrol
	M G	51	Q	Mouth	5 years	4 years ago	Argyrol
	A F	57	Q	Pharyngeal	Many years	10 years ago	Argyrol
	H F	38	Q	Pharyngeal	Many years	5 years ago	Argyrol
Schwartz, H J Personal communication to the authors	M L	57	Q	Intranasal	6 months	Not known	Argyrol
MacKee G M Private patient	E K	26	Q	Pharyngeal	Not known	Not known	Argyrol
Patek A J J A M A 102:787 1934	(a)	60	Q	Pharyngeal	Many years	Not known	Argyrol
	(b)	Q	Q	Pharyngeal	Many years	Not known	Argyrol
	V L	7	Q	Intranasal	3 years	1 year ago	Argyrol

\* Medication (Solis Cohen Solomon and Githens, T S Pharmacotherapeutics Materia Medica and Drug Action New York D Appleton & Co 1928 pp 713-714)

I Lunisol Argent Chloridum Colloidale Saccharatum (N N R) Colloidal silver chloride A preparation of colloidal silver chloride containing 10 per cent of silver and 90 per cent of sucrose Dose used locally in solutions of from 1 to 2 per cent on any mucous membrane.

II Neo-Silvol (N N R) A compound of silver iodide with a soluble gelatin base containing from 18 to 22 per cent of silver iodide in colloidal form Dose used in aqueous solutions of from 2 to 8 per cent

III Collargol Collargolum Argentum Credé Colloidal Silver Argentum Colloidale (N N R) Colloidal silver and silver oxide formed by reduction and stabilized by derived egg albumin with which it is partly combined It contains silver equivalent to approximately 78 per cent metallic silver Dose by mouth 0.012 to 0.024 Gm or as 1:100 to 1:500 solution (colloidal suspension) 4 Gm

IV Argyrol argyn mild protargin mild silver protein Argento-Proteinum milte (U S P X) Silver rendered colloidal by the presence of a combination with protein It contains not less than 10 per cent and not more than 20 per cent of silver Dose nose and throat sprays from 10 to 20 per cent swab from 25 to 50 per cent by mouth 0.3 Gm

TABLE 2—Generalized Argyria Cases Following Intravenous Silver Arspenamine Therapy

	Cases	Age	Sex	Duration of Treatment	Number of Injections	Appearance of Argyria	Dosage in Gm.
Sloll *	(a)	37	Q	Jan 31 1919 to Oct 23 1922	43	July 1932	90.00
Kogoj *	(a)	23	Q	February 1919 to February 1920	12	Not given	Not given
Becker *	(a)	53	Q	4 years	60	November 1930	16.50
	(b)	30	Q	2 years	57	4 years ago	17.10
Spiegel *	A W	23	Q	3 years	33	May 1929	7.60
	F B	54	Q	2 years	31	September 1929	4.10
	M W	49	Q	2 years	34	November 1929	10.20
Cannon A B J A M A 102:203 1934	(a)	64	Q	3½ years	40	1½ months after last injection	7.30
	(b)	52	Q	3½ years	52	1 month after last injection	16.40
	(c)	53	Q	4 years	68	10 days after last injection	10.95
	(d)	53	Q	4½ years	100	13 months after last injection	10.60
Smith A. R. Personal communication to the authors	W G	61	Q	3 years	40	Not known	8.50
	C B	39	Q	1 year		6 months after last injection	
Tilney Frederick Personal communication to the authors (patients treated by family physician)	H M	44	Q	7 years	100 plus	3 months ago	
	B W	41	Q	6 months	Not known	Not known	

in 65 per cent following pharyngeal and intranasal applications, and in 35 per cent following peroral administration. The duration of the local and systemic treatment varied from one month to eleven years. Neo-Silvol was used in 20 per cent, Collargol in 22 per cent, and Argyrol in 55 per cent of the cases (table 1).

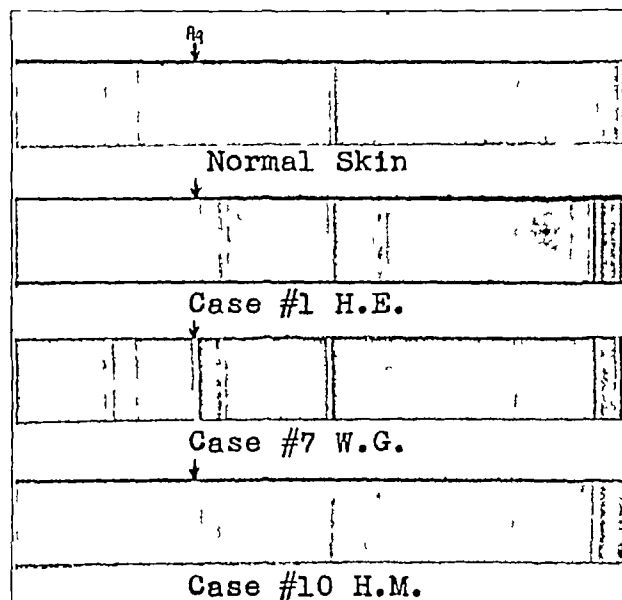
Silver arspenamine was introduced clinically in March 1918 as another drug in the treatment of

syphilis. Its effectiveness was attributed to the presence of two chemotherapeutic agents—arsenic and silver—and possibly a third role—the catalytic action of silver of the arspenamine molecule. A number of syphilologists have recognized silver arspenamine as a potent drug in the treatment of late cerebrospinal syphilis and advocate its use. Other syphilologists have looked askance at this drug because of the danger of inducing

a therapeutic argyria. Five years after the introduction of silver arsphenamine Sioli<sup>2</sup> and Kogoj<sup>3</sup> each reported a case of generalized argyria following the use of this drug. The opinions of different observers are not in agreement concerning the maximum dose that can be given without inducing an argyria in the patient. That disagreement undoubtedly explains the development of an argyria in thirteen cases following silver arsphenamine during the last two and a half years (table 2). Habermann<sup>4</sup>, Sioli<sup>2</sup> and Mucha<sup>5</sup> stated that argyria might occur after 15 Gm of silver arsphenamine had been administered but that this condition was not to be feared before this amount had been injected. Myers and Corbitt<sup>6</sup> were of the opinion that the possibility of argyria from silver arsphenamine is extremely remote. Spiegel<sup>7</sup> stated that many of his patients during the past eight years have received up to 12 Gm of silver arsphenamine either alone or in combination with compounds of mercury and bismuth and that no discoloration of the skin has taken place. In the summary and conclusions, he stated that silver arsphenamine could not be given to exceed a total dosage of 8 Gm because of the possibility of producing argyria. Becker<sup>8</sup> believes that the administration of 18 Gm or more of silver arsphenamine is apt to be followed by argyria.

A survey of the dosage recorded in table 2 immediately suggests an unrecognized factor. In some patients a discoloration developed after 4, 7 or 8 Gm; in others

It is first necessary to explain the normal occurrence of silver in human tissue. The remarkable achievements in physics, chemistry and metallurgy that introduced the utilization of the mineral elements in the earth's crust have been responsible for the present metal age. These achievements as never before in the history of man offer innumerable sources for the contamination of foodstuffs and water with extraneous metals. Silver has chemical and physical properties that makes it especially suitable in the manufacture of culinary ware, cutlery, casseroles and various appliances to facilitate



Selected biospectrograms illustrating the correlation between the density of the silver line and the degree of skin discoloration.

Case	Degree of Discoloration	Grams Equivalent of Silver Arsphenamine
Normal Skin	Normal	0.1 to 0.5 Gm
1 H. E.	Very light	8 Gm
7 W. G.	Moderate	15 Gm
10 H. M.	Very deep	20 Gm

All density measurements were made with a Moll recording microphotometer type A. The method by which these measurements were made have been described in an earlier publication (Gaul, L. E., and Staud, A. H. Arch. Dermat. & Syph. 30:433 [Sept.] 1934. Clinical Spectroscopy. The Advantages and Physical Principles of the Spectrograph and the Technique for Obtaining the Dermal Biopsy Specimen for a Biospectrometric Analysis, *ibid.* to be published).

the preparation of foods. While the daily intake of silver from the use of silver or silver-plated appliances is infinitesimal in amount, the total increment from chemical action and mechanical friction over a period of years or decades becomes a sizable amount. Another potential source of silver in human tissue is given in the footnote in table 3.

These remarks have been verified by a series of more than 500 biospectrometric analyses.<sup>9</sup> An analysis of twenty biopsy specimens obtained from children varying in age from 6 months to 2 years established the normal density of the silver line. In this group of biospectrograms<sup>10</sup> the silver line was faintly visible or visible only with a hand lens. A series of biospectrograms representative of the successive decades of life showed a silver line the density of which was directly proportional to the respective decade from

<sup>9</sup> The word biospectrometric specifies a quantitative spectrographic analysis for the metallic constituents in differentiated and undifferentiated mesoderm obtained by performing a dermal biopsy with a three sixteenths inch (0.47 cm) punch; the biopsy specimen weighing approximately 0.025 Gm.

<sup>10</sup> The word biospectrogram specifies the spectrogram given by burning a biopsy specimen under standardized physical conditions and obtained with three-sixteenth inch (0.47 cm) dermal punch.

TABLE 3—A Biospectrometric Analysis of Ten Cases of Generalized Argyria Classified According to the Quantity of Silver Present

Cases	Age	Sex	Source of Silver	Degree of Discoloration	Site of Biopsy	Quantity of Silver
1 H. E.	38	♀	Argyrol	Very light	Left knee	8 Gm
2 B. W.	41	♀	Silver arsphenamine	Very light	Shoulder	8 Gm
3 C. F.	43	♂	Argyrol	Very light	Right thigh	8 Gm
4 F. G.	64	♀	Argyrol	Light	Right arm	10 Gm
5 M. L.	54	♂	Argyrol	Moderate	Left knee	10 Gm
6 A. F.	57	♂	Argyrol	Deep	Left knee	15 Gm
7 W. G.	61	♂	Silver arsphenamine	Deep	Right thigh	15 Gm
8 I. K.	43	♂	†	Deep	Forehead	15 Gm
9 E. K.	46	♂	Argyrol	Very deep	Shoulder	18 Gm
10 H. M.	44	♂	Silver arsphenamine	Very deep	Right leg	20 Gm

\* The quantity of silver in the biopsy specimens was expressed as grams equivalent of silver arsphenamine irrespective of the source, inorganic or organic, from nasal pharyngeal, peroral or intravenous administration. It was convenient to use this designation since an earlier publication (Gaul, L. E. and Staud, A. H. Clinical Spectroscopy. A Study of Biopsies from Patients Who Have Received Intravenous Injections of Silver Arsphenamine Arch. Dermat. & Syph. 30:433 [Sept.] 1934) established that the quantity of silver in the biopsy specimen was directly proportional to the total dosage of silver arsphenamine. † The origin of silver was traced to the electrolytic action between a gold and a silver filling in contact in the mouth. Electrical measurements in additional patients and a subsequent biospectrometric analysis proved that the gold and silver fillings in a medium of saliva form a galvanic cell the action of which causes the silver to go into solution. The rate of solution is determined by such factors as the pH value of the saliva, the surface area of the fillings and electrode potentials.

not until 10, 15 or 20 Gm had been injected. The reason for this obvious lack of uniformity will be explained in the ensuing part of this report.

<sup>2</sup> Sioli, F. Vier Jahre Paralysebehandlung mit Silbersalvarsan und Sulfoxylat Arch. f. Psychiat. 68:321 1923.  
<sup>3</sup> Kogoj, F. Argyrie und Arsenmelanose der Haut und Schleimhäute nach Silber und Neosalvarsan Acta dermat. venereol. 4:195 (March) 1923.

<sup>4</sup> Habermann, R. Ueber Argyria cutis nach Silbersalvarsan und den Wert der Leuchtbiomethode E. Hoffmanns für ihren Nachweis Dermat. Ztschr. 40:65 (Jan.) 1924.

<sup>5</sup> Mucha, cited by Habermann. Congress of the German Dermatologic Society, Munich May 20-24, 1923.

<sup>6</sup> Myers, C. N., and Corbitt, H. B. II. Retention and Elimination of Silver with Special Reference to Silver Salvarsan and Silver Therapy Am. J. Syph. 8:704 (Oct.) 1924.

<sup>7</sup> Spiegel, Leo. A. Discoloration of the Skin and Mucous Membranes Resembling Argyria Following the Use of Bismuth and Silver Arsphenamine Arch. Dermat. & Syph. 23:266 (Feb.) 1931.

<sup>8</sup> Becker, S. W. and Ritchie, E. B. Argyria Following the Excessive Use of Silver Arsphenamine J. A. M. A. 97:389 (Aug. 8) 1931.

which the biopsy specimen was obtained. In approximately 5 per cent of the biospectrograms the density of the silver line was an equivalent to that given by a biopsy specimen from a patient who had received from 2 to 5 Gm of silver arsphenamine.

About the most suitable way of explaining the lack of uniformity in dosage in patients in whom argyria has developed following silver arsphenamine therapy is to cite the following example. Let us assume that a white man, aged 50, presents symptoms, signs and laboratory data of late cerebrospinal syphilis. All objective signs of argyria are absent. Normally an individual in the fifth decade of life has a silver retention an equivalent of from 1 to 2 Gm of silver arsphenamine. If during the past any inorganic or organic silver compounds have been used, either as peroral, nasal or pharyngeal medication, the quantity of silver retained will be greatly increased. Supposing the patient had a silver retention equivalent to 5 Gm of silver arsphenamine. The syphilologist, unaware of this, prescribes a routine course of silver arsphenamine. After a total dosage of 7 Gm of silver arsphenamine had been given, an argyria developed. If the syphilologist had been aware of a 5 Gm silver retention by the patient the total dosage could have been calculated accordingly and the argyria prevented.

The example just cited should explain the lack of uniformity of the total dosage in a patient with argyria following the administration of silver arsphenamine. It is possible that the cases in which argyria appeared after 4, 7 and 8 Gm may have shown an existing silver retention before treatment was instituted (table 2). If the syphilologist knows the silver retention, which can now be determined by a biospectrometric analysis, there should be no additional cases of argyria from silver arsphenamine.

A biospectrometric analysis of ten cases presenting objective signs of argyria led to the formulation of the following theorem. The degree of the discoloration is directly dependent on the duration and the intensity of solar or artificial radiation and the quantity of silver present. Argyria becomes clinically apparent after a silver retention approximating an equivalent of 8 Gm of silver arsphenamine, shown in the accompanying illustration. Naturally, whether a person is a blond or a brunette the normal pigmentation will be a further factor modifying the degree of discoloration; another less important modifying factor is the amount of subcutaneous fat. The discoloration in argyria appears first on the exposed areas—face, neck, hands—lunula of the nails—as a result of the chemical action of light on the retained silver.

The pathologic changes in argyria as well as the histochemical studies have demonstrated a uniform distribution of the silver throughout connective tissue.<sup>10a</sup> Since the corium of the skin is of mesodermic origin or connective tissue, the biopsy specimen will contain the same quantity of silver in the same patient irrespective of the site from which it is obtained, i. e., a biopsy specimen obtained from the area of discoloration and one obtained from the leg or thigh showing no discoloration will contain equal quantities of silver in the same patient (table 3, site of biopsy).

Clinical spectroscopy has not only been successful in establishing the quantity of silver necessary to produce an argyrosis but has been equally successful in demon-

strating the presence of gold,<sup>11</sup> lead<sup>12</sup> and nickel<sup>13</sup> in biopsy specimens.

#### CONCLUSIONS

1. Seventy cases of argyria have been observed and reported following the indiscriminate use of organic and colloidal silver compounds.

2. The degree of discoloration is directly dependent on the duration and the intensity of solar or artificial radiation and the quantity of silver present.

3. Argyria becomes clinically apparent after a silver retention approximating an equivalent of 8 Gm of silver arsphenamine.

4. A biospectrometric test supplies the syphilologist with a method for determining the silver retention before and during silver arsphenamine therapy.

5. The total silver retention irrespective of the origin should never exceed 7 Gm equivalent of silver arsphenamine.

6. A biospectrometric analysis offers a new diagnostic test for the identification of an argyrosis.

### PERIARTERITIS NODOSA

#### REPORT OF A CASE WITH FATAL PERIRENAL HEMORRHAGE

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AND

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Periarteritis nodosa is an unusual and relatively uncommon vascular disease. As late as the middle of 1933 only 195 verified cases were to be found in the medical literature.<sup>1</sup> Seventy-seven of these had been reported after 1926. Kussmaul and Maier<sup>2</sup> in 1866 made the first anatomic description of the disease. In 1878 Meyer<sup>3</sup> described a triad of symptoms characteristic of periarteritis nodosa: first, chlorotic marasmus, second, polymyositis and polyneuritis, and, third, gastrointestinal symptoms. Brinkmann<sup>4</sup> and Christeller<sup>5</sup> later emphasized nephritis as a fourth cardinal symptom. Arkin<sup>6</sup> in 1930 described in detail the pathologic lesions. The case reported here presented a clinical picture simulating an acute surgical condition of the kidney so closely that nephrectomy was performed.

#### REPORT OF CASE

*First Entry*—T. M., a married man, aged 29, a tilesetter, admitted to the University of California Hospital in the medical teaching service March 30, 1931, complained of intermittent

11. Gaul L. E. and Staud A. H. Clinical Spectroscopy. A Study of Biopsy Material Taken from Patients Receiving Gold Sodium Thio-sulphate. Arch. Dermat. & Syph. 28: 790 (Dec.) 1933. Clinical Spectroscopy. The Quantitative Distribution of Gold in the Body or Its Physiopathologic Retention as a Reciprocal of the Capillary System. Ibid. to be published.

12. Gaul L. E. and Staud A. H. Clinical Spectroscopy. A Spectrometric Analysis of Biopsy Specimens Obtained from Cases of Plumbism and Workmen in Daily Contact with Lead Paints. J. Nerv. & Ment. Dis. 81: 265 1935.

13. Gaul L. E. and Staud A. H. Clinical Spectroscopy. The Quantitative Retention of Nickel in Psoriasis. Arch. Dermat. & Syph. 30: 697 (Nov.) 1934.

From the Departments of Medicine and Pathology of the University of California Medical School.

1. Rothstein J. L. and Welt Sara. Periarteritis Nodosa in Infancy and in Childhood. Am. J. Dis. Child. 45: 1277 (June) 1933.

2. Kussmaul A. and Maier R. Periarteritis Nodosa. Deutsche Arch. f. Klin. Med. 1: 484 1866.

3. Meyer, P. S. Ueber Periarteritis nodosa oder Multiple Aneurysmen der mittleren und kleineren Arterien. Virchows Arch. f. path. Anat. 74: 277, 1878.

4. Brinkmann. Zur Klinik der Periarteritis nodosa. München med. Wchenschr. 60: 703 (May 12) 1922.

5. Christeller E. Arch. f. Verdauungskr. 37: 249 1926.

6. Arkin A. A. Clinical and Pathological Study of Periarteritis Nodosa. Am. J. Path. 6: 401 (July) 1930.

10a. Gaul L. E. and Staud A. H. Clinical Spectroscopy. The Quantitative Distribution of Silver in the Body or Its Physiopathologic Retention as a Reciprocal of the Capillary System. to be published.

pain in the lumbar region for seven years, and headache, anorexia and weakness for one year.

The patient had the usual childhood diseases without complication, before the age of 10 years. His second decade was medically uneventful except for gonorrheal urethritis at the age of 14 years and 'reinfections' at 17, 18 and 20 years. The patient's father living at the age of 48 had 'high blood pressure', his paternal grandfather also had had 'high blood pressure'.

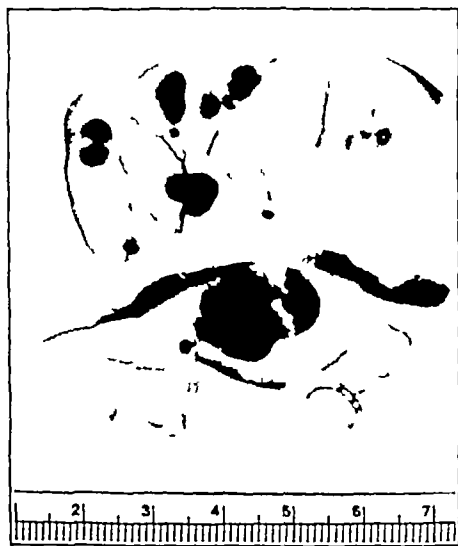


Fig 1—Sections of the kidney removed surgically (cleared by Spalholz method). The lower section shows an aneurysm ruptured through the cortex as the source of hemorrhage. The upper section shows two aneurysms at the bifurcation of an artery.

In 1923, at the age of 22, the patient had a series of furuncles on the back of the neck, relieved following the use of autogenous vaccine. Approximately one month later there appeared in the course of a few days, a gradually increasing pain across the lumbar region, with swelling of the underlying tissue. The patient was confined to bed for one month, during which time the pain and swelling gradually subsided. He was told at the time, as an incidental finding, that he 'had high blood pressure.' During the subsequent six years he felt well except for occasional attacks of sore throat and occasional nocturia and diurnal frequency. Tonsillectomy was done in 1929 with relief of the sore throats.

During 1930 there were frequent severe occipital and frontal headaches commencing usually at midday and relieved by a night's rest. Anorexia, vague aching pains in the lumbar region and easy fatigability were noted. Quite suddenly in January 1931 the patient was seized with a severe pain in the lumbar region. Urinalysis at the time showed red blood cells in the sediment. The pain gradually subsided. In the subsequent two months persistent headaches, weakness and loss of weight from 140 pounds to 118 pounds (from 63.5 to 53.5 Kg) led the patient's physician to advise study in a hospital for a suspected renal stone or renal infection.

Physical examination on entry showed that the patient was fairly well developed and in no discomfort. The retinal vessels showed marked sclerosis, the retina of each eye was pale, with scattered white spots around the macula and over the retina. Some of these white patches appeared to be depressed, resembling scars of former hemorrhages. No fresh hemorrhages were seen. The heart was moderately enlarged to the left and the sounds were very forceful. The second sound at the aortic area was accentuated and there was a soft systolic murmur at the mitral area. The rhythm was regular, the rate 110 per minute. The blood pressure was 235 systolic and 150 diastolic. The peripheral vessels showed marked thickening. The prostate was slightly enlarged, more marked on the left with areas of focal induration.

The red blood cell count was 5,200,000 per cubic millimeter, the hemoglobin, 90 per cent (126 Gm.) the white blood cells 13,100 and the differential showed polymorphonuclears 74 per

cent, polymorphonuclear eosinophils, 1 per cent, large lymphocytes, 2 per cent, small lymphocytes, 21 per cent, monocytes, 2 per cent. The nonprotein nitrogen of the blood was 33 mg per hundred cubic centimeters. The blood Wassermann reaction was negative. Urinalysis showed albumin varying from a faint trace to a heavy trace. The urinary sediment contained from 1 to 3 white blood cells and 1 or 2 red blood cells per high dry field and an occasional granular cast. The total excretion of phenolsulphonphthalein in two hours was 49 per cent. Cystoscopy showed an old stricture in the posterior urethra and mild generalized hyperemia of the bladder wall. Culture of the bladder urine showed *Staphylococcus albus*. Culture of urine from the renal pelvis was negative. Dye excretion from each kidney at the end of the first fifteen minutes after intravenous injection, was 13 per cent. Roentgen study of the left kidney, after injection of sodium iodide through the ureteral catheter, showed the organ to be normal in appearance except in the upper calyx, where some changes were noted but which were thought to be due to overdistention.

During the patient's eighteen-day stay in the hospital there was an irregular daily elevation of the temperature to a maximum of 37.8 C (100 F). The pulse rate was rapid. The blood pressure remained elevated. Symptomatically the patient improved. On discharge he was advised to continue moderated activity, a low protein low-salt diet, prostatic massage and bladder irrigations. The diagnosis on discharge was marked arteriosclerosis and hypertension, chronic nephritis of the arteriosclerotic type, chronic prostatitis and cystitis.

Shortly after discharge the pain in the lumbar region recurred and persisted with moderate severity throughout the next three months. Weakness and headache were progressive and the patient also noted rapidly failing vision. Distention of the abdomen, nausea, vomiting and constipation became prominent. The blood pressure remained elevated to about 210 systolic and 140 diastolic.

August 22, the evening before the second entry, the patient was sitting quietly in a chair when he was suddenly seized with a severe pain in the right lumbar region. The pain was intense and sharply localized for several hours, and the overlying muscles seemed to be 'tied into a knot.' The position of flexion was most comfortable. Chiropractic manipulations were administered and relieved the muscle spasm slightly, but there was considerable soreness in the lumbar region and a pain was noted in the lower right quadrant of the abdomen. A physician

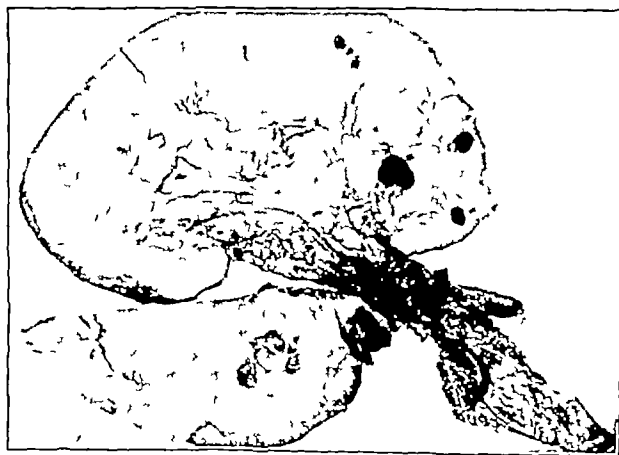


Fig 2—Longitudinal section through the left kidney showing aneurysms and mal dilatation of the arteries.

was called who administered opiates and advised immediate removal to the hospital.

**Second Entry**—On this entry, August 23, the patient was restless irritable and markedly undernourished. He appeared to be acutely ill and complained of acute pain in the right lumbar region. The skin and mucous membranes were pale. Both ocular fundi showed hazy disk margins. The disks and surrounding retinas were paler than normal and the small tortuous arteries appeared almost bloodless. Patches of white exudate surrounded the vessels, and about the maculae there

were star-shaped patches of exudate. The carotid pulsations were forceful. The heart was enlarged to the left. The first heart sound was split in a sharply localized area at the apex. The second sound was markedly accentuated especially at the aortic area. No murmurs were heard. The rhythm was regular. All the palpable peripheral vessels were markedly thickened. The blood pressure was 185 systolic and 125 diastolic. On palpation the abdominal wall was rigid and tender. An irregular mass was identified in the right upper quadrant,

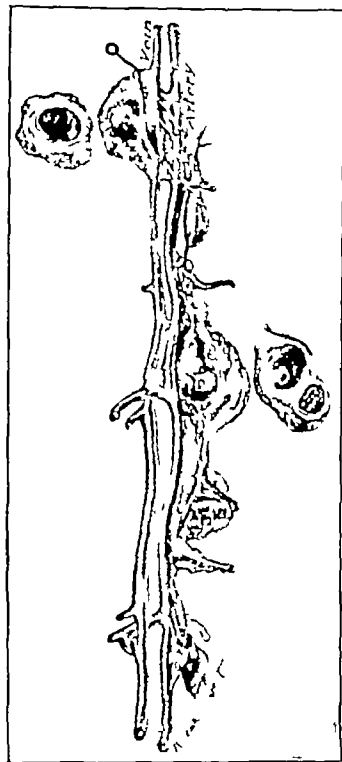


Fig 3—Right internal mammary artery and vein. The large nodules were embedded in the intercostal space. Communication of these nodules with the arteries could not be demonstrated. The smaller nodules were in communication with the arteries. They had thick fibrous walls with a minute central blood clot. Occurrence of the nodules at the bases of the branching arteries may be noted.

the bladder wall with a trigonitis. Roentgen study of the right kidney, after injection of sodium iodide through a ureteral catheter, showed the renal pelvis to be normal except that it was displaced outward. It changed position very little when the patient was in the vertical position. There was a suggestion of a rounded soft tissue shadow down the right side of the spine. Study of the colon with a barium enema was negative. On roentgen study the chest heart and lungs appeared normal.

There was gradual slight improvement in the patient's condition during the first thirteen days of residence. A persistent irregular fever with the maximum to 38 C (100.4 F), a continuously rapid pulse rate, persistent leukocytosis, the presence of the abdominal mass and the pain in the lumbar region led to a diagnosis of perirenal abscess and were considered indications for operation.

The patient was transferred to the genito-urinary service of Dr. Frank Hinman. A right nephrectomy incision was made and a large firm mass bulged into the wound. The tense perirenal fat was broken through with the expulsion of a large amount of clotted blood. The hematoma was found to be in and beneath the perirenal fat and infiltrated about the kidney. A right nephrectomy and adrenalectomy were performed. The source of the hemorrhage was not found. There was no untoward bleeding during the operation and the renal fossa was dry when the wound was closed.

Following the operation a transfusion of 525 cc. of whole blood was given from a compatible donor. For several hours

thereafter the patient appeared to be in good condition. Eight hours after the operation he complained of severe abdominal pain and presently went into shock. Two hours later he died of respiratory failure in spite of supportive measures.

#### PATHOLOGIC STUDY

The specimen consisting of the kidney surrounded by a mass of blood clot weighed 450 Gm. The kidney, when dissected away from the clot weighed 130 Gm. There were fragments of the adrenal gland in the blood clot. On cut section numerous dilated thrombotic vessels were noted in the renal cortex. One of these had ruptured through the capsule and was probably the source of the perirenal hemorrhage (fig 1). The renal tissue was coarsely granular and the arteries were thick walled. The histologic changes corresponded to those to be described in the postmortem tissues.

The necropsy was performed eleven hours after death. There was a slight baldness on the crown of the head. The left axillary lymph nodes were palpable. There was a recent unhealed incision in the right lumbar region, closed by sutures.

When the abdomen was opened, the cecum was seen to be pigmented with fine black particles, which proved to be recent subserosal hemorrhages. There were several encapsulated masses of dry blood in the mesentery. The viscera otherwise appeared to be normal in size and position.

When the thorax was opened three nodules about 8 mm. in diameter were noted along the course of the internal mammary artery (fig 3). These all contained old dry blood. The pleura and pericardium were normal.

The heart weighed 400 Gm. Two gray, firm, translucent nodules 0.5 cm. in diameter were observed on the anterior surface of the right ventricle. These nodules lay in contact with an artery. On section they were seen to be completely organized and had no lumens. There were no valve defects. The coronary arteries were not sclerosed. There was extreme left ventricular hypertrophy without dilatation. The left ventricular wall was 30 mm. thick, the right was 4 mm.

The lungs were relatively normal. The dependent parts were moderately congested. No nodules were noted.

The liver weighed 1800 Gm. It was pale yellow except for several depressed red areas on the surface. These areas were irregular in outline. The largest one was 4 cm. in diameter. On section the lobular architecture was distinct except in areas of intense congestion such as those noted on the surface. These areas usually had a very thick walled artery in their center. There were also numerous encapsulated masses of old dry blood similar to those occurring in other organs. These were aneurysms and usually occurred at the side of a thick walled artery. Communication with the lumen of the artery was not observed. The hepatic artery was small and cordlike without a visible lumen.

The spleen weighed 185 Gm. It was pale pink and rather soft. One large and several small aneurysms were present in the parenchyma. The large one was 2 cm. in diameter.

The splenic artery was opened along its course. There was a very marked atherosclerosis. The plaques were soft and were conspicuous in size and thickness at the mouths of the arterial branches so that the orifices of the branches were very small. Encapsulated masses of dry blood occurred in nodules along the course of the splenic artery. These nodules did not appear to have arisen within the pancreas but encroached on it.

The stomach was dilated, containing about 120 cc. of watery fluid. There were a few congested vessels in the submucosa. Two encapsulated masses of hemorrhage were found beneath the mucosa. The largest one was about 2 cm. in diameter. Its periphery was bright yellow while the center was dark red. Along the course of the right gastroepiploic artery and the left gastric artery were many small nodules. Some contained dried blood and some were completely fibrosed. The

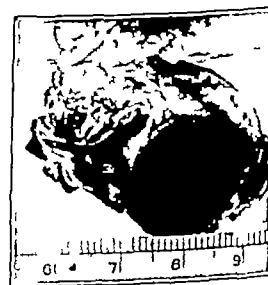


Fig 4—Cross section of pancreas showing an aneurysmal dilatation of the splenic artery compressing the pancreas.

nodules were nearly always at or near the root of a branching vessel. A few nodules were found in the mesentery. There were no other lesions in the alimentary tract. The posterior peritoneum was pushed forward by the perirenal hemorrhage. This mass of hemorrhage extended from the diaphragm to the brim of the pelvis. It filled the whole right flank and extended a little over to the left side.

The ligatures at the hilus of the amputated kidney were examined in situ and found securely tied. The middle right

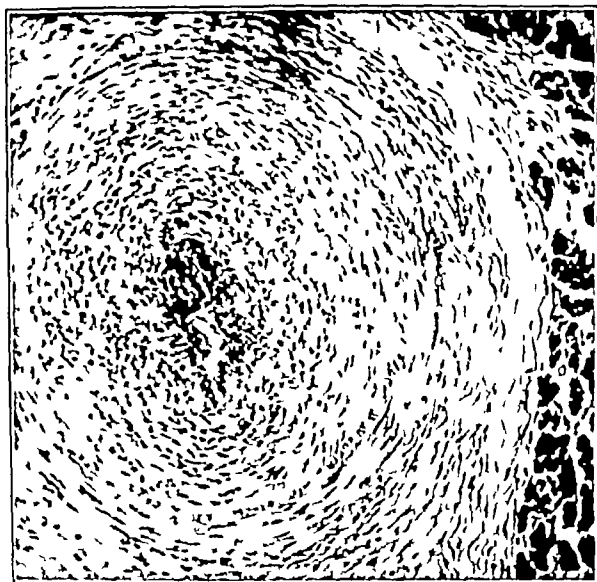


Fig 5—Artery showing the intimal proliferation and infiltration with eosinophils

adrenal artery projected as a stump into the mass of hemorrhage. There was a nodule just proximal to the severed end of the artery. This adrenal stump was the apparent source of the last hemorrhage. Fragments of the adrenal gland were found in the mass of hemorrhage. As far as could be determined the gland was normal except for fragmentation. Three nodules containing old blood occurred along the course of the middle adrenal artery on the left side.

The left kidney was pale. The surface was finely granular. It appeared to be within normal limits in size. The structures at the hilus were normal in their relations. The renal artery was moderately sclerosed. On section, a number of nodules were found throughout the kidney (fig 2). These were never more than 8 mm in diameter. In some the dry blood was red and in others brown. The bladder and prostate appeared to be normal. There was a small unencapsulated area of brown pigmentation, apparently old blood, in one testis.

The aorta and the iliac arteries showed moderate sclerosis with atheromatous plaques along the intima.

The arteries at the base of the brain showed a well marked atherosclerosis. When an attempt was made to tie one of the internal carotids, the vessel broke repeatedly under the suture. No hemorrhages or nodules were found in the brain. The skeletal muscles and eyes were not examined.

For brevity the microscopic appearance of the lesions in organs other than the kidneys will be described only as they showed some change not present in the kidneys.

Both kidneys showed a slight diffuse fibrosis. The glomeruli were little changed. Occasionally there was some fibrin and serum in the capsular space. The capsules were slightly to moderately thickened. The tubular epithelium was degenerated in some fields, and in a few areas the tubules were dilated by hyaline casts. Small recent infarcts were noted. There was a conspicuous intimal thickening of the arterioles with a corresponding reduction in the size of the lumen (figs 5 and 6). Several aneurysmal nodes occurred. They had walls comparable to those of medium sized arteries. In some instances the thin hyalinized wall was concentrically dissected apart by recent hemorrhage (fig 7). In the walls of these nodes one rarely found a stippling of calcium (fig 8). A lymphocytic

infiltration of the wall was common. Rarely a few polymorphonuclear leukocytes were found in and about the walls dissected by hemorrhage. Hemosiderin-laden macrophages were present. The lumens of some of the nodes showed early stages of organization. At the periphery of the older nodes the blood pigment was collected and stained a bright orange (hematoxylin-eosin stain). The right perirenal hemorrhage showed early organization.

In the heart and along the splenic artery, some of the lesions appeared to be more recent. In the nodes along the coronary arteries hyaline necrosis of the muscularis occurred. Repair of the vessel wall was evidenced by fibroglial proliferation. Eosinophils were scattered throughout the wall and around the nodules on the splenic artery. The lesions of the splenic and coronary arteries appeared to be more recent than those of the kidney.

The anatomic diagnosis was 1. Periarteritis nodosa involving the mesenteric, hepatic, splenic, renal, adrenal, gastric, cardiac and internal mammary arteries. Recent right nephrectomy, extensive right perirenal hemorrhage. 2. Arteriosclerosis most extensive in the pancreatic, splenic and cerebral arteries.

#### COMMENT

The duration of the clinical symptoms of this disease is said to be from a few weeks to six months, rarely a year. However in one of the instances reported by Arkim<sup>6</sup> the patient lived four years after his one and only attack of acute illness. When he eventually died, from cardiac and renal insufficiency, histologic evidence of old healed lesions of periarteritis nodosa were found at autopsy. Seven years before his death our patient had an acute illness which might be interpreted as an acute exacerbation of this disease. The finding of a hypertension at the time of this first illness is presumptive evidence at least of the presence of the disease at that time. There was then a long period of freedom from symptoms, during which time it may be assumed



Fig 6—Artery showing intimal proliferation

that the lesions underwent healing and the disease became quiescent.

Our patient was referred to the hospital by his private physician because of a suspected renal stone. After the first period of observation a diagnosis of chronic nephritis was made. Six months later a diagnosis of perirenal abscess seemed justified and an operation was performed. A perirenal hematoma was found and the kidney with the surrounding hematoma was



removed. The patient died ten hours after the operation from another massive hemorrhage into the renal fossa. On studying the histories of other patients with periarteritis nodosa it is found that all these diagnoses have been made, erroneously, from time to time.

The frequent involvement of the kidney in this disease has been emphasized by Gruber,<sup>7</sup> who found an incidence of 74 per cent involvement, and by Arkin,<sup>6</sup>

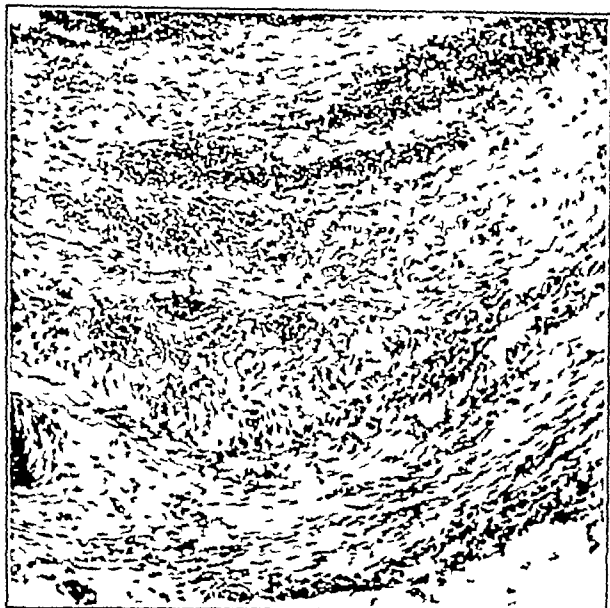


Fig 7—Wall of an artery showing hemorrhage and organization

who found an incidence of 80 per cent involvement. The usual clinical signs pointing to the kidney are those of a nephritis and consequently the most frequent clinical diagnosis has been "hemorrhagic nephritis." Acute surgical conditions of the kidney have been diagnosed occasionally. In two of the cases reported by Hauser,<sup>8</sup> operations were performed because of a mistaken diagnosis of an acute surgical condition of the kidney. Gray<sup>9</sup> reported a case in which a preoperative diagnosis of perinephric abscess was made. The patient died five days after operation and the lesions of periarteritis nodosa were found at autopsy. Keegan<sup>10</sup> reported a case in which a "surgical condition of the kidney" was suspected, and the operative specimen showed the changes of periarteritis nodosa. Wordley<sup>11</sup> reported a case in which a diagnosis of renal calculus was made and then later changed to renal neoplasm. When the patient died about two months after the onset of the illness, autopsy again showed the lesions of periarteritis nodosa. In at least eight cases of periarteritis nodosa found in the literature,<sup>12</sup> death has been due to renal or perirenal hemorrhage.

7 Gruber, G. B. Kasuistik und Kritik der Periarteritis nodosa. Zentrabl. f. Herz u. Gefasskr. 16: 198 (1926).

8 Hauser, H. Beitrag zur Frage der Periarteritis nodosa. Frankfurt Ztschr. f. Path. 36: 22 (1923).

9 Gray, J. Case of Periarteritis Nodosa. J. Path. & Bact. 32: 787 (Oct.) 1929.

10 Keegan, J. J. Primary Vascular Nephritis or Renal Periarteritis Nodosa. Arch. Int. Med. 36: 189 (Aug.) 1925.

11 Wordley, E. A Case of Cortical Necrosis of the Kidney. Lancet 2: 927 (Oct. 27) 1923.

12 Schmidt, J. E. Ueber Periarteritis nodosa. Beitr. z. path. Anat. u. z. allg. Path. 43: 455 (1908). Walter, H. Beitrage zur Histopathogenese der Periarteritis nodosa. Frankfurt Ztschr. f. Path. 25: 306 (1921).

Janssen, P. Zur Klinik der intrarenalen Aneurysmen. Ztschr. f. urol. Chir. 10: 130 (July) 1922. Mertens, E. Ueber Periarteritis nodosa mit Massenblutung ins Nierenlager. Klin. Wchnschr. 1: 1841 (Sept. 9) 1922.

Harris, W. H. and Friedrichs, A. V. Periarteritis Nodosa with Classification of the Pathology. J. M. Research 43: 285 (June-July) 1922.

Lowenberg, W. Beitrag zur Klinik der Periarteritis nodosa. Med. Klin. 19: 207 (1923). Laux, F. J. Zur Klinik der Periarteritis nodosa. Mitt. a. d. Grenzgeb. d. Med. u. Chir. 38: 582 (1925).

Powell, R. E. and Pritchard, J. E. Periarteritis Nodosa with Report of a Case Involving One Kidney. Brit. J. Urol. 4: 317 (Dec.) 1932.

Goldstein and Wexler<sup>13</sup> have described the pathologic changes in the retinas of a patient dying with periarteritis nodosa. Although the fundi of their patient were reported as being normal during life, the authors suggested the possibility of ophthalmoscopy being of aid in recognizing the periarteritis nodules on the choroidal vessels of other patients. Gruber<sup>14</sup> tabulates thirteen cases with ophthalmoscopic examinations. All these patients had renal lesions. In eight of them the fundi were reported as normal and in three an albuminuric retinitis was described, so he concluded that the changes were secondary to the renal lesions. Friedenwald and Rones<sup>15</sup> have made pathologic studies of the retinas in periarteritis nodosa and found that the vessels showed an extreme degree of arteriosclerosis and did not differ in any way from those found in an ordinary uncomplicated albuminuric retinitis. The ophthalmoscopic picture thus far described in patients with periarteritis nodosa does not seem to be characteristic of the disease, but it is possible that in some cases correct diagnosis may be attained by the finding of tubercle-like lesions on the choroidal vessels. On the other hand, this finding might serve to confuse the diagnosis by bringing up the possibility of tuberculosis. In our case the retinal changes were described by the consulting ophthalmologist as being those of albuminuric retinitis. The long standing hypertension, with its resulting sclerotic changes, and the nephritis would readily explain the picture. Unfortunately, a pathologic study of the retinas was not made.

Herrman<sup>16</sup> has noted changes in the roentgenograms of the chest of a patient with periarteritis nodosa. He felt that these changes were probably due to vascular and perivascular inflammation and exudation together with associated congestion and small infarcts. He was



Fig 8—Wall of an artery showing deposits of calcium and fatty acid

of the opinion that confirmation of these changes in other patients with the disease is necessary before they can be considered characteristic of the disease. Roent-

13 Goldstein, Isadore and Wexler, David. The Ocular Pathology of Periarteritis Nodosa. Arch. Ophth. 2: 288 (Sept.) 1929.

14 Gruber, G. B. Zur Frage der Periarteritis nodosa, Virchows Arch. f. path. Anat. 258: 441 (1925).

15 Friedenwald, J. S., and Rones, Benjamin. Some Ocular Lesions in Septicemia. Arch. Ophth. 5: 175 (Feb.) 1931.

16 Herrman, W. G. Pulmonary Changes in a Case of Periarteritis Nodosa, Am. J. Roentgenol. 29: 607 (May) 1933.

genographic studies of the chest of our patient showed the lung fields to be clear

The general symptoms of this disease are those of any acute or chronic sepsis. The local manifestations are extremely variable because they are governed by the site of localization of the vascular lesions. Correct diagnosis during life is therefore very difficult. According to Rothstein and Welt,<sup>1</sup> only seventeen cases out of 195 (8.7 per cent) have been diagnosed accurately during life from the microscopic examination of a subcutaneous nodule removed by biopsy (twelve cases) or of a specimen removed at operation (five cases). In seven other cases a tentative diagnosis based on clinical symptoms alone was made and subsequently proved by autopsy.

At the present time it appears that the hope for more accurate diagnosis of periarteritis nodosa during life lies in the recognition of the existence of such a disease by the clinician and the inclusion of it in the differential diagnosis of unusual medical and surgical problems. Rothstein and Welt<sup>1</sup> aptly stated that "periarteritis nodosa should be considered in every case of acute or chronic sepsis with sterile blood cultures and a bizarre symptomatology unexplainable on a common basis particularly if associated with a severe anemia, a febrile course, gastro-intestinal symptoms, manifestations in joint, muscle or skin and signs of renal involvement together with an elevated blood pressure."

The etiology of periarteritis nodosa is obscure. Various theories have been advanced, the most acceptable of which proposes that the disease is infectious in origin. The very nature of the pathologic lesions suggests an infectious etiology. At the present time neither a filtrable virus nor a nonfiltrable micro-organism has been demonstrated as the causative agent. Culture of a smear taken from a mesenteric nodule at the time of autopsy of our patient showed *Staphylococcus albus*. As the autopsy was performed eleven hours after death, there was probably adequate time for organisms from the gastro-intestinal tract to invade the surrounding tissue.

The pathologic studies suggest that the causative agent has a predilection for arteries. It produces a patchy destruction of the media. The lesions tend to heal but complete morphologic and functional recovery does not take place. An aneurysm may develop in the weakened wall, or the lumen may be reduced or obliterated by the scar. The aneurysms, when they occur, may be completely walled off from the circulation and may show organization throughout. The lesions are not all in the same stage of the disease at the same time.

In this case the aneurysms were frequently found at the bases of the small arteries immediately distal to the point of branching from larger vessels. A tentative mechanical explanation of this finding is suggested by the fact that the intravascular pressure in the branching artery is highest at its base and diminishes progressively toward the periphery. The wall of the damaged vessel would be most likely to give way and form an aneurysmal dilatation in the region of greatest internal pressure. Forbus<sup>17</sup> has noted the occurrence of military aneurysms of the cerebral arteries at the angle formed by a branching vessel and has demonstrated a defect in the muscularis layer of the arterial wall, in normal and pathologic cases, at the point of bifurcation of the vessel.

Nieberle<sup>18</sup> has called attention to a disease found in deer, cattle, swine and dogs very similar or identical to periarteritis nodosa in man. Experimental studies with these animals might aid in clarifying the etiology and natural course of the disease.

#### SUMMARY

1 A diagnosis of perirenal abscess was made on a patient with a mass in the upper right quadrant of the abdomen, pain in the lumbar region, fever and leukocytosis. An operation was performed and a perirenal hematoma was found. The patient died a few hours after operation from a second hemorrhage into the renal fossa.

2 Necropsy revealed the characteristic lesions of periarteritis nodosa involving the mesenteric, hepatic, splenic, renal, adrenal, gastric, cardiac and internal mammary arteries.

3 The history suggests that the duration of the disease in this patient was seven years.

4 The pathologic study showed that the aneurysmal dilatations were most frequently found at the base of a branching vessel.

The University Medical Center

## A CASE OF SPONTANEOUS HEMOPNEUMOTHORAX

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Hemopneumothorax is not a common condition. The majority of cases follow trauma, either in military or in civil life, but the spontaneous form is distinctly rare. After a scrutiny of the literature for the last thirty-four years I have been able to find only thirteen recorded cases.

Ten of these reported cases deserve to be called spontaneous for lack of any definite cause, such as demonstrable disease or trauma. The remaining three were due to tuberculosis and one of them was complicated by artificial pneumothorax. Among the ten spontaneous cases three were fatal and seven patients recovered, of the three tuberculous patients, two recovered and the one with artificial pneumothorax died. These thirteen cases are all true cases of hemopneumothorax and not just hemothorax or pneumothorax. The term hemopneumothorax should be applied to cases of lung collapse with undoubted blood and air within the pleural cavity and not just blood-stained serum (hemorrhagic effusion), such as is occasionally seen in malignant disease of the lung.

#### THIRTEEN CASES FROM THE LITERATURE

CASE 1—Dr G. Newton Pitt,<sup>1</sup> who recorded a case in 1900, states that "there is no reference to hemopneumothorax in the Index Catalogue of the United States Library, nor is it discussed in any of the standard treatises on medicine in English, French or German" and at that time he could find only one case in the literature unassociated with trauma. This case was recorded in the Guy's Hospital records and revealed a case of hemopneumothorax due to the rupture of an aneurysm in a large phthisical cavity at autopsy. Pitt's patient was a young man who was seized with sudden pain in the right shoulder and who collapsed. There were signs of fluid and air in the right side of the chest. A Southey's tube was inserted into the sixth space in the right axilla, with the removal of blood and

17 Forbus W. D. On the Origin of Military Aneurysms of the Superficial Cerebral Arteries. *Bull. Johns Hopkins Hosp.* 47: 239 (Nov.) 1930.

18 Nieberle K. Zur Kenntnis der Periarteritis nodosa bei Tieren. *Virchows Arch. f. path. Anat.* 260: 587, 1928.

1 Pitt G. N. *Tr. Clin. Soc. London* 33: 90, 1899, 1900.

air Death ensued the same day Autopsy revealed no tuberculosis and the only abnormality was a pleural adhesion and an emphysematous bulla, which had ruptured The adhesion from the bulla to the pleura was torn across No obviously patent vessel could be seen, but the adhesion was suggested as a probable source of the bleeding

CASE 2—Sir Humphry D Rolleston,<sup>2</sup> also in 1900 reported another case A young man was seized with pain in the right shoulder and right hypochondrium The abdomen was resistant and did not move well, the liver dulness was normal Twenty-five hours after the acute onset he was in extreme collapse and with a pulse of 160, running in character and irregular Three days later the signs were those of a pneumothorax On the following day the trocar of an aspirator was inserted into the sixth interspace in the right anterior axillary line, a tube attached to the trocar was brought up under water Although the chest was hyperresonant, only dark blood came out As it appeared possible that the trocar had passed into the liver and drawn off blood from a large branch of the portal vein, it was withdrawn and again introduced in the fifth right interspace in the parasternal line Air then came bubbling out at high pressure from the tube under water, as the air escaped it was followed by dark blood, which also came out at considerable pressure The patient died eight days from the onset At autopsy the right pleural cavity contained 60 ounces (1,775 cc) of dark fluid blood with a few ounces of blood clot There was no evidence of lung rupture, no tuberculosis no leakage from the pulmonary artery, there were normal glands of the chest normal intercostal and internal mammary arteries and no signs of scurvy in the joints with no evidence of the source of blood or air into the pleural cavity

CASE 3—Ness and Allan<sup>3</sup> in 1910 reported that a clerk, aged 31, was seized with pain and tightness in the left side of the chest, and dyspnea There were marked signs of hydro-pneumothorax A thoracentesis was done and 5 ounces (148 cc) of blood mixed with serum was removed No further thoracentesis was done Six weeks after admission all signs had disappeared and the patient went back to work Three months later he was perfectly well Examination of the sputum always gave negative results

CASE 4—Thomas Bushby<sup>4</sup> in 1913 reported the case of a youth, aged 17 with a spontaneous hemopneumothorax with collapse The chest was tapped twice and bloody fluid removed each time following which signs of pneumothorax persisted for a while and finally ended in recovery and discharge There was some suspicion of the patient being of a hemorrhagic diathesis, which was supported by the fact that troublesome bleeding had occurred on the occasion of the extraction of teeth and that he had bled freely from small wounds The case was regarded as one of rupture of the lung, probably due to a small superficial cavity with simultaneous laceration of a small vessel

CASE 5—Charles Spencer Williamson<sup>5</sup> in 1917 reported that a young man, while drinking water over a faucet, felt something 'crack' in the left side of the chest with pain and signs of collapse, coming on gradually The signs of hydro-pneumothorax with succussion splash and coin sound were elicited During several months the chest was aspirated twelve times with from 12 ounces (355 cc) to 1 liter of bloody fluid being removed each time Cultures of the fluid remained sterile Inoculation of the fluid into a guinea pig did not lead to the development of tuberculosis in the animal Tumor was ruled out No sputum was obtainable The patient's recovery was uneventful In spite of all the negative tests Williamson expressed the belief that the pneumothorax was caused by either a small emphysematous bleb or a small focus of tuberculosis The hemorrhage he explained as old adhesions in the vicinity of the apex with perhaps development of ectatic veins or a solitary aneurysm

CASE 6—Krause and Heise<sup>6</sup> in 1920 reported an unusual case of tuberculosis terminating in spontaneous hemopneumo-

thorax following artificial pneumothorax The autopsy revealed, on the anterior surface of the lung, 5 mm away from an adhesion, a small hole about 2 mm in diameter in the center of an umbilicated area that was 8 mm in diameter This umbilicated area consisted of pleura reduced to the thinnest of tissue paper, which then sank down into the depression made by a small subpleural vomica, which it overlay and which was about the size of a cherry The hole in the center of this area led directly into this cavity However, the bleeding point could not be made out definitely

CASES 7 and 8—G A Allan<sup>7</sup> in 1925 reported two cases. Neither patient had suffered trauma and both recovered

A man aged 20, a steel worker, was seized with a sudden sharp pain in the left side of the chest Six hours later he had a complete collapse Signs of pneumothorax with succussion splash, tinkle and amphoric echo were present, and dulness posteriorly Exploratory aspiration of the chest revealed pure blood After eighteen days the patient recovered About ten months later a roentgenogram of his chest was taken, which was reported on by Dr Riddell as follows "The appearances indicate a distinct slight tuberculous lesion near the base of the left lung There also appear to be very slight scattered lesions on the right side" The patient's history also showed that he had previously been treated for pleurisy

A man, aged 38, had preliminary pains in the right shoulder blade for one day, which ceased if he sat down or ate a meal The same evening he was seized with a sudden sharp pain on the right side of his chest, felt faint and almost collapsed Examination disclosed an amphoric murmur, a succussion splash, a tympanic percussion note and shifting dulness Heart dulness was heard 2 inches to the left of the left nipple line Exploratory puncture of the right side of the chest revealed pure blood Strapping of the chest gave the patient relief and he made a rapid recovery A roentgenogram taken about five months after the attack was reported on by Dr Riddell as follows "The right side is distinctly less translucent than the left The lung is not fully expanded but the space is less translucent than the lung, there is probable fluid present I am of the opinion that tuberculosis is present in the upper half of the right lung" On the roentgen examination in both cases it seems safe to assume that both patients were tuberculous, although both recovered and were able to resume work

CASE 9—Doria<sup>8</sup> in 1928 reported the case of a young man seized with pain in the right shoulder and shortness of breath Diagnosis of hydro-pneumothorax was made and 400 cc of air was removed Eight days later because of increasing pain and dyspnea, 200 cc. of bloody fluid was removed Bloody fluid was removed several times and replaced by nitrogen to prevent further bleeding The patient recovered in about three months and was well two years later

CASE 10—Lewis M Hurxthal<sup>9</sup> in 1928 reported the case of a young man seized with pain in the right shoulder shortness of breath and pallor Blood and air were found in the right side of the chest On the third day 2,400 cc of venous like blood was removed from the chest and replaced with an equal amount of air This procedure was repeated once, about a week later The patient soon recovered and was well after an interval of four months

CASE 11—Arthur H Terry Jr<sup>10</sup> in 1930 reported a case in which a man aged 34 was seized with pain in the left shoulder, dyspnea and collapse He had an attack of pleurisy five years previously A diagnosis of hydro-pneumothorax was made Fourteen ounces (414 cc.) of blood was removed from the left side of the chest Three days later 530 cc of dark red bloody fluid mixed with air, was removed The patient improved Later, dyspnea and cyanosis returned The patient was placed in an oxygen tent with improvement He was discharged three months after the onset One year later he was perfectly well Roentgen examination revealed the chest normal

CASE 12—A T Milhorat<sup>11</sup> in 1931 reported that a man aged 20, felt a sudden sharp steady pain in the left shoulder while riding comfortably in the subway Eleven months previ-

2 Rolleston H D Tr Clin Soc London 33 96 1899 1900  
3 Ness R B and Allan G A Brit M J 1:744 (March 26) 1910  
4 Bushby Thomas Brit M J 2 1624 1913  
5 Williamson C S M Clin Chicago 2:1159 1173 1917  
6 Krause A K and Heise F H Am Rev Tuberc 3 788 (Feb) 1920

7 Allan G A Clin J 54 440 (Sept. 16) 1925  
8 Doria R Riforma med 44 552 (May 7) 1928  
9 Hurxthal L M New England J Med 198:687 (May 17) 1928  
10 Terry A H Jr New York State J Med 30 1100 (Sept. 15) 1930  
11 Milhorat A T Am J Surg 12:315 (Aug) 1931

He had a moderate appetite, with some irregularity in taking meals. The bowel movements were fairly regular, he never required a cathartic or laxative. He smoked twenty cigarettes a day.

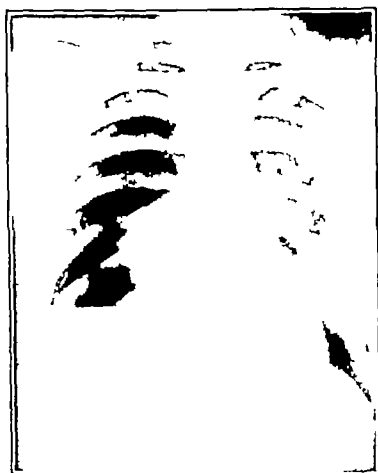


Fig 3 —Fluid level October 13

There was much dental gold work and many teeth were missing. The mucous membrane of the oral cavity was intact. There were no areas of patches, sores or ulcerations.

<sup>12</sup> 1931 Housden E G and Piggot Allen Brit M J 2 941 (Nov 21)

In the neck there were no palpable lymph glands. The thyroid was not palpable.

The apex of the heart was clearly visible and palpable, slightly outside the left nipple line. The sounds were regular and of good force. There were no irregularities, murmurs or friction rub. The aortic second and pulmonic second sounds were both normal. Heart dullness was shifted slightly to the left, the apex one-half inch to the left of the nipple line.

There was marked rigidity of the abdomen in the right upper quadrant and the liver dullness area was markedly diminished

even on deep percussion especially on the upper border. The liver was not palpable.

There was no dysuria. There was a very faint trace of albumin in the urine. No pus or casts were found. No pain was present in either kidney area.

Examination of the skin, the bones and joints and the glands gave negative results.

The reflexes were normal to stimuli.

The impression and provisional diagnosis were pneumohydrothorax.



Fig 4—Appearance of chest October 21

A roentgenogram (fig 1) taken on the day of admission showed a complete pneumothorax on the right side with a complete collapse of the lobes of the right lung. The mediastinal shadow, including the heart, was shifted slightly to the left and the left lung fields showed a diminution in the amount of aeration, there was considerable amount of fluid in the right base.

The roentgen diagnosis was complete pneumothorax of the right side of the chest, with hydrothorax.

**Treatment and Course**—The patient was given codeine for the cough and pain, one-half grain (0.03 Gm) every four hours. His temperature remained around 100 F and his pulse varied from 90 to 100 and at no time during his stay in the hospital did his temperature exceed 101 or his pulse 100. Enemas were given for evacuation and in spite of this, defecation materially increased the pain in the chest, which was felt mostly in the region of the right shoulder and down the right arm. The following day September 19, the patient had less pain and was able to sleep several hours that night. His condition did not change materially and on September 27 a second roentgen examination was made (fig 2), which still showed complete collapse of the right lobes, the only difference from the previous examination was the increase in the amount of fluid in the right thorax. The left lung fields still remained clear.

As the patient's condition was comparatively good and as the true character of the fluid within the chest was not suspected up to this time it was decided to treat him expectantly. A third film taken October 13 (fig 3) demonstrated the right lung to be more than half aerated with the fluid level extending up to the third rib anteriorly. The heart and trachea showed a moderate displacement to the left side.

The diagnosis was hydropneumothorax, with evidence of more fluid at this examination.

It was decided to do a thoracentesis, and on October 14, under procaine hydrochloride anesthesia, 420 cc of bloody fluid was removed from the right side of the thorax, specimens of which were sent to the laboratory for guinea-pig inoculation, for smears and for culture. The withdrawal of fluid had to be interrupted on reaching 420 cc. because of an attack of syncope. The laboratory examination of these specimens revealed many red blood cells on direct smear, with only a few

scattered lymphocytes and polymorphonuclear leukocytes. No bacteria were seen. A culture was sterile after seven days. The results of guinea-pig inoculation were reported on November 25. Fragments of the liver and the spleen removed from a guinea-pig that had been injected five weeks previously with bloody fluid from the thorax gave no gross evidence of tuberculosis. Sections taken through the liver and spleen showed no evidence of tuberculosis.

The blood Wassermann reaction with alcoholic antigen and with cholesterinized antigen was negative.

Sputum, obtained with great difficulty, was negative for tubercle bacilli on two separate examinations.

The patient rallied quickly from his syncope but felt fairly weak for twenty-four hours. He was given hot liquids and external heat. A blood count October 18 showed hemoglobin 82 per cent, red blood cells 5,200,000, white blood cells 14,000 polymorphonuclears 58 per cent lymphocytes 32 per cent. No abnormal cells were seen. October 20 a fluoroscopic examination showed the fluid level up to the second interspace in the right side of the chest. On inspiration the fluid rose to the height of the first interspace. It was determined to do a further thoracentesis and accordingly on October 21, with procaine hydrochloride anesthesia, 800 cc. of bloody fluid was aspirated from the right side of the thorax. The film immediately following the aspiration (fig 4) demonstrated a hazy shadow involving the lower half of the right lung field, which could be the result of a thin layer of fluid or of a moderately thickened pleura. There was no evidence of a new growth of either lung field. The mediastinum and heart were in the midline at this time.

Within the next few days the patient had slight pain in the right chest and examination disclosed audible friction sounds anteriorly and moderate dullness at the right base posteriorly which was interpreted as being due to a thickened pleura and some fluid. The patient's condition gradually improved until November 1, when he was discharged from the hospital for further convalescence at home. Examination at the hospital, just previous to his discharge still showed friction sounds on the right side and slight dullness at the base posteriorly.

A subsequent chest film which was taken November 28 (fig 5), demonstrated the lung fields to be clear with no evidence of a tuberculosis or pneumonic process on either side. The heart was small, and globular in type.

The roentgen examination gave results within normal limits. There was no evidence of the previously reported hydropneumothorax (hemopneumothorax) of the right lung.

In May 1934, six months after his discharge and seven and one-half months after the onset of illness, his condition was very satisfactory. He has been working at his trade as an upholsterer since the first of January and feels no discomfort. He has gained about 8 pounds (3.6 Kg).

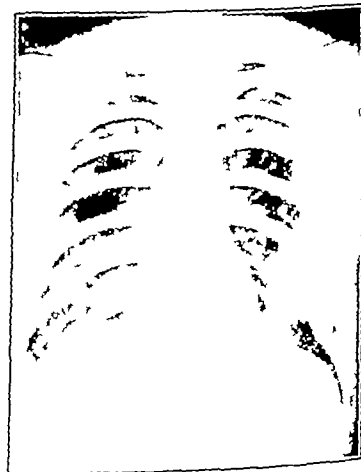


Fig 5—Lung fields clear November 28

#### COMMENT

This case, as well as the thirteen reported previously, is of interest because of the hemorrhage accompanying the pneumothorax. Pitt in his report cites Pagenstecher's experiments, which showed that the pleurae, similar to the blood vessels, are capable of keeping contained blood fluid for a long time and that the production of clotting is, similarly to that of thrombosis,

often started by a lesion of the walls. Two hours after blood was injected into the pleural cavity experimentally it was almost clear fluid, after six hours there was a fluid resembling blood in appearance, but it would not clot. No inflammatory changes were induced. The pleura therefore can keep the blood fluid but not unaltered. A considerable portion of the fluid is absorbed. In his experiments blood in the pleura was absorbed in a fortnight, but Wintrich concluded that a traumatic hemothorax required from six to twenty-eight days to absorb.

Pitt, in the same article, cites Blumenthal,<sup>13</sup> who in 1868 collected fifty-five reported cases of nontraumatic hemothorax, which he classified as follows: (1) tubercle, nineteen cases, (2) secondary to other diseases fifteen cases, (3) primary, nine cases, (4) malignant disease of the pleura, twelve cases. An examination of the notes shows that there was an effusion of blood in only three of the so-called primary cases and in five of the malignant, and that in almost all the others the fluid was only stained with blood.

Pitt further classifies pneumothorax as follows:

1 Punctured wounds of the thorax. Laceration of the lung or bronchi by compression of the chest or by fractured ribs. A punctured wound of the lung will not produce hemothorax unless an important vessel is injured but the smallest puncture may be sufficient to produce a pneumothorax.

2 Perforation of tuberculous cavities. This is by far the most common cause.

3 Empyema opening into the lung.

4 Abscess of the chest wall opening inward.

5 Perforating gastric ulcer, with a subdiaphragmatic abscess, burrowing upward.

6 Gangrene of the lung.

7 Acute abscess of the lung.

8 Bronchiectasis.

9 Pulmonary apoplexy with gangrene.

10 Hydatid.

11 Rupture of an emphysematous bulla. This has occurred in men apparently perfectly healthy and has often ended in recovery. Fraentzel<sup>14</sup> also has pointed out that the rupture may occur as the result of violent physical effort, in one case as the result of attempting to lift a heavy cask and in a case of Findlay's after attempting to stoop down backward.

12 Tracheotomy. This occurs when the operation does not relieve the obstruction or when the tube has been accidentally pushed down in the connective tissue to one side of the trachea or even when the incision is a very low one. An emphysema takes place into the connective tissue of the anterior mediastinum and then a rupture occurs, allowing the air to pass into the pleura.

13 Perforations of the esophagus.

Having considered all the possible causes of both hemothorax and pneumothorax per se I will now examine the four cases of hemopneumothorax that came to autopsy, among the previously reported thirteen cases, namely, Pitt's, Rolleston's, Heise and Krause's, and Housden and Piggot's cases, to see whether any conclusion can be drawn from these as to the probable factors at work in the production of hemorrhage besides pneumothorax and collapse of the lung. Three of these showed a torn pleural adhesion and a torn or ruptured emphysematous bulla, Rolleston's case being the only one that at autopsy showed no definite cause for either the pneumothorax or the hemorrhage into the pleural cavity.

Housden and Piggot, in the discussion of their case, emphasize the fact that they incline to the view that in Pitt's case and Krause and Heise's case, as well as their own case, the torn pleural adhesion and ruptured emphysematous bulla accounted for both the hemorrhage and the pneumothorax.

One other significant fact stands out clearly in all the fourteen cases, the present one included, and that is that all these victims of hemopneumothorax were males, a satisfactory explanation for which is lacking.

#### CONCLUSIONS

1 In a case of spontaneous hemopneumothorax, with recovery, in a young man, and thirteen collected cases from the literature, no definite etiology is demonstrable, but three of the previously reported cases point strongly to a torn pleural adhesion and a ruptured emphysematous bulla or bleb as the cause.

2 All cases reported, including the present one, occurred in the male.

3 Aspiration of the blood is the procedure of choice.

4 The condition is exceedingly rare.

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## DIPHTHERIA OF THE PENIS

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Diphtheria of the penis is a rare disease. A careful review of the literature reveals none reported at as early an age as my patient.

In 1930 Hoyne and Levy,<sup>1</sup> in reporting a case of diphtheria of the penis in a 7 year old boy, reviewed the literature, which disclosed only fifteen similar reports.

The first cases of diphtheria of the penis were reported in 1897 and, strangely enough, by three different observers in a period of a few months.

Munn,<sup>2</sup> in February 1897, reported three cases of this disease. One was in a 5 year old boy who developed the condition following circumcision. There were no cultures taken, and diphtheria antitoxin was not administered. The infection cleared up under local treatment. Another was in a 9 months old infant who was circumcised, following which a membrane developed at the site of operation which on culture showed Klebs-Loeffler bacilli. The mother was then suffering from faucial diphtheria. Thirty-five hundred units of diphtheria antitoxin was administered to the baby, but it died of toxemia and generalized hemorrhages. His third case occurred following circumcision in a 3 months old baby whose mother and brother had diphtheria. One thousand units of antitoxin was administered, with recovery.

In October of the same year Post<sup>3</sup> reported a case of diphtheria of the penis in a young adult whose wife, child and brother-in-law had diphtheria. No antitoxin was given to this patient, and ciliary paralysis of both eyes and postdiphtheritic paralysis of all four extremities developed.

Later that year, November 1897, McCollom<sup>4</sup> reported two cases. One was in a 4 year old boy who had scarlet fever and nasal diphtheria, diphtheria of the prepuce

1 Hoyne A. L. and Levy A. J. Diphtheria of the Penis. J. A. M. A. 94:1395 (May 3) 1930.

2 Munn W. P. True Diphtheria of Penis. Pittsburgh M. Rev. 11:43 (Feb.) 1897.

3 Post A. Diphtheria of Prepuce. J. Boston Soc. M. Sc. 2:6 (Oct. 19) 1897.

4 McCollom J. H. Two Cases of Diphtheria of Penis. J. Boston Soc. M. Sc. 2:22 (Nov. 16) 1897.

13 Blumenthal. Hémothorax non traumatique. Thèse de Paris 1868.

14 Fraentzel in Ziemssen's Cyclopaedia of the Practice of Medicine 4:739.

developed. Cultures were positive for Klebs-Loeffler bacilli, but antitoxin was not administered. His second case was in a 1½ year old boy with laryngeal diphtheria, in whom diphtheria of the penis developed although he had been circumcised several months before.

The next case appeared in the literature ten years later, when O'Brien,<sup>5</sup> in October 1907, reported the occurrence of diphtheria of the glans penis in a 13 months old baby three days following circumcision.



Fig. 1—Appearance of penis seventeen days after circumcision showing diphtheritic membrane.

The same year Beatty<sup>6</sup> reported diphtheria of the glans penis in a 3 year old boy with faucial and laryngeal diphtheria who had been circumcised four weeks previously.

Riva-Rocci,<sup>7</sup> in the same year, described two cases of diphtheria of the penis in two boys, aged 1 and 4 years. The former was in contact with a sister who had diph-

theria. Both recovered following the administration of diphtheria antitoxin.

In 1912 Kolmer<sup>8</sup> reported two cases following circumcision, one in an 18 months and another in a 2 year old boy. Both recovered following the administration of diphtheria antitoxin, 7,200 and 4,800 units respectively.

Prinzing<sup>11</sup> in 1928 reported the occurrence of diphtheria of the penis in a man, aged 28, whose wife had a positive vulval and throat culture.

Vasile,<sup>12</sup> in the same year, told of a case in a boy, aged 16 months who had not been circumcised. Thirty thousand units of diphtheria antitoxin was administered in two injections.

In 1929, Schmidt<sup>13</sup> reported a diphtheritic infection of a wound of the penis and scrotum in a man.

Hoyne and Levy,<sup>1</sup> in 1930, reported the occurrence of diphtheria of the glans penis in a 7 year old boy, circumcised in infancy, who also had oral and nasal diphtheria.

In 1931 Molteni and Casazza<sup>14</sup> reported a diphtheritic infection of the glans penis in an infant.

A total of eighteen cases of penile diphtheria have been reported in the medical literature, fifteen in children and three in adults. One half were confirmed by culture and many patients recovered without the use of diphtheria antitoxin, so that the authenticity of the presence of the specific disease might be questioned. That patients with diphtheria may recover without antitoxin is not doubted, but one speaks more positively about a case if the organism has been recovered and the specific reaction to antitoxin is observed.

#### REPORT OF CASE

S. C. born at the Presbyterian Hospital, Sept. 2, 1932, was the first child of normal, healthy parents. The birth weight was 5 pounds 14 ounces (2,666 Gm.). Delivery was normal and the breathing spontaneous. The progress of the baby was retarded by the deficiency of breast milk and by frequent stools. Protein milk with a preparation of maltose and dextrin was prescribed, and the weight at 10 days was 5 pounds 13 ounces (2,638 Gm.). Evaporated milk feedings were prescribed for home use and the breast milk feedings were dispensed with.

#### Summary of Reported Cases of Diphtheria of the Penis

Author and Year	Under 1 Year	1 to 14 Years	Adult	Culture	Antitoxin	Circumcised	Other Diphtheritic Foci
Munn <sup>2</sup> 1897		5 years		None	None	10 days previously	
Munn <sup>2</sup> 1897	9 months			Klebs Loeffler bacilli +	3,500 units	Few days previously	Mother
Munn <sup>2</sup> 1897	3 months			None	1,000 units	Few days previously	Mother and brother
Post <sup>3</sup> 1897			+	None	None		Wife child and brother in law
McCullom <sup>4</sup> 1897		4 years		Klebs Loeffler bacilli +	None		Nasal
McCullom <sup>4</sup> 1897		1½ years					Laryngeal
O'Brien <sup>5</sup> 1907		13 months				Early in life	
Beatty <sup>6</sup> 1907		3 years				3 days previously	Faucial and laryngeal
Riva Rocci <sup>7</sup> 1907		1 year		Klebs Loeffler bacilli +	Three injections	No	Sister
Riva Rocci <sup>7</sup> 1907		4 years			Two injections	No	
Kolmer <sup>8</sup> 1912		18 months		Klebs Loeffler bacilli +	7,200 units		
Kolmer <sup>8</sup> 1912		2 years		Klebs Loeffler bacilli +	4,800 units		
Cochrane <sup>9</sup> 1921		3 years					
Bode <sup>10</sup> 1921		6 years					Faucial
Prinzing <sup>11</sup> 1928			28 years	Klebs Loeffler bacilli +			Wife
Vasile <sup>12</sup> 1928		10 months		Klebs Loeffler bacilli +	20,000 and 10,000 units	No	
Schmidt <sup>13</sup> 1929			+	Klebs Loeffler bacilli +			
Hoyne and Levy <sup>1</sup> 1930		7 years		Klebs Loeffler bacilli +		Yes	Oral and nasal
Molteni and Casazza <sup>14</sup> 1931	+	Further information not obtainable					
Reported here							
D. R. ..	+			Klebs Loeffler bacilli +	5,000 units	5 days previously	None
Rosenblum	+			Klebs Loeffler bacilli +	10,000 units	3 weeks previously	None
Borovsky	+			Klebs Loeffler bacilli +	5,000 units	10 days previously	None

The next reports appeared in 1921, Cochrane<sup>9</sup> reporting a case in a 3 year old and Bode<sup>10</sup> in a 6 year old boy. The latter patient also had faucial diphtheria.

- 5 O'Brien R. Diphtheria of Glans Penis Following Circumcision Brit. M. J. 2 908 (Oct. 5) 1907
- 6 Beatty R. P. Diphtheria of Glans Penis Following Circumcision Brit. M. J. 2 1582 (Nov. 30) 1907
- 7 Riva Rocci S. Una localizzazione rara della difterite Gazz. med. ital. 58 81 (March 24) 1907
- 8 Kolmer J. A. Diphtheroid Bacilli of Penis with Report of Two Cases Following Circumcision Arch. Pediat. 29: 49 (Feb.) 1912
- 9 Cochrane G. Diphtheria of Penis with Paralytic Sequelae Brit. J. Child Dis. 18 86 (April June) 1921
- 10 Bode P. Case of Diphtheria of Glans Penis in Boy of Six Arch. f. Kinderh. 70 112 (Oct.) 1921

Circumcision was performed at the hospital on the eleventh day under strictly aseptic conditions by a mohel who wore a mask and rubber gloves during the operation. Two days later he called at the home to dress the wound.

About ten days later the mother reported that the infant cried considerably and seemed to have 'colic'. The crying was

- 11 Prinzing J. F. Diphtheria of the Penis J. A. M. A. 90: 1620 (May 19) 1928
- 12 Vasile B. Primary Diphtheria of Prepuce, Pediatra 36 595-601 (June 1) 1928
- 13 Schmidt A. Infection of Wound of Penis and Scrotum Deutsche Ztschr. f. Chir. 215 125-129 1929
- 14 Molteni P. and Casazza R. Uncommon Example of Diphtheritic Type of Disease of Glans Penis in Infant Boll. d. Soc. med. chir. di Pavia 45 309-322 1931



later discovered to be due to painful urination caused by the swelling of the meatus. Telephone advice was given but the symptoms persisted and the patient was first seen at home fifteen days after the circumcision.

A necrotic, sloughing edematous area was seen at the site of circumcision with a thin grayish film over the glans (fig 1). Cellulitis was diagnosed at this time and hot dressings were prescribed. The infected area showed no improvement under this management, and the following day sixteen days after the circumcision, a culture on Loeffler's medium was taken and a pure culture of diphtheria bacillus was recovered.

Five thousand units of diphtheria antitoxin was then given intramuscularly and all other treatment discontinued. Two days later the membrane began to wrinkle and loosen from its base. The following day, four days after the antitoxin administration, the membrane was removed in toto (fig 2) and 1 per cent yellow mercuric oxide was applied.

Urination now became painless and the general condition of the infant improved. Bismuth formic iodide powder was then applied locally until complete healing resulted. October 20 thirty seven days after the operation.

There was practically no temperature reaction produced by the infection or by the antitoxin administration. The weight Oct. 13 was 7 pounds 6 ounces (3,345 Gm.) November 10 9 pounds 10 ounces (4,366 Gm.) The general condition improved regularly.

Active immunization against diphtheria with three injections of toxoid at monthly intervals was instituted at 4 months of age. A Schick test performed three months after the last injection, proved negative.

#### COMMENT

It is more than coincidence that in 1928 the same mohel had performed a circumcision that resulted in a case of diphtheria of the penis five days after the operation. The smears were positive for Klebs-Loeffler bacilli, and 5,000 units of diphtheria antitoxin was administered in two doses. Prompt recovery resulted.

Two other such occurrences are recalled by the Chicago health department authorities, but the records are no longer available.

This mohel had previously been discovered to be a diphtheria carrier and had been quarantined and treated a few years ago.

He was released after negative nose and throat cultures had been obtained.

He recently performed a circumcision on a 3½ weeks old premature baby in whom a diphtheritic infection of the penis developed that resulted fatally. The case was seen three weeks after circumcision by Dr. Philip Rosenblum, who



Fig. 2—Appearance four days after administration of diphtheria antitoxin.

has kindly consented to my report of this case along with my own. Cultures from the penis and from the nose were positive for Klebs-Loeffler bacilli. Ten thousand units of diphtheria antitoxin was administered, but the baby died of myocarditis and bronchopneumonia.

Circumstances point to the conclusion that this man has been directly responsible for the development of at least five cases of diphtheria of the penis following circumcision. As a result several hospitals have prohibited his operative work in their institutions.

#### SUMMARY

1 Only four cases of diphtheria of the penis have been reported in the literature occurring under 1 year.

2 The personally observed patient is the youngest one on record.

3 Information concerning two other authentic cases, one in the new-born period and one at 6 weeks of age, was received by personal communication.

4 Two other cases are recalled by the Chicago health department authorities.

5 In all five cases (three absolutely authentic, two reported from memory by Chicago health department authorities), circumcision was done by the same mohel.

6 Transmission of the diphtheritic infection probably took place in my case during the change of dressings at home two days after the circumcision. The mask and rubber gloves worn during the operation would probably prevent the infection at that time.

310 South Michigan Avenue

## PRIMARY ENDOMETRIOSIS OF THE URINARY BLADDER

### REPORT OF ONE CASE

ERLE HENRIKSEN, M.D.

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During the past decade the gynecologic literature has become heavily laden with discussions of the theories as to the nature and pathogenesis of endometriosis. Owing to the rarity of vesical endometriosis, a report of this case would seem to be warranted. Thirty cases of endometriosis of the urinary bladder have been found in the literature, but of these only twenty-one belong to the so-called primary group.

The genesis of endometriosis, as well as its mode of dissemination, is still an unsettled question. Briefly summarized, the more important of the theories may be arranged as follows:

1 Origin from the normal endometrial tissue of the genital tract.

(a) Proliferation in continuity through the walls of the uterus and tubes (Cullen,<sup>1</sup> 1896).

(b) Lymphogenous metastasis (Halban,<sup>2</sup> 1924).

(c) Propagation by retrograde menstruation (Sampson,<sup>3</sup> 1921).

2 Origin from embryonic remnants in the genital tract.

(a) The wolffian ducts (von Recklinghausen,<sup>4</sup> 1895).

(b) The müllerian ducts (Kossmann,<sup>5</sup> 1897).

3 Metaplasia of the serosal endothelium (Iwanoff,<sup>6</sup> 1898, Meyer,<sup>7</sup> 1924).

Experienced observers have adduced evidence in support of most of the theories mentioned. Most gynecologists, however, believe that the question of the pathogenesis of endometriosis is not yet settled and that the mechanism is probably not always the same.

From the Gynecological Department of the Johns Hopkins Hospital and University.

1 Cullen, T. S. Adenomyoma Uteri Diffusum Benignum, Johns Hopkins Hosp. Rep. 6: 133, 1896. Adenomyoma of the Round Ligament. Bull. Johns Hopkins Hosp. 7: 112, 1896.

2 Halban, J. Metastatic Hystero-Adenosis. Wien. klin. Wchnschr. 37: 1205 (Nov. 20), 1924.

3 Sampson, J. A. Endometriosis Following Salpingectomy. Am. J. Obst. & Gynec. 16: 461 (Oct.) 1928. Postsalpingectomy Endometriosis. ibid. 20: 443 (Oct.) 1930. Personal communication to the author.

4 von Recklinghausen, F. Die Adenomyome und Cystadenomyome der Uterus und Tubenwandung. Berlin. A. Hirschwald, 1896.

5 Kossmann, R. Origin of the Glandular Inclusions in the Adenomyomas of the Uterus and the Tubes. Arch. f. Gynak. 54: 359, 1897.

6 Iwanoff, N. S. Adenofibromyoma cysticum sarcomatodes carcinomatousum. Monatschr. f. Geburtsh. u. Gynak. 7: 295, 1898.

7 Meyer, R. Embryonal Genesis of Adenomyomas. Zentralbl. f. Gynak. 47: 577 (April 14), 1923. Peritoneum Hyperplasia of Peritoneal Endothelium. ibid. 48: 722 (April 5), 1924.

## ENDOMETRIOSIS—HENRIKSEN

JOUR. A. M. A.  
APRIL 20 1935

Cullen's theory of mucosal invasion has been accepted as an adequate explanation for uterine adenomyomas. The view of an origin by metastasis through the lymph spaces has few supporters. Sampson's implantation theory is probably the most widely accepted of all, especially in explanation of the origin of peritoneal and

including the present case, have appeared in the literature. The shallowness of the space of Retzius may account for the rarity of endometrial implants in this portion of the pelvis as compared with their relative frequency in the deep culdesac of Douglas. It is not uncommon to find endometrial implants at the base of the uterovesical peritoneal reflection following pelvic operations, though in such cases the walls of both the uterus and the bladder are usually invaded (Sampson). I feel that the term "primary vesical endometriosis" should be limited to those cases in which no demonstrable contiguity with the uterus, fallopian tubes or ovaries is present and in which there has been no surgical trauma of the bladder wall or its peritoneal reflection. In conformity with this criterion I shall present the following case, with illustrations for no continuity could be demonstrated between the uterus and the bladder and, although there had been a previous pelvic operation, the bladder peritoneum had not been traumatized.

## REPORT OF CASE

M B., a woman, aged 27, had an appendectomy through a McBurney's incision at the age of 16 years. Bilateral salpingectomy was done for "pus tubes" without the usual suspension of the uterus by suturing the round ligaments over the tubal sites at the age of 18 years. The latter operation was performed nine days after the onset of the previous period through a midline incision. The operator noted that the tubes were easily removed and no attempt was made to suspend the uterus. The general health was excellent until one year before admission, at which time a dull aching pain appeared in the left lower quadrant, this was not aggravated by menstruation and failed to respond to the usual forms of conservative palliation. Two months before, severe pain on micturition developed following the cessation of the menstrual period but no hematuria was noted. However the urinary symptoms became more marked and included dysuria and diurnal and nocturnal frequency. Catheterized specimens of urine unfortunately collected between the periods were negative for red blood cells. Urinary antiseptics alleviated the symptoms. On bimanual examination a small movable mass could be outlined anterior to the fundus

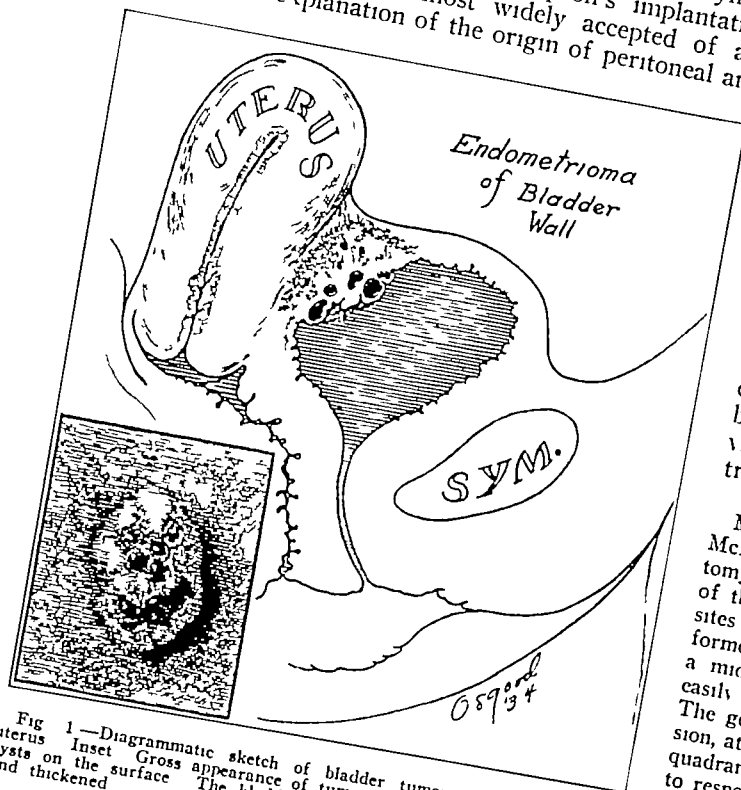


Fig 1—Diagrammatic sketch of bladder tumor in relation to the uterus. Inset Gross appearance of tumor with the characteristic bluish cysts on the surface. The bladder mucosa about the tumor is injected and thickened.

ovarian endometriosis. The serosal theory of Iwanoff, Meyer<sup>8</sup> and Novak<sup>9</sup> is supported by many. It offers the confused student of the subject an acceptable genetic explanation for many of the heterotopic endometrial nests. Though transitional stages between the peritoneal endothelium and the uterine mucosa have been observed, the segregation of endothelial cells to form an endometrial tumor has not been proved. To presuppose that the metaplastic aptitude of the peritoneal endothelium accounts for the formation of both the epithelial and the stromal elements assumes a highly specific organoid activity not present elsewhere. At present there is a tendency to explain heterotopias as due to anomalies of cell differentiation resulting from changes in cellular environment. If this is normal, the differentiation is normal, if the influences are abnormal, the differentiation is abnormal. As to the genesis of primary vesical endometriosis, I feel that von Recklinghausen's theory of wolffian duct remnants or Kossmann's of müllerian duct remnants is the most likely. Because of its close similarity in gross appearance to malignant growths of the urinary bladder, the possibilities of vesical endometriosis must be considered in cases of hematuria, especially when associated with dysuria and increased frequency of urination, occurring in sequence.

In 1921 Starr Judd<sup>9</sup> reported the first case, and to date twenty-one cases of primary vesical endometriosis,

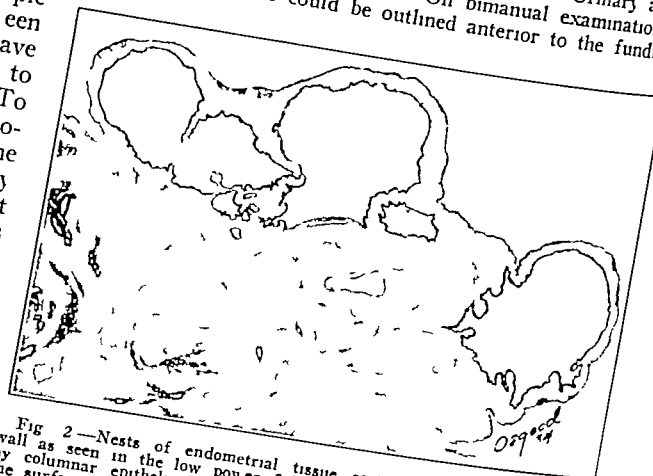


Fig 2—Nests of endometrial tissue scattered through the bladder wall as seen in the low power field. Dilated endometrial glands lined by columnar epithelium, small nests of bladder epithelium remain on the surfaces of the cysts.

this was moderately tender and seemed pedunculated. It was thought to be a small subserous myoma of the uterus. Both ovaries were normal in size and limited in mobility. Unfortunately a cystoscopic examination was not made (1) because the possibility of a bladder tumor was not considered and (2) because the several catheterized specimens of urine had been negative on microscopic examination. The abdomen was entered through a low midline incision, the uterus was normal in size in good anteposition and movable and the surfaces were smooth. The cornual scars were well healed and free of adhesions. The ovaries were normal in size

<sup>8</sup> Novak Emil. Significance of Uterine Mucosa in Fallopian Tubes with Discussion of Origin of Aberrant Endometrium. *Am. J. Obst. & Gynec.* 12:484 (Oct.) 1926. Pelvic Endometriosis. *ibid.* 22:826 (Dec.) 1931. Personal communication to the author.  
<sup>9</sup> Judd E. S. Adenomyoma Presenting as a Tumor of the Bladder. *S. Clin. North America* 1:1271 (Oct.) 1921.

and were easily released from thin bands of fibrous adhesions. There was no suggestion either of peritoneal or of ovarian endometriosis. Lying anterior to the uterus (fig. 1) and completely covered by the peritoneal reflection was a small palpable mass approximately 4 cm in diameter. The bladder peritoneal reflection was easily separated from the uterus and the mass was found to be within the bladder. The bladder was entered and the tumor mass was exposed. The bladder mucosa about it was slightly injected but otherwise normal in appearance. The mass was excised with a narrow margin of healthy bladder tissue and the wound tightly closed in three layers with plain catgut sutures. A mushroom catheter number 14 was left in the bladder for ten days. The postoperative course was smooth and when discharged on the fifteenth day the patient voided 350 cc of urine without hesitancy or discomfort. One month later she reported that she had had a normal menstrual period and had experienced neither abdominal nor urinary discomfort.

#### SYMPTOMS

In a careful review of most of the reported cases a fairly constant symptom complex presents itself, although a few have been asymptomatic from a urinary standpoint. In the majority of the cases frequency, dysuria and hematuria appear several days before menstruation persist during the flow and generally continue for a day or even a week after its cessation. The course of the disease is chronic starting first with a slight discomfort which is constant but not aggravated by the menstrual periods, though later the clinical picture changes and is somewhat as follows.

Increased frequency of urination, both by day and by night is the most common complaint and as a rule disappears completely between the periods.

Dysuria varies but usually occurs at the end of micturition, more as a sense of discomfort than as actual pain.

Hematuria because of its microscopic nature is rarely noted by the patient and is present only during menstruation or just preceding it.

There is a marked variation in the severity of the symptoms, depending naturally on the size and topographic location of the tumor within the bladder, as well as the degree of tissue reaction during the menstrual period. When the ureters are encroached on, there is the added symptom suggesting kidney involvement. However, even in case of ureteral obstruction the symptoms appear in a certain constant order and are sequential in appearance and degree of severity. This triad, when associated with the bimanual palpation of a tumor mass, is practically pathognomonic of vesical endometriosis. In the absence of the triad it is important to differentiate this condition from carcinoma, cavernous angiomas and bladder varicosities.

#### AGE

The youngest patient was 19 years of age. There is apparently, however, a predilection for the decade between 35 and 45 years. Except for the one case reported by Whitehouse,<sup>10</sup> all have occurred during menstrual life.

#### LOCATION

As a rule, the tumors are located within the floor of the bladder, just above or between the ureters with a peculiar predilection for the right side. They are rarely found in the vertex and though they may involve the trigon, the involvement is through extension. The size of the tumors is fairly constant being generally between 2 and 4 cm. They usually present a distinctly nodular surface.

#### TREATMENT

The treatment of this tumor cannot be prescribed dogmatically. The size, the topographic location, the age and the general condition of the patient are the deciding factors as to which of the two possible therapeutic procedures is best suited.

1 Complete excision is the method of choice in young women desirous of children and in whom the margin of bladder tissue safety is sufficient.

2 Castration is done, either by operation or by irradiation, in patients near the menopause or in whom the growth is too extensive for excision, or when the general condition of the patient contraindicates surgical measures.

#### SUMMARY

1 The lesion usually presents a symptom complex recognized by its cyclic relation to the menstrual period and consisting of increased frequency of urination, dysuria and hematuria.

2 The mode of treatment is dependent on the age of the patient, the size and localization of the tumor, and the general condition of the patient.

3 Since there are cases presenting an atypical picture this tumor may easily be mistaken for malignant lesions of the urinary bladder.

## Clinical Notes, Suggestions and New Instruments

#### POSTURAL TREATMENT OF TYPANITES

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The presence of gas in the small bowel of infants observed in routine roentgen examination for various conditions, has been noted for some time. Its cause and significance have not been understood. The solution of this problem was found by placing infants in the semi-inclined position.

In animals in the all-four position, the entrance of the esophagus into the stomach is on a higher level than the exit through the pylorus. When they swallow gas with food it collects above the food and fluid secretions and can easily escape through the esophagus. Since infants lie on their backs for the most part especially new-born infants in the hospital, the swallowed gas rises into the distal or pyloric end of the stomach where it is trapped by fluids. It therefore cannot escape through the esophagus and must be forced through the pylorus into the small intestine.

To prove this assumption fifty new-born infants were roentgenographed in this manner.

The first day they were taken from the cribs where they had been in the usual recumbent posture and roentgenographed. The second day they were roentgenographed after having been kept in the semi-inclined position for twenty-four hours. The semi-inclined position should cause the gas bubble to rise into the cardiac portion of the stomach so that it might escape through the esophagus freely. Of the fifty cases examined, twenty-five showed the presence of gas in the large and small intestines on the first day of the examination. These twenty-five cases showed disappearance of the gas in the small intestine by the postural treatment in twenty-two cases. The three failures were probably due to the fact that it was difficult to maintain the inclined position in all cases.

Routine examination for a variety of conditions such as occur in a hospital rarely showed the presence of gas in the small intestine in children over 3 months of age. This is probably due to the fact that children roll from side to side at about this age. Since it is well known that infant colic frequently

<sup>10</sup> Whitehouse, H. B. Endometrioma Invading Bladder Removed from Patient Who Had Never Menstruated. *Proc. Roy. Soc. Med.* 15: 1926.

From the first Obstetric Division of the Bronx Hospital and from the Harlem Hospital.  
Material on exhibition at the Gastro-Intestinal Fortnightly Symposium at the New York Academy of Medicine in October 1934.

disappears after this age, the possibility suggested itself that the gas forced into the small bowel was an important factor if not the sole cause in most cases of infant colic. In a number of cases in which infants were doing well and gaining weight it was found that colic disappeared by keeping them in the inclined position or on the abdomen. The latter procedure is an old method used by grandmothers for centuries. Its rationale is now explained.

The gas distention that occurs postoperatively and in pneumonia may be dependent on the same factors as described. In fact, it is suggested that Fowler's position is probably beneficial mainly because of the same conditions.

#### CONCLUSIONS

1. Fifty per cent of new-born infants showed distention of the small bowel with gas.
2. Past 3 months of age the gas disappears from the small bowel in healthy infants.
3. The gas may be made to disappear from the small intestine by placing the infant in the semi-inclined position so that gas in the stomach may not be trapped at the pylorus and then forced into the small intestine.
4. Gas distention in pneumonia and in postoperative cases may possibly be explained in the same way.

#### A TREPHINE MODIFIED TO SECURE BONE MARROW (STERNAL) BIOPSIES

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DULUTH, MINN.

The trephine here devised and illustrated as to its parts (fig. 1) is modified from the various puncture needles (Ghedini, Arinkin, Seyfarth and others) long suggested to get marrow specimens safely both for histologic embedding and for smears for routine staining. The sternum is ideally adapted as a source both because of ease of access and because of its persistent functional activity throughout life. The ribs are equally active but not so simple to approach. Isaacs has correctly criticized simple needle puncture methods as really yielding mixtures of marrow elements 'washed out' with traumatically induced blood flow. Thus one has blood with certain marrow admixtures. We have found this true, especially when the marrow system is inactive.

Ordinary chronic myeloid leukemia however yields needle puncture material so readily that smears so closely resemble ordinary blood smears as to make the observer feel that he has tapped an actual vessel or blood space.

It is obvious that sections of fixed marrow tissue while useful can never give the desired morphologic detail essential to develop the diagnostic and therapeutic guidance that this pre-

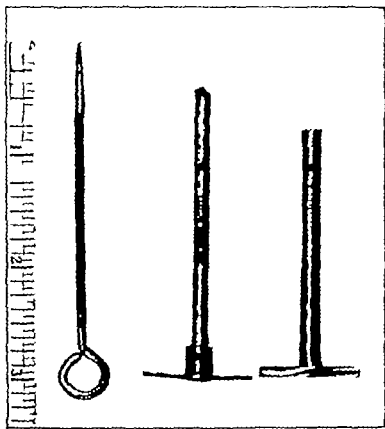


Fig. 1—Parts of the instrument

eminent hematopoietic source material (erythrocytic, granulocytic and thrombocytic) promises.

This instrument is easy to use. The biopsy is painlessly accomplished under simple procaine hydrochloride anesthesia and a 0.5 cm. scalpel incision through the skin brings the instrument down to the periosteum. It yields a round marrow segment without either hemorrhage or blood admixture. The tip of this plug permits the making of from three to five delicate touch smears. Stained either with double strength Giemsa or ordinary Wright's stain, beautiful diagnostic preparations are available. The present superactivity in the domain

of hematology renders studies of bone marrow in all cases of low leukocyte or platelet counts, with or without purpuric or ulcerative tendencies as well as all anemias of doubtful origin or classification, a fruitful field for investigation.

#### STRUCTURE OF THE INSTRUMENT

This instrument consists of three parts. The first part is a trephine. This is made of chrome vanadium steel. It measures 5.5 cm. in length and has an inside diameter of 4 mm. and an outside diameter of 5 mm. Thus it is readily seen that the

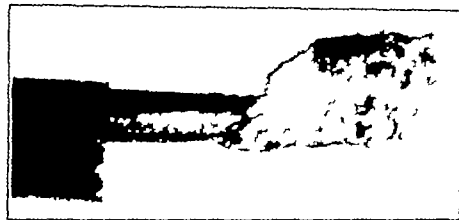


Fig. 2—Biopsy specimen magnified four diameters

metal is very thin. On the terminal end of the trephine is a series of fine teeth. The proximal end is fitted with a handle-like effect in which the instrument can be grasped and readily turned. On one side of the instrument beginning at the terminal portion there is a millimeter scale, which runs up to 3 cm. The proximal lumen will just fit a Luer syringe. The second portion of the instrument consists of a stilet that just fits the inside lumen of the trephine. The terminal end of the stilet has a blunt faceted (three facets) surface. The third portion consists of a long screwlike slender nail. Only the terminal end for a distance of about 3 mm. has this screwlike effect.

#### TECHNIC

The field of operation is prepared in the usual manner with the use of iodine and alcohol, a site over the sternum is selected in the interspace between the second and third ribs.

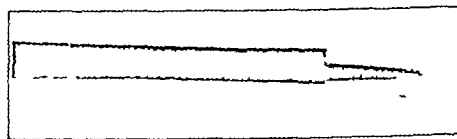


Fig. 3—Roentgen appearance of the biopsy specimen

A small fine hypodermic needle being used first the skin and subcutaneous tissue and then the periosteum are infiltrated well with procaine hydrochloride solution. It is then best to wait for from five or ten minutes, an incision is then made over this site about 1 cm. in length. Dissection is carried down to the sternum in an effort to divide the subcutaneous tissue and the tendinous insertions on the anterior aspect of the sternum. The trephine with the stilet inserted is then introduced through the incision and with a boring motion is carried down to the periosteum. The stilet is then withdrawn and the screw is inserted through the trephine and bored into the anterior plate of the sternum until it holds firmly. The trephine is turned slowly and pressure is applied. The trephine will be not only felt but actually heard as it cuts through the anterior plate of the sternum. When the trephine is through the lamella of bone there is a certain give, and a few more turns are taken and the instrument (the trephine and the screw) are withdrawn together. It will be found that the plug of the sternum and the bone marrow will be attached to the screw. The screw is removed, the specimen is gently stroked two or three times over one or two glass slides and the specimen is then placed in 5 per cent formaldehyde solution. Sections for microscopic study may be prepared if desired.

There is very little bleeding and the wound edges usually fall together or, if not they can be brought together with adhesive plaster, or a skin clip and a dressing may be applied. As a rule, there is very little distress during or after this procedure.

## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE TESTIS HORMONE

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*NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—LH*

The testicle exercises at least two biologic functions of utility in the organism, the primary of which is maturation of germ cells and the secondary the secretion of one or more substances known as the testis hormone. The primary function is much the older and is exercised not only in vertebrates but in invertebrates as well. Hormone secretion, however, appears to be restricted to the vertebrates and to have undergone a gradual increase in complexity, it is on the accessory organs of reproduction that the influence of the testicular hormone is exercised.

In some lower fish the sex cells are merely liberated from the gonad into the general body cavity, making their escape through abdominal pores to the outside to meet the female cell, no specialized duct is maintained for their passage. The majority of fish and amphibia utilize the wolffian duct for carrying spermatozoa away from the testicle, the functional condition of the duct is developed periodically as the germ cells mature in the testes. In still higher forms this wolffian duct, or vas deferens, becomes more complicated, it may be coiled into an epididymis-like structure and produce evaginated pocket-like glandular organs (seminal vesicles) which contribute secretions. Additions include also the establishment and maintenance of various types of intromittent organs for the transfer of semen to the female genital passages for internal insemination. In mammals many structures such as the prostate gland, seminal vesicle, Cowper's gland and others and the intromittent, or copulatory, organ make of this system a rather complicated, correlated set of structures whose functional state must be established at the proper time for storing, maturing and transporting germ cells. In general the testes of vertebrates appear to function for only a limited period once each year when the germ cells are matured and hormone secretion induces a functional condition on the part of all accessory reproductive structures, hormone secretion is therefore closely correlated with the primary testicular function of germ cell production.

Some few vertebrates, including man, do not have a strictly limited annual reproductive period, in these, germinal cells are matured during all seasons of the year. In this group hormone secretion is likewise continuous, and the accessory organs are maintained in a functional condition at all times.

It is my aim in this section to present some of the general phases and particular details of the testis hormone and to discuss some of the principles and possibilities of its clinical application. The experimental animal must be depended on for presenting the various aspects, since knowledge of the manifestations of hor-

mone deficiencies in man, of methods of detecting the presence or absence of the hormone, or of its utility in the species is so limited as to be of little value.

#### METHODS OF DETECTION

The tardiness with which the hormone of the testicle was successfully extracted has been due first to the lack of proper methods of revealing it, and, secondly, to the relatively low yield of the hormone from extraction of this organ. The most frequently used test is the growth of the comb of the castrated cock, or capon. The work of many individuals has revealed that castration of the cock entails the immediate regression of the comb and that a testis graft or the injection of extractives from cryptorchid testicles of pigs rebuilds the comb of capons to the cock type.<sup>1</sup>

(a) The capon comb growth test, applied most often to the single comb leghorn fowl, depends on the growth response of the comb of a capon following subcutaneous injections. It has been utilized in many laboratories<sup>2</sup> with slightly different procedures, as employed by Gallagher and Koch, the response is determined by the increase in length plus height of the comb measured in millimeters. The bird unit of hormone has been defined by them as the amount of material injected over a period of five days (daily injection) required to cause an increase in the comb (length plus height) of from 3 to 7 mm, by the sixth day, in at least five out of ten injected capons.<sup>3</sup>

Mammalian tests thus far employed have depended on the responses of different parts of the accessory reproductive organ complex. External manifestations have proved to be impracticable, though attempts have been made to utilize such factors as body size, conditions of the hair coat, and fat deposition.

(b) The spermatozoon motility test, one of the first mammalian tests to be employed for detection of the testicular hormone, depends on the fact that spermatozoa in the epididymus of a guinea-pig, after its surgical isolation from the testis, show a longer persistence of viability (or capacity to show movement on proper stimulation) when hormone is present. With a normal supply of hormone, persistence of viability is from sixty-five to seventy days, whereas it is approximately twenty-three days in the absence of hormone,<sup>4</sup> Kabak in Moscow claims for his guinea-pigs that this is forty days without hormone. Viability is determined by hashing the isolated epididymus in physiologic solution of sodium chloride and observation of spermatozoon movements under the microscope.

Injections of active preparations of testis hormone have maintained the life of epididymal spermatozoa for periods approximately equivalent to those when hormone is secreted by an intact testis.<sup>5</sup> It is presumed

- 1 Pezard, A. *Bull. biol. franç. et belge* 52:1 1918. Benoit J. *Arch. de zool. expér. et gén.* 69:217, 1929.
- 2 Dodds A. C., Greenwood A. W. and Gallimore E. J. *Lancet* 1:683 (March 29) 1930. Dodds A. C., Greenwood A. W., Allan H. and Gallimore E. J. *Biochemical J.* 24:1031, 1930. Freud J. de Jongh S. E., Laqueur E. and Münch A. P. W. *Klin. Wchnschr.* 9:772 (April 26) 1871 (Oct 4) 1930. de Fremery, P. Freud J. and Laqueur E. *Arch. f. d. ges. Physiol.* 226:740 (July 16) 1930. *Proc. Soc. Exper. Biol. & Med.* 26:325 (Jan) 1929. Funk C., Harrow B. and Lejwa *ibid.* 26:569 (April) 1929. *Am. J. Physiol.* 92:440 (March) 1930. Funk C. and Harrow B. *Biochem. J.* 24:1678 1930. McCullagh D. R. and his associates. *Tr. Roy. Soc. Canada* 26:183 1932. McCullagh E. P., McCullagh D. R. and Hicken N. F. *Endocrinology* 17:49 (Jan. Feb.) 1933.
- 3 (a) Gallagher, T. F. and Koch F. C. *J. Pharmacol. & Exper. Therap.* 40:327 (Nov.) 1930. (b) *Proc. Second Internat. Cong. Sex Research* London 1931 p. 312. (c) Koch F. C., Allen S. Sex and Internal Secretions. Baltimore, Williams and Wilkins Company 1932 p. 372.
- 4 Moore C. R. *J. Exper. Zool.* 50:455 (April 5) 1928. Benoit, J. *Bull. d'hist. appl.* 51:78 1925.
- 5 Moore C. R. and McGee L. C. *Am. J. Physiol.* 87:436 (Dec.) 1928. Kabak, J. M. *Trans. on the Dynamics of Development* 8:82 1934. (Russian with English summary.)

that the action is a hormonal stimulation of epididymal cells to secrete some substance necessary for preservation of spermatozoa in a healthy state

(c) The electrical ejaculation test, specifically applied thus far to the guinea-pig, depends on inducing a seminal discharge on stimulation by 30 volts of alternating electric current applied to the head. The ejaculated semen, consisting of spermatozoa and secretions from the epididymis, prostate, seminal vesicle and Cowper's and probably other glands, becomes coagulated in a rubbery mass within a period of from two to three minutes after discharge. This reaction, described originally by Batelli,<sup>6</sup> has been employed as a test for the hormone by Moore and Gallagher<sup>7</sup> and by Kabak.<sup>8</sup> Guinea-pigs castrated for a period of two months or more give either no ejaculate or only a clear watery noncoagulable discharge. Subcutaneous injection restores secretory activity in the seminal vesicle and prostate, and it is the interaction between secretions of these two structures that produces the coagulated mass normally constituting the vaginal copulation plug.

(d) The rat prostate cytology test, developed and applied by Moore, Price and Gallagher,<sup>9</sup> depends on the fact that castration induces cytologic changes in the secretory cells of the prostate within a period of four days, longer periods after castration result in more pronounced involutionary changes, a maximum degeneration occurring in about twenty days. Injections of testis hormone begun immediately after castration prevent the appearance of castration changes or, if begun after their development, restore the normal secretory state of these cells.

(e) The rat seminal vesicle cytology test, developed and applied by Moore, Hughes and Gallagher,<sup>10</sup> depends on cytologic changes in the secretory cells of this organ. The large cytoplasmic granules are lost within two days after castration, and within ten days the cells have regressed to approximately one-third their former height. Injections of testis hormone prevent castration changes from developing or restore the original condition.

Seminal vesicles of the mouse similarly respond rapidly to hormone loss and to injected hormone.<sup>11</sup> Changes in the acidity of seminal vesicle secretions have been found to occur after castration and that fact has been proposed as a test for the hormone.<sup>12</sup>

(f) Cowper's gland test in the rat may also serve as a hormone indicator. Heller<sup>13</sup> has described the degenerative changes and the reactions of this gland to injected hormone.

(g) The vas deferens test is also adequate for indicating the presence of hormone. The reactions of this organ to castration and to hormone injections in the rat have been described by Vatna.<sup>14</sup>

All biologic tests are, of course, subject to the factor of animal variability, but the capon comb growth test

and the rat prostate and seminal vesicle cytology tests have proved fairly satisfactory as quantitative tests,<sup>1</sup> the capon test has been by far the most frequently used, and its application has been more nearly perfected. A complete substitution for the testis in the rat requires a daily injection of approximately two to three bird units of testis hormone to maintain the prostate and approximately four to five bird units for the seminal vesicles (Hansen).

#### SOURCES, METHODS OF EXTRACTION AND NATURE OF THE HORMONE

Pezard<sup>1</sup> was one of the earliest to obtain promising results from extraction of testes, saline extracts of cryptorchid testicles of swine injected into capons restored the comb almost to the proportions found in the cock. The testicles of the pig, ram, goat and bull have served as sources of hormone, as have also the urines of men and women, and the blood of the bull and the goat, comb-growth stimulating substances are also reported<sup>16</sup> from male blossoms of a plant (*Salex caprea*).

The first successful extraction of the testis hormone was done by McGee,<sup>17</sup> working in Koch's laboratory, from the lipid extractives of fresh bull testes. The method with its refinements and extensions by Gallagher and Koch is essentially as follows:

Fresh or frozen testicles from the bull, ground to a pulp, are extracted with four volumes of 95 per cent alcohol at room temperature. The active material is taken up from the concentrated alcoholic extract in benzene, which, when evaporated in vacuo, leaves a residue that is taken up in acetone and permitted to stand for some hours at  $-10^{\circ}\text{C}$ . Evaporation of the acetone and suspension of the solids in olive oil gives a potent preparation suitable for animal injection. Further reduction of solids is effected by dissolving the acetone evaporated material in 70 per cent alcohol and agitation with hexane, by which procedure much inert material is removed. Evaporation of the alcoholic solution yields a heavy oily residue, which is dissolved in ether and shaken with aqueous 10 per cent sodium hydroxide, the majority of the activity remains in the ether layer. By repeating some of the treatments with 70 per cent alcohol, Gallagher and Koch have obtained a product of such potency that the bird unit represents a total weight of solids of approximately 0.01 mg.

Extractions of human urine have yielded a product possessing biologic effects similar to those of testis extractives (Loewe and Voss, Funk, Harrow and Lejwa, Dodds, Greenwood and Gallimore, Butenandt). Procedures of urine extraction have varied in the hands of different workers, but that described by Gallagher and Koch<sup>18</sup> has yielded a product of relatively high purity. The urine is acidified with sulphuric acid to approximately 1 per cent by volume, filtered, and extracted with benzene in a continuous extractor. Benzene distillation yields a residue that is taken up in ethyl ether and extracted with 10 per cent aqueous sodium hydroxide, this treatment removes approximately 90 per cent of the solids, the ether layer containing the active substance is evaporated to dryness and is suitable for injections when dissolved in olive

6 Batelli, F. *Compte rend Soc. physique et d'hist. nat. de Geneve* 39: 73, 1922.  
7 Moore, C. R. and Gallagher, T. F. *Am. J. Anat.* 45: 39 (Jan.) 1930.  
8 Kabak, J. M. *Endokrinologie* 9: 250 (Oct.) 1931. 10: 12 (Jan.) 1932.  
9 Moore, C. R., Price, Dorothy and Gallagher, T. F. *J. Anat.* 45: 71 (Jan.) 1930.  
10 Moore, C. R., Hughes, W. and Gallagher, T. F. *Am. J. Anat.* 45: 109 (Jan.) 1930.  
11 Loewe, S. and Voss, H. E. *Akad. d. Wissensch. in Wien. Akad. Anz.* No. 20, 1929. Martins, Thales. *Endokrinologie* 7: 180 (Aug.) 1930. Martins, Thales and Rocha e Silva, A. *Mem. do Inst. Oswaldo Cruz* (suppl.) 1930, p. 196.  
12 von Lanz, T. *Anat. Anz.* 71: 108, 1931.  
13 Heller, R. E. *Am. J. Anat.* 50: 73 (March) 1912.  
14 Vatna, S. *Biol. Bull.* 58: 322 (June) 1930.

15 Gallagher and Koch<sup>18</sup>. Hansen, I. B. *Endocrinology* 17: 163 (March-April) 1933.  
16 Loewe, S., Voss, H. E., Lange, F. and Spohr, E. *Endokrinologie* 1: 39 (Jan.) 1928.  
17 McGee, L. C. *Proc. Inst. Med.* 6: 242, 1927.  
18 Gallagher, T. F. and Koch, F. C. *Endocrinology* 18: 107 (Jan-Feb.) 1934.

oil Further refinement was carried on by fractional distillation under high vacuum, distillation at a temperature of up to 150 C removes approximately 50 per cent of the remaining solids Further purification by the use of ethanol, methanol and carbon tetrachloride as solvents and additional fractional distillation, produced a product of which a bird unit contained about 0.1 mg of solids

Crystalline material having a high activity has been obtained from urine extracts<sup>19</sup> This involved, in the case of Butenandt, hydrolysis and fractionation with organic solvents of an active crude oil extracted from human urine Crystals were obtained by treatment with hydroxylamine of an aqueous-alcohol soluble fraction Butenandt estimates that approximately two million gallons of urine would contain something of the order of 1 Gm of the crystalline material Analysis of the crystalline material indicates a close similarity of the substance to theelin (keto-hydroxyestrin) The activity of the crystalline material was approximately one bird unit to each 0.001 mg, but the bird unit employed differs from that used by Gallagher and Koch It is a ketone-alcohol derivative with the suggested formula of  $C_{19}H_{30}O_2$ , its structural formula has been suggested (1932)

#### CONDITIONS GOVERNING SECRETION

It is unknown how early in life the testis begins to secrete its hormone Though the definite association of the embryonic development of the Wolffian duct with a testis is well known, it is not yet clear to what extent such early development is conditioned by the testis itself, or whether the hormone (if such exists in embryonic life) is the same as that produced by the mature testicle It is noteworthy that active substances can be extracted from the testis of the embryonic calf<sup>20</sup> but have not been found in the urine of young post-natal calves or in that of boys under the age of 10 years In the rat from thirty-five to forty days after birth, secretory differentiation of the seminal vesicle has occurred, and some secretion appears in the lumen

The testicles are capable of secreting hormone much earlier than they normally do, injections of gonadotropic substances (pregnancy urine or extracts, placental extracts, pituitary tissue or extracts, pregnant mare serum) may induce development of the secretory state of the accessory reproductive organs much earlier than is normal Precocious puberty in boys, though pathologic, demonstrates that testes can function earlier than usual Puberty involves elements other than mere secretion of testis hormone, for conditions must be developed that stimulate this organ to its secretory activity The pituitary and probably other glands assume activities previously latent, and a general maturing of the entire organism is undoubtedly involved in this important phase of life

Subsequent to the normal attainment of its hormone secreting activity the testicle in different species exhibits two extremes of hormone secretion, with intermediate types (1) continuous secretion throughout reproductive life and (2) secretion at intermittent periods lasting only a few weeks during each year, such groups can be designated as constant breeders and seasonal breeders To the first group belong man, some other pri-

mates, rabbit, guinea-pig and rat, and to the second group belong the large majority of all vertebrates including the majority of mammals

**Constant Breeders**—The conditions under which testis hormone is secreted is much better known for the rat than for man, but presumably a parallel exists In the rat, testis hormone is secreted continuously after its start has been made, as can be determined by microscopic examination of the prostate and seminal vesicles, castration induces changes in these organs within two or three days Hormone storage in the body therefore does not exist to an appreciable extent, and a continuous secretion is required for the existence of a functional group of accessory reproductive organs Continuous hormone secretion exists in the guinea-pig also, as shown by similar amounts of ejaculate obtained each week during an entire year<sup>21</sup> In man, twenty-four hour samples of urine show an excretion of the hormone, but I am unaware of daily analyses for a sufficient period to determine the degree of fluctuation in renal output

Secretion of hormone varies in rate among different individuals of the same species if the gross size of accessory reproductive organs can be taken as a criterion This means presumably that existing concentration of hormone within the body varies, but it is not clear whether this means a greater secretion or lowered elimination of the substance through the kidneys, nothing is known regarding the variability of the renal threshold of excretion

The testes are not self regulating organs that control their own periods or rate of function It has been abundantly demonstrated by Smith and Engle,<sup>21</sup> Zondek and Aschheim<sup>22</sup> and many later workers that the anterior lobe of the pituitary gland regulates the activity of the sex glands Removal of the pituitary is followed by cessation of germ cell production and hormone secretion Introduction of fresh pituitary material into hypophysectomized males restores testicular function Hormone secretion is thus controlled from without and not by the regulative activity within the testes

Hormone secretion by the testicle is modified by nutritional conditions Maintenance of rats on a diet deficient in vitamin B reduces, or abolishes, hormone secretion Restriction of the diet to inanition levels, but with excessive B-requirements, produces similar effects<sup>23</sup> In each case it is believed that the anterior pituitary is the real center of injury, since (a) the testicles of such vitamin B-free or inanition animals respond immediately to injections of hypophyseal extracts and secrete large amounts of hormone and (b) the hypophyses of vitamin B-free<sup>24</sup> and inanition animals<sup>25</sup> have a lowered capacity to stimulate the gonads of immature animals

Undescended testes of mammals, though failing to produce germ cells because of the lack of scrotal function,<sup>26</sup> continue to secrete hormone in apparently undiminished amounts This is apparent from observations on naturally occurring undescended testes of man and other mammals as well as in experimentally produced cryptorchid conditions Thus, a guinea-pig having one testicle removed and the second one confined in the abdomen a few days after birth will continue to produce

<sup>21</sup> Smith, P. E. and Engle, E. T. *Am J Anat.* **40** 159 (Nov) 1927

<sup>22</sup> Smith, P. E. *ibid* **45** 205 (March) 1930

<sup>23</sup> Zondek, Bernhard and Aschheim, Selmar *Klin Wchnschr* **8**

248 (Feb 5) 1927, *Arch f Gynak.* **130** 1 1927

<sup>24</sup> Moore, C. R. and Samuels, L. T. *Am J Physiol* **96** 278 (Feb) 1931

<sup>25</sup> Evans, H. M., and Simpson, Miriam E. *Anat. Rec.* **45** 216 1930

<sup>26</sup> Mason, K. E. and Wolfe, J. M. *Anat. Rec.* **45** 232 1930

<sup>26</sup> Moore, C. R. *Am J Anat.* **34** 269 (Nov) 1924

<sup>19</sup> Butenandt, A. *Ztschr Angew Chem* **44** 905 1931 **45** 655 1932  
<sup>1930</sup> Frattini, B., and Maino, M. *Arch Ist Biochem Ital* **2** 639  
<sup>1932</sup> (Chem Abst **25** 5453 1931)  
<sup>20</sup> Womack, E. B. and Koch, F. C. *Proc 2d Internat Cong Sex Res* (London) 1931 p 329 *Endocrinology* **16** 267 (May/June) 1932



coagulable ejaculates for periods longer than a year, this occurs when the remaining testicular mass represents approximately 2 per cent of the normal. There is insufficient evidence to permit one to state whether the quantity of hormone secreted is greater or less than would occur with two normal testicles, or whether cryptorchid testes cease to produce hormone earlier than do normal testes.

Ligation of the vas deferens has been practiced on man with the presumption that closure of the outlet passages from the testis induces degeneration of the germinal epithelium and hypertrophy of the interstitial cells and thus greater secretion of hormone, which is supposed to have a rejuvenating effect. The facts are that closure of the outlet passages does not of itself lead to germinal epithelium destruction, that it is questionable whether hypertrophy of interstitial cells occurs, that there is no available evidence that more hormone is secreted or that testis hormone has a rejuvenating effect on the organism.

*Seasonal Breeders*—Sharply contrasted with continuous hormone secretion is the condition in which breeding and hormone secretion is restricted to a single short yearly period. This condition is characteristic of practically all vertebrates below mammals (excepting a few forms such as the fowl) and also of the greater number of mammals.

Conditions existing in the ground-squirrel (*Citellus tridecemlineatus*) have been subjected to a rather thorough study and the yearly events in this form may be used to represent the annual mammalian cycle.<sup>27</sup> *Citellus* breeds in April or May when accessory organs are at the height of their secretory function. By June (in the Chicago area) hormone secretion has diminished as shown by beginning involution of the reproductive system. The animal goes into hibernation about October or November, and testis hormone secretion is practically negligible until February. It emerges from hibernation usually in April. Thus, despite the continuous presence of testes, it secretes hormone during four months and at a submaximal rate during part of this period.

An experimental study of this interesting condition in the ground-squirrel reveals that the accessory reproductive organs respond at once to injected testis hormone, hence the involution of these organs is due to a diminished testicular secretion and not to refractiveness to hormone. Furthermore, administration of substances that stimulate testicular activity (fresh pituitary tissue, extracts of dried pituitary, or extracts of pregnancy urine) cause a sudden increase in size and functional activity of all accessory reproductive organs equal to that found at the height of the breeding period, this can be accomplished at any period of the year. It is apparent, therefore, that testes may be present but may not secrete hormone and that they can be stimulated to sudden activity by gonadotropic substances. Wells has determined that hypophyses taken from these males at the approach of, or during, reproductive activity contain a high potency for stimulating the gonads when implanted into immature female rats but that hypophyses removed during the period of sexual quiescence fail to exhibit this power. It is suggested, therefore, that seasonal periodicity in hormone secretion is controlled basically by the anterior pituitary.

#### CONTROL OF HORMONE SECRETION

The testicles are capable of secreting large amounts of hormone before the stage of puberty, but they do not, in adult life they secrete only a certain amount of hormone, though capable of much greater secretion, only 2 per cent of the normal fresh weight of testis tissue may secrete as much as two normal testes, two testes may be present for months and not secrete a detectable amount of hormone, all these facts present an interesting functional puzzle that invites speculation as to the controlling forces active in regulating sex gland function.

A suggested mechanism of reciprocal interactions between the gonads and pituitary has been developed on the basis of experimental work in this and other laboratories to account for conditions that exist in constant breeders as well as in seasonal breeders. Other papers present the ideas more fully and the evidence suggesting such an explanation.<sup>28</sup>

It is well established that anterior pituitary secretions stimulate the gonads to function and that the presence of these secretions is necessary for maintenance of the function, variability in production or release of pituitary secretions induces variabilities in gonad function. It has also been abundantly demonstrated that the gonad hormone of either testis or ovary so influences the pituitary as to make lesser amounts of pituitary secretions available to the organism for inciting gonad activity.<sup>29</sup> In the case of constant breeding males, therefore, the pituitary appears to exercise a continuous secretion of the substances that stimulate gonad activity, though always far below its maximal capacity to secrete them, the inhibiting action of gonad hormones on the pituitary apparently affords a check on the production of its secretions this check being released when the gonads are removed. Many workers since Engle,<sup>30</sup> and Evans and Simpson<sup>31</sup> have confirmed the observations that the pituitary from castrate animals of either sex is a more potent sex gland stimulator than that from normal animals of the same sex. That the normal testicle is capable of secreting greater amounts of hormone than it normally does is indicated by its response to the administration of gonadotropic substances. The effect of gonad hormone inhibition of the pituitary and the resultant failure of testis function is well illustrated by injecting estrogenic substance into normal males, both germ cell production and hormone secretion fail.<sup>3</sup> The pituitary is rendered less potent by administration of gonad hormone this is demonstrated by implanting pituitaries from animals that have received large doses of the hormone.<sup>29</sup>

In the strictly seasonal breeding types it is indicated that the pituitary does not secrete continuously and that in some manner certain environmental agencies play an important part in its activity. Manipulation of environmental agencies such as duration of daylight or changes of temperature have been revealed to have a pronounced effect on reproductive phenomena. Thus, Rowan<sup>33</sup> in

28 Moore C. R. and Price Dorothy. *Am J Anat.* 50: 13, (March) 1932. Moore C. R. *Am J Obst & Gynec.* to be published.

29 Meyer R. K. Leonard S. L. Hisaw F. L. and Martin S. J. *Proc. Soc. Exper. Biol. & Med.* 27: 702 (April) 1930. *Endocrinology* 16: 655 (Nov-Dec) 1932. Kuschinsky G. *Arch. f. exper. Path. u. Pharmacol.* 102: 183 1931. Leonard S. L. *Anat. Rec.* 57: 45 (Aug 25) 1933.

30 Engle E. T. *Am J Physiol* 88: 101 (Feb.) 1929.

31 Evans H. M. and Simpson Miriam E. *Am J Physiol* 80: 371 (July) 1929.

32 Steinach E. and Kum S. *Biol. Gen.* 2: 815 1926. Moore and Price<sup>28</sup>.

33 Rowan William. *Nature* 115: 494 1925. *Proc. Boston Soc. Nat. Hist.* 39: 15 1929.

27 Moore C. R. Simmons G. F. Wells L. J. Zalesky M., and Nelson W. O. *Anat. Rec.* to be published. Wells L. J. Unpublished data.

Alberti increased the length of the daylight period by a few minutes each day with electric lights and caused the testes of a small bird (*Junco hyemalis*) to increase hundreds of times in weight and to mature spermatozoa during outside winter temperatures of 40 below zero C or F, progressive shortening of the daylight period led to progressive testis involution. Bissonnette<sup>34</sup> has confirmed this and by a similar technique induced a mammal (ferret) to mate at entirely unusual periods. Craig-Bennett<sup>35</sup> could control the reproductive state of fish to a remarkable degree by mere changes of temperature and could induce the breeding state at practically any period of the year.

It is thus strongly suggested that the controlling influence which regulates hormone secretion is a reciprocal interaction between the gonad and the pituitary gland. The oscillations between these, granted other conditions are normal, appear to regulate the intensity of action of each gland by the mutual interplay of their secretions, but in some animals an extraneous factor from the environment participates in the control of activity. Evidence has been obtained on the ferret that the effect of light is induced through the hypophysis. The environmental factor operating on the ground squirrel does not appear to be light.<sup>37</sup>

#### ONE TESTIS HORMONE OR MORE?

The question whether the testis produces more than one hormone is not settled at the present time. If more than one substance is produced the facts available indicate a similarity so close that all are extracted by the same means and react alike to steps in purification. The same preparation of hormone extracted and purified by methods employed in Koch's laboratory will (a) induce the growth of the capon comb (b) prevent or repair all known castration changes in the accessory reproductive organs of the rat, (c) restimulate castrated guinea-pigs to produce typical coagulable ejaculates, (d) maintain the life of epididymal spermatozoa in the guinea-pig (e) prevent the development of castration cells in the pituitary and (f) restore the accessory reproductive organs in the ground-squirrel.

The chief evidence thus far presented for the secretion of at least a second hormone, believed to be derived from the activity of the germinal epithelium, comes from the work of Martins and Rocha<sup>36</sup> in which it is claimed that 1 Rats made cryptorchid experimentally maintain a normal set of accessory reproductive organs but show castration cells in the pituitary. 2 Hypophyses from experimental cryptorchid rats are more potent as gonadotropic agents than are those from normal animals. 3 Experimentally produced cryptorchid rats when joined in parabiosis with normal females induce a continuous estrous cycle in the normal female partner, normal parabiotic male partners do not have this effect. 4 Castrated rats implanted with fresh testis tissue, or injected saline extracts of these do not develop castration cells in the anterior pituitary but show an atrophied set of accessory reproductive organs.

In my estimation, further work is needed to establish as a fact that more than one hormone is secreted by the testicle. A sufficiently careful study should be made of the conditions under which the pituitary cells become castration cells. Furthermore the effects of quantitative

variations in both sex hormones and pituitary hormones must be subjected to rigorous examination. Until this phase of the problem receives more light, it is advisable to withhold judgment on the unity or duality of the testis hormone.

#### CLINICAL SIGNIFICANCE OF TESTIS HORMONE

The question of clinical application of testis hormone is a large one. Important considerations in regard to its application at present are, first, the availability of the product, second, the dosage, and, third, its usefulness as a drug.

The principal available sources of the hormone at present are testicles of large mammals and human urine. In the course of studies on extraction, purification and chemistry of the hormone carried on in Koch's laboratory several tons of bull testes have been utilized and hundreds of gallons of human urine have been extracted, yet one difficulty in advancement of knowledge of the hormone lies in obtaining sufficient quantities for experimental work.

Nothing is known regarding the usual needs of a normal man or the quantity necessary for daily injection into a castrated man to constitute a replacement dose. In a mature rat the daily dose sufficient to maintain the prostate gland and seminal vesicle in an approximately normal secretory state represents the material extracted from approximately 300 Gm of fresh bull testes or the extract from 500 cc of human urine. The quantity that would be required as a replacement dose in man may only be conjectured, since neither the relative sensitivity to the hormone nor the threshold of response of man is known. The amount excreted in twenty-four hour samples of urine has been determined for individuals, but the relation between the amount produced, or used effectively, and that excreted in the urine is undetermined.

From animal experimentation two points have been determined. 1 Hormone storage in the body does not exist and daily administration by injection must be given to maintain a normal secretory state of the accessory reproductive organs. The absence of a single day's injection of estrogenic substance is registered as a colored bar on regenerating feathers of a brown leghorn fowl.<sup>37</sup> 2 Some structures respond to a lower threshold of hormone than others, hence complete replacement requires the maintenance of a sufficiently high concentration to affect only those structures that respond to the higher concentrations. The prostate gland of the rat, for example is maintained in a structurally normal state by from one-third to one-half the amount of hormone required by the seminal vesicles.

The therapeutic value of the hormone cannot be stated at present. This question is pertinent. What is the function of this hormone in man? The logical approach to the answer is obviously the study of the castrated individual and biologically knowledge of the effect in man is very fragmentary. This is understandable, perhaps when one considers the popular conceptions under which both the layman and the clinician have grown up. What man has not been subjected to the popularly accepted opinion that loss of virility was indeed almost equivalent to death? Admitting that the physiologic effects of castration are extremely important, the real problem for consideration is the biologic aspect. Psi-

<sup>34</sup> Bissonnette, T. H. J. Exper. Zool. 58: 281, 1931. Proc. Roy. Soc. London 8 B 110: 322, 1932.

<sup>35</sup> Craig-Bennett, A. Phil. Tr. Roy. Soc. B 210: 197, 1930.

<sup>36</sup> Martins, T. and Rocha e Silva, A. Endocrinology 15: 421 (Sept. Oct.) 1931.

<sup>37</sup> John, Mary, and Gustavson, R. G. J. Exper. Zool. 56: 31 (Feb. 5) 1930. John, Mary, Faulkner, G. H. and Gustavson, R. G. J. Exper. Zool. 58: 69, 1931.

chologic states may as well be treated with substances more easily obtained than testis hormone

Prepuberal castration differs from postpuberal in both man and other animals. In man at puberty the indexes of maturity such as characteristic hair growth and distribution, attained growth of the genitalia, the deepened voice and physical stature have been established. They are not markedly changed, if at all, by postpuberal loss of hormone, but loss of the testes prior to puberty may cause modifications in these characteristics, modification of growth is not so clearly established. Eunuchs are said to be approximately one half tall and slender and one half short and fat, a cross section analysis of normal men is not greatly different. Despite the delay in epiphyseal union on long bones in castrates, it cannot yet be stated with exactness that castration greatly alters body proportions.

The fundamental biologic function of sex hormones is unquestionably the conditioning of the accessory reproductive organs to handle the sex products (germ cells) in a manner to insure their proper meeting, and the conditioning of the animal to respond characteristically and at the proper time in a manner to insure propagation of the race. Both functions, it must be admitted, are indispensable for reproduction. In the higher forms of life, however, it becomes apparent that the psychic responses depend on conditions not entirely under the influence of hormones. Thus prepuberally castrated guinea-pigs will exhibit for months strong pursuing tendencies toward females. Stone<sup>38</sup> determined that the white rat will copulate up to five or eight months after castration. It is known that apparently healthy males are often poor service animals, though definitely proved to be secreting normal amounts of hormone by the condition of their accessory reproductive organs. Mating instincts, or the copulatory desires, are extremely complicated and involve so many factors of mentality that it becomes questionable how important testis hormone is in inducing particular psychic states.

Against the concept that mating inclinations in man are lost after castration are the reports of promiscuity of eunuchs. This has been noted many times, and more recently McCartney<sup>39</sup> examined twenty-three eunuchs, finding ten cases of gonorrhea. The mental reaction and psychic state of the problem is well represented by the case of Rowe<sup>40</sup> of a man castrated at 25 years for pathologic reasons, who though previously energetic and widely traveled became an unambitious lethargic individual. The outcome of an interest in a young woman led to marriage nine years after his operation, with entire satisfaction on the part of both partners. His renewed outlook on life was followed by his rehabilitation and the successful pursuit of a new business venture. Psychotherapy in many cases may abolish the preconceived notions of the results of testicular damage, and the conception of the importance of the hormone in psychic conditions in man may have to be completely revised. The castrated man should receive a great deal more study.

Much has been made in medical literature of rejuvenation, increased length of life, mental improvements and the like in man by means supposed to involve changes in hormone production. For centuries man has castrated his domestic animals, even for improvement,

yet no one has shown that the life of them, or of castrated man, is shortened, indeed, the eunuch is reported to be a long-lived individual. Neither has castration been shown to be detrimental to an animal other than as concerns breeding powers. Whereas truth may lie in the statement that eunuchs are usually less progressive and energetic than normal men, their social status may play a larger part as a conditioning factor than does the loss of their testis hormone. History records high attainments for eunuchs in government, military and other walks of life. It is yet to be demonstrated that testis hormone in any way sharpens the mentality, prolongs life, aids digestion or sleep or imparts the host of other benefits it is alleged to bestow. Biochemical tests involving metabolism studies, urine analyses, blood chemistry, respiration and the like have so far failed to reveal any consistent development attributable to the absence of testis hormone.

As a final consideration it should be pointed out that from existing evidence testis hormone cannot be considered in any sense a stimulating agent for supposedly hypofunctioning testes, the hormone unquestionably stimulates the accessory reproductive organs but not the gonads themselves. Rather than acting as a stimulating agent on the gonad, injections of hormone in sufficient concentration are actually injurious to gonad tissue present. Injections of estrogenic substance into normal female rats,<sup>41</sup> dogs<sup>42</sup> and monkeys<sup>43</sup> do not stimulate the ovary but are positively injurious. Injection of estrogenic substance into normal males destroys germ cell production and hormone secretion. Testis hormone injected into young normal males suppresses growth of the testis and causes visible injury to the seminiferous tubules,<sup>44</sup> it probably lowers or abolishes hormone secretion, but this cannot be detected since the injection of the hormone more than counterbalances the loss of that produced by the organ itself. The injurious action of the hormones on gonad tissues is believed to be through the hypophysis, making unavailable to the sex gland the necessary substances from the pituitary for normal gonad activity.

In short, the gonad hormones are not gonadal stimulants, nor is the product of any specific endocrine gland a stimulating agent for that gland itself. If testis hormone proves to be of value in the clinic it will no doubt find one application in prepuberal castrates, as a measure adopted to produce evident signs of maturity to relieve the individual of the mental stigma of being markedly different from his fellows. For stimulating greater hormone production in an individual possessing some testis tissue, gonadotropic agents, and not testis hormone, will no doubt become the measure for application. This procedure appears already to have given results of clinical value in certain types of cases.<sup>45</sup>

From this discussion it is no doubt apparent that the question of the clinical value of testis hormone is by no means settled. For attaining dependable results the problem must be considered from the broad point of view of social background and biologic principles. Real advancement must rest on honest critical work rather than on poorly conceived sporadic experimentation with hastily assumed results and unsubstantial claims.

41 Meyer Leonard Hisaw and Martin<sup>38</sup>

42 Kunde M. M. D. Amour F. E. Gustavson, R. G. and Carlson A. J. Proc Soc Exper Biol & Med 28: 122 (Nov.) 1930

43 Allen Edgar J. Morphol 46: 479 (Dec. 25) 1928

44 Moore and Price<sup>39</sup> Korenchevsky V. Dennison M. and Kohn Speyer, A. Biochem J 27: 1506 1933

45 Sexton D. L. Endocrinology 18: 47 (Jan Feb) 1934

38 Stone C. P. J Comp Psychol 7: 369 (Oct.) 1927

39 McCartney J. L. Endocrinology 13: 73 (Jan Feb) 1929

40 Rowe A. W. and Lawrence C. H. Endocrinology 12: 591 (Sept Oct) 1928

## SUMMARY

principal sources of testis hormone at present are  
 articles of large mammals and human urine  
 is hormone is obtained from the lipid fraction  
 s been sufficiently purified to yield crystals having  
 potency  
 appears chemically to be a ketone-alcohol, the only  
 method of detecting its presence consists in reac-  
 produced in suitable animals  
 secreted continuously, or periodically, in different  
 s, and secretion is largely under the control of  
 utary gland  
 s uncertain whether more than one hormone is  
 d by the testis  
 clinical use is questionable, its primary function  
 control of the accessory reproductive organs, it  
 a testicular stimulant

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.  
 CHICAGO

—In their elaboration, these articles are submitted to  
 members of the attending staff of the Cook County Hospital  
 director of therapeutics Dr Bernard Fantus. The  
 expressed by the various members are incorporated in  
 draft for publication. The articles will be continued  
 me to time in these columns. When completed, the series  
 published in book form.—Ed

#### THERAPY OF ECLAMPSIA

m a therapeutic<sup>1</sup> point of view, eclampsia might  
 fined as a condition of metabolite intoxication  
 panied by hyperpnea and a tendency to convul-  
 As this syndrome occurs most especially in the  
 e of pregnancy, the therapy of puerperal eclampsia  
 y is indicated here. With elimination of the items  
 stetric therapy, this outline of treatment might be  
 y applicable to nonpuerperal eclampsia, whether  
 urs in children, who, next to the puerpera, are  
 prone to convulsions, or in adults. For treatment  
 antile "eclampsia" see Therapy of Spasmophilia.  
 e functional pathology of eclampsia might possibly  
 ualized as a toxic angiospasm occurring as a reac-  
 o certain poisons on the part of the system to  
 greater renal elimination by greater blood per-  
 i of the kidney. Unfortunately, when angiospasm  
 ds to the brain blood vessels it is likely to cause  
 ral edema, increased intracranial pressure and con-  
 ons, and such angiospasm may in turn lead to con-  
 on of renal blood vessels and diminution of  
 ry elimination. This vicious circle is fatal unless  
 n upon by correct therapeutic measures. Its  
 ntion is much more successful than its treatment  
 hile eclampsia is more prone to result when the  
 y tissue is diseased, it may also occur without any  
 is or permanent renal tissue abnormality.  
 puerpera may, of course, have convulsions due to  
 one of a great many different other causes as may  
 ent with nephritis. If all such convulsions were

called "eclampsia," the treatment to be discussed here  
 would be erroneous for all the convulsions of other than  
 the sketched pathogenesis. This is the reason why the  
 term "eclampsia" should either be abandoned or else  
 limited to a meaning that has practical value in  
 treatment.

#### PROPHYLAXIS

The prophylaxis of eclampsia is an important part of  
 prenatal care. It requires routine examination every  
 two weeks during the last months, of blood pressure,  
 urine and body weight, and for edema. Eradication of  
 foci of infection, especially by dental care, should be  
 insisted on.

**Blood Pressure**—A tendency to a rise in blood pres-  
 sure (over 130 systolic, 70 diastolic), especially the  
 diastolic, or excessive gain in weight (over 400 Gm  
 per week) should at once be met by recording blood  
 pressure readings twice daily and

1 A salt poor, low protein and low fat diet. An  
 abundance of fruit and vegetables and carbohydrates,  
 milk (at least three glasses a day), a small amount of  
 protein and fat (one helping of meat and one egg  
 daily), a minimum of salt and of spices, and from six  
 to eight glasses of water daily should be taken.

2 Magnesium sulphate purgation, as required.

3 Skin hyperemia production, with its blood pres-  
 sure reducing tendency. Profuse or exhausting dia-  
 phoresis is not intended. (a) A general electric light  
 cradle for from fifteen to twenty minutes daily, or to  
 the point of incipient perspiration, followed by a dry  
 pack, or (b) a warm bath (100 F) daily for fifteen  
 minutes, followed by a dry pack, or (c) general ultra-  
 violet irradiation with a minimal erythema dose, the  
 lamp at 75 cm distance, for from two to seven minutes  
 according to the intensity of the rays or the sensitiv-  
 ness of the patient, to different fourths of the body  
 surface every other day, the various surfaces being  
 irradiated again at each next round for possibly one  
 minute longer until pigmentation or constitutional  
 reaction sets the limit, which may be reached with fif-  
 teen minutes' exposure.

4 General regimen. The patient should avoid chill-  
 ing and reduce her physical and mental activities.

**Preeclamptic Stage**—When the blood pressure does  
 not recede promptly or if it exceeds 140 or when either  
 albuminuria (more than a trace) or edema (especially  
 facial) or both add themselves to the hypertension, the  
 patient should be immediately hospitalized. Nonprotein  
 nitrogen estimations, blood chloride determinations (if  
 edema is present), and carbon dioxide combining power  
 tests along with repeated retinoscopy will furnish an  
 index as to progression or regression of the toxemia.  
 Other measures include

1 Absolute rest in bed, which alone will often do  
 wonders in the reduction of blood pressure and the  
 relief of other symptoms. If the patient is restless,  
 potassium bromide (4 Gm daily) and chloral hydrate  
 (from 1 to 2 Gm daily) or phenobarbital (0.10 Gm,  
 two or three times a day) will permit sleep and comfort.

2 Fasting. No feeding should be allowed and mod-  
 erate drink restriction should be enforced for a day,  
 followed by a salt-poor diet, e g, oatmeal gruel and  
 later by a lactovegetarian diet (1,500 calories daily).  
 No tea or coffee should be taken. Edema indicates  
 limitation in fluid intake (to 1,000 cc a day) until the  
 edema is gone, then gradual increase in the fluid intake,  
 provided the urine elimination increases proportionately.

<sup>1</sup>Physiology has too largely been dominated by tissue pathology. For  
 a basis of treatment syndromic classifications are needed that yield  
 and unmistakable therapeutic indications.

3 Purgation by magnesium sulphate (30 Gm, best given in ice cold effervescent lemonade) every six hours until watery bowel movements are obtained, then 15 Gm daily the first thing in the morning

If the blood pressure goes down and no other symptoms appear, the patient is watched carefully, until term, for recurrence of symptoms. The patient should report at once if disturbance of vision, dizziness or unusual headache should appear

**Threatened Eclampsia**—If, in spite of these measures, the blood pressure, measured three times daily, continues to rise (systolic 150 mm, diastolic pressure 100 or higher) or if increasing toxemia is revealed by the study of the continuous twenty-four hour specimens of urine, the blood tests or other signs or symptoms, such as apathy or restlessness, or the appearance of headache (which need not be severe but is unaccounted for by other causes) or when visual disturbances or epigastric pain associate themselves, the uterus is promptly emptied, as these symptoms may mean the imminence of convulsions within a few hours or days, and as the maternal mortality of actual eclampsia is about 25 per cent and the infantile mortality almost 100 per cent

Interruption of pregnancy in the preeclamptic stage, the single most important indication of which is the rise in blood pressure, not only saves the mother's life but also prevents subsequent invalidism from resulting permanent kidney impairment if the pregnancy is permitted to continue. Labor may be induced or cesarean section practiced. The method to be chosen for the induction of labor will depend on a number of facts, chiefly the proportion between the size of the fetus and the diameter of the birth canal

(a) If there is no disproportion and the symptoms are not urgent, 60 cc of Castor Oil given by mouth or through a stomach tube may suffice to induce labor within twenty-four to forty-eight hours. At this time the dose may be repeated, if the first dose failed, provided the symptoms show that there is no urgency

(b) Rupture of the amniotic sac almost invariably succeeds in initiating active labor within twelve to twenty-four hours

(c) Cesarean section should be done in rapidly advancing signs of threatened eclampsia, i. e., threatened eclampsia of an alarming nature, and in definite disproportion between the fetus and the birth canal

This treatment may seem radical, but it is actually conservative, for at least seven dangers threaten the toxic pregnant woman

- 1 Kidney and liver damage
- 2 Placental infarction, with death of the fetus
- 3 Premature separation of a normally implanted placenta
- 4 Temporary or permanent injury to the optic nerve
- 5 Bronchopneumonia from aspiration or inhalation anesthesia
- 6 Cerebral hemorrhage
- 7 Death from eclampsia convulsions and exhaustion

If these facts were crystallized in their minds, attending physicians would be more particular to start prevention early and to act more promptly in emptying the uterus than most physicians do at the present time

Labor should be conducted with all possible freedom from pain or trauma. Obstetric analgesia should be practiced during labor to avert the onset of convulsions by giving, for example, Morphine Sulphate (0.015 Gm) hypodermically, repeated in four hours if required, and Phenobarbital Sodium (0.10 Gm) by mouth, repeated in two hours and later every four hours, as required

If, during the second stage, labor becomes very slow or the blood pressure rises, indication for forceps or version is present

#### TREATMENT

When convulsions are present, an emergency exists that requires immediate and constant attention. If the convulsion occurs at home, morphine (even 0.03 Gm) should be given immediately by hypodermic injection to quiet the patient during transfer to the hospital. The indications may be classified as (1) sedation, (2) hypohydration, (3) support and (4) operation

1 Sedative treatment consists of the promptest possible administration of morphine hypodermically, chloral by rectum, and magnesium sulphate intravenously

Morphine Sulphate, 0.015 Gm by hypodermic injection, is to be repeated in one hour if required, provided the patient has not been given it before, then not oftener than every four or eight hours. Respirations should not be depressed to less than ten per minute. As soon as it can be made ready, one should also give a Chloral Hydrate enema giving 2 Gm of chloral for the first dose and a smaller quantity after two hours, and then at intervals of from four to eight hours as required

#### Chloral Enema

R. Chloral hydrate	8.00 Gm.
Mucilage of acacia	30.00 cc
Water to make	60.00 cc

M. Label. Tablespoonful (15 cc.) in 150 cc of water given slowly by rectum. Give 10 cc dose after two hours if required. After this not oftener than every four to eight hours

Magnesium Sulphate is given slowly intravenously in doses of 20 cc of 10 per cent solution of the crystalline salt every hour until the convulsions are under control, and subsequently at longer intervals as indicated by blood pressure readings taken hourly. It is contra-indicated if there is coma or marked acidosis (carbon dioxide combining power less than 20 volumes per cent). Calcium chloride solution (5 per cent) should be kept in readiness for slow intravenous injection if alarming respiratory depression should occur, 25 cc may suffice to produce immediate improvement. If facilities for intravenous injection are not available, 10 cc of 25 per cent magnesium sulphate solution may be given intramuscularly

While all this is going on, noise and visitors are taboo. The greatest possible degree of quiet should be maintained, and the room should be relatively darkened. The patient must not be left alone even for a minute. During convulsions she should be restrained gently to prevent self injury. A towel, clothes pin or gag should be used to prevent biting the tongue. Lateral decubitus and elevation of the foot of the bed should be maintained to permit outward drainage of mucus and saliva and prevent their aspiration. Oxygen inhalation given immediately after each convulsion to relieve the cyanosis promptly is desirable. If mucus and saliva accumulate, these should be removed gently and frequently, best by means of suction apparatus

2 Hypohydration by phlebotomy of hypertonic dextrose solution is of importance, because in these cases there is a relative hypohydræmia (with liability to liver degeneration) as well as a tendency to cerebral edema. One may give 250 cc of 25 per cent dextrose solution (slowly, over a period of from thirty to forty-five minutes) and repeat this dose four times daily. It is also important to administer 250 cc of 25 per cent dextrose solution intravenously shortly (possibly fifteen min-

utes) before the birth of the child, to protect the infant against hypoglycemia which may be responsible for the high neonatal mortality.

Depletion may have to be practiced simultaneously, as all osmotherapy increases blood volume and tends to raise blood pressure and subtheal pressure secondarily. Hence guided by the blood pressure and provided the patient is not anemic, one may practice venesection which must be copious (500 cc) and performed rather rapidly to produce the result. If opportunity for venesection is not present, or if withdrawal of blood is considered undesirable, sequestration of blood in the limbs (for half an hour at a time) may be of some help.

Lumbar puncture should also be performed if conditions do not seem favorable and, if the cerebrospinal fluid pressure is high, escape of the fluid should be permitted. This must occur very slowly—literally drop by drop—for fear of herniation of the medulla through the great occipital foramen, which would result in sudden death.

It is obviously nonsensical while such treatment is practiced to "push fluid," as by saline hypodermoclysis. It must also of course be understood that most of this circulation depressing therapy is contraindicated in the presence of definite circulation insufficiency.

3 Supportive treatment may be required as by cautious and graded administration of fluid as soon as the object of the dehydration treatment has been accomplished. Phlebotomy of from 2 to 3 liters of 5 per cent dextrose in Physiologic Solution of Sodium Chloride until chloride appears in the urine and then of 10 per cent dextrose phlebotomy is likely to be beneficial. If sugar appears in the urine, insulin (see Diabetes) is indicated. A stimulant to the circulation may be needed, such as strophanthin (0.5 mg intravenously), which may be given in the dextrose phlebotomy.

4 Surgical obstetric intervention, if possible, should not be undertaken until the convulsions have been controlled, for emptying of the uterus does not stop the convulsions, though it usually prevents them. Accouchement force is not a part of the treatment of eclampsia. The uterus should be emptied without violence. Even low forceps application is done reluctantly and never with ether anesthesia because of danger of pneumonia. Antemortem cesarean section is rarely needed, because the child is usually dead at such a time.

Kidney decapsulation may possibly save the life of a patient with deep coma and anuria, when other measures seem to fail.

#### POSTPARTUM CARE

As in any severe case of preeclamptic toxemia convulsions may occur from twenty-four to forty-eight hours after delivery, sedative and other measures as described should be continued for several days. It is well to give as a routine, soon after labor, a hypodermic injection of Morphine Sulphate 0.015 Gm.

Blood pressure readings and the urinary output should be recorded daily.

The blood should be examined for nonprotein nitrogen retention.

The low protein and salt poor diet should be continued until edema has disappeared. Then fluid should be given freely, provided the kidney can respond to the appeal.

If the blood pressure and urine do not return to normal within two weeks after delivery, the therapy of nephritis (q.v.) is indicated.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS STIMULATED THE INVESTIGATION OF SHORT WAVE DIATHERMY AND THE THERAPEUTIC CLAIMS MADE FOR IT IN ORDER THAT THE MEDICAL PROFESSION MAY NOT BE MISLED INTO BELIEVING THAT THIS FORM OF THERAPY HAS UNUSUAL HEALING POWERS AND OTHER CLINICAL ADVANTAGES. THE COUNCIL FEELS THAT IN THIS AS IN ALL OTHER FORMS OF MACHINE THERAPY THE THERAPEUTIC CLAIMS MUST BE SUBSTANTIATED BEFORE THE MACHINES ARE ACCEPTED. IT FEELS THAT BY THIS STUDY AND BY SIMILAR STUDY OF OTHER NEW PHYSICAL THERAPY APPARATUS THE PROFESSION CAN BE MOST GREATLY BENEFITED. THE COUNCIL HAS THEREFORE AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE.

HOWARD A. CARTER, Secretary

### TISSUE HEATING BY SHORT WAVE DIATHERMY

SOME BIOLOGIC OBSERVATIONS

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AND

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The introduction into physical therapy of apparatus generating high frequency electric and electromagnetic currents (now becoming generally known as short wave diathermy) has aroused a wide response and has stimulated much investigation. There is an increasing interest and literature on the use and effects of these currents but the multiplicity of therapeutic claims and the varieties of nomenclature have served rather to confuse the issue. The observations, if confirmed, may obviously have a wide range of interest and application in biology and medicine. Consequently it is especially necessary to approach the entire subject with a healthy skepticism in order to make an impartial critical evaluation.

The chief claims for short wave diathermy revolve about the following points:

- 1 Greater and more uniform penetration of heat into the body
- 2 Special selective thermal action
- 3 Specific biologic action
- 4 Specific bactericidal action

1 *Greater and More Uniform Penetration of Heat into the Body*—It is not entirely clear to us what is meant by "deeper thermal penetration" (as the advertisements read), since there is no adequate method of measuring this factor in the living body. The comparison of short wave radiation with roentgen radiation is, we believe, entirely fallacious and misleading. The production of heat in any organ of the body in a short wave field is not a static affair, as will be brought out later. Likewise, there is no evidence to support the claim that the thermal gradient observed with conventional diathermy is reversed when short wave diathermy machines are substituted.

The experiments on which the claims of uniform and penetrating heating have been based are all phantom model or other in vitro experiments of the nature of the work of Pariseau.<sup>1</sup> This investigator, using agar-salt mixtures and a heat sensitive substance, tetraiodomercurate of silver (which is canary yellow when cold and orange red when hot) as an indicator, has attempted

Aided by a grant from the Council on Physical Therapy of the American Medical Association from the Department of Physiology and Pharmacology and the Department of Physical Therapy Northwestern University Medical School.

<sup>1</sup> Pariseau L. E. Canad. M. A. J. 20: 146 (Feb.) 1929.



to show the heat distribution by the color change. The interpretation of the results of this work is open to serious criticism. In the first place, the color of the indicator changes quickly when the temperature is raised above its critical point, in the second place, as Pariseau himself warns, a uniformly colored field does not mean a uniformly heated field. Furthermore, it is difficult to see how results obtained from experiments on beefsteak or on amputated limbs, which, devoid of circulation and nerve supply, are not even approximately representative of the actual physiologic conditions, can be validly applied to the living body. We do not believe it is possible to predict, from phantom model experiments, the response of the living body, with its variety of reactions and compensatory mechanisms, to this form of energy.

**2 Special Selective Thermal Action**—From a mathematical and physical study of the heating of electrolytes in high frequency fields McLennan and Burton<sup>2</sup> and later Patzold<sup>3</sup> and Reiter<sup>4</sup> have shown that the heating depends on the specific conductivity of the liquid and rises to a maximum for a certain conductivity. This maximum is the more marked the higher the frequency. The conductivity at which the maximum effect occurs is shown to be proportional to the frequency. The distribution of the field in the interior of a heterogeneous body is determined largely by the dielectric constant and the heating by the conductivities. For a given wavelength there is a maximum heating effect produced in a medium, the specific conductivity and dielectric constant of which are connected with the frequency by the relation  $2C = nK$ ,  $C$  being the specific conductivity in absolute units,  $K$  the dielectric constant, and  $n$  the frequency.

Extending this mathematical and physical relationship to the body, McLennan and Burton<sup>5</sup> suggest that a selective heating effect is possible from a knowledge of the characteristic electrical constants of the substances of the body, and by suitable choice of wavelength the heating of a particular part of a heterogeneous body may be favored over that of neighboring regions.

However, there are at least two very serious and insurmountable limitations to this concept, one being the extent to which temperature per se operates on conductivity to increase this factor. Frequencies that might show selective heating at room temperature might be much less effective at body temperature and still less so as the tissue temperature rises as a result of the treatment, since the conductivity rises with temperature. Secondly, as one of us<sup>6</sup> has shown, the blood flow and the rapid interchange of heat in the living body may render the differences of temperature negligible for all practical purposes, which McLennan and Burton themselves also point out.

Schliephake's<sup>7</sup> work as well as that of others<sup>8</sup> on selective thermal action and uniform and penetrating heating has been done mostly on dead tissue and tissue outside the living body, and as Schliephake himself says "It remains for further studies to determine the presence or absence of parallel selective reactions in

the living human, hence final conclusions from the facts can be drawn only after comparison with similar observations in living human material."

**3 Specific Biologic Action**—Among the first to suggest specific biologic effects of currents of high frequency were Gosset and his co-workers,<sup>9</sup> who reported that various types of plant tumors when subjected to massive exposures in a 2 meter field were killed, death being preceded by an acceleration in their rate of growth. Later Schereschewsky,<sup>10</sup> working with a transplantable Rous sarcoma in mice, reported that he had shown a maximum lethal action between wavelengths of 3.75 and 15 meters. He stated that the tumors did not feel hot but that, on the other hand, the microscopic picture of them suggested coagulation necrosis. Recently, Pflomm<sup>11</sup> asserted that he reduced the toxicity of a rat sarcoma by the use of a 3.2 meter wave, the tumor receding in size until the thirty-eighth day, after which it began to grow again.

The earlier work has been reviewed before<sup>6</sup> and need not be repeated, except to say that, aside from the report of Mellon, Szymanowski and Hicks, which needs confirmation, that they secured a definite attenuation of diphtheria toxin independent of the heat factor, there is not sufficient evidence to suggest an effect other than that of heat.

Schereschewsky<sup>12</sup> has lately reviewed his earlier work and has come to the conclusion that the sarcoma was killed by the heat generated in the tissue and that there was no evidence for specific lethal action of the radiation. Ross<sup>13</sup> exposed twenty-two chickens inoculated with the Rous sarcoma to a 29 meter wave and reports that the duration of life was not prolonged and the growth of the tumor was not retarded. Haas and Lob<sup>14</sup> used a 2.8 and 20 meter wave in the treatment of malignant tumors and observed no specific effects.

Other recent observations on the effect of exposure to high frequency currents include the work of Jellinek,<sup>15</sup> who claims an increase over the controls in the weight of new-born mice that were exposed to a 3 meter wave four times daily for one hour at a time, and of Knudson and Schaible,<sup>16</sup> who exposed white rats to currents of from 25 to 33.3 meters for from half an hour to one hour daily, raising the temperature to 40.5 C, and found no retardation of growth or change in the power to breed. These experimenters also<sup>17</sup> exposed dogs to the same high frequency currents for from thirty to sixty minutes and found that the chemical changes in the blood were referable to the concentration resulting from the dehydration. The effect of high frequency currents on the oxygen consumption of frog muscle was studied by Fenn and Latchford,<sup>18</sup> using 3.2 and 27 meters. They report no special effect that could not be attributed to the heating effect of

2 McLennan J C and Burton A C Canad J Research 3: 224 1930  
3 Patzold Johannes Strahlentherapie 45: 645 (Dec 7) 1932  
4 Reiter T Brit J Phys Med 8: 119 (Dec) 1933  
5 McLennan J C and Burton A C Canad J Research 5: 550 1931  
6 Mortimer Bernard Radiology 16: 705 (May) 1931  
7 Schliephake E Kurzwellentherapie Jena Gustav Fischer 1932  
8 McLennan and Burton R Réchau and Wangermez Bull et mem Soc de radiol med de France 22: 74 (Jan) 1934 Schereschewsky J W Pub Health Rep 48: 844 (July 21) 1933

9 Gosset A Gutman A Lakhovsky G and Magrou I Compt rend Soc de biol 91: 626 1924  
10 Schereschewsky J W Pub Health Rep 41: 1939 (Sept 10) 1926 Schereschewsky J W and Andervont H B ibid 43: 927 (April 20) 1928  
11 Pflomm Erich Munchen med Wchnschr 77: 1854 (Oct 24) 1930  
12 Schereschewsky J W Radiology 20: 246 (April) 1933  
13 Ross J R Am J Cancer 18: 905 (Aug) 1933  
14 Haas M and Lob Strahlentherapie 50: 345 (June) 1934  
15 Jellinek Stefan Wien klin Wchnschr 43: 1594 (Dec 25) 1930  
16 Knudson Arthur and Schaible P J Effect of Exposure to an Ultra High Frequency Field on Growth and on Reproduction in the White Rat Arch Path 11: 723 (May) 1931  
17 Knudson Arthur and Schaible P J Physiologic and Biochemical Changes Resulting from Exposure to an Ultra High Frequency Field Arch Path 11: 728 (May) 1931  
18 Fenn W O and Latchford W B Am J Physiol 99: 608 (Feb) 1932



the current Nasset and his co-workers<sup>19</sup> have made an extensive study of the physiologic effects of diathermy currents of 300 meters (diathermy) and 30 meters (short wave) on anesthetized dogs and report that at the higher temperature of from 42 to 44 C the protein metabolism judged from the urea production, may be doubled with no evidence of a disturbance to endogenous protein metabolism

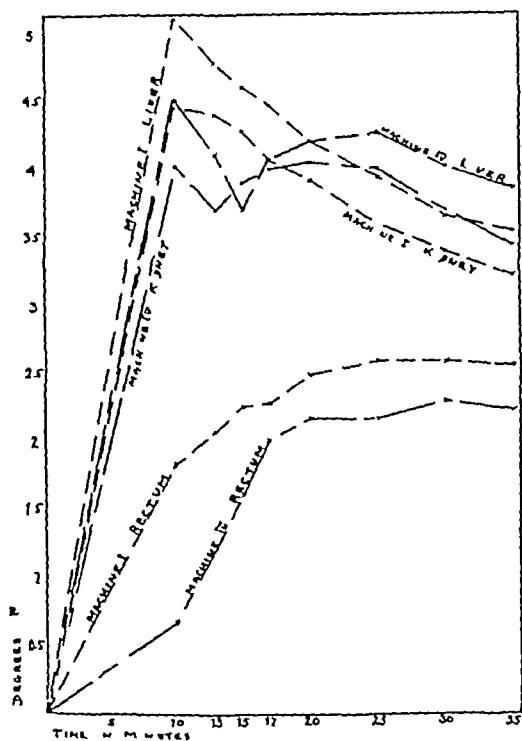


Fig 1—Heating of tissues of anesthetized dog (average of twelve) Current through thorax for ten minutes Average rise in skin (average of twelve) machine I 14.14 degrees F, machine IV, 15.75 degrees Average rise in lung (average of eleven) machine I 5.94 degrees machine IV 5.3 degrees

Bierman and Fishberg<sup>20</sup> have recently reviewed the physiologic changes in the body during hyperpyrexia

The tissues of guinea-pigs, dogs and rats, after exposure to a 25 meter radiation during which the maximum temperature rose to from 107.5 to 112.4 F, were examined pathologically by Jacobsen and Hosoi,<sup>21</sup> and the changes found were the same as in fever produced by other methods

4 *Specific Bactericidal Action*—Many studies have been carried out to determine whether the high frequency currents have any specific lethal effect on bacteria. Much literature has accumulated stemming largely from the writings of Schliephake. With a co-worker, Haase, he reported<sup>22</sup> a selective lethal action with specific wavelengths on various micro-organisms in vitro at 37 C. This work was extended by Liebesny and his co-workers,<sup>23</sup> who postulate that for every kind of bacteria there is a definite wavelength which has the most harmful effect and most quickly destroys the bacteria. He goes on further to say that the growth of

certain micro-organisms can even be promoted by certain wavelengths

Confirmation of this work is lacking. On the other hand, much evidence is at hand in refutation. In this country Hicks and Szymanowski,<sup>24</sup> working with 25 meters on streptococci, staphylococci, B. diphtheriae, bacteriophage, and precipitating antibody for pneumococcus on the course of experimental infection in animals on specific desensitization, and on immunization by irradiated toxins, explain the effects on the basis of elevation of temperature produced. Izar and Famulari,<sup>25</sup> working with 4, 8 and 15 meters on B. typhosus, paratyphosus, dysentery Shiga, Ceylon A and B, and proteus X<sub>0</sub> report these micro-organisms unaffected by a twenty minute treatment. Groag and Tomberg,<sup>26</sup> in analyzing the results of Haase and Schliephake that bacteria in culture are killed at 37 C by exposure to the short wave field, bring out the interesting explanation that because of "point heating" (similar to the phenomenon described by Esau in his oil and water emulsion in which steam escapes after exposure to the field even though the temperature of the emulsion is only 60-70 C) the bacteria may be brought above their thermal death point, which is essentially higher than the temperature of the surrounding medium. They remark that it is not necessary, as Haase and Schliephake do, to invoke a new mechanism as a specific lethal action of short waves, which action in

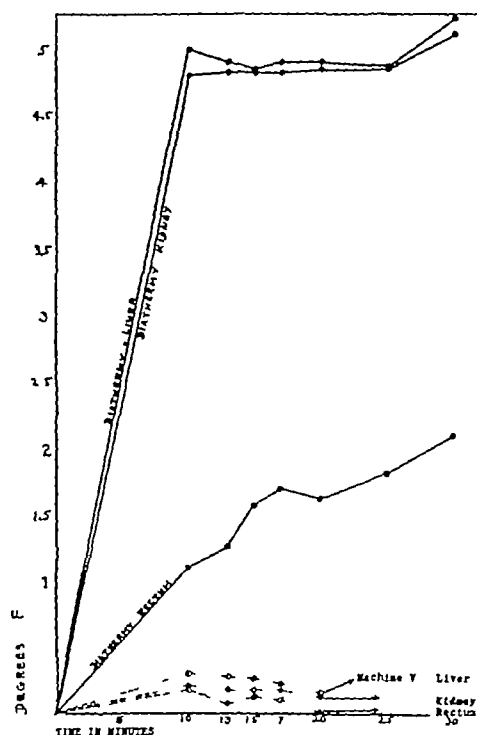


Fig 2—Heating of tissues of anesthetized dog (average of twelve) Current through thorax for ten minutes Average rise in skin (average of seven) machine V 3.1 degrees F diathermy 7.8 degrees Average rise in lung (average of eight) machine V, 0.9 degree diathermy 6.54 degrees

no wise was proved by their experiments. Groag and Tomberg repeated the work of Liebesny with the 4 meter and 15 meter wave on *Actinomyces bovis*, *Trichophyton tonsurans* and *B. coli*, and reached the

19 Nasset E S Am J Physiol 101:194-203 (June) 1932  
Karr J W and Nasset E S ibid 107:170 (Jan) 1934  
20 Bierman William, and Fishberg E H Some Physiologic Changes During Hyperpyrexia Induced by Physical Means J A M A 103:1354 (Nov. 3) 1934  
21 Jacobsen V C and Hosoi Kiyoshi Morphologic Changes in Animal Tissue Due to Heating by an Ultra High Frequency Oscillator Arch Path 11:744 (May) 1931  
22 Haase W and Schliephake E Strahlentherapie 40:133, 1931  
23 Liebesny P, Schulz H and Wertheim H Klin Wchnschr 12:141 (Jan 28) 1933

24 Hicks R A and Szymanowski W T J Infect Dis 50:466 (May June) 1932  
25 Izar G and Famulari S Riforma med 49:1489 (Oct) 1933  
26 Groag P and Tomberg V Wien Klin Wchnschr 47:267 (March 2) 1934

conclusion that the destruction of cultures by means of short waves is possible in every case so long as the electrical energy of the field suffices to generate the necessary point heat that brings the organisms above their thermal death point. Liebesny's other observations that bacterial growth may be promoted by short waves may also be explained by "point heating," which raises the temperature of the micro-organisms to their optimum temperature for growth.

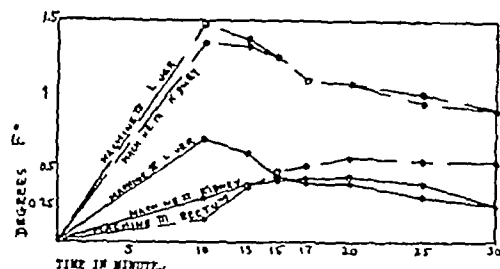


Fig. 3—Heating of tissues of anesthetized dog (average of twelve). Current through thorax for ten minutes. Average rise in skin (average of eight) machine III 7.96 degrees F. machine II 3.4 degrees. Average rise in lung (average of eight) machine III 1.81 degrees. Machine II 1.1 degrees. Machine II no change in rectal temperature.

Hasche and Leung<sup>7</sup> exposed cultures of staphylococci and streptococci in distilled water, saline solution bouillon and milk and on agar plates to short waves (from 8 to 16 meters) of different intensities for periods of time up to eight and one-half hours and observed no inhibitory or destructive effect on the bacteria.

Erdinow<sup>8</sup> submitted suspensions of bacteria in serum to 3 and 4 meter waves eliminating the heating effect, and reports that he was unable to demonstrate any bactericidal action.

In our own laboratory we have subjected broth cultures of staphylococci, streptococci, *B. melitensis*, gon-

tulated. At present the results obtained can be fully explained, we believe, on the basis of the heat generated.

In view of the fact that many requests have been received for information regarding the therapeutic efficacy and physical characteristics of short wave diathermy apparatus, the Council was obliged to undertake investigations that would either confirm or refute the claims made in the advertising matter and descriptive literature. Although some of the firms having submitted machines to the Council did not hesitate to make questionable or misleading therapeutic and physical claims, they did fail to present conclusive evidence confirming these claims. Therefore because of the intense interest in this new field the Council deemed it advisable to go forward with certain investigations to substantiate if possible, the claims made.

The following machines were submitted for these tests:

- Machine I Two tube short wave diathermy (6 meter)
- Machine II One tube short wave diathermy (15 meter)
- Machine III Two tube short wave diathermy (24 meter)
- Machine IV Two tube short wave electromagnetic field (25 meter)
- Machine V Two tube short wave diathermy (16 meter)
- Machine VI Conventional diathermy for comparison.

#### EXPERIMENTAL

The experiments about to be described were designed to secure data on the heating effects of the various short wave diathermy machines submitted to secure data on the heating of various organs, and to observe the thermal gradient and any other changes which might occur.

*Method of Recording Temperatures*—Temperatures were taken by six thermocouples made of copper and constantan wires (28 gage Leeds-Northrup double

Temperature Rise in Degrees F. in Various Organs of the Dog After Ten Minutes Exposure to Short Wave Diathermy

Time in Minutes	Machine I 6 Meters				Machine II 15 Meters				Machine III 24 Meters				Machine IV Electromagnetic Field 25 Meters				Machine V 16 Meters				Diathermy				
	Rectum (Av 12)	Liver and Duodenum (Av 12)	Kidney and Spleen (Av 12)		Rectum (Av 12)	Liver and Duodenum (Av 12)	Kidney and Spleen (Av 12)		Rectum (Av 14)	Liver and Duodenum (Av 14)	Kidney and Spleen (Av 14)		Rectum (Av 10)	Liver and Duodenum (Av 10)	Kidney and Spleen (Av 10)		Rectum (Av 12)	Liver and Duodenum (Av 12)	Kidney and Spleen (Av 12)		Rectum (Av 12)	Liver and Duodenum (Av 12)	Kidney and Spleen (Av 12)		
10	1.83	0.11	0.46		0.0	0.7	0.3		0.16	1.47	1.8		0.6	4.5	4.02		0.17	0.3	0.2		1.1	5.0	4.81		
12	2.07	0.77	0.40		0.0	0.6	0.39		0.37	1.33	1.32		1.22	4.1	3.03		0.06	0.23	0.17		1.27	4.9	4.53		
14	2.26	4.60	4.27		0.0	0.4	0.43		0.48	1.2	1.24		1.02	3.7	3.00		0.12	0.26	0.17		1.57	4.86	4.33		
16	2.30	4.47	4.07		0.0	0.41	0.44		0.31	1.11	1.10		2.01	4.03	4.03		0.10	0.23	0.17		1.7	4.90	4.27		
18	2.40	4.31	3.84		0.0	0.40	0.4		0.57	1.06	1.03		2.17	4.2	4.04		0.00	0.16	0.14		1.6	4.90	4.35		
20	2.50	3.94	3.60		0.0	0.31	0.63		0.4	0.94	1.01		2.18	4.27	4.0		0.00				1.82	4.87	4.8		
22	2.50	3.66	3.30		0.0	0.2	0.24		0.64	0.00	0.0		2.30	4.02	3.7		0.00				2.1	5.45	5.2		
24	2.57	3.54	3.23										2.23	3.87	3.44										
30	Rise in skin = 14.14 (Av 7)				Rise in skin = 3.4 (Av 8)				Rise in skin = 7.90 (Av 10)				Rise in skin = 10.75 (Av 12)				Rise in skin = 3.1 (Av 7)				Rise in skin = 7.8 (Av 7)				
	Rise in lung = 5.04 (Av 10)				Rise in lung = 1.1 (Av 8)				Rise in lung = 1.31 (Av 7)				Rise in lung = 5.3 (Av 12)				Rise in lung = 0.9 (Av 8)				Rise in lung = 6.4 (Av 8)				

cocci, meningococci and *B. typhosus* to a 6 meter wave for twenty minutes during which time the temperature of the culture rose to 40 C without observing any change in the growth of the micro-organism. We have also subjected rats with experimental pneumonia for three minutes daily to the 6 meter wave without observing any change in the fatal course.

It becomes increasingly clear from a careful scrutiny and study of the literature that much scrupulously controlled experimentation must be performed before specific effects of high frequency currents can be pos-

cotton covered) soldered into the tip of a 16 gage lumbar puncture needle. The thermocouples were connected to the potentiometer (Leeds-Northrup portable precision type) through parallel double pole switches, a method that facilitated rapid reading of the individual couple.

The thermocouples were calibrated against a Bureau of Standards calibrated thermometer with scale division in one-tenth degree F.

Since the thermocouple itself is affected by the high frequency currents there were no thermocouples in place in the field during the passage of the current.

*A Heating of the Tissues of the Dog (Anesthetized)*—The determinations of the heating effects of

<sup>27</sup> Hasche E and Leung H. *Strahlentherapie* 50:351 (June) 1934.

<sup>28</sup> Erdinow Albert. *Proc Royal Soc Med* 29:307 (Jan) 1935.

short wave diathermy and conventional diathermy were made on dogs anesthetized with pentobarbital sodium, 30 mg per kilogram, reinforced by small additional doses whenever necessary. For the determination of the temperature changes in the viscera, the dog was laparotomized and a thermocouple inserted into the selected organ. With the liver and spleen the thermocouples were held in place by stitching to the peritoneum; for the kidney the thermocouple was inserted



Fig 4—Cannulas in right thigh. Medial cannula in quadriceps extensor and lateral cannula in subcutaneous tissue.

through the flank and held in place by stitching to the skin, after the kidney had been immobilized by stitching the capsule to the peritoneum, the thermocouple in the duodenum was fastened by securing it to the serosa. The abdomen was then

closed surgically. For the temperature changes in the skin in the muscle of the thorax and in the lung, the thermocouple was inserted into the same place before and after the passage of the current. At the conclusion of the day's tests the animal was killed and examined to verify the position of the thermocouples and to observe any gross changes in the tissue. The slight disturbance in each organ occasioned by the insertion of the thermocouple does not, we believe, alter the physiologic conditions enough to give misleading results, as the thermocouples responded instantaneously to any temperature changes.

The pad electrodes were applied to each side of the thorax and were separated from the skin by a 15 mm thickness of felt. (This thickness was decided on after many trials.) The dogs were subjected for ten minutes to the maximum output obtainable from each machine. In clinical practice, as will be brought out later, it is not always possible or desirable to utilize the maximum output, as the patient cannot tolerate it. For this comparative study, however, bearing in mind the limitations of the application, the maximum field was used for the following reasons. With several of the machines submitted for these tests, less than the maximum output produced no observable temperature or other changes. Thus by using the maximum output a very troublesome variable factor, the tolerance dosage, was eliminated and it became possible to observe the response of living tissue to this form of energy. With diathermy, metal electrodes of the same area as the pad electrodes, separated from the skin by a 15 mm thickness of cellucotton soaked in 10 per cent solution of sodium chloride, were used. For the application of the electromagnetic field the cable was wound with four turns round the thorax.

The six machines were used in rotation on each dog, sufficient time being allowed between tests to permit the animal to cool (sometimes in the icebox) and return to thermal equilibrium. In this way, strictly comparable results were obtained on the same animal. Likewise by rotation no machine enjoyed any undue advantage of position, if such existed.

The results of these experiments are shown in the accompanying table and figures 1, 2 and 3. Twelve complete experiments were performed and several partial ones in which not all the machines were used

With the current applied across the thorax it was found that at the end of the irradiation the temperature of the skin and muscles of the thorax had risen considerably, the temperature in the lungs was somewhat less than that of the muscles. There existed a definite thermal gradient from the skin inward. At the same time the liver, kidney, spleen and duodenum heated to a lesser degree but each organ named underwent almost the same elevation in temperature, even though the last three organs were never in the short wave field and only part of the liver was. It is interesting to note that the body temperature, as indicated by rectal temperature, rose as the other organs lost heat. This illustrates the remarkable efficiency of the rapid heat interchange in the body, and the distribution of heat by the blood and other circulating fluids.

From our experiments with the short wave diathermy on anesthetized dogs we were unable to observe any greater penetration of heat or more uniform heating than with the conventional diathermy.

Attempts were made with several animals to obtain temperatures within the bones of the foreleg, but the trauma incident to drilling into the bone so disturbed the circulation as to produce a temporary stasis, which vitiated the results.

It should be pointed out again that in these experiments the complete output of the machines was used. Clinically, this is seldom possible owing to the limitation of skin tolerance but in these experiments it was

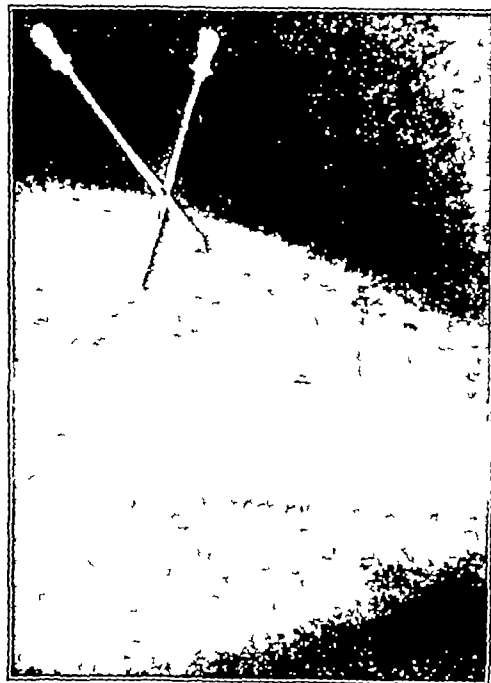


Fig 5—Roentgenographic appearance of cannulas in thigh.

necessary for comparative purposes. Thus a machine with a high output is not necessarily desirable, since it might not be possible to use all the available energy for any local treatment in which the dosage is always necessarily regulated and limited by skin tolerance.

The importance of skin tolerance in the application of these high frequency currents cannot be over-emphasized. This is strikingly brought out in the experiments on the human subjects.

*B Heating of the Tissues of Man*—Experiments were similarly conducted on the thigh of human beings

Under aseptic precautions a nonmagnetic, nonconducting sheath (through which the thermocouple needle could be guided for temperature readings) was inserted subcutaneously and into the quadriceps extensor (figs 4 and 5) Temperatures of the skin, of the subcutaneous tissue, of the muscle and of the mouth were taken before and after a twenty minute clinical application

Since the success of the utilization of this new form of energy depends to some degree on the proper technic

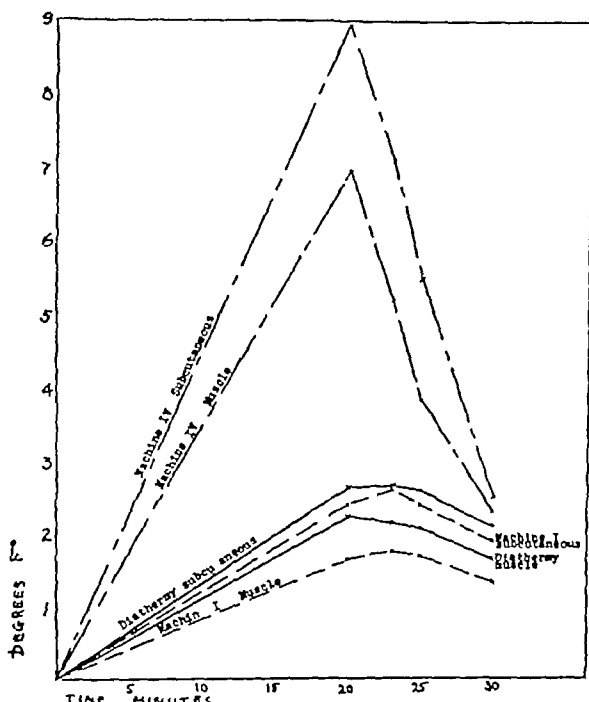


Fig 6—Heating of human thigh (eight subjects) Current on for twenty minutes Average rise in skin machine I 7.9 degrees F machine IV 6.26 degrees diathermy 6.7 degrees Average rise in mouth machine I 0.3 degree machine IV 0.7 degree diathermy 0.35 degree

of application, a representative of each manufacturer was present at one or more of these tests for advice and guidance With the pads, varying thicknesses of felt and bath toweling were used For the application of the electromagnetic field, four turns of the cable were used, the thigh being covered with two thicknesses of bath towel The surface next to the skin of the metal electrode of the diathermy was coated with a thin layer of K-Y jelly to insure better contact

The six machines were used in rotation on the thigh, sufficient time being allowed between for return to thermal equilibrium In these experiments the dosage was regulated entirely by the tolerance of the patient With several of the machines and with diathermy, the maximum output could not be utilized for this local treatment

The results of these tests on eight human subjects (male) are shown in figures 6 and 7 It is seen that there is a greater rise in the temperature of the subcutaneous tissue than in the underlying muscle, that the temperature of the skin rises markedly, and that the body strives to dissipate and distribute the heat as rapidly as possible, as shown by the rise in the mouth temperature and rapid drop in the skin temperature There appears to be a thermal gradient in the tissues of the thigh following short wave diathermy There does not appear to be any selective thermal action or any evidence of more uniform heating The short

wave machines, except one, do not appear to have any advantage over diathermy in the heating of body tissues, actually most of them are inferior

In connection with machine IV, it appears from figure 6 that the skin does not become as hot as the subcutaneous tissue, but this is due, we believe, to two factors 1 The coil cannot be as closely applied to the thigh as the pads and hence the skin has the opportunity to lose heat by radiation 2 Owing to the greater rise in the temperature of all the tissues in the field and to the rise in body temperature, sweating occurs on the thigh and as a result there is a further cooling effect from the evaporation of the sweat In this connection the question must be raised as to whether it is physiologically or therapeutically desirable to subject tissue to such marked temperature changes in such a short space of time, although this could be controlled by using less than the maximum output of this machine

During the course of this investigation cuff electrodes, which did not come with the original model submitted, were sent in for trial by one manufacturer With the cuff electrodes applied to the thigh, the following temperature increases were obtained (average of three tests) subcutaneous, 5.4 degrees F, muscle, 4.8 degrees, skin, 5.4 degrees, mouth, 0.53 degree

The full clinical discussion of the therapeutic indications, applications and limitations of these new high frequency currents will follow in another article

#### SUMMARY AND CONCLUSIONS

Experiments have been performed on twelve anesthetized dogs and on the thigh of eight human subjects to study and measure the heating effects of short wave diathermy and to observe any other changes that might occur Five short wave machines were used, a 6 meter, 15 meter, 16 meter, 24 meter, 25 meter and the conventional spark-gap diathermy

1 There is no conclusive evidence from the literature nor were we able to substantiate the claim of specific biologic action of high frequency currents (short wave diathermy) In our opinion the burden of proof still lies on those who claim any biologic action of these currents other than heat production

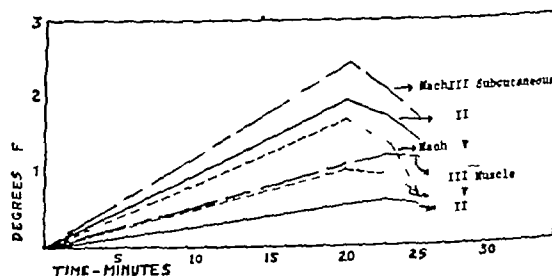


Fig 7—Heating of human thigh (eight subjects) Current on for twenty minutes Average rise in skin machine II 5.7 degrees F machine III, 6.3 degrees machine V, 6.2 degrees Average rise in mouth machine II 0.01 degree machine III 0.07 degree machine V 0.07 degree

2 The experimental work that claims specific bactericidal action for these high frequency currents may be more rationally explained, we believe, on the basis of "point heating," which raises the temperature of the micro-organisms above their thermal death point without a corresponding elevation in the temperature of the medium It still remains to be demonstrated whether such test tube results can be secured with infection in the body

3 Our own work on the machines submitted shows that there is a thermal gradient from the hot skin to the less hot tissues within

4 There is no evidence from reliable experimental work on living subjects that short wave diathermy possesses a more uniform penetration of heat into the body than the conventional diathermy

5 The possibility of special selective thermal action is a very remote one

6 We do not believe that it is possible to predict the response of the body to high frequency currents from phantom model or other in vitro experiments

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING A NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG Secretary

### BONNIE BRAND GOLDEN SYRUP

**Manufacturer**—The Pioneer Maple Products Company, St Paul

**Description**—A table syrup, corn syrup with refiners' syrup, flavored with vanilla extract

**Manufacture**—Corn syrup and refiners' syrups as received from the manufacturers, are mixed, heated to 88 C, tested for proper consistency and allowed to stand thirty minutes after which time the vanilla is added. The syrup is automatically filled into friction top cans and sealed

Analysis (submitted by manufacturer) —	per cent
Moisture	24.2
Ash	1.0
Fat (ether extract)	0.0
Protein (N X 6.25)	0.1
Reducing sugar as dextrose before inversion	31.6
Sucrose	4.7
Dextrins (by difference)	38.4
Acidity as HCl	0.02
Sulphur dioxide	0.0016
pn	5.4

(No methods are available for accurately determining the composition of syrups of this nature, therefore the foregoing analysis is roughly approximate.)

**Calories**—3 per gram 85 per ounce

**Claims of Manufacturer**—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking baking and the table.

### FRIGID ZONE CRAB

**Distributor**—Alaska Salmon Company, San Francisco

**Packer**—Alaskan Glacier Sea Food Company, Petersburg, Alaska and Seattle, Wash

**Description**—Canned cooked meat of Alaska crabs

**Manufacture**—The crabs are caught in open salt water fishing beds in Alaska 15 miles from the nearest settlement. On receipt at the cannery the crabs are inspected and only those alive are used which are held in bins until inactive are butchered the backs are removed and the crabs are eviscerated, thoroughly washed and boiled for fourteen to twenty minutes. The meat is removed from the shells washed with dilute acetic acid solution and then with water dipped into concentrated salt solution and packed by hand in enameled cans lined with parchment paper. The cans are sealed under vacuum and processed ninety minutes at 110 C. The canned meat averages 60 per cent leg meat and 40 per cent body meat. Eight hours

elapse between catching and canning. Operators handling the meat wear canvas gloves.

**Analysis** (submitted by packer)

	per cent
Moisture	77.2
Total solids	22.8
Ash	2.9
Fat (ether extract)	0.5
Protein (N X 6.25)	19.5
Carbohydrates (by difference)	0.0
Copper (Cu)	3 parts per million
Iodine (I)	743 parts per billion
Manganese (Mn)	13 parts per million

**Calories**—0.8 per gram 23 per ounce

**Claims of Manufacturer**—Good dietary source of iodine

### WARRANTY SIEVED PEAS

**Manufacturer**—The Nielsen Corporation, Ltd, Oakland Calif

**Description**—Sieved peas prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt

**Manufacture**—Fresh peas as received from the field are shelled thoroughly washed, and subsequently processed and canned by essentially the same procedure as described for Warranty Sieved Spinach (THE JOURNAL, Feb 2, 1935, p 399)

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	82.8
Total solids	17.2
Ash	0.6
Sodium chloride	0.05
Fat (ether extract)	0.5
Protein (N X 6.25)	4.6
Reducing sugars as invert sugar	0.1
Sucrose	4.3
Starch	3.3
Crude fiber	1.7
Carbohydrates other than crude fiber (by difference)	9.8

**Calories**—0.6 per gram 17 per ounce

**Vitamins**—The method of preparation and processing insures the retention in high degree of the natural vitamin values

**Claims of Manufacturer**—Specially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving

### CELLU JUICE-PAK BLUEBERRIES

**PACKED IN UNDILUTED JUICE WITHOUT ADDED SUGAR**

**Distributor**—The Chicago Dietetic Supply House, Inc., Chicago

**Packer**—Loggie & Company, Island Pond, Vt

**Description**—Processed blueberries packed in undiluted juice without added sugar

**Manufacture**—Ripe blueberries are cleaned with a fanning machine, conveyed to the factory, inspected by a government inspector for presence of worms, thoroughly cleaned of leaves and dirt by machine and hand, washed cooked, filled into cans and automatically sealed. Before shipment, the cans are inspected and labeled

**Analysis** (submitted by distributor) —

	per cent
Moisture	86.9
Ash	0.4
Fat (ether extract)	0.6
Protein (N X 6.25)	0.7
Reducing sugars as invert sugar	6.7
Crude fiber	1.5
Carbohydrates other than crude fiber (by difference)	9.9

**Calories**—0.5 per gram 14 per ounce

**Claims of Distributor**—Packed in undiluted blueberry juice without added sugar

### OMAR WONDER FLOUR

**Manufacturer**—Omaha Flour Mills Company, Omaha

**Description**—Patent flour milled from washed hard winter wheat, bleached

**Manufacture**—Selected hard winter wheat is cleaned washed tempered, scoured and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of benzoyl peroxide and calcium phosphate (0.33 ounce per barrel) and nitrogen trichloride (3.6 Gm per barrel)

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 20, 1935

## THE PROBLEM OF MYELOMA

William McIntyre,<sup>1</sup> an English physician, published in 1850 the report of a case of "mollities and fragilitas ossium." His description of the onset with vague neuritic pains, the occurrence of spontaneous fractures of two ribs, and of the later evolution and course of the disease combine to give a typical clinical picture of a multiple myeloma. In addition, he made an interesting observation of the peculiar "altered condition of the urine." At his request Bence-Jones<sup>2</sup> made a study of the patient's urine and confirmed his observations. Addition of nitric acid cleared the urine, but a yellowish coagulum formed about one and one-half hours later, which, however, redissolved on application of heat and precipitated out again on cooling. The effect of boiling was to redissolve the coagulum. The postmortem examination with a particular study of the involved ribs was made by Dalrymple.<sup>3</sup> McIntyre called attention to the essentially malignant character of the condition, though he felt that it did not act in all respects as a true neoplasm.

In 1873 von Rustizky,<sup>4</sup> working in von Recklinghausen's pathologic institute in Strasbourg, reported a careful postmortem study of a case of multiple tumors of the bones of the trunk. According to him, similar cases were mentioned by Virchow, who, however, considered them cases of myelogenous sarcoma. To von Rustizky belongs the credit of proposing the name myeloma for the condition. To complicate further the questions of terminology and priority, Bozzolo<sup>5</sup> in his work referred to the careful description of the clinical symptoms of the disease by Kahler<sup>6</sup> and proposed that it be called Kahler's disease. Recent contributors used the hardly justifiable term Kahler-Bozzolo disease alternately with that of multiple myeloma.

The clinical characters of myeloma are those of an insidious onset with vague neuritic pains, progressive anemia, multiple involvement by tumor of the skeletal trunk, pathologic fractures, most characteristically of a rib, backache with signs of involvement of the spinal cord, and the presence of Bence-Jones bodies in the urine. The prognosis is hopeless, the patients dying on an average two years after recognition of the condition. Classification of the tumor on a histologic basis appears not to have any value in the case of myeloma. The designation erythroblastoma, lymphoblastoma or plasmocytoma, because of the preponderance respectively of immature red cells, lymphocytes or plasma cells, carries little significance. The essential histologic feature of the tumor is that it is made up of all the immature elements of the bone marrow. Abrikosov<sup>7</sup> described the occurrence in myelomatous lesions of crystals, which appear either as needles or as rhombic prisms. They lie embedded in fibrous tissue and display at the periphery giant cells, an appearance indicative of absorption. Abrikosov believed that these crystals formed as the result of action of the chondroitin-sulphuric acid developed from destroyed tissue. Because similar crystals could be obtained from the Bence-Jones bodies, he asserted that myeloma is not a primary disease of the bone marrow but a variable structural reaction to an altered intermediary metabolism. The original concept of myeloma as a true neoplasm was replaced by that of a systemic disease of the hematopoietic system related to aleukemias and leukemias. However, the dictum that myeloma is always multiple was in turn contradicted by the recent reports of purely localized myelomas, the clinical features of which bear some resemblance to the localized form of osteitis fibrosa. The solitary myelomas appear to be almost exclusively plasmocytomas. They display a tendency to involve the long bones of the extremities as well as those of the trunk. They appear to be benign and do not give rise to metastases. Rutishauser<sup>8</sup> and Geschickter<sup>9</sup> each reported a case of myeloma of the femur. Mathias<sup>10</sup> reported a case of solitary myeloma of the skull cured by surgical removal of the tumor. Roentgenologic study of his case eighteen months later failed to reveal a recurrence or metastases. There was no anemia, and Bence-Jones bodies were not found in the urine. Walthard's<sup>11</sup> case on postmortem study proved to be a circumscribed plasmocytoma of the third thoracic vertebra. It appears, therefore, that besides the generalized form of myeloma with its hopeless outlook there is a localized form amenable to surgical therapy and offering a favorable prognosis.

1 McIntyre William Case of Mollities and Fragilitas Ossium Medico-Chir Tr 33 211 1850

2 Bence-Jones Philosoph Tr Roy Soc London 1:55 1848

3 Dalrymple John On the Microscopical Character of Mollities Ossium Dublin Quart J M Sc 3 85 (Aug) 1846

4 von Rustizky J Multiple Myeloma Deutsche Ztchr f Chir 3: 162 1873

5 Bozzolo Rif med 4 355 1897

6 Kahler Prag med Wchnschr 14:33 1889

7 Abrikosov Virchows Arch f path Anat 173:335 1903

8 Rutishauser Erwin Zur Frage der solitaren Myelome Centralbl f allg Path u path Anat 58 355 (Oct 10) 1933

9 Geschickter C F and Copeland M M Multiple Myeloma Arch Surg 16:807 (April) 1928

10 Mathias Ernst Zur Myeloma Frage Beitr z klin Chir 161: 1 (Jan) 1935

11 Walthard B Zircumscribtes myelogenes Plasmocytom der Wirbelsaule Schweiz med Wchnschr 54 285 (March 20) 1924

## STAPHYLOCOCCUS TOXOID

The demonstration of the production of highly potent toxins by various strains of staphylococci and the observation that the human blood stream contains measurable amounts of the antitoxin have materially changed the conception of staphylococcal infections. As a direct result of these determinations the possibility of treating chronic staphylococcal infections by means of formaldehyde-treated toxin (toxoid) has arisen. Both favorable and unfavorable results of the clinical use of staphylococcus toxoid have been experienced. On the basis of the available evidence one brand of this product was recently accepted by the Council on Pharmacy and Chemistry.<sup>1</sup> Two new clinical reports have lately appeared in the *Lancet*.<sup>2</sup> In one of these (Murray) the results are especially susceptible of analysis. Murray treated 116 cases of chronic staphylococcal infection. The patients were from 6 weeks to 82 years of age. In ninety patients whose stories seemed reliable the average duration of the disease had been six and one-half years and the longest appeared to be fifty-four years.

The presence and measurability of circulating staphylococcus antitoxin in the blood permits certain objective observations in addition to the clinical course. Thus Murray found that the quantitative difference in circulating antibody between his group of patients before treatment (exclusive of those with osteomyelitis) and 100 normal controls was not apparently significant with the possible exception of a low titer of antibody in the group having carbuncles. It was further possible to observe the change in circulating antibody resulting from the treatment with toxoid. All the patients in the series had the same first course of injection of toxoid (0.05, 0.1, 0.2 and 0.4 cc. of a product of unstated potency at weekly intervals) the author unfortunately records dosage in fractions of a cubic centimeter rather than in dermonecrotizing units of the toxin from which the toxoid was prepared. The blood was retested one week after the fourth dose. At this time the average amount of staphylococcus antitoxin was approximately eight times the average level found before the beginning of treatment except in cases of osteomyelitis.

The injection of staphylococcus toxoid produces local swelling and pain but the number of really severe local reactions has been remarkably small. In order to tabulate the clinical results, Murray divided his cases into acne, blepharitis, furunculosis, carbuncles and the like. Patients were classed as 'recovered' if fresh lesions ceased to appear during the course of injections and did not reappear during the six to eight months of subsequent observation. Of the 116 patients fifty-one recovered, fifty-six were improved and nine received slight or no benefit. The best results were apparently

obtained in furunculosis and the least satisfactory in acne. A comparison of the clinical results with the changes in antitoxin titer under treatment indicates that the increase in titer appears to have some prognostic value. It is impossible to predict from the initial titer, however, whether or not the final result will be favorable.

In another paper Dolman reports the results of treating with toxoid 306 patients suffering from chronic staphylococcal infections. Less susceptible of analysis than Murray's paper encouraging results are reported.

"The acquisition of clinical immunity," he says, "could be correlated with an increased staphylococcus antitoxin titer of the serum." In general, a return of infection occurred only after there had been a considerable fall in the titer of circulating antitoxin. The high antitoxin titer and renewed clinical improvement could usually be restored by further treatment with toxoid.

The administration of staphylococcus toxoid to patients with chronic staphylococcal infections usually produces a rise in the titer of circulating antitoxin. This rise fails to occur by treatment with vaccines—the only other specific method. In the hands of these investigators the rise is associated with a measurable improvement in the chronic localized staphylococcal infection. Failures have been reported<sup>3</sup> but these as Dolman<sup>4</sup> has pointed out, occurred chiefly in cases of acne. In addition, the questions of the specificity of the strains of staphylococcus employed in making the toxoid, and the potency of the preparations used must be considered. To date the best results have been recorded with recurrent boils and the least successful with acne. The procedure described seems at least, to warrant careful study with a view to more precise determination of its indications and limitations.

## COPPER IN HUMAN HEMATOPOIESIS

Recent experimental investigations demonstrating the importance of copper as an essential hematopoietic agent in various laboratory animals have led to speculation regarding the role of this element in human blood formation. Many attempts have been made to elucidate this question, usually by studies of the therapeutic activity of copper in diseases involving the blood-forming mechanism or of the actual copper content of human tissues and excretions in health and in disease.

The data obtained in the majority of reports in the literature indicate that copper is without appreciable effect as a therapeutic agent in human anemias. Negative results have been reported on patients with pernicious anemia and with various types of "secondary" anemia. In the nutritional anemia of infancy, how-

1 Staphylococcus Toxoid J A M A 104 562 (Feb. 16) 1935  
2 Murray D S Staphylococcus Toxoid Lancet 1 303 (Feb. 9) 1935  
3 Dolman C E Staphylococcus Toxoid ibid 1 306 (Feb. 9) 1935

3 Kindel D J Staphylococcus Toxoid in the Treatment of Pustular Dermatoses J A M A 102: 1287 (April 21) 1934  
4 Dolman C E Staphylococcus Toxoid in the Treatment of Pustular Dermatoses Correspondence J A M A 102 1699 (May 19) 1934



ever, some recent evidence<sup>1</sup> seems to show that about one patient in twenty may suffer from copper deficiency and therefore may benefit from copper therapy. Experiments of this type on human patients are carried out with difficulty and further carefully controlled studies employing sufficient numbers of cases must be made before conclusions are drawn.

Direct chemical analyses of various human tissues and excreta have likewise failed to give definite information as to the function of copper in man. Copper is apparently present in significant amounts in many human tissues<sup>2</sup> and its presence in normal human blood has been demonstrated repeatedly. These observations, while suggestive, offer no direct evidence of the importance of copper in man. Analyses of the blood of patients with anemia, however, have yielded more significant information. The observation has been made<sup>3</sup> and recently confirmed and extended<sup>4</sup> that the copper content of the blood of anemic subjects is above normal. In the latter investigation the average copper content of the blood in a series of fifty healthy adult men and women averaged approximately 132 micrograms per hundred cubic centimeters. The blood of patients with various diseases, however, showed increases well above the normal. In no instance was there a value less than normal.

The diseases that were studied included pernicious anemia, Banti's disease, acute myelogenous leukemia, chronic lymphatic leukemia, malaria, gastric hemorrhage, arsenic poisoning, nephritis, carcinoma, tuberculosis and polycythemia vera. High blood copper was observed also in pregnant women. In the cases of pernicious anemia studied there appeared a relationship between the degree of "hypercupremia," the severity of the anemia, and the amount of iron present in the blood. The relation was inverse, the high blood copper being associated with a low blood iron and in general, a more severe anemia. The correlation between variations in these constituents was particularly striking in a single case of polycythemia vera treated with phenylhydrazine. The copper content of the blood was normal and the iron content was high before treatment was inaugurated. Simultaneous with the drop in erythrocytes following phenylhydrazine therapy there occurred a decrease in the iron and an increase in the copper of the blood. When treatment was suspended, these values returned to the original levels. The significance of these data is largely a matter of conjecture. The high copper content of the blood in anemic subjects may represent a compensatory response of the organism resulting in a mobilization of this hematopoietic catalyst, thus promoting a restoration of the normal cell

and pigment concentration in the blood, or the increase in copper may be a manifestation of an accumulation of this element in the blood as a result of its poor utilization or altered metabolism, a situation somewhat analogous to the hyperglycemia of diabetes mellitus resulting from an impairment of carbohydrate metabolism.

Although the foregoing investigations strengthen the opinion that a deficiency of copper does not exist in adult human subjects and that copper therapy is not indicated in human anemias, except perhaps in occasional cases of nutritional anemia in infants, some support is added to the thesis that a small amount of copper is involved in blood formation in man.

## Current Comment

### HORMONES IN THE TREATMENT OF HEMOPHILIA

The limitation of hemophilic manifestations to the male has provided a speculative basis for the theory that some substance peculiar to the female, possibly a hormone, inhibits the appearance of symptoms in girls and women. Some support for this hypothesis was obtained from experiments in which estrogenic substance could not be detected in the urine of hemophilic males whereas small amounts were consistently found in urine from normal males. It seemed possible, therefore, that the estrogenic hormone itself might be involved in producing the immunity of the female sex to this malady, and that the administration of the substance might produce a similar resistance in males afflicted with the disease. Experimental studies of this hypothesis have yielded conflicting results with regard both to the therapeutic efficacy of the estrogenic hormone and to the absence of this substance from the urine of the hemophilic. In a recent study,<sup>1</sup> data on two cases of hemophilia have been reported which clearly show that the administration of the estrogenic substances theelin and theelol was without effect on the rate of coagulation of the blood and that the amounts of estrogenic material excreted in the urine were no less than those found in normal subjects. Further data confirming the latter observation were obtained in another group comprising forty-five patients with hemophilia. Indeed, the average amount present in the urine of the patients was somewhat greater than that of a group of twenty-six normal subjects. Data were also presented in this report which demonstrated that the luteal hormone and an anterior pituitary gonadotropic substance were likewise without effect in the treatment of hemophilia. In view of the impure nature of the preparations of these two hormones now in use, however, it might be well to reserve final judgment regarding their effects until the therapeutic activity of the chemically pure, crystalline hormones themselves has been determined.

<sup>1</sup> Hawley J. C. Copper Therapy in Nutritional Anemia. *Proc Roy Soc Med* 27: 1066 (March) 1934.

<sup>2</sup> Chou T. F. and Adolph W. H. Copper Metabolism in Man. *Biochem. J* 29: 476 (Feb.) 1935.

<sup>3</sup> Gorter E. Copper and Anemia. *Am J Dis Child* 46: 1066 (Nov.) 1933.

<sup>4</sup> Sachs, Adolph, Levine V. E. and Fabian A. A. Copper and Iron in Human Blood. *Arch Int Med* 55: 227 (Feb.) 1935.

<sup>1</sup> Chew W. B., Stetson R. P., Smith G. V. and Smith O. W. Estrogenic, Luteal and Gonadotropic Hormones in Hemophilia. *Arch Int Med* 55: 431 (March) 1935.

# Medical Economics

## TUBERCULOSIS AND INSURANCE

Tuberculosis, like diphtheria, after attacks by medical science and service for many years has been constantly declining. It is claimed by many workers in this field that universal and thorough application of existing knowledge would practically eliminate these diseases in modern nations just as such an application has already almost rid these nations of plague and yellow fever that once were as great a threat to human life and health.<sup>1</sup>

Reduction of mortality in tuberculosis depends largely on early and accurate diagnosis followed by prompt and proper treatment. Such a situation, at first sight seems to offer an excellent opportunity to test the comparative efficiency of medical service. Unfortunately there are many other factors that influence the incidence of tuberculosis and the rate of decline in mortality. Economic conditions, diet, pure milk, housing, overcrowding, occupation, age and race are some of the factors<sup>2</sup> that may be favorable or detrimental influences on both morbidity and mortality.

It is possible that when entire nations are included in comparisons of tuberculosis mortality there may be a tendency for some disturbing factors to cancel out and thereby lose some of their importance. This tendency is too uncertain to be

TABLE 1—Death Rates for All Forms of Tuberculosis Per Hundred Thousand in Great Britain\*

Year	Rate
1921	111.7
1922	110.7
1923	104.9
1924	103.9
1925	101.7
1926	94.2
1927	95.2
1928	90.9
1929	93.2
1930	87.2
1931	86.9
1932	81.5
1933	79.9

Annual Report of the Chief Medical Officer of the Ministry of Health on the State of the Public Health London 1934 p. 271

accepted without warning. Such factors have much less importance when the rate of decline in mortality in two or more nations is compared. There was seldom any such change in these factors within a single country as would greatly influence this rate of decline. The important new factor in all the countries considered is the advance in the science and application of medical service, and this is exactly the factor that it is desired to measure.

The incidence of tuberculosis varies so closely with income that it has often been called a 'poverty disease'. The higher prevalence among low-paid workers and urban residents makes tuberculosis mortality an especially good test for the comparison of medical service under insurance with such service in private practice. The principal avowed justification of insurance is that it provides a medical service for the low-wage classes superior to that which they can provide for themselves from private medical practice. If insurance medical practice fails to do this, it forfeits its reason for existence so far as medical care is concerned.

It should also be noted that no country has ever been able to meet the problem of tuberculosis care and treatment through insurance alone. In both Germany and England with which

it is proposed to compare conditions in the United States, there are elaborate and expensive organizations for the purpose of fighting tuberculosis similar to those found in this country. This renders conditions more closely comparable, since the dominant differing feature is the method of organizing and furnishing medical service.

Early and accurate diagnosis is of primary importance in the successful treatment of tuberculosis. It has been constantly urged by advocates of insurance that in private practice the economic obstacle is the principal hindrance to prompt and

TABLE 2—Tuberculosis Death Rate Per Hundred Thousand in Registration Area\*

	Respiratory	Other Forms	Total
1920	97.0	17.0	114.0
1925	75.9	10.8	86.7
1929	67.6	8.4	76.0
1930	63.4	8.1	71.5
1931	60.7	7.5	68.2
1932	56.4	6.4	62.8

\* Statistical Abstract of the United States 1934 p. 80

universal service and that insurance, by removing this obstacle, makes such service available to all the insured.

The one factor peculiar to the United States is the presence of a large Negro population with a high tuberculosis mortality rate.

The mortality rate for all forms of tuberculosis for Great Britain since 1921 is given in table 1.

In twelve years there was a decline of forty-two deaths per hundred thousand and an average annual reduction of 35 deaths per hundred thousand and a total decline of 37 per cent.

The corresponding figures for the registration area of the United States are given in table 2.

Public Health Reports<sup>3</sup> gives the rate per hundred thousand for all forms of tuberculosis in twenty-eight states with 95,000,000 population as 56.5 for 1933. Taking the period 1920 to 1932 covered in the table there is a decline of 51.2 deaths per hundred thousand or 44.9 per cent in twelve years, an average annual reduction of 4.3 deaths per hundred thousand.

It has not been possible to locate figures for all of Germany comparable to those for England and the United States. The Epidemiological Report of the Health Section of the Secretariat of the League of Nations for September-October 1932 and January and February 1934 gives information from which table 3 was compiled.

Without attempting any mathematical comparisons of the figures in this table which might lead to the assumption of an accuracy that does not exist it is evident that from no point of view do these figures indicate that insurance furnishes

TABLE 3—Death Rates Per Hundred Thousand for All Forms of Tuberculosis in Various Large Cities

Cities	1929	1930	1931	1932	1933
Chicago	77	65.9	66.2	57.4	56.4
New York	75	73.1	69.4	62.9	
*51 German cities	91	81.3	80.8	76.6	65.6
Berlin	101	91.4	91.4	85.8	87.3
16 Scottish cities	110	102.3	101.8	96.2	94.3
London	109	99.2	102.1	93.8	88.5

\* 144 cities from March 25 1933 and 150 from March 26 1933 to May 6 1933 were included.

a medical service that is more effective in the struggle against tuberculosis than is furnished in the United States under private medical practice.

This conclusion is strongly fortified when the mortality rates are given for the various states. It then becomes apparent how great has been the influence of the large Negro population in certain localities and how far in advance of any insurance countries are a number of important states with populations comparable as to industrialization and other features with England or Germany. Such comparisons cannot be pushed too

3 Mortality in Certain States During 1933 with Comparative Data for Recent Years Pub Health Rep 49 559 (May 4) 1934

<sup>1</sup> Louis I. Dublin (Health Outlook for 1935 Inspires Optimism the Diplomat 7:32 [Jan.] 1935) says: "I believe that tuberculosis will continue to behave according to formula that is, with every succeeding year we shall observe a reduction in the death rate. We are nearing the end of the fight against tuberculosis. It is destined in a few years to rank among the minor causes of death—and the greatest reduction in mortality has taken place in the wage-earning population where the situation has always been the gravest."

<sup>2</sup> Transactions of the Nineteenth Annual Conference of the National Association for the Prevention of Tuberculosis July 1933. This meeting was devoted almost entirely to consideration of environmental factors in relation to tuberculosis.

far, since it must always be remembered that higher incomes in this country create more favorable conditions for ameliorating or overcoming the ravages of tuberculosis. It is well to note also that taking considerable sums from these incomes to furnish the sort of medical service that is given under insurance might remove some of this advantage now enjoyed by American workers. Keeping these considerations in mind, the mortality rates by states are worthy of study.

Table 4 covers twenty-eight states, within the registration area, with a population of 95,000,000. The figures are based on a complete review and retabulation of the individual death certificates from each state.

In Germany and England nearly all employees in the wage classes most susceptible to tuberculosis are freely furnished with medical service through insurance. The advocates of insurance charge that in the United States these classes are denied proper medical care by reason of their economic condition. It is especially charged that this economic obstacle prevents early diagnosis of incipient diseases such as tuberculosis. These arguments raise two closely related questions. Is the reason for the failure to obtain medical service wholly, or mainly,

TABLE 4—Death Rates for Tuberculosis All Forms Per Hundred Thousand in Twenty-Eight States\*

State	1932	1931	1930	1929	1928
Alabama	77.2	86.3	86.0	85.7	89.6
California	81.0	88.9	98.3	106.3	115.1
Connecticut	48.2	52.1	58.8	63.5	69.4
Dis. Columbia	121.5	120.2	116.8	116.6	120.6
Georgia	55.5	72.9	73.4	74.0	82.1
Idaho	28.6	29.8	32.9	42.5	37.4
Illinois	54.1	59.1	59.6	68.8	71.4
Indiana	57.3	57.6	63.6	70.2	70.0
Iowa	28.2	28.5	31.1	32.6	34.9
Kansas	32.5	37.0	37.8	37.8	40.0
Louisiana	72.7	81.5	84.1	86.3	87.7
Maryland	90.2	95.7	98.9	104.6	105.8
Michigan	48.2	53.3	59.8	66.1	67.6
Minnesota	39.2	40.0	46.3	54.5	56.0
Mississippi	62.6	72.1	78.4	74.2	95.6
Montana	55.0	61.3	62.3	65.7	66.2
Nebraska	20.3	24.6	24.5	29.9	26.3
New Jersey	60.6	65.1	69.3	73.1	72.9
New York	62.6	66.4	71.0	74.8	82.7
N. Carolina	65.5	69.4	74.7	83.3	78.1
Ohio	54.9	62.0	63.0	69.8	71.3
Pennsylvania	52.5	56.4	59.9	66.1	71.4
S. Carolina	75.5	70.7	76.5	78.1	85.4
S. Dakota	45.1	43.7	48.6	53.9	66.0
Tennessee	94.7	107.2	115.7	120.3	129.6
Virginia	81.0	87.0	85.0	91.4	103.8
W. Virginia	55.4	59.8	65.4	68.0	73.0
Wisconsin	44.9	48.1	50.5	53.3	56.5
Hawaii	94.3	98.2	102.3	110.4	124.0
Industrial policyholders Metropolitan Life In- surance Co. ages 1 and over	70.1	76.7	81.3	87.1	90.6

\* Mortality in Certain States During 1932 with Comparative Data for Recent Years. Pub. Health Rep. 48:478 (May 5) 1933.

economic? Does insurance bring about an early diagnosis of tuberculosis?

Those who deal with tuberculosis in England are constantly complaining of delay in the detection of the disease. Some quotations from an official report are worthy of note.

During 1933 66,351 new cases were added to the notification registers of England and Wales as compared with 68,792 in 1932. This decline is more or less proportional to that in the mortality of the disease. It would however be more satisfactory if the decline became less rapid or ceased as this would imply that more patients were being notified at an earlier stage when the prospects of recovery were greater. It is unsatisfactory that out of the 61,789 new cases of tuberculosis notified to the Medical Officers of Health of England 3,072 or 5 per cent. came to notice only after death, viz. 2,455 from the local registrars' returns of death and 617 from posthumous notifications. There is reason to believe that this figure is an understatement of the facts since it is known that some Medical Officers of Health still do not obtain returns of deaths from the local registrar.

Notification in the late stage of the disease is commented upon by many Medical Officers of Health in their annual reports. The Medical Officer of Health of Plymouth states that 50 per cent. of patients died from tuberculosis within a year of notification.

There are some antituberculosis workers in England who maintain that insurance is to some extent directly responsible

for delay in diagnosis and proper treatment. One such physician<sup>5</sup> imagines an insured sufferer from tuberculosis saying

“bad as it was before the Act was passed for a patient in a similar condition to myself to die slowly during four or five years, I am not now going to run the risk of telling my symptoms to and being examined by a medical attendant because he considering that I am suffering from pulmonary tuberculosis will bring it about through the operation of the Insurance Act that a worse fate shall overtake me. I shall be subjected to application of sanatorium treatment at a stage far earlier than could be detected before 1912 though I am a danger if careless with my sputum to my young children. I must carry on with my work as long as I can living at home because the Act does not offer me an option to live apart from my children providing the accommodation, except temporarily in a sanatorium.”

It is not at all unlikely that the unfortunate administrators of the Act from those at the Ministry of Health to the tuberculosis officers and the panel doctors realize that they have to cope with a Frankenstein monster created when the National Health Insurance Act came into force in 1912. They probably are as well aware as anyone of the unimproved and even worsened outlook under the Act in most parts of England of those who are suffering from pulmonary tuberculosis but as administrators they are, with some notable and fortunate exceptions saddled with restrictions in a few parts only of the country has the crying need for the amelioration of the hardships inflicted on cases of pulmonary tuberculosis been met by the establishment of pulmonary hospitals or institutes where a considerable number of cases hitherto condemned to undergo sanatorium treatment are now being admitted for more effective and modern treatment.

A German physician<sup>6</sup> recognizes a similar situation and says

“It is a regrettable fact that pulmonary tuberculosis is seldom promptly recognized in general insurance practice. This is all the more significant since at the present time the outcome of treatment of pulmonary tuberculosis stands and falls with the period of the diagnosis.”

The answer to the two questions would seem to be that the principal obstacle to the receipt of medical service at an early stage is not economic but personal and therefore is not removed by insurance.

In this and the preceding articles an attempt has been made to assemble the testimony offered by morbidity and mortality rates as to the comparative efficiency of medical service under insurance and in private practice. These statistics have been assembled to cover the following conditions:

1. Complete morbidity and mortality statistics for entire populations.
2. Morbidity statistics for employees subdivided as to:
  - (a) Number of illnesses per person per year.
  - (b) Average duration of illness per person employed.
  - (c) Average duration of disabling illness among those who have such illnesses.
3. Morbidity and mortality rates for diphtheria.
4. Morbidity and mortality rates for tuberculosis.

Judged by all these tests such information as is available agrees in support of the conclusion that the service received by the low-income classes is more efficient under private practice in the United States than under insurance in England and Germany, the two most extensive systems of sickness insurance now in existence.

## NEW YORK CHANGES COMPENSATION CODE

The long struggle waged by the Medical Society of the State of New York to get rid of some of the abuses in medical care under workmen's compensation has taken a long step forward with the adoption of the O'Brien-Kantowski medical abuses bill by the state legislature.

At the time the bill was signed Dr. Arthur J. Bedell, president of the state medical society, thanked the governor on behalf of the medical profession of the state and commented as follows:

“This law gives local county medical societies the opportunity to recommend qualified physicians for the various phases of compensation practice. These local groups of doctors will immediately take action to set up machinery to make the law effective.”

For twenty years the old law has encouraged a system of selecting these doctors so that factors other than the character and fitness of the individual physician have been the deciding

<sup>5</sup> Shaw, H. B. G. P. s and T. B. An Indictment—The Answer. Brit. J. Tuberc. 28:60 (April) 1934.

<sup>6</sup> Ahrensman, H. The Prompt Recognition of Tuberculosis in Kassenpraxis. Medizinische Welt 8:982 (July) 1934.

<sup>4</sup> Annual Report of the Chief Medical Officer of the Ministry of Health 1933, p. 124.

elements in determining the man to be employed. For years the medical profession has tried to obtain legislation to remedy a vicious system which has resulted in conditions little short of disgraceful. The new law will go a great way to cure these evils.

A new feature of the law will be that five physicians, named by the governor on the recommendation of the state society, are to represent the profession on the labor council, which has the ultimate responsibility for administering the law. This group of doctors will have supervision of all medical phases of the act.

The medical profession of the state accepts the serious responsibility of naming the doctors who are to practice compensation insurance with confidence that a marked improvement will be seen in the care which patients receive.

## Association News

### ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty First Annual Meeting held in Chicago Feb. 18 and 19 1935

(Continued from page 1422)

DR. ROY B. HARRISON, New Orleans, in the Chair

FEBRUARY 19—MORNING

### JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS

#### SHOULD THE RADIOLOGIST THE PATHOLOGIST AND THE ANESTHETIST BE LICENSED TO PRACTICE MEDICINE?

##### Legal Aspects

DR. WILLIAM C. WOODWARD, Chicago. The question is not as I see it, as to whether roentgenologists and others of the classes named shall be licensed but whether the practice of those particular arts shall be limited to licensed physicians.

If roentgenology or pathology or anesthetization is applied for purposes other than of diagnosis and treatment, I do not believe that under any of the medical practice acts or under the general principles that govern the practice of medicine, it can be said that those arts are a part of the practice of medicine. When they are applied for diagnosis and treatment in my judgment, they are parts of the practice of medicine. That however does not require that they shall be performed solely by licensed practitioners of medicine. There are many functions of a physician that are being entrusted to unlicensed persons. The matter at issue, then, is not only the question as to whether roentgenology, anesthetization and pathology are parts of the practice of medicine but also whether a physician licensed to practice medicine can delegate to an unlicensed person his right to function in any of those fields. As a general rule, a physician may delegate to another the duty of performing some function that calls for no particular professional judgment. It may be the application of a bandage, the instillation of a few drops into the eye to produce local anesthesia or the administration of a hypodermic. They are purely what are termed administrative matters. But when it comes to the delegation of judgment that is not a lawful delegation. So in these cases the question comes as to whether roentgenology pathology and anesthetization as practiced by these unlicensed agents can be practiced without the exercise of substantial medical judgment. If it cannot, then an unlicensed agent is violating the law regulating the practice of medicine. If he does not have to exercise any judgment, the delegation is probably a lawful one. A surgeon practicing in some remote place, meeting with a sudden emergency, may have to submit his patient to anesthetization at the hands of the most ignorant kind of a person. If he doesn't call on that person to aid the patient will die, the operation cannot be performed. Therefore the circumstances under which a physician undertakes to delegate his

right to practice roentgenology or pathology or to administer anesthesia depends not only on the question as to whether the agent to whom authority is delegated has to exercise a professional judgment so to speak, but whether the circumstances of the case call for a delegation that would not otherwise be permissible. Some roentgenologists have attempted to draw an analogy between surgery and the practice of roentgenology, pointing out that the roentgenologist penetrates the tissues, as they say by means of the x-rays. The argument is not sound beyond a certain point. It is not sound because a person can consent to have his tissues penetrated by a knife or a needle by an unlicensed person, and that person will not be engaged in the practice of medicine unless the penetration is for the purpose of diagnosis, prevention or treatment. Of course, if the penetration involved calls for any grave risk of life, his own consent would be void and the person who operated would be liable to a criminal and a civil charge of assault, otherwise the performance would be entirely lawful. So long as the penetration of the tissues by x-rays is not for the purpose of diagnosis and treatment and as the penetration is done with the consent of the patient or some one lawfully authorized to consent on his part, I can't see that there is any necessity for limiting the performance to licensed practitioners of medicine.

I desire only to lay down a few general principles. It has been said that because a roentgenologist examines his patient to determine whether he can properly take a roentgenogram the performance is the practice of medicine and must be undertaken by a licensed physician. With that I am inclined to agree. If one sends a patient to a roentgenologist and asks him to determine whether a roentgenogram should or should not be taken or what treatment to administer, the dosage and everything of that kind clearly, I believe, the roentgenologist is practicing medicine, but otherwise it can hardly be said that he is. If one sends the patient to a roentgenologist asking that a roentgenogram be taken and the print be returned without any expression of opinion on the part of the roentgenologist, it is difficult to see where there is any professional judgment called for except on the part of the physician.

Another feature that must be considered is that if the law is going to limit the practice of roentgenology to licensed physicians roentgenologists will probably find themselves in the position of being compelled to employ nothing but licensed physicians as their assistants. Another point is as to whether it is possible to demonstrate any definite harm that is being done in the practice of roentgenology by unlicensed persons over and above the harm that is done in the practice of roentgenology by licensed persons who are incompetent. It is not merely a question of regulating the practice of roentgenology as between licensed persons and unlicensed persons, but, after all what the public wants in the regulation of roentgenology so that incompetents will be excluded. In the matter of pathology, the principles that I have laid down are very similar. It isn't enough to provide that there shall be an adequate plant equipment and personnel, but some provision must be made whereby inspectors will check up on the work of the laboratories. That I think is the only safe rule.

With respect to anesthesia the situation is somewhat different one that comes more nearly to bringing the practitioners into the practice of medicine, and yet I have failed to find a decision of a court, I have failed to find a statute that forbids an unlicensed person from practicing anesthetization if the person is administering anesthesia under the direction of a licensed physician. In other words, custom has grown up to such an extent that the administration of general anesthetics by unlicensed persons is definitely tolerated. In Arizona it is provided that a registered nurse may administer anesthetics under the direction of and in the presence of a licensed physician provided the nurse has taken a prescribed course of anesthesia at a hospital in good standing or is a graduate in the science of anesthesia from some recognized school or college. In Ohio it is provided that "nothing in this chapter shall be construed to apply to or prohibit in any way the administration of an anesthetic by a registered nurse under the direction of and in the immediate presence of a licensed physician provided such nurse has taken a prescribed course in anesthesia

at a hospital in good standing" In Washington it is provided that "nothing in this section shall prevent a registered nurse or trained office assistant from administering an anesthetic under the direct supervision of a licensed dentist" In West Virginia it is provided that "in any case where it is lawful for a duly licensed physician and surgeon practicing medicine and surgery under the laws of this state to administer anesthetics, such anesthetics may lawfully be given and administered by any nurse who has been duly registered as such under the laws of this state, provided such anesthetic is administered in the presence and under the supervision of a licensed physician and surgeon" In Kentucky it is provided that any person living in this state or who may hereafter come into this state who administers anesthetics except on the prescription of a legally qualified physician or in any way performs the duties usually performed by physicians without having complied with the provisions of law or opens an office for such purpose, shall be subject to the penalties " This is a group of states in which the legislatures have definitely authorized the administration of anesthetics by other persons than licensed physicians The courts have taken a somewhat similar view

Bearing in mind what I have said, I hope that those who are going to discuss it will consider their subjects from the standpoint not only of practitioners but also of the public and from the standpoint of the unlicensed person who will be excluded from business under any rules that may limit practice to licensed physicians and that they will consider their subjects from the standpoint of hospital work It is important in asking for corrective legislation to proceed at once to collect evidence that will show not merely that the use of roentgen rays, the use of anesthetics and the practice of pathology by persons who are not licensed in the practice of medicine is bad but that it is worse than the practice of those several arts by physicians who are inadequately trained to practice them Unless one is prepared to present the facts and figures he will not get anywhere with a well informed legislative committee

### The Radiologist

DR. B. R. KIRKLIN, Rochester, Minn. There can be but one answer to this question and that answer is in the affirmative Moreover, I hold to the opinion that, so far as may be feasible, the practice of radiology should be entrusted only to radiologists who are, or soon will be, diplomates of the American Board of Radiology Nevertheless disagreements arise as to how and by whom radiology should be practiced Considerations of finance underlie most of them, but in the deep background are certain pernicious inheritances from customs of the past When the x-rays were discovered, potential applications of the new agent to medicine were obvious but most physicians felt that personal employment of the rays was beneath professional dignity Consequently for a long time the making of "x-ray pictures" was delegated chiefly to photographers and amateur electricians A diagnosis was reached by comparing the general appearance of the "picture" with other "pictures" accepted as representative of normal or abnormal conditions and the judgment of the lay radiographer was likely to be considered Thus was founded the notion that radiology is essentially a layman's art, and the belief has not yet been eradicated completely Because technicians are usually employed and extensive apparatus is necessary, radiology is commonly rated as a laboratory specialty but laboratories proper deal with specimens whereas radiology deals directly with patients and really belongs to clinical medicine as a medical specialty The persistent impression that radiology is necessarily a laboratory branch of medicine fosters the notion that the technical element is dominant

During the formative period of radiology when it had not yet found itself there naturally was a scarcity of well qualified radiologists Within recent years however, when it was realized that this branch of medicine had the scope and importance of a specialty, many physicians adopted it as their field but their qualifications varied widely Instead of a scarcity, there now seemed to be a surplus, but neither the public nor the medical profession had any means of judging their qualifications To bring order out of chaos the national radiologic

organizations, acting jointly and with the approval of the American Medical Association, have established the American Board of Radiology, the purpose of which is to elevate radiologic standards by determining the competence of those who profess to be radiologic specialists Although the board began to function scarcely more than a year ago, it has already certified to the competence of approximately 400 radiologists The number will be greatly increased when the examinations are completed

For several years, many of the hospitals have employed radiologists at a fixed salary, or a salary plus a percentage of the receipts from the department, or such percentage only Of late some of these hospitals have treated the radiologist unfairly by depriving him of a just wage and appropriating substantial profits from the department, thus using it as an important source of income Dissatisfaction on all sides has become so acute that the entire problem of proper relations between hospitals and radiologists has been brought up for settlement A plan has been put into effect at Cleveland by which the fiscal affairs of the technical service are separated from those of the professional service The hospital fixes all charges for the technical work attends to their collection and pays all expenses of this service The technical service is supervised by the staff radiologist and he receives compensation from the hospital for that supervision, but as a consultant he is placed on the same footing as other members of the staff, assesses all fees for his service as consultant, and collects them himself Roentgenographic examinations are made at the order of the radiologist or of the physician in charge of the patient, but only the radiologist or his assistant is permitted to make roentgenoscopic examinations Interpretations are made by the radiologist when requested by the attending physicians, but the latter has the privilege of making diagnoses without consulting the radiologist

At first thought the Cleveland plan appears to be plausible, and the sincerity of its sponsors is obvious Nevertheless it seems to me that the new system not only fails to correct present abuses, but fosters a reversion to those of the past which were worse The principle that the radiologist, not the hospital, should fix and collect his fees is commendable But the Cleveland plan separates his just dues into two classes namely, wages that he earns as supervisor of the technical service, which are collected and paid to him by the hospital, and fees that he earns as a radiologic consultant which he himself collects Yet both his wages and his fees are professional earnings, for supervision of the technical service requires professional knowledge and, as supervisor, he is still the hospital's employee so that his independence is restored only in respect to his fees for consultation Moreover, in providing for supervision by the radiologist of the technical work, admission is made that the professional and technical services cannot really be separated This feature of the plan undoubtedly springs from the notion that the radiologist is primarily an artisan, secondarily and by courtesy a physician But if the radiologist is double, the surgeon also has a dual personality that of a skilled workman and that of a physician, and by the same logic he should be able to function in either capacity independently of the other If the new system were applied to him, the hospital would collect his wages as a workman but require him to collect his fees for professional service Just how the separation could be made staggers the imagination

The gravest objection to the new plan arises from the fact that although the staff radiologist is available for consultation the patient's attending physician, whether qualified or not, is permitted to make diagnoses from roentgenograms if he so chooses Certainly under this condition there will be an irresistible tendency to request fewer and fewer opinions from the radiologist with a corresponding reversion to the inefficiency of former days In explanation and justification of the privilege granted to the attending physician it has been argued that it is necessary to distinguish between minor and major radiology just as this distinction is made in surgery whereby any physician may perform minor operations but only qualified surgeons may perform major operations Minor radiology does not exist If radiologic examination is indicated at all, its results are always of major significance

I consider the Cleveland plan in its present form to be a definite step backward. It seems to me that the following plan would be practicable, equitable and efficient:

1 Place the department under the unimpeded control and financial management of the staff radiologist.

2 Require that neither examination nor treatment shall be carried out except by or at the order of the staff radiologist or of some other radiologic specialist selected by the patient or his physician and approved by the hospital or of a specialist deemed by the staff radiologist as competent to make examinations in a particular field. Of late the word monopoly has been used in this connection but it is not clear whether it is complained that the staff radiologist is given a monopoly as against other radiologists or that radiologic specialists are given a monopoly as against all other physicians. If the former is meant the proviso that any radiologist or any specialist who is qualified to make radiologic diagnoses in his restricted field may use the equipment of the department will dispose of the objection. If it is meant that radiologic specialists as a group are given a monopoly of radiologic work the answer is that precisely such monopoly is in the best interests of the patient, the general medical profession and the hospital.

3 Insist that after each examination a diagnosis shall be made and recorded by the radiologist or other specialist officiating. Hold the staff radiologist directly or indirectly responsible for every radiologic diagnosis made in the hospital.

4 Separate the finances of the department from those of the hospital but make the account books accessible to the hospital bookkeeper for inspection and audit. Let the department not the hospital collect all bills for radiologic service.

5 Out of the departmental revenues pay current expenses given to the hospital a reasonable return on its investment making due allowance for depreciation and freely acknowledge the right of the radiologist to whatever surplus remains.

The substitute suggested is not altogether novel and doubtless is susceptible of improvement. No plan can long survive unless it is fair to all concerned completely restores the radiologist to his rightful status as a physician and assures the maintenance of a high standard of radiologic service to the patient. Indeed, if the welfare of the patient is given first consideration, a proper solution of the problem will not be exceedingly difficult to find.

### The Pathologist

DR. J. P. SIMMONS Chicago. For the purposes of this discussion, pathologists may be separated into two main groups: (1) those who are engaged only in teaching and research in this field in large universities and (2) those who are concerned with the more practical aspects of pathology as applied to the diagnosis of disease, namely, clinical pathologists and the tissue pathologists who serve hospitals or commercial laboratories. The activities of the first or professorial group will have little or no direct effect on the diagnosis of disease or the treatment of patients and it would not seem necessary to require them to possess a license to practice medicine, although they should have an M.D. degree. The second group are concerned with the diagnosis of disease the results of their work influence the treatment of patients, and, in my opinion they should have a license to practice medicine.

Two aspects of the subject of this symposium should be differentiated in this discussion: (1) the advisability of requiring by law the licensing of all physicians engaged in the practical application of the principles of pathology to the diagnosis of disease, i.e., all clinical pathologists and those tissue pathologists associated with hospitals and (2) the advantages to the pathologist himself of the possession of a license to practice medicine. The first aspect of the question might be decided on the basis of a relatively simple principle without the enactment of any new laws. In those states in which the medical practice act specifically makes the diagnosis of disease an essential part of the practice of medicine the practicing pathologist should be required to have a license to practice medicine just as the practitioner of any other specialty for he is practicing medicine under the meaning of the act. It would seem to be unnecessary to urge the passage of new laws to regulate the

practice of pathology. Existing laws and the common sense of the pathologist should be sufficient to meet the legal requirements pertaining to this specialty.

It is to the second phase of the question, namely, the advantage to the pathologist himself of a license to practice medicine that I would direct attention. It is because the pathologist is concerned with the diagnosis of disease and is, or should be, a consultant that he should possess a license to practice medicine before engaging in his specialty. The mere possession of a license will not make him a better pathologist. But with such a license he is on a legal equality with the clinician. The average clinician is inclined to deny the right of a pathologist to his proper position of consultant. The clinician who sees the patient seems to think that the pathologist, who often is not permitted to see the patient, knows little or nothing about disease. As a matter of fact the competent pathologist knows much more about disease than does the clinician. It is his comprehensive knowledge of disease that would make the pathologist a most valuable consultant if given the opportunity. The clinician may also feel that the pathologist knows nothing of the treatment of disease or the care of patients. True the pathologist is not primarily concerned with treatment. But rational treatment is possible only when the underlying pathologic condition is understood, and the pathologist is especially equipped to aid in obtaining this information. In many cases, perhaps the most important reason for denying the pathologist his rightful place as a consultant is the principle of reciprocity that is inherent in consultations. The pathologist not being engaged in clinical practice, is not in a position to reciprocate in the temporary exchange of patients. For these reasons the pathologist whether he has a license to practice medicine or not, is relegated to the laboratory, is often treated in a patronizing manner by clinicians often his inferiors in the fundamental knowledge of disease, and is denied his proper place as a consultant to the detriment of the highest type of practice of scientific medicine.

Pathology is just as much a medical specialty as is internal medicine, surgery or urology, with as high ideals as any of them. Acquiring proficiency in this branch of medical science is as exacting and as time consuming as in any other specialty. Both the clinical pathologist and the tissue pathologist must of necessity delegate much of the mechanical part of his work to adequately trained and thoroughly supervised technicians. The clinician seems to forget that he too delegates much of his work to others. The clinical history is usually written by an intern. The physical examination is made by an intern or a resident. The practicing physician is aware that the work of these subordinates is of value only as it is done under his supervision and is confirmed, corrected and interpreted by himself. It is even more true that laboratory work done by technicians with little or no medical training is of value in diagnosis only when it is done under the immediate supervision of a trained pathologist. There are few things that are more conducive to careless methods of medical practice than the indiscriminate employment of technicians by clinicians who are capable neither of judging the qualifications of technicians nor of adequately supervising their work.

The pathologist is an indispensable factor in the practice of modern medicine. The clinical pathologist is concerned with the chemical changes in body fluids and excretions, the tissue pathologist with structural changes in the tissues and organs of the body including the blood. Both are especially concerned with the fundamental changes that underlie symptoms, physical signs and other manifestations of disease. The pathologist actually has a keener sense and a more comprehensive knowledge of the significance of symptoms and physical signs than does the clinician. He is especially prepared to interpret symptoms, physical signs and results of laboratory tests in terms of pathologic structural changes.

Years ago a committee of the American Medical Association drew up regulations with which clinical laboratories must comply in order to receive recognition by the Association. One of the most important of these regulations requires that to be recognized as a specialist a pathologist must be a graduate in medicine must have satisfactory training in pathology, chemistry and other allied subjects for at least three years.



subsequent to graduation who is in good standing and has been duly licensed to practice medicine." These regulations doubtless work a hardship on small hospitals. I venture to offer a suggestion for the amelioration of this hardship. The first requisite will be the admission of pathologists to their rightful position as consultants in their specialty. Unless assured that proper recognition will be given them, capable young graduates will not go into this specialty.

Most towns of 5000 population have a hospital to which all the physicians in the community and neighboring smaller towns are permitted to bring patients and treat them. Such institutions need a capable pathologist even more, perhaps, than larger hospitals of higher grade. In spite of numerous important services which a pathologist could render, the superintendents of such small hospitals feel that they cannot afford a pathologist and the members of the staff must depend on the unsupervised activities of technicians for all laboratory work and are never able to check their clinical diagnoses by postmortem examinations performed by a competent pathologist. Such a deplorable state of affairs could be remedied by suitable recognition of the status of the pathologist as a specialist and consultant, and by a comprehensive plan of cooperation between the hospital and the local physicians. The laboratory of the hospital could be made the center of all laboratory work of the members of the medical profession of the entire community. Under such conditions a financial arrangement could be made that would be satisfactory to the hospital and to the pathologist.

The pathologist of every hospital and commercial laboratory should have a license to practice medicine because (1) he is practicing medicine just as much as any other specialist (2) it will place him on a legal equality with all licensed clinicians and specialists, and (3) it will insure him certain legal rights and privileges and the opportunity to perform certain professional duties such as qualifying as an expert witness, which only a license to practice can supply. The enactment of new laws appears to be unnecessary.

### The Anesthetist

DR. F. H. McMECHAN, Rocky River, Ohio. The code of medical ethics has come to me representing the third generation of Ohio doctors in my family, as a sacred heritage, and an experience of thirty years in anesthesia has convinced me that anesthesia must be limited to licensed and qualified physicians to achieve its destiny—the conquest of human pain.

Anesthesia was the gift of pioneer doctors and dentists to suffering humanity and every significant advance in its science and practice has been contributed by doctors, dentists and research workers of similar standing. In contrast, technicians have added nothing of any consequence. Anesthetics are among the most potent and dangerous drugs used in the practice of medicine; they penetrate to every cell and organ of the body and may cause almost instant or delayed death by their toxic effects. The dosage of general inhalation anesthetics cannot be prescribed in advance but must be determined from moment to moment during administration. The dosage of local and other anesthetics must be determined by the risk of the patient, the nature and duration of the operation to be done—certainly a challenge to the knowledge and experience of the keenest doctor. No patient should ever be given an anesthetic whose condition and risk has not been diagnosed in advance of the operation, so that every resource of medical science can be used to lessen the risk and make the recovery more assuring. Certainly in this preoperative evaluation and the selection of the safest anesthetic and best method of administration, the medical anesthetist is more in a position to act as a consultant than a technician.

By charting the pulse, respiration, blood pressure and all other available reactions of the patient, the medical anesthetist continuously diagnoses the changing condition of the patient to regulate the anesthetic, to warn of any impending dangers and to combat complications. The surgeon is not in a position to do this for himself or the technician while operating, and the technician is certainly not capable of doing it. The safety first rules of the International Anesthesia Research Society require such diagnostic evaluation and charting by all medical anesthetists to prevent needless deaths.

The safety of the patient demands that the anesthetist be able to treat every complication that may arise from the anesthetic itself by the use of methods of treatment that may be indicated. The medical anesthetist can do this, the technician cannot. More recent developments have extended the field of medical anesthesia to include resuscitation, oxygen therapy and therapeutic nerve block for intractable pain, the treatment of various conditions of disease and the rehabilitation of the disabled—all fields of practice quite beyond the capacity of the technician.

The code of medical ethics of the British Empire removes any doctor from the medical register who uses any one but a doctor to give an anesthetic or who gives an anesthetic for any one but a registered doctor. Also the greatest medical organizations in the British Empire have recognized anesthesia as a specialty of medicine, by maintaining sections of anesthesia for many years. As a result every medical school teaching and voluntary hospital and nursing home in the British Empire and its dominions has its full quota of exceedingly competent medical anesthetists, all of whom must face a coroner's inquest for every death under anesthesia. Great Britain tried out technician anesthesia just once during the war emergency on account of the tremendous shortage of doctors, but the Society of Coroners discontinued technician anesthesia at the close of the war as too dangerous to public safety in times of peace.

For years organized medical anesthesia in the United States has been as nation wide and progressive as in the British Empire and has now reached the point of the certification of medical anesthetists as specialists and the founding of a college of anesthetists. Minimum standards for approved medical schools require basic science, didactic and clinical teaching and experience in anesthesia. Minimum standards for approved hospitals require that a qualified medical anesthetist must be in charge of the department of anesthesia and maintain that anesthesia is a medical specialty. Although medical anesthesia has reached such a point of achievement that anesthetists from all parts of the world now come to the medical anesthetists of the United States for the latest advances in the specialty, the more extended and rapid development of anesthesia within the profession can be fostered only through medical and not through technician anesthesia.

In those medical schools, teaching hospitals and clinics in which technician anesthesia has been in use, only certain limited routine methods have been entrusted to technicians, all other methods being restricted to surgical specialists or medical anesthetists. plainly an indication that technician anesthesia cannot possibly deliver a complete anesthesia service. Legally even such technician anesthesia must be "supervised" by the operator. Certain medical schools and hospitals are maintaining technician anesthesia schools on the basis of technician teaching and competence. In doing this is not the profession again creating the same sort of "diploma mills" in the practice of medicine that it has spent so many years in abolishing? While the medical anesthetist, practicing as a specialist, is personally legally responsible for negligence, accidents or fatalities under his administration and during recovery, "supervised" technician anesthesia makes either the surgeon or the hospital or both legally liable for damage suits in the same circumstances. Such damage suits are becoming more and more numerous and damages have been awarded in most of them.

The medical profession has the protection of court decisions holding that the license to practice is a "property right" under the constitution. Is the profession prepared to sacrifice this protection by delegating the disposal of this "property right" to the "supervised" or "corporation" practice of medicine? "Supervised" technician anesthesia is the first big inroad of socialized medicine on the economic level of technician pay and standards. It also means the "corporation" practice of medicine by hospitals and hospital associations under layman control. This is shown in the fact that the recently formed association of technicians was founded by one of the largest hospital associations and the member technicians are known as "hospital anesthetists" indicating absolutely "socialized" practice and "corporation" domination. If the "property right" to practice medicine is not upheld as interpreted by West Vir-



ginn, Indiana and California and safeguarded by the profession, the socialization and corporatization practice of radiology, pathology and anesthesia will be the future fate sharing all other specialists, including surgeons, in the face

Pressure from hospitals and hospital associations has induced the profession to use the technician in limiting opportunities in many lines of medical practice. This is forcing more and more doctors to go into the surgical specialties to make a living. Further overcrowding and technician invasion will inevitably destroy surgery itself economically. The economic factor responsible for 25,000 too many doctors is the fact that 25,000 technicians are practicing "socialized and corporatized" medicine.

Surveys have shown that 50 per cent of three year trained nurses disappear entirely from nursing within two years after graduation and 85 per cent within five years. This involves a labor turnover and replacement that would economically wreck the greatest industries in the United States and it accounts in great measure for a large share of the annihilating overhead and deficits of the present hospital system. The technician in anesthesia is a part and parcel of this vanishing personnel and represents an economic liability. By contrast the physician devotes a lifetime's career to developing himself, hospital anesthesia service and cooperation in the advancement of the surgical specialties. He is one of the hospital's most permanent economic assets. Millions of anesthetics must be given every year. If any great industry had such a staple product as painless surgery, it would certainly use the best obtainable experts in marketing such a boon to suffering humanity. I leave it to your judgment whether the greatest number of satisfied patients can be made through supervised and corporatized technician anesthesia or through licensed and highly qualified medical anesthetists.

### The Surgeon

DR KARL A. MEYER, Chicago. No surgeon who is worth his salt as a surgeon can be an expert radiologist and an expert pathologist also and at the same time administer his own anesthetics. Of the radiologist he must ask technical perfection in the management of x-rays, fluoroscopies and roentgen therapy and a penetrating analysis in the interpretation of roentgenologic results. A well trained technician can usually take excellent roentgenograms as long as the pictures do not deviate from the standard routine.

Several recent advances in roentgenography depend on the parenteral injection of contrast mediums. This should not be entrusted to any one but a licensed physician who would understand the action of drugs and the reaction of patients and be able to act promptly in any emergency. The surgeon would then have to do these injections himself. This would not only tie him up in his work considerably but unless the organ in question was the surgeon's special field it is probable that his handling of the injection would be less skillful than that of the competent general radiologist.

Fluoroscopies are certainly outside the province of a technician. The incidence and location of lesions, their usual progress and spread, the movements of the heart and lungs, the physiology of the gastro-intestinal tract, the space relations within the body and deviations from the normal are far outside his ken unless he knows anatomy, physiology and pathology, and if he does then he is a doctor and not a technician. The surgeon who is primarily a therapist can rarely develop more than a cursory knowledge of fluoroscopy even in special fields and in any case must always have available some one on whose radiologic ability in other fields he can depend.

Roentgen therapy cannot be entrusted to a technician. The treatment of neoplasms for example requires a fine balance of judgment between effective dosage to stop the growth and limits of tissue tolerance to prevent violent local and general reaction. It requires a profound understanding of the pathogenesis of lesions and a wide experience in their sensitivity. These attributes can be found only in a man with medical training.

The greatest need which the surgeon has of the radiologist is in the field of diagnosis. For the major portion of questionable borderline and unusual cases the cases in which x-rays are

really needed, the surgeon must have the cooperation of an expert radiologist. Roentgenography is not photography. Only a physician practicing radiology would know where the normal suture lines are, where skull fractures are most likely to occur, and that the fracture line might not be visible for ten days after a head trauma. Only such a man could differentiate between osteomyelitis and early or unusual sarcomas of bone, could evaluate properly the amount of normal fibrosis in a lung or the width of an arteriosclerotic aorta or could manipulate a patient to fill lung cavities with iodized oil or gastro-intestinal diverticula with barium sulphate. Were radiology left to men without a complete medical training, research in this field would stop. Progress depends not on technical perfections but on intimate correlations between the roentgenogram and the patient, which can be discerned only by one trained in handling both.

The practice of pathology should also, from the point of view of the surgeon, be limited to those licensed to practice medicine. The surgeon cannot possibly keep up with the literature and changes in all these fields and must have some one on whom he can rely. The performance of autopsies is vital to the prevention of repeated mistakes in surgery. This cannot be left to a technician; the interpretation of autopsies requires a high grade intellectual activity and experience which is impossible to attain by any one who has not had a complete medical education. The surgeon himself could not and, if he could, should not perform these autopsies, because, even if he wears rubber gloves, cadaver contamination is so difficult to avoid and so difficult to get rid of that it is unjust to his patients for him to permit himself to do autopsies. It would take almost three days to resterilize his hands after such a contact. Therefore he has no right to engage in autopsies.

Anesthesia stands in a somewhat different relation to the surgeon than does radiology or pathology. The research work in the development and perfection of anesthetics and the institution of the unusual or difficult anesthetics must be left to the physiologic, pharmacologic, anatomic and surgical fields of medicine. The actual administration of the ordinary anesthetics, however, is not a highly skilled interpretative science like radiology or pathology, but a relatively noncomplicated though highly skilled, technical procedure. It would perhaps be ideal to have all anesthetics administered by medical men. Difficulties stand in the way. Administering an anesthetic takes even more time than the surgery. The patient would therefore have to pay an anesthetic fee comparable to the surgical fee. Under present economic circumstances the medical men who go into the administration of anesthetics do so (with certain brilliant exceptions) either as a temporary expedient or because they cannot get into anything else. I venture to say that under these circumstances a conscientious technician devoting a lifetime to the field would probably serve better for the routine anesthetics than a medical dilettante in anesthesia. The surgeon cannot always be with the radiologist or the pathologist. In his work he is constantly with the anesthetist, assumes full responsibility for the anesthetics, can institute the special spinal and intratracheal anesthetics himself and can closely supervise the conduct of the anesthesia throughout its course. For these reasons from the standpoint of the surgeon, anesthetics can be administered by well trained technicians but radiology and pathology must be limited to those licensed to practice medicine.

### The Internist

DR JAMES S. McLESTER, Birmingham, Ala. The internist is a general practitioner among specialists. He is the one physician who examines the patient as a whole. He it is who pieces together the parts contributed by the several specialists, considers each feature, gives it proper place and emphasis, and then endeavors to envisage the whole. Of great importance to him is the work of the radiologist and the pathologist. He may not be entitled to an opinion regarding the anesthetist but of the qualifications of these two he can speak his mind freely.

In the last analysis this is a question of education, not merely one of licensure. The license is simply a certification by the state that the holder has been examined and found to have the educational and other qualifications necessary for the practice of medicine. The question, then, is: Shall the educational qualifications demanded of the physician in practice be required also

of those who would limit their work to radiology and pathology? Believing in the profound influence of education on a person's ability to observe accurately and to reason soundly, I answer Yes

The practice of radiology involves three things (1) the making of roentgenograms, (2) the description and interpretation of what is seen in the roentgenogram and in the fluoroscope, and (3) treatment by means of radiation. The first of these can be dismissed from this discussion if that were all, radiology could be practiced by any well drilled technician, no matter what his education. For the other two functions of the radiologist the demands are entirely different. For the interpretations expected of the radiologist, a broad educational background is required. He should have a knowledge of anatomy and physiology and equally important a good conception of the diseases of which he would give a radiographic description. It is not asked that he make the diagnosis. True, he sometimes, without adequate description, does this, but that is not what is asked. It is requested of him that he observe accurately, describe faithfully what he sees and then in suitable instances, as one feature of the clinical picture offer his own interpretation. This demands an intimate knowledge of clinical problems. The other part of his work, the application of radiotherapy, demands greater judgment than is required in any other field of therapeutics. The type of treatment needed the bodily areas to be exposed, the length and frequency of such exposure and the dosage are best determined after mature judgment the kind of judgment that comes of a well trained intellect. Without this, irreparable harm may be done. To have the special knowledge required and the ability to bring to bear on the task the proper judgment, the radiotherapist should enjoy a type of learning and an intellectual background that come only from a broad well rounded medical education. As for the pathologist is there any reason why his education should be more restricted than that of other physicians? No one will deny that the pathologist should be broadly educated.

There is another light in which the educational qualifications of both radiologist and pathologist should be viewed, that is, the light of research. If the rapid advances made in medicine during the last few decades are to progress at full speed, the contributions of radiology and pathology must continue, and these can come as a rule only from men of broad caliber. Medical licensure was devised by the state to protect the public from the incompetent practitioner. Is the radiologist or the pathologist, when incompetent, capable of harm? Yes. This being true, the state should properly require of the radiologist and the pathologist a certificate of competence. This certificate is called a license.

(To be continued)

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 central standard time (May 2 and May 9, 4:30 Chicago daylight saving time, 3:30 central standard time). The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

April 25	May Day or All Year Round?
May 2	Being Your Age
May 9	Saving Our Mothers

### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 central standard time (May 7, 4 o'clock Chicago daylight saving time, 3 o'clock central standard time). The next three broadcasts will be as follows:

April 23	Sudden Death Morris Fishbein M.D.
April 30	Child Health W. W. Bauer M.D.
May 7	Mothers of America W. W. Bauer M.D.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### CALIFORNIA

**Bill Introduced**—A 2401 proposes to regulate the conduct of pounds and to regulate the disposition of animals impounded or sheltered therein. This bill specifically makes it unlawful for any pound master to permit any live animal in his custody to be used for experimental purposes or to turn over any animal in his custody to any person, school, university, research laboratory or experimental station to be used for educational demonstration or medical, scientific or experimental purposes.

**Society News**—Speakers before the Alameda County Medical Association, March 18, included Drs. Edward H. Rinearson, Rochester, Minn., on "Recent Concept and Treatment of Diabetes"; Dr. Esmond R. Long, Philadelphia, among others addressed the California Tuberculosis Association in Long Beach, March 29-30, his subject was "The Chemistry of the Tubercle Bacillus." Dr. Long was the principal speaker at the annual banquet, he talked on "Tuberculin in the Epidemiology, Diagnosis and Treatment of Tuberculosis."

**Dr. Anrep Gives Lane Lectures**—Dr. Gleb V. Anrep, professor of physiology, Egyptian University Medical Faculty, Cairo, Egypt, will deliver the twenty-fifth course of Lane Medical Lectures, April 22-26, in Lane Hall, Stanford University School of Medicine, San Francisco. The titles of Dr. Anrep's lectures are:

The Proprioceptive Mechanism of Cardiovascular Regulation  
The Central and Reflex Respiratory Regulation of the Heart Rate  
The Coronary Circulation  
The Circulation in the Voluntary and Plain Muscles in Relation to Their Activity

**Resolutions on Communicable Disease**—At a special meeting, April 4, the advisory committee to the San Francisco department of public health on acute anterior poliomyelitis adopted resolutions declaring its attitude on the use of poliomyelitis vaccine and on other types of immunization. The committee urged the director of public health, Dr. Jacob C. Geiger, to take no active stand favoring the use of vaccine for poliomyelitis until its value has been more fully demonstrated. It was recommended that experimental administration be restricted to properly qualified research institutions. Scarlet fever immunization should not be approved, the committee advised, even though the disease is becoming more endemic in the city and county. With respect to diphtheria it was recommended that children be immunized at the age of 1 year, and it was further pointed out that this procedure was the responsibility of the physician in charge of the infant at the time. Members of the committee include Karl F. Meyer, Ph.D., and Drs. William P. Lucas, Edward B. Shaw, Harold K. Faber, James W. Ward and Isaac W. Thorne.

### COLORADO

**Joint Tuberculosis Meeting**—The Colorado Tuberculosis Association, the El Paso County Sanatorium Association, the Denver Tuberculosis Society and the Denver Sanatorium Association held a combined meeting in Denver, April 4. Speakers included Drs. Oscar S. Levin on "Causes of Death in Surgical Collapse of the Lung," Charles H. Boissevain, Colorado Springs, "Antibody Response to Different Derived Proteins of the Tubercle Bacillus," Harry J. Corper, Arthur P. Damerow and Maurice L. Cohn, Ph.D., "Recent Researches on Immunity to Tuberculosis." Dr. Esmond R. Long, director of the laboratory, Henry Phipps Institute, Philadelphia, gave an address entitled "Taking the Census in Tuberculosis."

**Society News**—Dr. Cyrus W. Anderson, Denver, presented a paper on "Physiology and Fertilization of the Human Female," before the Northeast Colorado Medical Society, February 17, in Sterling. At a meeting of the Pueblo County Medical Society, February 19, Dr. Solomon W. Schaefer, Colorado Springs, discussed problems in tuberculosis, and Dr. William F. Singer, Pueblo, treatment of infections. The San Juan Medical Society was addressed in Durango, January 13, by Dr. Emil E. Johnson, Cortez. A symposium on cancer in the intestinal tract was presented before the San Luis Valley Medical Association, February 22, by Drs. Roval H. Finney, George A. Unfug, Paul M. Ireland and Carl W. Maynard, Pueblo. At a meeting of the Medical Society of the City and County of Denver, March 19, Drs. Alfred R. Masten

Wheat Ridge discussed "Value of the Red Cell Sedimentation Test with Special Reference to Tuberculosis," and James R. Jaeger, "Intracranial Injection of Air for Treatment of Head Injuries."

### DISTRICT OF COLUMBIA

**Medical Bills in Congress**—H. R. 7295 introduced by Representative Quinn Pennsylvania proposes to prohibit experiments on living dogs in the District of Columbia for any purpose other than the healing or curing of the dog. S. 2013 has passed the Senate directing the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art to Dr. Pak Chue Chan.

**Annual Scientific Meeting**—The annual scientific assembly of the Medical Society of the District of Columbia will be held May 1-2. Out of town speakers will include Drs. John Shelton Horsley, Richmond Va., on 'The Incidence, Diagnosis and Treatment of Cancer of the Stomach' and Somer Weiss, Boston, on 'Syncope.' Other physicians on the program will be

Jerome F. Crowley, Endometriosis  
Frank J. Eichenlaub, Management of the Syphilitic Patient  
William B. Marbury, Lymphogranuloma Inguinale with Special Reference to Stricture of the Rectum  
Paul S. Putzki, Resume of Acute Appendicitis in Washington Hospitals for a Period of Two Years  
William H. Wilmer, Diagnosis and Treatment of Ocular Tuberculosis  
John H. Ivons, Abdominal Symptoms in Diabetes Mellitus  
Francis R. Hagner, Pyelitis of Pregnancy  
Howard F. Kane, subject not announced  
John Minor, The Systematic Diagnosis of Anemias  
Stuart O. Foster, The Present Status of the Treatment of Secondary Anemia  
Bernard W. Leonard, The Size and Shape of the Heart  
George R. Hufman, Erythremia with Emphasis on Treatment  
John A. Talbot, Fractures  
Edwin Kirby Smith, Factors in the Care of Premature Infants  
Antoine J. Schneider, Myasthenia Gravis and the Myopathies  
Arthur W. Zinkhan, Clinical versus X-Ray Diagnosis of Sinusitis  
Ralph R. Bett, Roentgen Treatment of Chronic Sinus Disease with Roentgen Rays

In addition physicians participating in clinics include Drs. William Ross Morris, James A. Cahill Jr., Charles Stanley White, Joseph P. Shearer and Harry Hyland Kerr. Charles P. Cake, Sara E. Branham, Walter K. Myers, Ella M. A. Enlows and Eugene Clarence Rice Jr. A complimentary luncheon will be held at the Mayflower Hotel with Edmund A. Walsh, S.J., as the guest speaker; he will discuss 'Soviet Medicine.' Dr. George C. Ruhland, district health officer, will address a public meeting Wednesday evening, and the annual banquet will be held Thursday evening. Motion pictures will be shown continuously.

### FLORIDA

**Bill Introduced**—S. 2 proposes to provide for a system for compensating workmen for injuries arising out of and in the course of their employments and for such diseases or infections as naturally or unavoidably result from such industrial injuries. The employer is to furnish medical, surgical and other remedial treatment, nursing and hospital service, medicine, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. Only in the event that the employer fails to furnish these services after request by the workman, is the workman to be allowed the privilege of selecting his own physician.

### ILLINOIS

**Bill Introduced**—S. 257 proposes to require all persons licensed to practice any form of the healing art to register annually with the director of registration and education and to pay an annual renewal fee of \$1.

**Scarlet Fever Prevalent**—With more than 12,000 cases of scarlet fever and 175 deaths reported since the first of the year, the state department of health announces the greatest wave of scarlet fever and sore throat ever recorded in the state. It was said that about 200 new cases are being reported daily.

**Society News**—Dr. Don C. Sutton, Chicago, addressed the Peoria City Medical Society April 2 on 'Heart Disease Complicated by Pregnancy.'—Dr. Ralph A. Kinsella, St. Louis, discussed 'Streptococcal Infection' before the St. Clair County Medical Society in East St. Louis, April 4.—A symposium on obstetrics was conducted before the Adams County Medical Society, Quincy, April 8 by Drs. Ralph McReynolds, Henry J. Jurgens, Clarence A. Wells, Milton E. Bitter and Norbert A. Blickhan, Quincy.

### Chicago

**Personal**—Eugene R. Schwartz, superintendent of registration for the state department of registration and education died, April 10, of complications that followed an operation for

gallstones, according to the *Chicago Tribune*.—Dr. Lowell T. Coggeshall, instructor in medicine, University of Chicago, has been appointed a member of the International Health Division of the Rockefeller Foundation, effective in July.

**Study of Premature Births**—The Chicago Health Department made a study of the death certificates of infants born and dying in hospitals having more than 200 births a year, which shows that the death rate of premature infants under 15 days of age was as low as 5 per thousand births in some institutions and as high as 50 per thousand births in others. The low death rate in some hospitals was attributed to three requirements:

1 The newborn infant is scrupulously protected against chilling from the moment of birth. Incubator facilities maintained at a proper temperature are constantly available for these infants and weak infants are not oiled or bathed until this seems safe.

2 Attendants are trained in proper methods for resuscitation. Small catheters and oxygen are always available. Undue trauma is avoided.

3 Every effort is made to obtain breast milk until the mother's milk is available and an effort is made to stimulate the mother's breast by manual expression.

Hospitals in which the death rates are high from prematurity are found to be failing in one or more of these essentials. To help meet this problem the department of health has established a twenty-four hour incubator ambulance service for hospitals that do not have incubator facilities and for private physicians delivering mothers in the home.

### INDIANA

**Personal**—Dr. Eugene F. Kratzer, Kokomo, was presented with a quilt at a dinner in his honor, February 27, to observe his completion of twenty-five years practice in the community. The quilt bears the embroidered names of many children whose births the physician attended.—Dr. Floyd L. Grandstaff, Decatur, was named health officer of Adams County, March 5, succeeding the late Dr. John W. Vizard.

**Pediatricians Organize**—The Indiana Pediatric Society was organized at a meeting in Indianapolis, March 13. Officers elected are Drs. Louis H. Segar, clinical professor of pediatrics, Indiana University School of Medicine, Indianapolis, as president; Reuben A. Craig, Kokomo, vice president, and Matthew Winters, associate professor of pediatrics at the university, secretary.

**Society News**—Dr. Charles O. McCormick, Indianapolis, addressed the Hamilton County Medical Society in Carmel, March 12 on 'Maternal Mortality.'—The Hancock County Medical Society heard Dr. C. O. Richey, Indianapolis, discuss 'Respiratory Disturbances' at a meeting in Greenfield, March 18.—At a meeting of the Tippecanoe County Medical Society in Lafayette, March 14, Dr. Walter Dean, Louisville, Ky., spoke on the eye, ear, nose and throat.—Dr. William E. Barnett, Logansport, discussed 'Circulatory Failure' before the Henry County Medical Society in Newcastle, March 14.—Dr. Edmund M. Van Buskirk, Fort Wayne, was elected president of the Indiana Roentgen Ray Society in Indianapolis, February 26.

### IOWA

**Bill Enacted**—S. 20 has become a law, requiring all applicants for licenses to practice any form of the healing art as a condition precedent to their right to examination by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, pathology, bacteriology and hygiene, to be given by an impartial basic science board.

**Society News**—Dr. George V. I. Brown, Milwaukee, will address the Linn County Medical Society, Cedar Rapids, May 2 on 'Plastic Surgery, the Child of General Surgery.'—A symposium on acute infectious diseases was presented before the Des Moines Academy of Medicine and the Polk County Medical Society, March 26 by Drs. Harold J. McCoy, Arnold M. Smythe, Herman J. Smith and Harold C. Bone.—Dr. Jennings C. Litzberg, Minneapolis, addressed the Johnson County Medical Society in Iowa City, April 3, on 'Toxemias of Pregnancy.'

**Tuberculosis and Heart Associations Meet**—The annual meeting of the Iowa Tuberculosis and Iowa Heart associations was held at the Hotel Fort Des Moines, March 22, in Des Moines. Symposia made up the greater part of the program. At a luncheon meeting the speakers were Drs. Walter L. Biering, Des Moines, President American Medical Association and George E. Fahr, professor of medicine, University of Minnesota School of Medicine. Dr. Fahr's subject was 'A Clinical Evaluation of the New Cardiology.' Dr. William W. Bauer, Chicago, addressed the annual dinner on 'The Bird with a White Breast.'

## KANSAS

**Porter Lectures**—Edward A. Doisy, Ph.D., professor of biochemistry, St. Louis University School of Medicine, St. Louis, will deliver the Porter Lectures of the University of Kansas, April 23-24. The titles of the lectures are

The Ovarian Follicular Hormone and Related Compounds  
Sex Hormone Therapy from the Experimental Viewpoint  
Some Aspects of the Study of Internal Secretions

The first two lectures will be given in Kansas City and the last at the main university in Lawrence. The annual series of graduate clinics has been arranged for April 22-24 to enable practicing physicians of Kansas and adjoining states to attend Dr. Doisy's lectures.

## LOUISIANA

**State Medical Meeting in New Orleans**—The fifty-sixth annual meeting of the Louisiana State Medical Society will be held in New Orleans, April 29-May 1, with headquarters at the Roosevelt Hotel and under the presidency of Dr. Chauncey Jamison, New Orleans. Dr. Stanhope Bayne-Jones, dean, Yale University School of Medicine, New Haven, will deliver the annual oration on "The Influence of the State on Medical Education." A public meeting, Monday evening, will be addressed by Drs. Frederic J. Mayer, Opelousas, on "The Louisiana System of Public Hygienic Education," Thomas J. Perkins, Simmesport, "Importance of Mental Hygiene to the General Practitioner," Robert W. Todd, New Orleans, "Effectiveness of Typhoid Vaccine in the Control of Typhoid Fever," William H. Perkins, New Orleans, "Who is to Blame for Cancer Deaths?" and John Signorelli, New Orleans, "Toxoid Immunization." The New Orleans Campaign for Diphtheria Eradication. Other physicians on the program include

Lionel J. Bienvenu, Opelousas, Caisson and Pseudo Caisson Disease  
Joseph M. Perret, New Orleans, Tularemia  
Harris Hosen, New Orleans, The Bacteriophage in Respiratory Disease  
Edmund McC. Connely, New Orleans, Uses of Hypnosis in Psychotherapy  
William R. Mathews, Shreveport, Pathology of Sickle Cell Anemia with Brief Clinical Considerations  
William H. Browning, Shreveport, Common Manifestations of Gastrointestinal Food Allergy  
Louis J. Dubos, New Orleans, Digitalization in Cardiac Failure  
H. Guy Riche, Baton Rouge, Heart Disease in Middle Life  
Charles J. Bloom, New Orleans, Autoogenous Vaccine Therapy in Pediatrics  
Herbert R. Unsworth, New Orleans, Dementia Praecox  
Urban Maes, New Orleans, Pathologist's Part in Malignant Disease from the Surgeon's Point of View  
Donovan C. Browne, New Orleans, Early Diagnosis of Carcinoma of the Colon and Rectum  
Roy Carl Young, Covington, Chronic Epidemic Encephalitis: Report of Eleven Cases with Alcoholism as Outstanding Symptom  
Charles A. Thomas, Tucson, Ariz., The Collapse Program of Advanced Pulmonary Tuberculosis  
Curtis H. Tyrone, New Orleans, Vaginal Hysterectomy

## MAINE

**Bills Enacted**—The following bills have become laws: S 714 amending the chiropractic practice act by (1) requiring applicants for licenses to be graduates of chiropractic colleges which, as a condition precedent to their graduation, require personal attendance and completion of a course of four school years of not less than six months each and a total of 2,600 sixty-minute school hours and by (2) requiring licentiates to register annually with the board and to pay an annual fee of \$3, and H 1838, limiting the sale of sanitary or prophylactic rubber or other articles for the prevention of venereal diseases, to licentiates of the state bureau of health.

## MISSISSIPPI

**Lectures on Obstetrics**—Dr. Maxwell E. Lapham, Jackson, is conducting a series of graduate lectures in obstetrics in several counties of the state. Each meeting is devoted to about one hour for lectures and one hour for clinical demonstrations. In addition to Dr. Lapham, who is the field clinician, the committee on postgraduate medical education is participating. This committee is made up of two members each from the Mississippi State Medical Association, Tulane University of Louisiana School of Medicine and the state board of health and one representative from the Mississippi State Hospital Association. The next circuit of lectures is planned for the areas surrounding Cleveland, Clarksdale, Greenville, Rolling Fork and Yazoo City. Dr. Lapham conducted similar courses in Virginia in 1933 and 1934.

## NEVADA

**Bill Enacted**—A 260 has become a law, creating a board to arrange for and to supply necessary maintenance, medical and surgical treatment, and hospitalization to indigent expectant mothers.

## NEW HAMPSHIRE

**Delegates Oppose Compulsory Health Insurance**—The house of delegates of the New Hampshire Medical Society held a special meeting, March 7, in Concord to consider the report of the meeting of the House of Delegates of the American Medical Association in Chicago, February 15-16. A resolution was adopted approving the action of the national association, opposing compulsory health or sickness insurance or other medical services under governmental control or lay supervision and approving voluntary plans for medical service under medical supervision. Copies were sent to all representatives in Congress.

## NEW JERSEY

**Personal**—Philip R. White, Ph.D., for the past two years fellow of the Rockefeller Institute for Medical Research, New York, has been appointed to the staff of the department of animal pathology of the Rockefeller Institute at Princeton. Dr. Arcangelo Liva, Hackensack, has been awarded the honorary degree of doctor of medicine by the University of Rome, according to the *Bulletin* of the Bergen County Medical Society.

**Society News**—Dr. Pol N. Coryllos, New York, addressed the Atlantic County Medical Society, Atlantic City, March 8, on "Pathogenesis, Mechanism and Treatment of Tuberculous Cavities."—Drs. Nathan Rosenthal and Allen O. Whipple, New York, addressed the Bergen County Medical Society, Hackensack, March 12, on "Blood Dyscrasias in Children" and "Splenectomy," respectively.—Drs. William H. Park and Maurice Brodie, New York, addressed the Essex County Medical Society, Newark, March 14, on "The Newer Preventives of Diphtheria: Precipitated Toxoid and Toxoid Flocculi" and "Immunization Against Poliomyelitis," respectively.—Drs. Raymond J. Connors and Anthony Bassler, New York, addressed the Hudson County Medical Society, March 5, on "Pilonidal Sinus" and "Chronic Colitis from the Practitioner's Standpoint," respectively.

## NEW YORK

**Bills Introduced**—S 2032 and A 2455 propose to exclude from private and public schools children not immunized against diphtheria. A 2458, to amend the law in relation to certificates of birth, proposes that, if a child is born out of wedlock, the name of the putative father shall not be entered on the birth certificate without his consent. If the putative father does not consent, the physician or the midwife, with the consent of the mother, is to supply at least two given names for the child, one of which shall serve as a surname except that the name of any known living male is forbidden. The mother may also use the last given name as her name.

**Personal**—Dr. N. Stanley Lincoln, Albany, who was provisionally appointed superintendent of the Hermann M. Biggs Memorial Hospital at Ithaca, has been transferred to the superintendency at the new tuberculosis hospital at Mount Morris. It is expected that the Mount Morris building will be ready for occupancy this month, while that at Ithaca will not be finished until late in the year because of delays in construction.—Dr. Leon A. Chojnacki, Perysburg, was appointed clinic physician in the division of tuberculosis of the state department of health, March 1.—Dr. Blakely R. Webster has been appointed superintendent of Dannemora State Hospital, Dannemora, succeeding Dr. Charles M. Burdick, who retired several months ago.—Dr. Frederick F. Russell, director of the International Health Division of the Rockefeller Foundation, delivered the Eastman Memorial Lecture at the University of Rochester School of Medicine and Dentistry, March 21, on "The Continuing Need for Research in the Field of Public Health."

## New York City

**Conference on Chronic Tuberculosis**—The Tuberculosis Sanatorium Conference of Metropolitan New York sponsored a clinical conference on chronic pulmonary tuberculosis at Cornell University Medical College recently. Speakers were Drs. Edgar Mayer and William De Witt Andrus, on "Bronchiectasis and Cystic Disease of the Lung" and "Present Status of Phrenic Nerve Interruption," respectively. Cases from the New York Hospital pulmonary service were presented.

**Symposium on Headache**—A symposium on headache was presented at the stated meeting of the New York Academy of Medicine, April 4, with the following speakers: Drs. James W. Babcock II, on "The Role of Diseases of the Nasal Accessory Sinuses in Headache," Webb W. Weeks, "Ocular Headache," Alexander Lambert, "Tobacco and Drugs as a Cause of Headache," Frederick Tilney, "Causes of Headache in General and as a Symptom of Tumors and Other Diseases of the Brain," and Foster Kennedy, "Drugs and Other Methods of Treatment."

**Personal**—Dr David J. Kaliski has been made a Chevalier of the Legion of Honor by the French government. Dr Kaliski is a former president of the Medical Society of the State of New York and chairman of the coordinating council of the five county medical societies of New York.—Dr George H. Reichers, chief surgeon at Bushwick Hospital was guest of honor at a dinner given by members of the medical and nursing staffs and other friends March 14 at the Hotel Grand. The occasion marked his thirty-fifth anniversary as a physician and twenty-two years' service at the hospital. Dr William E. Lippold was toastmaster.—Dr Harry Plotz formerly of New York and now director of laboratories at the Pasteur Institute Paris has recently been honored by the French government by advancement from the rank of Chevalier to Officer of the Legion of Honor of France.

## NORTH CAROLINA

**Bill Introduced**—H 996 proposes to authorize Cabarrus County to establish and maintain a public hospital. Among other things the bill proposes that in the management of the hospital no discrimination is to be made against practitioners of any school of medicine or allied occupations recognized by the laws of the state and that all legal practitioners shall have equal privileges in treating patients in such hospitals. A patient is to have the absolute right to employ at his own expense his own physician. Such physician is to have exclusive charge of the care and treatment of the patient and hospital nurses as to such patient are to be subject to that physician's directions.

## OHIO

**Bill Passed**—H 163 has passed the house, proposing to repeal the laws regulating the sale, distribution or possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

**Executive Secretary Resigns**—Don K. Martin executive secretary of the Ohio State Medical Association for sixteen years resigned March 15 to become manager of the Ohio Manufacturers Association. Mr. Martin was also general counsel for the association and editor-manager of the *Ohio State Medical Journal*.

**Rabies Prevalent Among Dogs**—Ohio is experiencing an outbreak of rabies in dogs in southern counties. *Ohio Health News* reports. From Jan. 1, 1934 to March 15 of this year the laboratory of the state department of health examined 1922 specimens and found 416 positive, 105 from one county alone. Only 430 specimens were examined in 1933. During the last ten years, fifty-eight persons have died of rabies in Ohio.

**Society News**—Dr Wells H. Teachnor, Columbus, addressed the Summit County Medical Society Akron, March 5 on 'Diagnosis of Cancer of the Rectum and Colon'.—Dr Ralph H. Major, Kansas City Mo. addressed the Cleveland Academy of Medicine, March 15 on 'Some Aspects of Arterial Hypertension'.—Dr Cyrus E. Burford St. Louis addressed the Toledo Academy of Medicine February 1, on tuberculosis of the genito-urinary tract. Dr Burford also participated in a clinic presented by the urologic department of St. Vincent's Hospital in the morning. Physicians from neighboring cities were invited. Dr Bert W. Culver, Coldwater, Mich., demonstrated a new appliance for treatment of hip fractures.

**Personal**—Dr Henry T. Sutton, Zanesville was entertained at a dinner at the Good Samaritan Hospital, Zanesville April 1 in celebration of his fiftieth anniversary in the practice of medicine. Dr Ward D. Coffman was toastmaster at the dinner which was sponsored by the Sisters of St. Francis at the hospital. Speakers were Drs William A. Melick, Cyrus M. Rambo and Edmund R. Brush, Zanesville; Joseph Price and Isaac B. Harris, Columbus, and Arthur L. Pritchard, Nelsonville. About fifty guests attended. Dr Sutton was the first health officer of Zanesville and one of the founders of the hospital according to newspaper reports. For several years he was a member of the state board of health. He was one of the founders of the Good Samaritan Hospital.

## OKLAHOMA

**Bills Introduced**—H 90 proposes to accord to physicians, nurses and hospitals treating persons injured through the negligence of others liens on all rights of action claims judgments compromises or settlements accruing to the injured persons by reason of their injuries. S 285 proposes to require all applicants for licenses to practice any form of the healing art, as a condition precedent to their right to examination by their respective professional boards to pass examinations in

anatomy, physiology, chemistry, bacteriology and pathology to be given by a board of examiners in the basic sciences. This board is to consist of five members, members of the faculty of the state university, the state agricultural college, or some other state institution of learning in the state learned in the basic sciences and not engaged in the practice of the healing art.

## PENNSYLVANIA

**Bill Passed**—H 1023 has passed the house and the senate, proposing to prohibit the sale or distribution of medicines, drugs or poisons by means of any vending machine or other mechanical device.

**Graduate Conference at Wilkes-Barre**—The staff of Mercy Hospital, Wilkes-Barre sponsored a graduate conference at the hospital, March 28. Guest speakers were Drs. Pascal F. Lucchesi, Philadelphia, on 'Scarlet Fever', Elliott P. Joslin, Boston 'Treatment of Diabetes', John F. Erdmann, New York 'Tumors of the Breast' and John Cooke Hirst II, Philadelphia 'Active versus Conservative Management of Planned Deliveries'.

**Economics Symposium**—The Dauphin County Medical Society presented a symposium on medical economics at a meeting in Harrisburg, April 2, with the following speakers: Drs. Harold A. Miller, Pittsburgh director, Pennsylvania State Emergency Medical Relief, 'Economic Trends in Medicine as Seen from Experience with Emergency Medical Relief', Arthur C. Christie, Washington, D. C., 'Complete Medical Care for All the People Without Health Insurance', and Francis R. Borzell, Philadelphia, 'Organized Medicine and Social Insurance'.

## Philadelphia

**Society News**—Speakers at the meeting of the Philadelphia County Medical Society March 27 were the following from Presbyterian Hospital Columbia University, New York: Drs. Allen O. Whipple, 'Surgical Interference in Tumors of the Pancreas', Arthur H. Blakemore, 'Physiologic Aspects of Carotid Jugular Anastomosis' and George H. Humphreys, 'Cardiac Output Studies in Carotid Jugular Anastomoses'.—A symposium on 'The Problem of the Convalescent Patient' was presented before the Northern Medical Association of Philadelphia March 18, by Drs. William D. Stroud, Thomas A. Shallow and Michael A. Burns and Ann Laws Calley, R.N.—Drs. Walter Freeman, Washington, D. C. and Bernard J. Alpers among others, addressed the Philadelphia Neurological Society, March 22, on 'Ventriculography with Thorotrast' and 'The Mental Syndrome of Corpus Callosum Tumors' respectively.—Dr. Edward J. Klopp was recently elected president of the Philadelphia Medical Club.—Dr. Russell L. Haden, Cleveland gave the Annual Conversational Lecture of the Pathological Society of Philadelphia April 11, on 'The Red Blood Cell in Man'.

## RHODE ISLAND

**Society News**—Dr. Thomas H. Lanman, Boston, addressed the Providence Medical Association March 4, on 'Surgical Aspects of Pediatrics' and Dr. Henry E. Utter, on 'Twenty-Five Years in Pediatrics'. Speakers at the meeting April 1 were Drs. Francis H. Chafee on 'Medical Indications for Transfusions' and Jesse P. Eddy III, on 'Some Surgical Aspects of Blood Transfusions'.

**Blood Donors' Bureau**—The Providence Medical Association has established a bureau for professional donors of blood. All donors have negative Wassermann reactions and normal hemoglobin and are in good physical condition. Calls are handled through the Physicians and Surgeons Exchange. Dr. Francis H. Chafee is chairman of the committee that arranged the service.

## TENNESSEE

**Bills Introduced**—H 1092 and S 875 to amend the workmen's compensation act propose to compensate a workman for any injury or disease arising out of and in the course of the employment.

**Society News**—Dr. Charles C. Vinsant, Maryville addressed the Blount County Medical Society April 11, on 'Common Diseases of the Anorectal Region'.—A symposium on diseases of the spleen was presented at a meeting of the Dyer Lake and Crockett Counties Medical Society March 6 by Drs. Joseph A. Crisler, Peter Whitman Rowland Jr. and Russell A. Hennessey, Memphis.—Dr. Charles R. Henry, Chattanooga, addressed the Chattanooga and Hamilton County Medical Society, April 4 on 'Oxygen Therapy in Pneumonia'.—Dr. Gunnar Nystrom, professor of surgery, University of

Upsala, Sweden, addressed the Nashville Academy of Medicine, March 19, on "Public Medical Relief in Sweden."—Speakers at a meeting of the Black Patch Medical Society in Clarksville, March 20, included Drs Ernest W Goodpasture, on "Recent Advances in Study of Virus Diseases", Horton R Casparis, Nashville, "Nutrition of Infants and Children," and Beverly Douglas, "Skin Grafting"—Drs Kenneth F Mancy, Charlottesville, and J Edwin Wood Jr, University, Va., addressed the Johnson-Sullivan Counties Medical Society, Kingsport, March 6, on rheumatic fever

### WASHINGTON

**Society News**—The Spokane Surgical Society held its first annual meeting February 9, with Dr Waltman Walters, Rochester, Minn., as the guest speaker.—Drs Louis H Klempner and Adolf J Drtina, Seattle, addressed the Skagit County Medical Society, February 25, on "Infectious Mononucleosis" and "Cardiography in Practice," respectively.—Speakers before the Walla Walla Valley Medical Society, February 14, were Seattle physicians Drs James M Bowers, Manford R Waltz and Oscar S Proctor, on diagnosis and treatment of diseases of the chest

### WEST VIRGINIA

**Personal**—The Hancock County Medical Society gave a dinner in Steubenville, Ohio, recently complimenting Dr Fred B Harrington, Weirton, who retired as secretary of the society after twelve years in the office

**Society News**—Dr Isaac A Bigger, Richmond, Va., addressed the Harrison County Medical Society, February 7, on primary carcinoma of the lung. Dr Rome H Walker, Charleston, president of the West Virginia Medical Association, and Mr Joe W Savage, executive secretary, also spoke.—Drs James S Klumpp and Walter C Swann, Huntington, addressed the Logan County Medical Society, Logan, February 13, on "Relation Between Pelvic Conditions and General Health in Women" and "Prevention of Coronary Occlusion," respectively.—Dr Chevalier L Jackson, Philadelphia, addressed the Ohio County Medical Society, Wheeling, February 15 on "Indications for Bronchoscopy."—Dr Fred W Rankin, Lexington, Ky., discussed "Selection of Peptic Ulcer Cases for Surgery" at a meeting of the Cabell County Medical Society, Huntington, February 14

### GENERAL

**Society of Neuropsychiatrists**—The Southern Neuropsychiatric Association held its inaugural meeting in Memphis, Tenn., February 5-6. Dr Giles W Day, Galveston Texas, was elected president. Dr William D Partlow, Tuscaloosa, Ala. president elect, and Dr Newdigate M Owensby Atlanta, secretary. The territory of the new association includes the states covered by the Southern Medical Association and membership is limited to 100 fellows and twenty-five members. The next annual meeting will be held in New Orleans

**National Academy of Sciences**—Papers of medical interest to be presented at the annual meeting of the National Academy of Sciences at Washington, D C., April 22-24, include the following

- Dr Eugene F Du Bois and James D Hardy New York Heat Losses from the Human Body
- Dr William G MacCallum Baltimore Diabetes in Relation to the Anterior Hypophysis
- John H Northrop, Ph D and Moses Kunitz Ph D Rockefeller Institute for Medical Research, Princeton N J Isolation from the Pancreas of a Substance Which Inhibits Trypsin Digestion and Its Effect on the Activation of Trypsin
- Winthrop J V Osterhout Ph D and Samuel E Hill Ph D New York, Some Aspects of Anesthesia and Irritability
- Drs Thomas M Rivers, New York and T F McNair Scott London England Meningitis in Man Caused by a Filtrable Virus
- Dr George L Streeter Baltimore Significance of the Amnion
- Miloslav Demerec Ph D Cold Spring Harbor N Y Relative Importance of Various Genes to the Organism

**Federal Food, Drugs and Cosmetic Legislation**—On April 1 the Copeland food, drugs and cosmetic bill, S 5, was made the unfinished business of the Senate and during the ensuing week the bill was discussed on the floor of the Senate in an effort to secure its passage. After a full week's discussion and the adoption of numerous amendments, the senate, April 8, displaced the bill as the unfinished business by voting to take up another bill for consideration. This action returns S 5 to the Senate calendar. It was acquiesced in by Senator Copeland apparently to preclude a vote on a motion to recommend the bill to the Senate Committee on Commerce, made by Senator Bennett Champ Clark of St Louis County, Missouri, who, with Senator Josiah W Bailey of Raleigh North Carolina, has vigorously opposed the enactment of the bill in its present form. The bill has now lost its privileged status

Whether or not it will regain that status is problematic. In any event, the outlook for the enactment during the present session of Congress of legislation needed for the protection of consumers of food, drugs and cosmetics is not promising

**Change in Status of Licensure**—The Illinois State Department of Registration took the following action, March 7

- Dr Loring Brannard Palmer Atlanta Ga., license revoked for violation of Harrison Narcotic Act
- Dr Nathaniel H Schaffner Chicago license restored it had been revoked Oct 6 1932 for violation of the Harrison Narcotic Act.

The Massachusetts Department of Registration in Medicine reports the following

- Dr Joseph N Tessier New Bedford, license revoked February 28 for gross misconduct in the practice of his profession
- Dr Eh Silverman Boston license suspended for six months, March 14 because of deceit in connection with automobile accident insurance claims
- Dr Joel Ginsburg Boston license suspended for one month March 14 because of deceit in connection with automobile accident insurance claims

**American Chemical Society Program**—At the spring meeting of the American Chemical Society in New York, April 22-26, the program of the division of medicinal chemistry will include the following addresses

- Michael Y Sullivan Ph D Washington D C Guanidines as Etiologic Factors in Pathologic Conditions
- Dr Wolfgang F von Oettingen Cleveland The Development of Industrial Medicine with Special Reference to the Tasks and Problems of Industrial Toxicology
- Michael Heidelberger Ph D New York Bacterial Proteins
- Lyndon F Small Ph D Erich Mosettig Ph D Charlottesville, Va and Dr Nathan B Eddy Ann Arbor Mich Chemical and Pharmacologic Studies on Morphine Substitutes
- Dr William P Murphy and Isabel Howard Boston, Some Effects of the Intramuscular Injection of a Concentrated Solution of Liver Extract

This meeting of the chemical society celebrates the tercentenary of the establishment of chemical industry in the United States, dating from the year in which Gov John Winthrop of Connecticut made a trip to England to consult with experts on the establishment of colonial industries and his first steps to carry out his plans. In this connection George W Merck, president of Merck & Co, Rahway, N J, will give an address in the medical division on "Chemical Industry and the Medical Profession—A Mutually Advantageous Partnership." In addition, the division will join the division of biological chemistry in a symposium on vitamins

**Medical Bills in Congress**—Bills Introduced S 2472, introduced by Senator Long, Louisiana, proposes to pay an annuity to the widow of Dr Aristides Agramonte, of the Yellow Fever Commission. H R 7158, introduced by Representative Taber, New York proposes to erect an addition to the veterans' facility at Canandaigua. H R 7159, introduced by Representative Wadsworth, New York proposes to erect an addition to the veterans' facility at Batavia. H R 7162, introduced by Representative Dear Louisiana, proposes to erect an addition to the veterans' facility at Alexandria, La. H R 7174, introduced by Representative Plumley, Vermont, proposes to erect a veterans hospital in Vermont. H R 7236, introduced by Representative Underwood, Ohio proposes to erect an addition to the veterans' facility at Chillicothe, Ohio. H R 7287 introduced by Representative Jenkins, Ohio, proposes to reenact all public laws granting pensions to veterans and to dependents of veterans of the Spanish-American War, including the Philippine Insurrection and the Boxer Rebellion, and medical, hospital or domiciliary treatment to former members of the military or naval service, which were repealed by the act of March 20 1933. H R 7295, introduced by Representative Quinn, Pennsylvania, proposes to prohibit experiments on living dogs in the District of Columbia for any purpose other than the healing or curing of the dog. H R 7375, introduced by Representative Underwood, Ohio, proposes to establish a Department of Veterans' Affairs and generally to revise the laws relating to veterans. Among other things, the bill proposes to furnish domiciliary and hospital care, including medical treatment within the limits of department facilities, to any veteran of any war who is in need of hospitalization or domiciliary care and is unable to defray the expenses thereof, irrespective of whether the disability, disease or defect was due to service. The bill further provides that the term "veteran" shall include any individual who served overseas as a contract surgeon of the army. H R 7370, introduced by Representative Connery, Massachusetts, proposes to recognize the high public service rendered by soldiers who volunteered and served in trench fever experiments in the American Expeditionary Forces. H R 7440 introduced by Representative Case, Massachusetts, proposes to erect an addition to the veterans' facility at Bedford, Mass. H R 7455, introduced by Representative Evans, New York, proposes to authorize the appointment of registered pharmacists as first and second lieutenants in the Medical Corps of the Army and the Medical Officers' Reserve Corps



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 23, 1935

#### The Struggle of the Osteopaths for Registration

At the proceedings of the house of lords, before the select committee on the bill for the registration and regulation of osteopaths, an important witness for the applicants was Dr W K Macdonald, a qualified physician who practices osteopathy. He took his M D degree at Edinburgh and graduated as a doctor of osteopathy at Kirksville, Mo. where he became a professor. He did not consider that osteopathy could yet be dignified by the term science, 'like medicine it was still an art'. Asked to describe the osteopathic lesion he said that it was not a dislocation but rather the complete or partial fixation of a joint within its normal range of movement accompanied by certain changes in the chemistry structure and function of the surrounding tissues. These lesions were either primary, being brought about by strain injury or bad posture or secondary, generally the result of nerve reflexes caused by some disturbance, abuse or disease condition of some part or organ. Osteopathic lesions were evidenced by inspection palpation and testing for passive movements in joints. They were so slight that few radiologists were capable of recognizing them unless specially trained. Asked about osteopathic research, he said that osteopathy was young. He did not claim that osteopathy could cure all diseases but that 'there is no disease acute or chronic, in which osteopathic treatment has not some important and irreplaceable part to play'. He was cross-examined by Sir William Jowitt the lawyer who appeared for the British Medical Association. He was asked whether the vast majority of scientific opinion in this country not merely that of physicians, was against the bill. He agreed but said that scientific men had not taken the trouble to investigate the claims of osteopaths. Had osteopathy no supporters among the scientists of the continent? He gave a similar answer. Asked what subjects in the medical curriculum he would omit in the training of osteopaths, he mentioned materia medica pharmacology and therapeutics. He also thought that a shorter course in bacteriology should be given. Also the practice of osteopathy should be substituted for the practice of medicine. Asked whether he would use antidiphtheric serum he said he would but that he would also treat the patient osteopathically. He admitted that in diphtheria the body does not provide adequately the healing power (this is contrary to the fundamental dictum of Still), also that in diagnosis there was no difference between osteopaths and physicians, but in a large number of cases of sickness it was impossible to make a diagnosis. There was disharmony in the body which preceded the recognizable effects of diseases and it was for evidences of this that osteopaths looked. Was typhoid caused by B typhosus? Yes, but if the bacillus obtained entrance into a healthy bowel there was less chance of disease. Had he any evidence that persons who escape are osteopathically sound? He had not. What was the osteopathic treatment of pernicious anemia? To treat any osteopathic trouble by manipulation of the spinal column and work on the nerve centers, which had been proved by experiments in the laboratory to have an influence on blood cells. What about the work of Minot? He admitted that this was valuable and he advised liver treatment. But osteopathic treatment influenced the liver and helped. Challenged on the last claim, he could produce no evidence. He never treated cancer by manipulation. Why should not candidates qualify as physicians and then study osteopathy in a postgraduate course? He answered that it was unfair to ask them to spend

seven or eight years on their course. In all his cases of diphtheria he had found subdislocations of the spine.

#### CROSS-EXAMINATION BY LORD DAWSON

Dr Macdonald was then cross-examined by Lord Dawson, president of the Royal College of Physicians. Could he produce scientific evidence under the headings (1) x-ray methods, (2) a recorded series of cases, (3) necropsies as to the osteopathic treatment of epilepsy? He answered that the evidence was to be had, but when asked whether absolutely and systematically arranged he said "Not as I would lay it out if I were going to a medical meeting". After further questions, Lord Dawson said "Do you know what makes me despair of this inquiry? I cannot nail a single thing to the counter. I have done my level best to look at this with complete impartiality. Unless we can get well defined answers to certain questions this inquiry is futile. I have never been mixed up with an inquiry where it was so difficult to get an answer. You have said that in diphtheria you would use serum. Yes. In syphilis would you use mercury? Yes. Before asking the nation to change its whole policy, osteopaths must prove their case". Dr Macdonald then said "This is the first time that any responsible person in this country has ever been willing to investigate osteopathy. We have our proof ready. We are prepared to take our stand on several bulletins I have produced at this inquiry, with two or three articles out of the *Journal of the American Osteopathic Association*. The medical profession has never investigated osteopathy". To this the reply can be made that whatever the alleged evidence—and a case of some kind can be made out for almost any treatment—it is manifestly not sufficient to enable Dr Macdonald or the osteopath who preceded him to give satisfactory answers to the crucial questions put to them in cross examination.

The inquiry continues.

#### The Extermination of Imbeciles

At the Eugenics Society, Dr Frederick Grundy, health officer, gave the results of a mental survey of the school population in Northeast Suffolk. In a school population of 6,600 he found 165 defectives 135 feeble-minded, 23 imbeciles and 7 idiots. Half the children certified as feeble-minded in the educational sense would not be classed as feeble-minded when they reached adult years in rural areas. Feeble-mindedness was greatest in the areas more isolated geographically, where migration of the fittest caused increasing concentration of the poorer stocks. Parentage by the deficient should be prevented by compulsory or voluntary sterilization. They might be kept in colonies where they could be provided with what occupation they were capable of. As to imbeciles, there was only one thing to do with them—to exterminate them as they arose. He made this suggestion purely on humanitarian grounds. It was not fair to the low-grade defectives themselves to allow them to survive.

#### Murder by Injecting Plague Bacilli

A crime is reported from India of a kind so far unknown in Great Britain—murder by injecting disease germs. The case, which has been before the Indian courts since December 1932, has ended in two death sentences. Amarendra Chandra Pande an Indian aged 21, had a large interest in an ancestral estate. A first attempt to kill him was made by his step-brother, Benoyendra Chandra Pande who presented him with a pair of new spectacles on the bridge of which was smeared a culture of plague bacilli. Amarendra returned them, as they did not fit. But Benoyendra said this was nonsense, placed them on his brother's nose and forced the bridge down so firmly that Amarendra said "It felt as if a vein in my head had burst". A few days later he became ill with lockjaw and, though the illness was serious, he recovered. It seemed then, said the prosecution that the conspirators considered that the



virus was not powerful or fresh enough. There was only one place in India at which an active culture of plague bacilli could be obtained—the Haffkine Institute, Bombay. Benoyendra went there but found that only a physician could obtain a culture. Dr. Taranath Bhattacharya, a research worker in Calcutta and a brother-in-law of Benoyendra, then came on the scene. He stated that he was experimenting with a cure for bubonic plague and obtained a culture. The scene then shifted to the crowded railway station of Howrah, Calcutta, on a day selected when Amarendra was going away. At the trial a witness stated that Amarendra told him in the railway carriage that when he was in front of the ticket office a dark complexioned man clad in white, brushed past him and he felt a prick. He traveled as far as Pakaur a distance of 150 miles but returned on the next day as he felt ill. Some eminent physicians saw him in consultation and he died after a few days illness and was cremated. The report does not state what diagnosis, if any, was made. Benoyendra was found guilty of plotting his death to obtain his estate and Dr. Bhattacharya of conspiring to commit murder. Both were sentenced to death. It is to be noted that it was not actually proved that Amarendra died from plague though all the circumstances point to this as well as to the conspiracy to murder him.

### PARIS

(From Our Regular Correspondent)

March 15, 1935

#### The Objectives of Eugenics

Professor Paucot, at the dedication exercises of the new Institute of Social Medicine at Lille stated that the science of eugenics should form a part of the curriculum of such an institution. The program of this institute includes not only research that is entirely of historical or scientific character but also a study of how one can improve the human race, such as the problems relating to heredity, alcoholism, syphilis, movement of population and the management of delinquency. It is essential that the physicians of France should interest themselves in the theoretical discussions concerning eugenics because some day they may be called on to give their opinion on the methods of application of certain of its principles. The cooperation of medical men is indispensable to the enforcement of laws that will be passed when some of the modern principles of eugenics are to be enforced, as has already been the case in other countries. The means employed thus far to improve the human race can be placed under three heads or groups:

The first method which can be termed negative eugenics aims to sterilize those who have hereditary or physical defects, as has been carried out in the United States and more recently in Germany. This is what Couveaire terms destructive eugenics. A less severe barrier is to place a veto on the marriage of certain individuals as the result of an obligatory prenuptial examination. Under the same heading belongs the birth control movement which furnishes contraceptive remedies to those who live in physical or moral misery. This method, however, as experience teaches is more likely to decrease the birth rate as a whole than to prevent the birth of the undesirable. At the third International Eugenics Congress Sir Bernard Mallet stated that birth control had a 'dysgenic repercussion' by decreasing the fecundity of those in the better social stratum while it leaves practically unchanged the fecundity of individuals not qualified to reproduce. The practical application of sterilization and interdiction of marriage have encountered almost unsurmountable obstacles. As Dr. Papilaut has said even if one can accept theoretically the idea itself of hereditary transmission to offspring of the taints of those unfit for modern society, one is convinced that the laws of inheritance of each normal or pathologic characteristic

especially in the intellectual sphere differ sensibly from the laws of anatomic heredity. The laws of heredity in the intellectual sphere lack precision and are as yet known so little that one cannot put theories into practice. Such is the opinion of the majority of those best informed on the subject of eugenics in France. It differs from that held in the United States, the Scandinavian countries, and more recently in Germany. Abortion is today regarded as a legal eugenic measure in Russia.

The second group is termed "positive eugenics." Those who favor this method believe that it is easier to apply legal methods than to suppress or reduce the fecundity of the unfit that is, to put into practice "negative eugenics" as opposed to 'positive eugenics,' which favors the birth of individuals who are well endowed physically and mentally. The idea of positive eugenics is a rational one and would be of unquestionable social utility if it could be applied. It is a direct attack on human liberty and its results are no less certain than those of "negative eugenics." The idea of "positive eugenics" is to create a superior human race just as one tries to breed a similar race of superior animals.

A third formula is that of "corrective eugenics," the possibilities of which are more acceptable. This is being applied in France in the form of "prenatal puericulture" which aims in a modest manner, without the use of force but simply by self discipline to secure all that is best from the human assets at its disposal. Prenatal consultations, centers of puericulture, homes for mothers, antisyphilitic dispensaries and annexes to maternity hospitals have all greatly lessened the percentage of abortions and deaths of mothers and infants. It is necessary to extend this campaign of vulgarization of the laws of hygiene to the prospective fathers as well as to the mothers. Professor Pinard has proposed a law making a health certificate necessary before marriage licenses can be issued. French eugenicists do not believe, however, that such a law will prevent any more unfit human beings to be born. Professor Paucot is an ardent supporter of the idea of vulgarization of the laws of hygiene and believes that it will result in attracting the attention of those who have hereditary taints, especially syphilis, to the danger of having unfit offspring. Such a method of 'corrective eugenics' does not interfere with personal liberty but aims by education to improve the individual conditions of procreation. This will be the task to which the medicosocial department of natality of the new Institute of Social Medicine at Lille will devote itself.

#### New Journal on Immunology

The first issue of the *Revue d'immunologie* appeared in January. The editors, all well known in the field of immunology are Profs. Robert Debre, G. Ramon and Pasteur Vallery Radot, the grandson of Louis Pasteur. In the introduction, Prof. Jules Bordet stated that such a journal fills a long felt want for the publication not only of reviews of articles in this special field, which appear in foreign journals, but to enable the large number of papers emanating from French sources and which are widely scattered in various journals to be subjected to a critical evaluation before being published in a single special journal. In the first issue are papers by Charles Nicolle, an internationally known bacteriologist, on immunity and immunization against typhus exanthematicus, one by Ramon on antidiphtheria and antitetanic vaccination by means of specific anatoxins, one by Pasteur Vallery Radot on the parallelism between provoked and spontaneous anaphylaxis, an article on the method of action of the immunity created by diphtheria anatoxin, by Ramon Debre and See, and one by Jean Hamburger on the problem of allergic migraines. The first issue reflects the great advance in research in the field of immunology made by French immunologists.

## BERLIN

(From Our Regular Correspondent)

July 11, 1935

## The Results of the Publicity Campaign on Cancer

Concerning the value or the danger of a publicity campaign on cancer the views of experts differ widely. It is therefore perhaps of interest to report on some recent utterances that have been published in various parts of the German Reich. At the session of the Vereinigung nordwestdeutscher Chirurgen, Klingen, of the surgical clinic of the University of Greifswald (Pomerania), spoke on the subject. In this clinic, observations on more than 2,300 cancer patients have been made over a period of twenty-three years, with fairly detailed information on each individual case. Attempts to enlighten the people on cancer problems by means of distributed leaflets and lectures have not proved successful in this province. Better results were secured through careful instruction of the care-taking personnel and the workers in the large leagues, including the official welfare workers. The greatest success has been achieved by a thorough training of the students and by the organization of continuation courses for physicians. To these measures is due the fact that in recent years cancer patients have been coming earlier for operation. The value of roentgen examinations for the diagnosis is great but must not be overestimated. Biopic excisions should be made only in very obscure cases and only by the surgeon. No harm is done by such excisions, in the opinion of Professor Anschutz, of Kiel.

The experiences in other regions appear to be different. In Berlin, Hintze, roentgenologist in the surgical clinic in charge of Bier, announced recently that the knowledge of cancer in the medical profession and also among the people had improved to such an extent that four fifths of the cases of cancer of the breast had been found operable by this clinic.

The reports from Baden, on the other hand are less favorable. In the surgical clinic of the University of Freiburg, Dr. Karitzky studied the results of cancer publicity in Baden. He examined the records of about 1,800 patients who had been operated on for malignant growths during the period 1920-1933. He reached the conclusion that the campaign for the enlightenment of the people on cancer problems (with the exception of skin cancers) had had little influence on the usual delay of patients before consulting a physician or on the operability of the tumors. The benefits that patients derive from such a campaign are exceedingly small, while in some instances, owing to the unnecessary fear aroused, great damage is done. In view of these observations, the Freiburg clinic refuses to participate in any publicity campaign especially (which constitutes a weighty argument) so long as no reasonably sure cure is available.

Finally, Hamburg has published its observations on an interesting series of cases. In Hamburg the notification of tumor patients is not compulsory. Compulsory notification is regarded as impracticable, so long as a rapid and sure diagnosis of the early cases—the beginning stage—is impossible. Publicity campaigns, or attempts to enlighten the people on cancer by means of distributed leaflets, placards, and the like are not in favor in Hamburg. It is held that the daily papers contain enough such information. There is, however, a sort of welfare center for cancer patients. There are three welfare aid workers who support the activities of the physicians by general control measures by constant contact with the cancer patients, and by keeping a central file of the record cards of all patients. Patients belonging to the insured class (that is, members of the health insurance associations) receive adequate care so that for them no special institutes for early diagnosis are needed. They are needed, however, for the noninsured that is, for certain persons of small means, and also for the well to do

class. These institutes, together with their equipment, should be available for all physicians. Some interesting facts are deducible from the Hamburg statistics. Compared with the total number of deaths, 26 per cent of the male and 25.5 of the female cancer patients had had no contacts with the welfare aid service. In the opinion of the head municipal physician, a remedying of this defect ought to be possible if a closer cooperation of all physicians could be secured. On the other hand, the number of patients cared for in 1934 increased by 1,000 which was doubtless due to the greater energy developed and not necessarily to any increase in the number of cancer cases. Among these patients there were three times as many women as men. For example, in one week of December 1934 the total number of patients being cared for by the welfare aid service was 5,257 (1,384 men and 3,873 women). Likewise the combating of quackery in Hamburg has achieved considerable success. The authorities have put an end to the fraud perpetrated in the form of alleged radium jars. Publicity lectures by laymen are no longer permitted. One unethical radiologic institute has been closed. The advertising pages of all Hamburg daily papers are, and have been for many years, strictly censored.

## The Crusade Against the Improper Sale of Medicines

For many years a campaign has been carried on against the improper advertising and sale of medicines, but with the advent of the new regime the crusade has been pursued with doubled energy. A previous letter told of the introduction of new police measures dealing with the subject in Prussia (THE JOURNAL, Aug. 12, 1933, p. 536). Two recent occurrences will illustrate the vigor with which the laws are being enforced. In Munich, the three partners of a firm were arrested by reason of conduct bringing damage to the people and some of them were taken to a concentration camp. They had pushed the sale of alleged remedies that, in point of fact, had no practical value, and in their advertisements they had made improper use of statements made by certain federal ministers. It was found that a 'bath improver' sold by them consisted almost exclusively of turpentine and soft soap. The firm charged 22 marks for a package of the article, whereas the cost of production was about 2.20 marks.

Interest attaches also to a decision of a superior court. A daily paper had warned its readers, composed to a great extent of farmers inexperienced in such matters against the purchase of expensive remedies that are at least of doubtful efficacy if not absolutely worthless. The articles aimed at more particularly were radium pillows and ultra-active radium salts. The firm exploiting the articles brought suit against the newspaper containing the warning. The court rendered a decision adverse to the plaintiff, which was based not only on the opinions of the experts summoned by the court but also on the listed duties that the new laws impose on editors, for recent legislation requires editors to place movements in the foreground that are designed to promote public welfare. Collaboration in the production of the intellectual contents of the newspapers is regarded as a public task. Hence the newspaper acted in a manner to preserve justified interests, even though the warning may have proved harmful to the firm concerned.

## Medical Practice Pertaining to Accidents

Medicine pertaining to accidents is gaining in importance and is developing more and more into a complicated field of activity. Evidence of this fact was furnished by the session of the Deutsche Gesellschaft für Unfallheilkunde, which was held recently in Würzburg and was well attended. The steady increase of accidents has brought medicine pertaining to accidents also from the medicolegal point of view, into the fore-

ground. As the chairman, Prof F König, surgeon, of Würzburg, pointed out, the question of compulsory acceptance of a needed operation appears to be sufficiently clarified to justify the expectation that within a reasonable time new legislation on the subject will be forthcoming. In hospitals and in university clinics the creation of special departments for the handling of accidents and the extension of existing special equipment furnish evidence of a desire to take account of the increasing need of better facilities for the care of persons injured in accidents. By the organization of special courses the faculties of medicine have met the demands for special training in the handling of accidents, as expressed by the oncoming generation of physicians. Professor König brought out further that, if surgeons attached to the university clinics should develop a special interest in medicine pertaining to accidents and should desire to give up general surgery and to enter the special field of "accident surgery," it must be expected that these physicians, who voluntarily renounce every other surgical activity in the interest of health insurance policyholders (Krankenkassen and the like), will find the way prepared for the creation of an independent hospital for accidents.

#### CEREBRAL AND CRANIAL INJURIES

The first main topic dealt with was "Cerebral and Cranial Injuries." Speaking from the neurologic point of view, Heyde of Würzburg brought out that extensive cerebral injuries may cause relatively slight disturbances, whereas cerebral injuries of slight extent may cause serious disturbances. Not infrequently, in cases that during the lifetime of the patient, could not be correctly judged, the actual connections are clarified at necropsy by the pathologic examination of the brain, hence in all cases of cerebral injury an anatomic examination of the brain should be demanded as a routine principle. In open cranial injuries, owing to an increase of the internal cerebral pressure, a primary cerebral prolapse may occur, with a menace of meningitis and cerebral infection. Further on there is danger of a late secondary infection, late abscess and traumatic epilepsy. Provided an operation within from six to twelve hours is possible, Wanke of Kiel pointed out that, in open cranial injuries, only closed treatment is indicated together with scrupulous removal of contaminated tissues and primary closure of the wound. The results are much better than with the half-open, or with the open wound treatment, with the many possibilities of complications. Of the patients given closed treatment only 6 per cent developed a traumatic epilepsy, as compared with 12 per cent receiving open treatment.

Tonnies of Würzburg emphasized that intracranial hemorrhages may require a surgical intervention long after the accident. He warned against the customary plugging treatment in late epilepsy. Importance attaches to the loosening of the scar, which should be cut out then the edges of the dura are sutured to the periosteum, without the introduction of any plastic equivalent to remedy the defect.

The question was discussed as to whether on the basis of previous experiences it was correct to insist on the patient remaining six weeks in bed in the event of concussion of the brain. Sommer of Dortmund had found that in many cases bed rest for from eight to ten days will suffice, but he emphasized that one should insist on the patient remaining at least three weeks in the hospital.

#### THE IRRITABLE KNEE

The second main topic on the program was The Irritable Knee. The speakers were Burkle de la Camp of Bochum, Andreesen of Bochum, and Gebhardt of Hohenlychen. It should be borne in mind that capsular changes, injuries of the ligamentary apparatus or the menisci, pathologic changes in the articular cartilage and retention of wedged-in tissues—

alone or in combination—may cause disturbances in the function of the knee joint, which must be taken into account in examining an irritable knee joint. The roentgenogram does not always aid in clarifying the diagnosis. Especial attention should be given to the knee joints that are subjected to constant occupational injuries, for example, in miners. Anatomic-pathologic examination of such joints in miners will clarify in part the chronic irritation symptoms with their sequels. One may find evidence of transitions between erosion manifestations in the knee joint and constant occupational injuries.

#### BELGIUM

(From Our Regular Correspondent)

Feb 19, 1935

#### The Advertising of Pharmaceuticals

At the third congress of the Federation de la presse medicale latine, Professor Gunsburg of Antwerp and Dr Watru of Brussels discussed the relations of the medical press and the advertisers of pharmaceuticals. They took up (1) the possible advantages and disadvantages of advertising in medical journals, (2) advantages of advertising for the various interests, (3) dangers of medical advertising, and (4) amicable relations between the medical press and the advertisers, and professional ethics as affecting physicians and advertisers. The speakers concluded that the chief role of advertising in the medical journals is to make known in a scientific manner the new things in therapeutics and instrumentation, and to create a feeling of confidence between the manufacturer of pharmaceuticals and the medical profession. The absolute independence of the editorial department must be preserved, and the greatest frankness must constitute the basis of advertising agreements and contracts. Rules affecting the ethical relations of the medical press and advertisers are to be drawn up by the Federation de la presse medicale latine, which will serve as a basis for the settlement of any controversies that may arise.

#### Blood Transfusion Service

The central Red Cross blood transfusion service has begun to function. The purpose of the new service is to place donors previously examined and controlled in a systematic manner at the disposal of hospitals, clinics and the medical profession in general. In response to a day or night call this central service will send donors to any place indicated. The donors all carry an identification card which shows also the blood group (the Moss classification) to which they belong. The identification cards are inspected every three months by the physician in charge of the "technical committee." The physician who performs the transfusion must indicate on the identification card the date and the place of the transfusion and the quantity of blood withdrawn. If need be, the service will supply physicians with the instruments required for transfusion. On request of families or of the attending physician, it will give the names of physicians especially qualified to perform a transfusion and in a position to respond promptly to a summons. The organization of such a service has necessitated the creation of a strict examination and control. Thus, donors agree to present themselves every three months at the headquarters of the central service to have the identification card visaed. They agree to report also any disease that they may contract, or any circumstance that would prevent them either for the time being or indefinitely from responding to a call.

#### The Centenary of the Royal Society of Medicine

The centenary of the Royal Society of Medicine of Ghent was celebrated with éclat. More than 300 physicians from France and from all parts of Belgium responded to the summons of the committee, desiring to show their interest in the movement by their presence. On this occasion Mr Bersaques

secretary of the society, gave a historical account of the work of the society, the motto of which is "science and philanthropy" which has been exemplified by the great service rendered in the development of medical science, by the amicable collaboration with the university, and by the comfort it has given the poorer classes by creating free consultation centers for the indigent

### The Centenary of the University of Brussels

The ceremonies in celebration of the hundredth anniversary of the founding of the University of Brussels were honored by the attendance of the king. The minister Paul Hymans, chairman of the council on administration, gave a historical account of the work of the University of Belgium from the time when Theodore Verhaegen demanded its creation down to the wonderful developments that all can witness today. During the course of his address the eminent minister took frequent occasion to pay homage to the physicians Rommelaere Heger, Brachet Depage and many other professors of the Faculty of Medicine in addition to the services that they rendered in training by their instruction scientists and practitioners, or in advancing the cause of science by their researches, consecrated themselves devotedly to improving the university as a whole. A series of lectures was delivered by the professors of the university, special mention being made of the address of Professor Dustin on "Medicine and the Liberal Type of Examination." The speaker considered in turn the past twenty-five years of the Faculty of Medicine of the University of Brussels, the progress realized in medicine during the past century, and the history of medicine from Hippocrates down to the present.

After recalling the marvelous institutes erected twenty-five years ago, through the initiative of Paul Heger and the generosity of the Solvays, the Warocques and the Jamars—institutes that the unceasing progress of science and the needs of modern research, demanding the proximity of an active clinic and laboratory, have caused to become in a measure obsolete after so brief a time, the speaker observed with just pride and satisfaction, that the modern institutes and the Hospital St. Pierre (about ready to open) were erected, with the aid of the Rockefeller Foundation, at Brussels for good reasons. It was owing to the reputation of its investigators and the spirit that animates them, as expressed in the persons of Depage, Bordet and Brachet, among others, that the University of Brussels secured this marvelous gift. Under the influence of Linnec, Pasteur, Lister, Virchow, Roentgen and of Bordet, Gengou and Ehrlich, medical science during the past century, has undergone a rapid and marvelous development. Other epochs, to be sure, have had similar medical apogees: Hippocrates, Aristotle, Galen, Vesalius, Morgagni and Bichat—to cite only a few names—played an important part in holding aloft the torch of science, but during those distant epochs the light of knowledge pierced with difficulty the density of ignorance. Recent acquisitions are introduced more easily and inure more rapidly to the benefit of the masses than did the first forward steps owing to the unwillingness of an ignorant and superstitious people to accept them. While it is true that, at the present time men of science understand one another very well and the objects of their researches, irrespective of the milieu, the speaker held that the shackles from which, during the course of centuries, scientific research and particularly medicine have freed them might bind them again some time in the future. The art and science of medicine are evolving constantly, they will not be tomorrow what they are today. They may and they should become rationalized, they should not be made servile or be functionalized.

Science is a vivacious plant and demands a liberal space for its normal development. It cannot be domesticated. Those who wish to cultivate it can do so only under full and complete liberty.

### Child Mortality

At the Ecole de puériculture, and in the presence of her majesty the queen, Dr. Lust delivered recently an interesting introductory lecture. The following excerpts will demonstrate the results secured by the various societies established in Belgium for the protection of children. In 1919 was founded the Oeuvre nationale de l'enfance, an official organization generously subsidized by the public authorities. Its purpose is to coordinate, promote and stimulate private initiative. It inspects and controls the activities of the societies, subsidizes them if need arises and carries on a wide publicity campaign with a view to making better known the essential ideas of child hygiene and the advantages of breast feeding by the mother. It supervises through the physicians and the nurses of the consultation centers for nursing mothers, children who are being guarded or who are being nursed outside the home. Its social service considers requests for aid in favor of children. In 1933 the Oeuvre nationale de l'enfance controlled 1,174 consultation centers for nursing mothers in 669 communes, 225 prenatal consultation centers, six homes for mothers or expectant mothers, sixty-four day nurseries and nursing centers, and thirty-three vacation colonies for weakly children. All these societies owe their creation to private initiative but are inspected and supervised by the Oeuvre nationale. The Oeuvre nationale de l'enfance directs personally seven colonies for weakly and convalescent children, two institutions for the reeducation of abnormal children and a small model nursing center. This enumeration evidences the activity of this organization and the great progress that is being made in Belgium in the crusade against child mortality. Not only has child mortality been diminished, but the daily clinical experience goes to show that the nurslings of 1934 are better cared for and are more robust than their parents were at the same age.

Many countries have reduced child mortality to a greater extent than Belgium. Some twenty countries lose proportionately fewer nurslings than this country. Whereas in New Zealand only thirty-two infants per thousand die under 1 year of age, there are fifty-seven in Sweden and ninety-two in Belgium. There is another means that might be employed to save many infants from an untimely death. Among the factors that influence morbidity and mortality among young children the author mentions unhealthful and crowded dwellings, inadequate aid to weakly and sickly infants, the separation of mother and child, and the inadequate number of competent aids in the societies for the protection of children.

### Marriages

DANIEL R. WILSON, Kansas City, Kan., to Miss Ethel Lorene Matts of Topeka at Kansas City, Mo., January 16.

JOSEPH LAYMAN GUFFY to Miss Emily Denson Payne, both of Birmingham, Ala., February 16.

ALBERT JOHN BRANDT, Youngstown, Ohio, to Miss Elizabeth Bell of New Castle, Pa., March 2.

CHARLES N. MANLEY, Cincinnati, to Miss Kathleen Kirk of Memphis, Tenn., February 9.

EDWARD M. LIPSETT, San Francisco, to Miss Sonya Saylin at Reno, Nev., February 17.

BENJAMIN E. URDAN to Miss Marian Daneman, both of Milwaukee, February 7.

PAUL R. ROLLINS, Seattle, to Miss Martha Harlan of Farmington, Mo., January 1.

CHARLES A. BAYER to Miss Mildred Mason, both of Toledo, Ohio, February 19.

RAYMOND L. HILSINGER to Miss Angelese Hays, both of Cincinnati, recently.

JOHN P. McVAY to Miss Josephine Mears, both of Seattle, April 4.

## Deaths

**William Fowke Ravenel Phillips** ♂ Washington, D. C., Columbian University Medical Department, Washington, 1890, professor of anatomy, Georgetown University School of Medicine, professor of hygiene, George Washington University, 1891-1892 and 1895-1909, dean of the department of medicine, 1904-1909, and professor of practical anatomy, 1905-1909, professor of anatomy, University of Alabama School of Medicine, Mobile, 1911-1915, and the Medical College of South Carolina, Charleston, 1915-1933, medical climatologist for the U. S. Weather Bureau, 1895-1904, and librarian, 1898-1904, member, in 1902 vice president and in 1905 president of the American Clinical and Climatological Association, member of the South Carolina Medical Association, secretary of the Anatomical Board of the District of Columbia, 1902-1911 fellow of the Federation of State Medical Boards of the United States, aged 71, died, February 16, in the Georgetown University Hospital, of pneumonia.

**Douglas Fox Wood**, Minneapolis, McGill University Faculty of Medicine, Montreal, Que., Canada, 1900, member of the Minnesota State Medical Association, and the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, formerly on the staffs of the Northwestern, Abbott, and Swedish hospitals, aged 60, died, February 9, in St. Petersburg, Fla., of coronary occlusion.

**Lester Floyd Cleland**, Lisbon, N. Y., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912, member of the Medical Society of the State of New York, served during the World War, bank president, health officer of Lisbon since 1916 for sixteen years president of the board of education, for six years district coroner, aged 55, died, February 19, of pulmonary embolism.

**James Vance McGougan**, Fayetteville, N. C., University of Maryland School of Medicine, Baltimore 1893, past president of the Medical Society of the State of North Carolina formerly member of the state legislature, county coroner at one time trustee of the University of North Carolina School of Medicine Chapel Hill, aged 64, died, March 13, in Lumber Bridge, of cerebral hemorrhage.

**Jonathan B. Vail**, Lima, Ohio, Medical College of Ohio, Cincinnati, 1871, member of the Ohio State Medical Association, Civil War veteran, at one time mayor of Kalida, formerly city health officer and member of the school board, trustee of Miami University, Oxford, since 1911, aged 90, on the staff of the Memorial Hospital, where he died February 14, of senility.

**George Louis Vogel** ♂ Boston, Harvard University Medical School, Boston 1900, served during the World War, member of the New England Otolological and Laryngological Society for many years on the staff of the Boston City Hospital, aged 61, died, March 12, in the Trumbull Hospital, Brookline, of streptococcal septicemia the result of osteomyelitis.

**Charles Clyde McLean** ♂ Dayton, Ohio, Medical College of Ohio, Cincinnati, 1895, member of the Associated Anesthetists of the United States and Canada past president and secretary of the Montgomery County Medical Society, aged 62, on the staff of St. Elizabeth's Hospital, where he died, March 12, of cerebral hemorrhage.

**Edward William Whitney** ♂ Northampton, Mass., Harvard University Medical School Boston, 1903, member of the American Psychiatric Association and the New England Society of Psychiatry, medical superintendent of the Northampton State Hospital, aged 55, died, February 16, of cerebral embolism and chronic endocarditis.

**William Thatcher Baker**, Dallas, Texas, Atlanta (Ga.) Medical College, 1895, past president of the Dallas County Medical Society and the Ellis County Medical Society on the staff of the Parkland Hospital served on the examining board during the World War, aged 71, died, February 19, of Hodgkin's disease.

**Benjamin Chester Everall**, San Antonio, Texas, Drake University College of Medicine Des Moines, Iowa, 1907, fellow of the American College of Surgeons formerly on the staffs of the Allen Memorial, Presbyterian and St. Francis hospitals, Waterloo, Iowa, aged 53, died recently, of amebic dysentery.

**Ralph Clinton Larrabee** ♂ Boston, Harvard University Medical School, Boston, 1897, member of the New England Pediatric Society formerly associate professor of clinical medicine Tufts College Medical School on the staff of the Boston City Hospital, aged 64, died suddenly March 9.

**John Marshall Barnwell**, Florence, S. C., Medical College of the State of South Carolina, Charleston, 1913, served during the World War, on the staff of the Saunders Memorial Hospital, aged 43, died, February 24, in St. Joseph's Sanatorium, Asheville, N. C., of pulmonary tuberculosis.

**Noble William Miller**, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906, served during the World War, aged 52, died, March 23, in the Veterans' Administration Facility, Hines, of hemorrhage, the result of a peptic ulcer.

**Edward Lawrence Peirson**, Salem, Mass., Harvard University Medical School, Boston, 1888, member of the Massachusetts Medical Society, for many years on the staff of the Salem Hospital, aged 72, died, January 18, of hypertension, heart disease and chronic arthritis.

**Isabel Taylor Macmillan**, New York, Woman's Medical College, Chicago 1889, member of the Medical Society of the State of New York, on the courtesy staff of the New York Infirmary for Women and Children, aged 72, died, March 26, of arteriosclerosis.

**Augustine Joseph Molloy**, Bayonne, N. J., Columbia University College of Physicians and Surgeons, New York, 1896, Dartmouth Medical School, Hanover, N. H., 1896, on the staff of the Bayonne Hospital, aged 62, died, February 23, of endocarditis.

**James Saundry Trehwella** ♂ Montebello, Calif., Northwestern University Medical School, Chicago, 1905, member of the Associated Anesthetists of the United States and Canada served during the World War, aged 64, died, February 11, of heart disease.

**Thomas Byrne Walsh**, Syracuse, N. Y., Syracuse University College of Medicine, 1919, member of the Medical Society of the State of New York, aged 44, died, February 9, in the Syracuse Memorial Hospital, of coronary thrombosis and pericarditis.

**John R. McCurdy** ♂ Pittsburgh, University of Pennsylvania Department of Medicine, Philadelphia 1900, member of the Associated Anesthetists of the United States and Canada, aged 60, died, March 9, of cerebral hemorrhage and arteriosclerosis.

**John Archibald**, Cohoes, N. Y., Albany Medical College, 1888, member of the Medical Society of the State of New York, formerly mayor and health officer of Cohoes, on the staff of the Cohoes Hospital, aged 74, died, March 4, of cerebral hemorrhage.

**William S. Powell** ♂ Defiance, Ohio, Jefferson Medical College of Philadelphia, 1874, past president of Defiance County Medical Society, formerly on the staff of the Defiance County Hospital, aged 84, died, March 3, of fracture of the hip.

**George Washington Banks**, Shepherdstown, W. Va., University of Maryland School of Medicine, Baltimore 1897, on the staff of the King's Daughters' Hospital, Martinsburg, aged 79, died, February 26, of cirrhosis of the liver.

**Charlotte Belle MacArthur**, Willard, N. Y., Northwestern University Woman's Medical School, Chicago, 1897, for many years on the staff of the Willard State Hospital, aged 66, died, February 19, of carcinoma of the lung.

**James Estelle Dunlap**, Schlater, Miss., Memphis (Tenn.) Hospital Medical College, 1912, member of the Mississippi State Medical Association, served during the World War, aged 47, died, March 12, of heart disease.

**John Lewis Peppers** ♂ Webster City, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1902, past president of the Twin Lakes District Medical Society, aged 64, died, January 20, of heart disease.

**Myron C. Hawley**, Randolph, N. Y., University of Buffalo School of Medicine, 1881, member of the Medical Society of the State of New York, aged 78, died, February 24, of diabetes mellitus and cerebral hemorrhage.

**Martin Joseph Cooney**, New York, Georgetown University School of Medicine, Washington, D. C., 1906, served during the World War, aged 55, died, March 6, in the Bellevue Hospital, of skull fracture.

**Benjamin Edwin Moody**, Hutchinson, Kan., Missouri Medical College, St. Louis, 1884, formerly on the staff of the Kansas State Hospital, Larned, aged 75, died suddenly February 16, of heart disease.

**Ernest Spencer**, Bel Alton, Md., University of Maryland School of Medicine, Baltimore, 1892, member of the Medical and Surgical Faculty of Maryland, aged 65, died, March 12, of chronic myocarditis.

Frank Evans Christopher, Bolinger, Ala. Louisville (Ky.) Medical College, 1894, member of the Medical Association of the State of Alabama, aged 68, died recently, as the result of an automobile accident

Charles A Borey \* New Orleans Tulane University of Louisiana Medical Department, New Orleans 1895 aged 62 died February 27, in the Hotel Dieu Hospital of adenocarcinoma of the thyroid

Frank J Brown, Los Angeles George Washington University School of Medicine Washington D C, 1908 aged 59, died, March 6, in Orlando, Fla., of arteriosclerosis and coronary sclerosis

John Benjamin Thielen, New York, University of Michigan Department of Medicine and Surgery Ann Arbor 1897 aged 64, died February 4 of cerebral hemorrhage and pulmonary edema

Robert E McDade, Chicago Jenner Medical College Chicago 1917 member of the Illinois State Medical Society, aged 45 died March 22, of hemorrhage following a cholecystectomy

Lynn H Case, Santa Monica, Calif. Hahnemann Hospital College of San Francisco 1900, aged 57 on the staff of the Wilshire Hospital where he died, February 28 of acute nephritis

Charles Fletcher Souder, Red Bank, N J. Hahnemann Medical College and Hospital of Philadelphia, 1892 aged 67 died February 1 of chronic myocarditis and a ray burns of the legs

John E Standifer, Elk City, Okla. (licensed in Oklahoma under the Act of 1908), member of the Oklahoma State Medical Association, aged 68 died recently of hydronephrosis and pyelitis

Edwin A Simonds, Carthage N Y, Hahnemann Medical College and Hospital, Chicago 1884, for many years health officer of Carthage, aged 75, died, March 2, of angina pectoris

Martin E Rudolph, Aurora Ill. Rush Medical College Chicago 1928, member of the Illinois State Medical Society, aged 32 died, March 29 of suffocation the result of a fire

Robert George Anderson, Elyria, Ohio Trinity Medical College, Toronto Ont., Canada, 1895, on the staff of the Elyria Memorial Hospital, aged 68, died, March 3, of heart disease

William Alvin Denson, Chilton, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907), aged 69, died, January 3, of angina pectoris

Benno Johann Anton Nachtigall \* Cleveland Medizinische Fakultät der Universität Leipzig Saxony, Germany, 1893 aged 73, died, February 20, of coronary thrombosis

Edith Leavitt Clarke, Winter Park, Fla., Boston University School of Medicine 1885, aged 75, died, March 9, in the Florida Sanitarium, Orlando, of pneumonia

Porter Douglas Blackburn \* St. Louis Washington University School of Medicine, St. Louis 1910, aged 52 died March 12, of hypertension and nephritis

Dennis Francis O'Connor, Elkton, S D., University of Minnesota Medical School, Minneapolis, 1890 aged 70 died, February 12, of dilatation of the heart.

Henry W Himmelberger, Reiffton, Pa. University of Pennsylvania Department of Medicine, Philadelphia, 1869, aged 89 died, February 27, of senility

Hugh Park, Niagara Falls, Ont., Canada University of Toronto Faculty of Medicine, 1875 aged 82, died February 27, of acute suppurative meningitis

William Pearson, Fall River, Mass. (licensed in Massachusetts in 1904), aged 82, died, January 19, of cerebral hemorrhage and arteriosclerosis

Russell Ross Burt, Los Angeles Rush Medical College Chicago, 1903, aged 59, died January 28 in the Hollywood Hospital, of myocarditis

Robert L Sears, Whitewright, Texas, University of Louisville (Ky.) Medical Department, 1891, aged 66, died, February 11, of pneumonia

Henry Nickey Rice, Covina Calif. Rush Medical College, Chicago, 1886, aged 91 died, January 22 of bronchopneumonia

Lewis Morris, New York, Bellevue Hospital Medical College, New York, 1890, aged 74 died, January 10 of lobar pneumonia

James H Mattox, Hemphill Texas (licensed in Texas in 1908), aged 76, died, March 9, of diabetes mellitus

David L Rollins, Bog Springs, Ark. (licensed in Arkansas in 1903), aged 70, died recently of heart disease

## Bureau of Investigation

### GERTRUDE NOVA "OBESITY CURE"

#### Another Dangerous Nostrum of the "Get-Thin-Quick" Type

Gertrude Nova, Inc., sells an alleged obesity cure from Denver, Colo. It appears from material in the files of the Bureau of Investigation that local branches are opened or agents employed operating in different parts of the country. It seems, too, that the stuff is also handled by agents, who sometimes work direct within the limits of their state and sometimes enlist the help of 'beauty parlors' to further the sale of the nostrum.

The Gertrude Nova concern is reported to have been incorporated in 1933 under Colorado laws with an authorized capital of \$50,000. The corporation is said to have taken over the business established individually by Gertrude S Tenderich in 1928 under the trade name Gertrude Nova. Mrs Tenderich as president of the concern, has associated with her two men who are respectively vice president and secretary-treasurer. It appears that Mrs Tenderich in 1933 put on the market a sanitary napkin known as "Tampax," now put out by the Tampax Sales Corporation, of which Mrs Tenderich is said now to be president and the controlling stockholder.

The advertisement is enclosed in a rectangular border. At the top center, a slender woman in a swimsuit stands with her arms raised in a 'V' shape, holding a banner that reads "GERTRUDE NOVA". To the left of the woman, the word "SLENDER" is written in a tall, thin, serif font. Below the woman, the word "Loveliness" is written in a large, elegant, cursive script. Underneath "Loveliness", the words "IS YOURS" are written in a smaller, bold, sans-serif font. At the bottom of the advertisement, the phrase "If you Reduce this safe, easy way!" is written in a cursive script. To the right of the woman, there is a small rectangular box containing the following text: "Why Be Embarrassed by Fat. Get Thin and Stay Thin Safely! Surely!" followed by a small dot, then "No Dieting! No Exercises No Reducing Machines Slenderness without Danger IMPROVES HEALTH Absolutely Harmless!"

None of the three persons operating this "obesity cure" is a physician, pharmacist or chemist. Of the two gentlemen who are connected with Mrs Tenderich one is said to have been employed previously in various lines as a salesman, while the other is a lawyer. This department of THE JOURNAL has repeatedly called attention to the fact that while many "patent medicine" concerns, although exploiting substances of a medical character have no physicians or pharmacists connected with them, they very frequently do have a lawyer occupying an important place in the organization. The reason is presumably that it is much more important, from the nostrum exploiter's point of view, to know how to keep within the letter of the law than it is to know anything about drugs and their actions.

The advertising ballyhoo that accompanies the exploitation of Gertrude Nova's "obesity cure" is to the effect that a noted German physician (name not given), while visiting some friends of one E G Kathan, alleged to be a druggist of Trenton, Mo., prescribed an obesity treatment for a member of the Kathan family. The results were alleged to be so marvelous that Mr Kathan began selling it, and the sale developed to such an extent that he had to conduct the sale of this nostrum as a separate business. More than ten years ago the stuff was sold from Kansas City Mo., under the somewhat imposing trade name "American Research Institute" and the product was called variously 'Kathan's Scientific Treatment for Obesity' and 'Kathan's Improved Flesh Reducer'. One E E Pratt was then in charge of this concern. Later the business seems to have been transferred to Denver, to be operated under the name of Gertrude Nova.

The claims made for the "Gertrude Nova Flesh Reducer" are quite typical of obesity-cure "patent medicines." The overweight are told that it is unnecessary to diet, that they need not exercise, and that the product "improves health" and is "absolutely harmless." These are the claims in the "come-on" literature. When the money has gone over the counter, however, the overweight customer is told that the "enemies of a fat person" are fat meats, sugar, bread, cereals, nuts, butter, bacon, cream, candies, olive oil, rich desserts and pastries. She is told, also, to "try to eat only one starch at a meal" and "to get in a walk every day." Further, the overweight woman is told that she should keep up this diet and continue taking the Nova nostrum continuously for three months, and that "many men and women find that its continued use for a somewhat longer period insures good health and maintenance of normal weight."

In February, 1933, some cursory tests were made of this nostrum in the A M A Chemical Laboratory. At that time the product came in two capsules, one containing a dark yellow substance and the other a light yellow substance. The chemists reported that the drugs in the dark capsule were apparently asafetida and calomel. The contents of the light-colored capsule seemed to be essentially desiccated thyroid, with traces of a powdered leaf drug suggestive of digitals.

In February, 1933, also, Dr. Pinkham, Secretary-Treasurer of the Board of Medical Examiners of California, sent the Bureau of Investigation a copy of a letter that he had received from Mr. J. W. Davidson, a special agent for the Board and a man who has done much to hamper the activities of quacks in California. A Mrs. Martha Schaefer was at that time the San Francisco distributor of the Gertrude Nova nostrum, known as "Kathan's Original Flesh Reducer." Mr. Davidson stated that it had been claimed that the nostrum was prepared for them by Parke, Davis and Company of Detroit and that it contained no thyroid or other harmful substances.

Recently Mr. Davidson submitted to the Public Health department samples of the Gertrude Nova reducer and also the supplementary nostrum "Novar." Shortly thereafter Dr. J. C. Geiger, Director of Public Health of San Francisco, furnished the Board of Medical Examiners with the laboratory report on the Gertrude Nova "patent medicines" "Reducer" and "Novar." According to this report, the "obesity cure" consisted of two capsules, one gray and one brown, the former responding to tests for thyroid and the latter to tests for laxatives, probably of the cascara and aloes type. The supplementary nostrum Novar was reported to contain phenolphthalein and psyllium seed.

On March 25, 1935 it was reported that Inspector J. A. Bentley of the State Board of Pharmacy of California served an official notice on Martha Schaefer as exploiter of the Gertrude Nova nostrum that this "patent medicine" could no longer be sold unless it was dispensed by a licensed pharmacist under the written instructions of a licensed physician! It would be well if other communities could protect their citizens in a similar way.

From the foregoing, it appears, therefore, that the Gertrude Nova "obesity cure" is another one of the potentially harmful thyroid preparations. It is not surprising, therefore, that an Illinois physician has reported that one of his patients who had been taking this nostrum had "become quite nervous," or that a Kansas physician should have stated that the preparation "produced an acute thyrotoxicosis." A Nebraska physician also wrote that women in that section who had taken the Nova "patent medicine" had noticed "a very marked depression" while a physician in Colorado reported that a patient who had taken a number of the Nova capsules developed a severe colitis with cramping and irritation of the kidneys. Still another physician, in California, reported recently that a woman who had used the Nova preparation for about a month "developed paresthesias, numbness and tingling of the left hand, which grew progressively worse," as well as other untoward effects.

It has been repeatedly emphasized in this department of THE JOURNAL that freak diets and the indiscriminate sale of drugs for the alleged cure of obesity are pernicious and a menace to the public health. Especially dangerous are those anti-fat "patent medicines" that depend mainly, for their action on metabolic stimulants such as thyroid substance or dimetophenol

## Correspondence

### GIFT FORM FOR HOSPITALS

*To the Editor*—Readers of THE JOURNAL may be interested in a simple plan that has been in use at the Sansum Clinic for the past two years not only to interest an increasing number of patients in medical research problems but also to increase the much needed income for this purpose. We call it "Our Birthday Better Health Plan."

During the depression the income from regular sources for the maintenance of research work has been materially reduced but every effort is being made to permit it to be continued. To help maintain this research work we have initiated a simple plan, which is receiving favorable response. We invite our patients who have been aided by the results of medical research

<b>My Birthday Present to Medical Research</b>	
<i>Because I am grateful for research work which has saved my life</i>	<input type="checkbox"/>
<i>Because my health has been improved by research work</i>	<input type="checkbox"/>
<i>I am sending you ONE DOLLAR for this year's birthday present.</i>	
<i>I hope I can do the same each year</i>	
Birthday _____	
Signed _____	
Address _____	

Form of card for gifts

with which they are familiar to contribute one dollar on each birthday anniversary. Although modest in amount such contributions have provided us with considerable money.

We have thousands of diabetic patients who know that they are either alive or better because of research work on insulin and modernized diets.

W. D. SANSUM, M.D., Santa Barbara, Calif.

### HEAT STROKE AT BOULDER DAM

*To the Editor*—During the last few months I have read several articles referring to heat prostration at Boulder Dam, also the prevention of sunstroke among the men employed by the liberal use of salt and an adequate supply of drinking water. I have been connected with the work at Boulder Dam since the beginning and it seems to me that other factors must be taken into consideration besides merely the prevention as mentioned.

Boulder Dam was begun before any adequate facilities were available to house or feed the men. Many of the men were quartered at bunk houses at the river camp which was approximately 1,200 feet lower in elevation than Boulder City. The bunkhouses consisted of one large room filled with cots in which 150 or 200 men were quartered. There was no air conditioning in those days. Water was hauled from Las Vegas and often allowed to remain in milk cans and tanks for several days before it was used, or, largely, the Colorado River was merely allowed to settle a while and then drunk. There was a terrific amount of diarrhea that summer and practically every sunstroke patient had diarrhea. It was impossible to refrigerate the food properly under the existing conditions. The milk served the men was often sour.

The summer of 1931 was by far the hottest that has been encountered during the building of the dam. During July, the month the most sunstrokes occurred, the temperature in



Las Vegas reached 120 practically every day and it averaged about 10 degrees hotter in the bottom of the canyon. The worst part of the construction was under way—the driving of the diversion tunnels—and this was done without proper ventilation and with the fumes of powder smoke and gasoline trucks present.

Examinations were not done on the men before they were employed until the latter part of the summer, and as a result many physically unfit men were employed. These were the ones most susceptible to heat prostration.

The summer of 1931 was the first that any cases of heat prostration were ever recorded in Las Vegas and there were several that summer.

We were using intravenous saline therapy in the cases of sunstroke at that time in the Las Vegas Hospital and it worked well in the cases in which removal to the hospital was done before the lapse of several hours after the onset of symptoms. Las Vegas is about 33 miles away from the dam and as the men had to be transported in ambulances it was not always convenient to bring them to the hospital as soon as they should have been.

The Harvard commission was here during the summer of 1932 to study sunstroke and the effect of extreme heat on workmen and there was no sunstroke with the characteristic temperature ranging to 110 or 112. There were merely some very mild prostrations with muscular cramps. They however recommended the use of salt in the drinking water and this was done in the summer of 1933 and the following summer.

It seems to me that the secret of the high number of cases encountered in 1931 is primarily the terrific temperatures encountered, with poor food, poor water, poor housing facilities with resulting lack of sleep, lack of physical examinations, and the epidemic of diarrhea as secondary factors. The last might have had considerable to do with the dehydration in some of the cases.

J R McDANIEL JR., M D, Las Vegas, Nevada

### "PSYCHOLOGIC CONCOMITANTS OF PAIN"

To the Editor—Apropos of the last paragraph in the editorial "Psychologic Concomitants of Pain" (THE JOURNAL, February 9, p 476) beginning 'There are no words in English, Critchley says, to signify the state of mind that follows the cessation of a severe or protracted painful experience,' you will be interested to know that Beethoven felt in such accord with this statement that he expressed it musically. He fell sick during the composition of opus 132 (one of his last compositions) and on recovery inserted into the work the strangely beautiful "Heilige Danksang." He felt that "convalescence" was such a mysterious sensation that it could not be expressed in the conventional musical forms so reverted to 'die Lydischen Mode.' These facts are conspicuously featured in Aldous Huxley's "Point Counterpoint."

ISABELLA H PERRY, M D, San Francisco

### SENSITIVITY TO CODEINE

To the Editor—In THE JOURNAL, March 24 1934, page 908, was an article by Drs Scheer and Keil reporting a case of hypersensitiveness to codeine and stating that there were only seven proved cases on record. Since then I have seen no new reports, so I am reporting a case of mine which I think is a proved case. It made no impression on me at that time as I did not know that the condition was so rare, but the circumstances leading up to it did make a lasting impression. About eighteen years ago my brother-in-law, about 30 years old, was assisting with preparations for a wedding and was taken with a severe pain in his abdomen and applied to me for temporary

relief. I gave him one-fourth grain (0016 Gm.) of codeine, which relieved the pain but within a short time caused pruritus and a generalized eruption so severe that he could not attend the wedding. This lasted for about twenty-four hours and cleared up. About two years later he again asked for relief from some pain and I gave him one-fourth grain of codeine, with a repetition of his former experience. I have been unable to get him to take another dose of codeine, but he told me recently that a dose of morphine given at the time of an operation caused the same condition.

CHARLES W HADEN, M D, Evinston, Va

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### VACCINATION AGAINST WHOOPING COUGH

To the Editor—I would appreciate your opinion on whooping cough vaccination. Would you use the Sauer method or that described by Krueger, Nichols and Frawley? Is it feasible to use the latter in the active as well as the prophylactic treatment for pertussis? Is it as yet known how long this immunization lasts? How can I proceed to test the serum titer for immunization after inoculation is completed? How is the Frawley serum given subcutaneously or intramuscularly and how long should it take for immunity to develop? Would you recommend the vaccine of Eli Lilly & Co or of Parke Davis & Co? Please omit name.

M D, Massachusetts

ANSWER.—Regarding whooping cough vaccination, there are three distinct phases: (1) the treatment by vaccines after the disease has developed, (2) the modification or prevention of the disease in those recently exposed, and (3) the active immunization of those children not exposed. The most controversy centers about the first two. It is generally acknowledged that vaccine has but little effect in the paroxysmal stage of pertussis. Many hold it to be of value in the early catarrhal stage. The majority of those who favor it recommend it after exposure and before symptoms develop. The results obtained are difficult to evaluate because of the lack of controls, but this lack of absolute proof of its efficacy is not a sufficient reason for a conscientious physician not using it. The most favorable and best controlled clinical observations are those of Madsen in the epidemics in the Faroe Islands. In the second epidemic the mortality was thirty times greater and there were sixteen times as many severe cases in the nonvaccinated group. Even with no other evidence, these reports of Madsen would justify the use of pertussis vaccine, partly to prevent the disease but especially to reduce the mortality and decrease the severity.

Frawley, Nichols and Krueger and others have developed a method by which the outer coating of *Haemophilus pertussis* is crushed and demolished. The soluble endo-antigen that is obtained is stated theoretically to have greater antigenic value, but it must yet be subjected to rigid clinical tests. Their conclusions indicate that the antigen has considerable merit both as a prophylactic and as a therapeutic measure in the treatment of pertussis. Its prophylactic value was mainly in causing very mild attacks in those in whom pertussis afterward did develop. Several careful investigators have since confirmed their work. Aldrich, beginning with 0.5 cc of antigen, administered two more doses of 1 cc on alternate days thereafter and states that although the prophylactic effect is more uncertain the antigen apparently has the definite effect of modifying and shortening a majority of pertussis infections. This fact is particularly true when the antigen is given early in the attack or before the onset of the cough. Nichols advises giving an initial dose of 0.25 cc., following with injections daily (if possible) or at least every other day of 0.5, 0.75 and finally 1 cc.

Madsen, however, reports just as favorable results with the vaccine but insists, as does Sauer, that it be made from young recently cultivated strains grown on blood agar and that the dose be large (vaccine contains 10 billion bacilli per cubic centimeter. 22 billion were given, divided into three doses). A number of nationally known pediatricians have used the Sauer vaccine, after exposure to the disease, and have concluded that, whereas they may not have been able to prevent the onset of whooping cough, the disease has been modified materially.

Certainly enough evidence has been produced to warrant giving pertussis vaccine or the antigen in nonimmune children between

the time of exposure and the onset of symptoms, in an attempt to prevent whooping cough or at least to decrease its severity.

Regarding the third consideration—the active relatively permanent immunization of those children not yet exposed to whooping cough—most experience concerns the use of the Sauer vaccine. He was the first to attempt this with apparent success. Sauer prepares his vaccine largely according to Madsen and the Danish State Serum Institute specifications, the principal difference being that he uses human blood for his blood agar plates. The total of from 7 to 8 cc. (from 70 to 80 billion bacilli) is divided into three weekly (bilateral) injections of 1, 15 and 15 cc respectively. Active immunity is completed in four months and lasts for years. The best age for immunization is the second half year of life. More observations on larger numbers of children over longer periods of time by independent observers are required to confirm this work, but enough evidence has been presented to justify the physician in carrying out this procedure in preventive medicine. Dr. Sauer recommends his vaccine only for permanent immunization. Both Madsen and Sauer stress the importance of stringent care in the preparation of the vaccine and large doses. Sauer strongly advises keeping it cold in a refrigerator and not carrying it around in one's bag for several days.

All injections are given subcutaneously.

Regarding the titer, Huenekens, Toomey, Madsen and others were able to demonstrate that pertussis vaccine produces specific immune bodies, as shown by the complement fixation test. The only method of demonstrating immunity serologically is by the height of the complement fixation titer.

The technique of determining the complement fixation titer, the only known method of measuring the antibody content in those immunized against pertussis, is a complicated procedure, which can be performed only in a well equipped serologic laboratory and is not practical for ordinary clinical use. Details may be found in an article by J. J. Miller Jr. (*J. Immunol.* 26:247 [April] 1934).

The Council on Pharmacy and Chemistry has deferred consideration of pertussis vaccine (Sauer) until more convincing evidence becomes available (*THE JOURNAL*, March 9, p. 834).

#### ASTHMATIC ATTACK AFTER PERMANENT WAVE

To the Editor—I have recently seen a case of asthma that developed following a permanent wave. The materials used on the hair were Luxor oil solution and Minute Mix wave set solution. I understand that the former solution is some bland oil and ammonia; the latter I believe is gum arabic and alcohol. I would appreciate it if you would inform me what these solutions contain and if cases of asthma have been reported following the use of them. Are there cases of gum arabic allergy? Any information that you can give me will be appreciated. Please omit name.

M D Arizona

ANSWER—Because of carefully guarded trade secrets and because the Food and Drugs Act does not include cosmetics, it is next to impossible to find out what the constituents of specified brands of materials are. However, it is generally known what the usual ingredients are in such cosmetics. For dry shampoos, orris root or lycopodium is customarily employed. Allergic reactions have occurred with both. For the purpose of setting the hair after the process of waving, emulsions of various gums such as the gum of flaxseed, acacia (gum arabic), gum tragacanth, gum of quince seed, and Karaya gum (Indian gum) are commonly used. In addition, the following ingredients are used in the manufacture of hair fixers: boric acid, alkali carbonates, alcoholic keratin, perfume, petrolatum, and also several varieties of waxes.

Instances of asthma and vasomotor rhinitis to flaxseed preparations are fairly frequent. As far as we know there have been no cases reported of allergy to acacia in waving fluids, however, there are probably a number of such unsuspected instances. Two case reports dealing with acacia allergy are to be found in recent literature. One (Maytum, C. K., and Magath, T. B. Sensitivity to Acacia. *Proc. Staff Meet., Mayo Clin.* 7:216 [April 13] 1932) deals with an allergic reaction in a woman at the beginning of her second intravenous injection of a solution of acacia. The other paper tells of an instance of asthma in a man who was exposed to acacia dust in a candy factory (Spielman, A. D. and Baldwin, H. S. Atopy to Acacia, *THE JOURNAL*, Aug. 5, 1933, p. 444). Recently there has been reported a case of vasomotor rhinitis due to the use of Karaya gum solution in the hair (Bullen, S. S. Perennial Hay Fever from Indian Gum, *J. Allergy* 5:484 [July] 1934). A similar instance of asthma due to Karaya gum hair waving fluid has been reported. There are probably many more instances of this kind.

It is to be borne in mind that many of these gums, especially acacia and Karaya gum, are used in considerable amounts for other purposes such as demulcents, hand lotions in the making

of lozenges, troches "chewy" candy, calico printing and for laxative purposes. Exposure in an allergic individual may occur also from such and other sources.

If possible, the patient should be tested with the various substances mentioned. It may also be possible to find out the nature of the suspected material by testing it on a known patient. There have been several instances of flaxseed allergy.

#### TOXICITY OF CINCHOPHEN

To the Editor—1 In view of the recent warnings about the toxicity of cinchophen preparations, what is the consensus as to its indications, contraindications and dosage, average and maximum, in cases of gout? 2 In a specific case, my patient is a man aged 63. He has typical gouty attacks which have recently come with increasing frequency, involve singly either of the great toe joints or knee joints, last from a few days to one week and disappear. Between attacks the blood uric acid readings have been 8 and 6 mg. per hundred cubic centimeters respectively before and after the use of purine free diets. The rest of the blood chemistry is normal. There have been no gouty tophi discovered at any time. The only other changes of note are a blood pressure of 160 systolic and 110 diastolic and a fixed specific gravity of the urine as shown by a Mosenthal test to be from 1.016 to 1.018 coupled with a history of nocturia. What dosage of cinchophen is warranted during the attacks? Is the high uric acid between attacks an indication for giving cinchophen during these periods? If so, in what dosage? 3 Moreover, in view of the warnings in recent literature, might the use of cinchophen followed by toxemia and death have any medicolegal aspects? Kindly omit name.

M D New Jersey

ANSWER—1 New and Nonofficial Remedies 1935, states that while the ordinary doses of cinchophen are usually harmless, they are occasionally followed by severe and even fatal effects, which are more frequent with the larger doses. Excessive dose, or the long continued use of moderate amounts may cause damage to the kidney and occasionally give rise to acute yellow atrophy or to dangerous or fatal hepatitis, usually characterized by the late and relatively abrupt onset of symptoms, the most frequent being jaundice. Fewer cases of poisoning have been reported after neocinchophen, but the relative danger of these two substances has not been determined satisfactorily. The average dose of neocinchophen is 0.3 Gm. which may be given every two to four hours as required for relief of pain, although in the treatment of rheumatic fever, when used as a succedaneum of salicylate, it has been given in a dosage as high as 1 Gm. every hour until relief has been secured. The appearance of a skin eruption should prompt its immediate discontinuance. In any case it should not be given continuously but in brief courses with longer intervals to secure complete elimination.

2 In gout the use of neocinchophen is justified in doses of 0.5 Gm. from four to six times daily. It makes the kidney more permeable to uric acid so that more uric acid is excreted, and less is found in the blood. Its greatest effect on uric acid elimination is reached in one day. It should be discontinued after the second day, as it does not "mobilize" uric acid in any sense of the word. It has its best use in gout when employed between attacks in courses of two days each. Given this way, it might abort threatened attacks. During an attack it should not be given, as uric acid is then being eliminated as rapidly as is possible.

3 When he gives it with proper precautions, the physician carries no more liability in the prescribing of this than he does of any other potent agent.

#### SPLENOMEGALY

To the Editor—I am interested in a 3 year old boy who was suffering from severe rickets when I first examined him three months ago. He had bony changes of marked degree in the skull and chest. There was a pot belly with enlargement of the liver and spleen. He also suffered from repeated attacks of gastro-intestinal irritation accompanied by fever. This condition had been present for more than a year with lack of a persistent plan of treatment. Under viosterol and ultraviolet therapy the gastro-intestinal symptoms have cleared up and his general health has improved considerably. The liver has diminished in size to almost normal proportions. The spleen remains enlarged. His skin is tough and scaly and the quartz light therapy has been discontinued. Can you venture an opinion on these facts as to the splenomegaly? Will it recede to normal size in time? I believe that a blood dyscrasia has been ruled out by a blood count. The Wassermann reaction is negative. How long should viosterol or cod liver oil be continued in such a case? Please omit name and address.

M D Pennsylvania

ANSWER—The question of enlargement of the spleen in rickets has been debated by clinicians for years. The fact that splenomegaly may occur in a rachitic infant has been used by some European clinicians to support the toxic or bacterial theory of the etiology of rickets. Various authorities give the incidence of splenic enlargement in rickets in variable figures. These vary from 20 to 70 per cent. The late Alfred Hess collected some valuable clinical data on this point some years ago. He found that in a large series of infants with negative

Wassermann reactions the spleen was palpable in 20 per cent of those who gave no evidence of rickets and in 25 per cent of those who were rachitic. Starck corroborated these observations pathologically. This investigator noted the size and condition of the spleen in 113 necropsies of young children who died from various causes. The spleen was found to be enlarged in (4) per cent of the rachitic cases and in 50 per cent of non-rachitic cases. Unfortunately there are no accurate scientific data on the cause of the splenomegaly. The fact that it does not recede on antirachitic therapy throws considerable doubt on the rachitic etiology. The consensus is that enlargement of the spleen in rickets is the result of infection or at any rate secondary to it. Clinical experience has shown that such spleens gradually recede to normal size with general treatment. However, the time required for this change may be a matter of years. Such a case should receive careful consideration as to other causes of splenomegaly. Cod liver oil or viosterol should be continued in therapeutic doses until roentgenographic and blood chemistry observations are normal. From this time on prophylactic doses should be continued throughout the period of growth. Splenomegaly should not be used as a criterion for antirachitic therapy.

#### TREATMENT OF SYPHILIS

To the Editor—I have a Jewish patient aged 55 a woman who has presented a four plus Kahn reaction. There have been no distinct clinical symptoms indicating the presence of the disease or to serve as an indicator of the progress of the treatment. To date she has had twenty four intra-muscular injections of a bismuth compound one course of mercury injections six months of iodides orally and about ten injections of arsenphenamine in doses ranging from 0.2 to 0.6 Gm. Severe reactions and eczema have prevented this medication after several trials. Sodium thiosulphate has been used freely intravenously and orally. The Kahn reaction now is two plus and she is becoming discouraged. What can I give her to take the place of the arsenic preparation that may speed a cure? I will appreciate any suggestions in handling the entire course of the case.

M D Florida

ANSWER.—There appears to be no reason for discouragement on the part of this patient. It is the doctor who should be discouraged from attempting to "cure" a disease of many years standing by too heroic treatment. In a woman of 55 intensive arsenical treatment may be far more dangerous than a persistent positive Kahn test. Patients can live many years with a positive serologic test without impaired usefulness. Intermitent treatment with courses of bismuth compounds and iodides may ultimately bring about a reversal of the Kahn test. Even a negative Kahn test should not be looked on as a criterion of absolute "cure" as the results of postmortem studies (Warthin) have shown. A careful cardiovascular examination and a spinal puncture will give valuable information and should precede any further therapeutic efforts.

#### DIAGNOSIS OF DERMATITIS

To the Editor—A white married woman aged 28 complains of a scattered eruption over her body and face of eight years duration. The eruptions are more pronounced just before the menses. She also complains of sore breasts just before her periods. The eruption she states starts as a small hard pimple which gets larger and a watery secretion is discharged from each pimple which is very itchy. The patient has very small breasts a high arched palate and a male hair line. Her height is 5 feet 7 inches (170 cm.) her weight 151 pounds (68.5 kg.) Systemic examination is negative. She has a pelvic-girdle obesity. Menstruation started at 14 years. She flows regularly every thirty two days for only one day and only stains. The eruptions are papular and hard with some induration at the base. The blood chemistry, Wassermann reaction and urinalysis are negative. Basal metabolism has been minus 18 on three different tests. The vaginal examination reveals a small uterus not infantile the ovaries are not palpable. She was treated with thyroid and pituitary with no results in weight eruption or menses. She was treated with antuitrin S and theelin for three months. The menses increased to three days and in amount. Soreness of the breasts was absent and no weight loss was noted. The eruptions are the same. This is the most annoying symptom. I am at a loss to make a diagnosis as to the skin condition. If possible kindly give me a diagnosis and suggest treatment. Kindly omit name.

M D Rhode Island

ANSWER.—It is impossible to make a dermatologic diagnosis from the description given. In view of the definite evidence of endocrine disturbance, the dermatitis might be of endocrine origin, such as, for instance a dermatitis dysmenorrhoeica (Pollard Matzenauer). If an endocrine disturbance is causally related to the dermatosis, the effort at correcting this underlying condition should be persisted in. However the dermatitis described could well be completely unrelated to the menstrual and hormone disturbances and in this event many possible diagnoses are to be considered. The first and foremost seems to be either a drug eruption or a dermatitis from external contact. Absolutely all drugs should be stopped for at least two months.

Even the question of eliminating iodized salt from the table and kitchen should be carefully gone into. The search for possible external irritants should be carried out by means of the patch test the technic of which may be found in the article on the contact or patch test in dermatology by Drs. Marion B. Sulzberger and Fred Wise in the *Archives of Dermatology and Syphilology* 23: 519 (March) 1931. Locally the two following may be tried:

1 Menthol 0.25 per cent, phenol 1 per cent coal tar solution 10 per cent in calamine lotion with zinc oxide.

2 Menthol 0.25, naftalan 10 per cent in Lassar's paste.

#### ALCOHOL IN PEPTIC ULCER

To the Editor—What clinical evidence exists that alcohol such as a highball or whisky well diluted with water or beer is harmful to ulcer patients? Kindly do not publish name.

M D Georgia

ANSWER.—It is generally conceded that alcohol in any form should not be taken by patients with peptic ulcer. Alcohol is an irritant to the gastric and duodenal mucosa. Hurst and Stewart (Gastric and Duodenal Ulcer New York Oxford University Press p. 422) state that while light wines or well diluted whisky may be taken with meals after the patient is free from symptoms for several months, cocktails, whisky, champagne and other effervescent alcoholic drinks must be prohibited. Furthermore 7 per cent alcohol in water is one of the test meals in use for the determination of gastric acidity because of the well known ability of alcohol to stimulate acid secretion. Edward L. Kellogg (The Duodenum, New York Paul B. Hoeber Inc., 1933, p. 540) states that the abuse of alcohol among other factors, may lead to the recurrence of an ulcer.

#### MERALGIA PARAESTHETICA

To the Editor—A boy aged 11 years who has been under my care a short time has suffered since he was 5 from a painful area on the outer side of the left thigh about 2½ inches above the knee joint. This area of tenderness is about 2½ inches long and 1½ inches wide. It is not inflammatory. There is no trouble with the deeper bone or soft parts. There are no apparent pathologic changes. The area referred to is exceedingly sensitive the clothing rubbing on it causing pain. A mere touch will cause excruciating pain. It gives him lots of trouble in school. My diagnosis is meralgia paraesthetica or Roth's disease. The anterior crural nerve on that side seems tender. The tonsils have been removed. They were not normal. All organs have been examined. Kindly give your opinion as to diagnosis and treatment. Please use initials only.

M D California

ANSWER.—The area described corresponds with the usual site of meralgia paraesthetica in the distribution of the external cutaneous femoral nerve. The causes are usually traumatic or toxic. Search should be made for causes of pressure on the nerve, including tight clothing and suspenders. Among toxic causes, in addition to sources of focal infection, the possibility of lead intoxication should be considered. These, of course, presuppose that such conditions as disease of the vertebrae and spina bifida have been excluded. Therapeutic measures other than removal of an established cause include the use of mild galvanism, local applications of heat and such measures as diathermy, though in chronic cases they may not accomplish much. The condition is not serious in itself, but the pain and incapacity may be so severe as to justify section of the cutaneous nerve involved.

#### EOSINOPHILIA IN BRONCHIAL ASTHMA

To the Editor—Would you kindly give me the latest data on the significance of eosinophilia in connection with bronchial disturbance? Has any treatment been suggested in connection with the high eosinophil count?

Ivor G. Clark, M.D. Columbus, Ohio

ANSWER.—Eosinophilia or an increase in the number of polymorphonuclear eosinophils in the blood above 4 per cent, has many causes. The most common causes are (1) trichiniasis, (2) allergic conditions, (3) bronchial asthma, (4) intestinal parasites, (5) skin diseases, especially urticaria, psoriasis, pemphigus and arsenical dermatitis, (6) scarlet fever, (7) bone marrow diseases, especially myelogenous leukemia metastases, tuberculosis or osteomyelitis, (8) Hodgkin's disease, (9) liver therapy and (10) familial conditions.

It is probable that all the causes of eosinophilia except the group due to bone marrow involvement belong to the series of allergic conditions. For instance it is found in bronchial asthma, hay fever, urticaria, angioneurotic edema, serum sickness, and after the injection of vaccines and various foreign proteins.

In true allergic bronchial asthma, eosinophils are found in large numbers in the sputum as well as in the blood. Eosinophilia does not occur in cardiac asthma and is therefore of differential value. Eosinophils are found in the conjunctival smears in hay fever and in the skin, lymph nodes and internal organs in various allergic states.

The presence of an eosinophilia in a bronchial disturbance therefore speaks for a true bronchial asthma, when intestinal parasites and bone marrow diseases can be excluded. The eosinophilia does not require treatment, as it is most probably evidence of some defensive reaction to a foreign protein or chemical substance. Removal of the exciting agent (pollen, food, arsenic, camphor, parasites) will cause the eosinophilia to disappear, except in the rare cases of familial eosinophilia of unknown cause.

#### BONE UNION BY BONE CEMENT

To the Editor—May I ask you kindly to supply me with information on the subject of bone union by means of bone cement or bone glue or any other substance to be inserted or injected between bone fragments for the purpose of uniting these. I am not interested in transplants or fixation of fractured bone. Kindly inform me of any existing literature pertaining to this subject whether it has been in clinical use or in the form of research. Kindly omit name.

M D California

ANSWER—The correspondent imposes severe limitations on the answer. Exclusive of the transplantation of bone or fixation of fractured bone, one might say that all methods are still practically in the experimental stage.

These methods include those grouped as chemical and those called organic. The chemical ones include the addition of some combination of calcium and phosphorus, such as dicalcium phosphate or tricalcium phosphate. This method has been used by Clay Ray Murray of New York and by Farrell at the New York Orthopaedic Hospital.

The organic methods include bone dust and bone paste. Bone drilling such as that designed by Beck of Kiel and popularized by Böhler should be mentioned in this connection, that is, multiple drill holes are made across the area of delayed union in order to stimulate circulation and to produce avenues for the passage of osteogenic elements.

The correspondent may be interested in the following two articles

Jones R W. The Inadequate Immobilization and Nonunion of Fractures. *Brit M J* 1 936 (May 26) 1934

Jones R W and Roberts R E. Calcification, Decalcification and Ossification. *Brit J Radiol* 7 321 (June) 391 (July) 1934

#### IRIDOTASIS AND IRIDENCELEISIS

To the Editor—In THE JOURNAL, January 26 page 341 is given a somewhat incorrect answer to a correspondent who inquires concerning the derivation of the terms iridotasis and iridencleisis. The second element of each word being very unusual in medical terminology might well be expected to lead a busy physician or editor who has no leisure for furbishing his Greek to philosophize a little as many of us are tempted to do in the absence of exact information. Since the former word is neither a simplification nor a corruption and since the origin of the latter is (despite your cautious assertion to the contrary) perfectly clear, I will venture to establish their legitimacy. Both are modern formations sired by respectable though little known Greek words properly united and are appropriate to the operations they were designed to describe.

*Iridotasis* is a compound of *irido-* which is the combining form of *iris* plus *tásis* stretching (from *telō* to stretch). The element *tasis* has nothing to do with the *desis* of *iridodesis* though the operations intended by *iridotasis* and *iridodesis* are similar. The origin of the second element of the latter is to be found in *deō* binding (from *deō* to bind). In view of frequently heard mispronunciations it is worth mentioning that these words should be uttered with the stress on the antepenultimate syllable *iridotásis* and *iridodéisis*.

*Iridencleisis* runs parallel in its formation. The first element is the same except for the *-o-* which is needed only before a consonant. The second element is itself compounded from two words *ēi* in and *kleō* to shut or lock. The meaning therefore is a locking in of the iris and whereas the other terms mean respectively a stretching of the iris and a binding of the iris. Once again attention should be directed to the stress *iridencleísis*. The *ei* is sounded as in *height*.

It may be of interest to your correspondent and other readers to know that the term *iridencleisis* can be traced back to Sir William Adams who used it in 1812 to designate his operation for making an artificial pupil. George Critchett of London in 1857 introduced the erroneously compounded term *iridodesis* (corrected to *iridodesis* by later writers who respected the Greeks way of combining Greek words) for his glaucoma operation. In 1906 S. Holth of Christiania Norway proposed another glaucoma operation which he called *iridencleisis antiglaucomatosa* and shortly afterward Johan Borthen of Bergen Norway described his *iridotasis antiglaucomatosa*. In the *Archiv für Augenheilkunde* 68: 145 1911 Bothen gives the derivation of his newly coined term.

HARRY K. MESSENGER M.D. Boston

## Medical Examinations and Licensure

### COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY. Written (Group B candidates). The examination will be held in various cities throughout the country April 29. Oral (Group A and Group B candidates). New York June 10. Sec. Dr. C. Guy Lane 416 Marlborough St. Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY. Final oral and clinical examination (Group A and Group B candidates). Atlantic City N. J. June 10-11. Application lists close May 1. Sec. Dr. Paul Titus, 1015 Highland Bldg. Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY. Philadelphia June 8 and New York June 10. Sec. Dr. William H. Wilder 122 S. Michigan Bldg., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY. New York June 8. Sec. Dr. W. P. Wherry 1500 Medical Arts Bldg. Omaha.

AMERICAN BOARD OF PEDIATRICS. Atlantic City N. J. June 10 and St. Louis Nov. 19. Sec. Dr. C. A. Aldrich, 723 Elm St. Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. Philadelphia, June 7-8. Sec. Dr. Walter Freeman 1726 Eye St. N. W. Washington D. C.

AMERICAN BOARD OF RADIOLOGY. San Francisco May 10-12 and Atlantic City N. J. June 8-10. Sec. Dr. Byrl R. Kirklin Mayo Clinic, Rochester, Minn.

ARKANSAS. Basic Science. Little Rock May 6. Sec. Mr. Louis E. Gebauer, 701 Main St. Little Rock. Regular. Little Rock, May 14. Sec. Dr. A. S. Buchanan Prescott. Eclectic. Little Rock, May 14. Sec. Dr. L. L. Marshall 820 W. 14th St. Little Rock.

CALIFORNIA. Reciprocity. San Francisco May 15. Sec. Dr. Charles B. Pinkham 420 State Office Bldg. Sacramento.

IOWA. Iowa City June 4-6. Dir. Division of Licensure and Registration Mr. H. W. Greife Capitol Bldg., Des Moines.

KENTUCKY. Louisville June 5-7. Sec. State Board of Health Dr. A. T. McCormack 532 W. Main St. Louisville.

NATIONAL BOARD OF MEDICAL EXAMINERS. The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24-26 and Sept. 16-18. Ex. Sec. Mr. Everett S. Elwood 225 S. 15th St. Philadelphia.

NEBRASKA. Basic Science. Omaha May 7-8. Dir. Bureau of Examining Boards Mrs. Clark Perkins, State House Lincoln.

NEVADA. Carson City May 6. Sec. Dr. Edward E. Hamer Carson City.

OHIO. Columbus June 4-7. Sec. State Medical Board Dr. H. M. Platter 21 W. Broad St. Columbus.

OREGON. Basic Science. Portland May 18. Sec. Mr. Charles D. Byrne, University of Oregon Eugene.

WYOMING. Cheyenne, June 3. Sec. Dr. W. H. Hassel Capitol Bldg. Cheyenne.

### New York September Examination

Mr. Herbert J. Hamilton, chief, Professional Examinations Bureau, reports the written examination held by the New York State Board of Medical Examiners in Albany, Buffalo, New York and Syracuse, Sept. 24-27, 1934. The examination covered 9 subjects. An average of 75 per cent was required to pass. Two hundred and seventy-one candidates were examined, 205 of whom passed and 66 failed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
University of California Medical School	(1934 2)		2
Yale University School of Medicine	(1931)		1
George Washington Univ. School of Medicine	(1933 3)	(1934 8)	11
Georgetown Univ. Sch. of Med.	(1931) (1932) (1933)	(1934 4)	7
Howard University College of Medicine	(1933)	(1934)	2
University of Georgia School of Medicine	(1930) (1932)		2
Loyola University School of Medicine	(1933)	(1934)	2
Northwestern University Medical School	(1934)		1
Rush Medical College	(1934 4)		4
University of Illinois College of Medicine	(1931)		1
University of Louisville School of Medicine	(1926) (1933)		2
Louisiana State University Medical Center	(1934)		1
Tulane Univ. of Louisiana School of Medicine	(1928) (1933)		2
University of Maryland School of Medicine and College of Physicians and Surgeons	(1933) (1934)		2
Boston University School of Medicine	(1931) (1934 3)		4
Harvard University Medical School	(1934)		1
Tufts College Medical School	(1933 2)		2
University of Michigan Medical School	(1933) (1934)		2
St. Louis University School of Medicine	(1933) (1934)		2
Washington University School of Medicine	(1931)	(1932)	2
Creighton University School of Medicine	(1933) (1934 8)		9
Albany Medical College	(1933) (1934)		2
Columbia University College of Physicians and Surgeons	(1931, 2) (1932 5) (1933, 7)	(1934 7)	21
Cornell University Medical College	(1932 2) (1934 4)		18
Long Island College of Medicine	(1932) (1933 3)	(1934 14)	18
New York Homeopathic Medical College and Flower Hospital	(1933)	(1934 12)	13
New York University Medical College	(1933) (1932) (1933 4)	(1934 4)	10
Syracuse University College of Medicine	(1933)	(1934 3)	3
University of Buffalo School of Medicine	(1933)	(1934 7)	8
University of Rochester School of Medicine	(1933 2)		1
University of Oregon Medical School	(1929)		1
Hahnemann Med. College and Hospital of Philadelphia	(1932)		1
Jefferson Med. Col. of Philadelphia	(1931 2) (1932)	(1934)	4
Univ. of Pennsylvania School of Med.	(1929) (1933)		3
Woman's Medical College of Pennsylvania	(1933)		1
Medical College of the State of South Carolina	(1933)		1
Medical College of Virginia	(1934)		1
Queen's University Faculty of Medicine	(1933)		1

Laval University Faculty of Medicine	(1933)	1
Metall University Faculty of Medicine	(1932) (1934)	2
Metallische Fakultät der Universität Wien	(1932) (1934) *	3
Deutsche Universität Medizinische Fakultät, Prag	(1929)	1
Austria		
Univerzita Komenského Fakulta Lekárska, Bratislava	(1929)	1
Czechoslovakia		
University of Sheffield Faculty of Medicine	(1932)	1
Albert Ludwigs Universität Medizinische Fakultät Freiburg Germany	(1930) *	1
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1931) *	1
Hamburgische Universität Medizinische Fakultät Hamburg, Germany	(1931) *	1
Johann Wolfgang Goethe Universität Medizinische Fakultät, Frankfurt am Main Germany	(1933) *	1
Julius Maximilians-Universität Medizinische Fakultät Würzburg, Germany	(1932) *	2
Ludwig Maximilians Universität Medizinische Fakultät München, Germany	(1932) *	1
Schlesische-Friedrich Wilhelms Universität Medizinische Fakultät Breslau Germany	(1934) *	2
Universität Greifswald Medizinische Fakultät Germany	(1931) *	1
Universität Heidelberg Medizinische Fakultät	(1932) *	2
Universität Köln Medizinische Fakultät Germany	(1931) *	1
Universität Leipzig Medizinische Fakultät Germany	(1932) *	1
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1924)	1
Uniwersytet Jana Kazimierza Wydział Lekarski I woj. Poland	(1924) *	1
University of Aberdeen Faculty of Medicine	(1933) *	5
University of Edinburgh Faculty of Medicine	(1932)	1
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons Edinburgh	(1934) (1934) *	2
University of St Andrews, Scotland	(1934) (1934) *	5
Université de Genève Faculté de Médecine	(1933) *	2
Osteopaths		6

New York Homeopathic Medical College and Flower Hospital	(1933) 82 1 (1934) 82, 84 8	86 87
University of Rochester School of Medicine	(1934)	82 9
Western Reserve University School of Medicine	(1930)	84 8
Hahnemann Medical College and Hospital of Philadelphia	(1934) 82 9 83 5	82 4, 83 5
Jefferson Medical College of Philadelphia	(1933)	84 4
Temple University School of Medicine	(1933)	75 6
Laval University Faculty of Medicine	(1934)	80 2
University of Toronto Faculty of Medicine	(1932)	84 8
Universidad de la Habana Facultad de Medicina y Farmacia	(1928)	78 3
Schlesische Friedrich Wilhelms Universität Medizinische Fakultät Breslau Prussia Germany	(1925) 84 5 †	(1930) 85 †
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása Budapest	(1926)	75 7
Rijks Universiteit te Leiden Faculteit der Geneeskunde	(1928)	85 3
Universitatea Regele Ferdinand I din Cluj Facultatea de Medicină și Farmacie	(1924)	83 5

\* This applicant has completed his medical course and will receive his M.D. degree on completion of internship License withheld  
† Verification of graduation in process

## Book Notices

**Aids to Psychiatry** By W S Dawson M.A. M.D. FRCP Professor of Psychiatry University of Sydney Third edition Cloth Price \$1.50 Pp 318 Baltimore William Wood & Company 1934

This little book is one of the few compendiums in psychiatry that are at all adequate. It is interesting to note that in it the neuroses are given proportionately greater space than the more serious mental disorders, an unusual but intelligent balancing of subject matter not usually found even in the larger psychiatric textbooks. The book is reasonably accurate according to conventional psychiatry, for there is nothing even approaching the radical in it. It might well be considered a summary of any of the more acceptable textbooks of psychiatry and so as a review book, should adequately serve its purpose. The stress that is placed on amentia (feeble-mindedness) makes these chapters well worth perusing even though the psychologic factors in this type of condition are not stressed as much as they would have been had the book been written by an American. The chapter on treatment is short and probably of little value in the actual handling of patients but sufficiently detailed to enable a medical student to gather much theoretical information about the subject. The British terminology and medicolegal materials are used throughout, and the last chapter on case taking is probably too abridged. One who approves of these shortened textbooks will find this volume satisfactory. There is a question, however, whether simply giving a list of definitions without illustrations and without case histories is ever adequate in the training of students in psychiatry. Considering its price and the amount of material in it it should be sufficiently useful for a psychiatric teacher to have in his library even though he already has the more formal textbooks. For the busy general practitioner, it may contain just the clues he needs in recognizing the various serious mental disorders.

**Handbuch der Biochemie des Menschen und der Tiere** Herausgegeben von Prof. Dr. phil. et med. Carl Oppenheimer Band II. Ergänzungswerk. Ergänzung zu Band IV-VI des Hauptwerkes. Second edition. Paper Price 71 marks. Pp 961 with 41 illustrations. Jena. Gustav Fischer 1934.

As a supplement to volumes IV-V of the original work this is a valuable addition, which specialists in the various fields will no doubt welcome. The subdivision of subject matter adopted naturally leads to considerable overlapping in the treatment by the authors. On the whole, the reviews appear to cover quite completely the more important contributions over the period 1925-1932 inclusive. The main divisions adopted are chemistry of tissues and organs, secretion and products of secretion, digestion absorption and excretion, and nutrition, gas exchange and metabolism.

In the first section, Ludwig Pincussen presents carefully selected citations on general physical chemistry and the organic and the inorganic constituents of the blood. Edgar Wöhlisch rather briefly reviews blood coagulation. H. K. Barrenscheen presents blood sugar fully. Wohlgemuth reviews blood enzymes other than the Abderhalden reaction. Wertheimer

## Ohio December Examination

Dr H. M. Platter, secretary Ohio State Medical Board, reports the oral, written and practical examination held in Columbus, Dec 3-6, 1934. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Thirty-six candidates were examined all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Georgetown University School of Medicine (1934) 84 5	(1932)	81 9	
Loyola University School of Medicine (1934) 80 7 * 81 3 * 82 2 * 83 2 * 84 *	(1933)	81 6	
Northwestern University Medical School (1929) 80 9	(1930)	83	
Boston University School of Medicine	(1933)	79 5	
Harvard University Medical School	(1934)	85	

covers the latter fully. Gerhartz presents three sections on the chemistry of lymph, the chemistry of transudates and exudates, and the chemistry of the postembryonal organs involved in blood cell formation. R. E. Mark discusses the formation of lymph. Aron and Klinke have assembled much information on bone, teeth, cartilage and elastic tissue. Stephan Rothman gives a comprehensive review on the skin. Paul Krüger has gathered and organized information concerning supporting tissues from the chemical and developmental points of view. In the discussion of the composition of muscle tissue, Otto Fürth covers proteins, amino acids, simple bases and the physical chemistry of muscle tissue. Karl Lohmann reviews the fats, lipins and carbohydrates and H. K. Barrenscheen considers the purines. Lohmann and Weicker give a brief review on heart and blood vessels. Pincussen covers the chemistry of lung tissue. Gottschalk reviews the chemistry of tumor, cancer and sarcoma tissue. Kurt Steindorff gives a well organized treatment of the chemistry of the eyeball.

In the second section there are good reviews by Julius Wohlgemuth, Bickel, Theodor Brugsch and Paul Krüger on the chemistry of salivary, gastric, pancreatic and intestinal secretions and special sections on the liver and bile and digestive glands in the lower forms. Under the general title of sex glands, Gerhartz presents an exceedingly brief treatment of the testicle. Leo Zuntz likewise ignores the hormones in the female sex organs. Paechtner reviews the chemistry of the resting and incubating egg and Grimmer gives well organized reviews on the mammary gland, milk and milk coagulation.

In the third section the chemistry of digestion and absorption in invertebrate forms is reviewed by Arthur Scheunert, absorption by Pincussen, the formation and composition of feces by Miss Kozwianek, skin excretion by Rothman, excretion by tears by von Röttch, poisonous excretion by T. A. Maass, the action of the kidney under various influences by R. E. Mark, the chemistry of the kidney of urine and the physical chemical aspects of the latter by Pincussen, the chemistry, origin and amount of amniotic fluid by Leo Zuntz, the gases of the body and their circulation therein by Lehmann, and the acid-base equilibrium by Gollwitzer-Meier.

In the fourth section, Hans Aron and Karl Klinke cover the advances in the general aspects of nutrition. von Wendt briefly reviews the theoretical principles of metabolism. Lehmann reviews two subdivisions, the respiratory and general exchange and the energy exchange in the organism and Grafe concludes the work with a timely and extensive review on the specific dynamic action. Fortunately an excellent index is included in this extensive supplement.

**Jewish Contributions to Medicine in America (1856-1934)** with Medical Chronology and Bibliography. By Solomon R. Kagan, M.D. Cloth. Price \$5. Pp. 548 with 69 illustrations. Boston: Boston Medical Publishing Company, 1934.

This book has a delightful foreword by the medical historian Dr. James J. Walsh, together with a preface and introduction by the author. The first chapter is devoted to brief biographies of early colonial Jewish physicians in America but in the remainder of the book physicians are classified according to their various specialties. In the appendixes the special work of certain physicians is described under the title of "Medical Lights." Then follow a list of Jewish medical institutions and their history, a section on Jewish medical philanthropy and finally a medical chronology and a bibliography together with dates of persons, names and subjects. The illustrations consist of reproductions of photographs of the respective physicians but this represents only a small percentage of the many names listed. The biographies are in some instances extensive and in others brief but the work as a whole gives one a good idea of the great work that has been done in America from colonial days onward, together with the institutions that have been developed. The work is a valuable one from a historian's standpoint and it should prove useful to any one who is interested in medical history. The accomplishments of many of the American Jewish physicians will be a source of pride to those who are interested in the achievements of their own people and a source of information to every one. There are a number of typographic errors but these are not sufficient to detract from the value of this timely work.

**Body Mechanics in the Study and Treatment of Disease.** By Joel E. Goldthwait, M.D., LL.D., Member of Board of Consultants, Massachusetts General Hospital; Lloyd T. Brown, M.D., Instructor, Orthopaedic Surgery, Harvard Medical School; Loring T. Swaim, M.D., Instructor, Orthopaedic Surgery, Harvard Medical School; and John G. Kuhns, M.D., Assistant in Orthopaedic Surgery, Harvard Medical School. Cloth. Price \$4. Pp. 281 with 99 illustrations. Philadelphia & London: J. B. Lippincott Company, 1934.

In this work some of the leading orthopedic surgeons of the Boston group have combined to present modern views of posture. One finds, however, in the preface the term "chronic patient"—a rather doubtful combination coming from Boston. The book includes sections devoted to the mechanics of the body, to various types of body, and then to disturbances of various systems of the body associated with wrong body mechanics. The final chapters include treatment, illustrative cases, visceral disturbances and references to medical literature. The book is handsomely illustrated with roentgenograms and diagrams which add greatly to the value of the text. It does much to show how modern orthopedic surgery may be of aid in overcoming many common disturbances of health and also to bring relief in conditions in which body mechanics is usually not considered at all or else in a subsidiary manner. In the concluding paragraph the authors refer to "chronic medicine," meaning no doubt the diagnosis and treatment of chronic diseases. It is a locution that merits correction in future editions of this most useful work.

**Notes on Dr. Camp's Lectures in Neurology** Arranged by Dr. L. Himler, Department of Neurology, University of Michigan. Cloth. Price \$3. Pp. 260 with illustrations. Ann Arbor, Michigan: Edwards Bros. Inc., 1934.

This is a small volume produced by the new method of litho printing which makes the text look as though it had been well typewritten. It contains summaries of lectures given in neurology at the University of Michigan and would naturally have the fault of being second-hand material although one may be sure that Dr. Camp himself must have checked the book before permitting its publication. Except for students at that particular university, it is difficult to see any single group for which this book would be more useful than other short textbooks. The descriptions of diseases are too short as a rule to be a substitute for even the smaller standard neurologic textbooks. Some of the more obscure diseases are dealt with in such a way that not even the most elementary signs and symptoms are enumerated. In all probability they should either have been omitted or a little bit more thoroughly discussed. The abridgment of the discussions of the more complicated neurologic entities would make it necessary for the student to hear Dr. Camp's lectures or else supplement this book by a larger textbook in order for instance, to see what is meant by such symptoms as the Babinski sign, the Argyll Robertson pupil and other signs which are characteristic of specific disorders but which are not fully discussed under those disorders or elsewhere. The first part of the book, dealing with the methods of examination, is too sketchy and hence is misleading to the beginning student of the complex science of neurology. The material in it is not given in any detail and the significance of individual tests, as indicated is minimized. Nevertheless besides the unquestionable value of the book to the specific students at whom it is pointed, many neurologists should find it valuable as a systematic outline to use to balance their own lectures. The general practitioner who has a fair groundwork in neurology might find the book valuable for review or for a quick checkup of symptoms, for what material is given is authentic and specific.

**A Textbook of Pathology for Nurses** By Coleman B. Rablin, B.S., M.D., Lecturer in Pathology in the Mount Sinai Hospital School of Nursing. Cloth. Price \$1.75. Pp. 243 with 61 illustrations. Philadelphia & London: W. B. Saunders Company, 1934.

This edition represents an improvement in the textbooks of pathology for nurses. Like other books however, the purpose appears to give pathology in altogether too concise form. Each chapter is supplemented by a series of simple review questions. A notable feature of the volume is the accompanying illustrations and diagrams, in which most books for nurses are lacking. The style is simple and clear. The section on general pathology may be considered adequate, but that on neoplasms is much



too brief. Perhaps undue emphasis is placed on the results of obstruction to which five chapters are devoted. The second part is devoted to clinical pathology, presented also in illustrated form. Instructors in training schools will find an improvement in this edition largely because of the illustrations.

**Symposium on Silicosis.** Edited by H. F. Hueblich. Claims Manager, Employers Mutuals, Wauau, Wisconsin. An Unofficial Transcript of the Silicosis Symposium Held in Connection with the Trudeau School of Tuberculosis at Saranac Lake, N. Y., June 18 to 22, 1933. Paper, Price \$4. Pp. 99 with 2 illustrations. Wauau, Wisconsin: Employers Mutual Liability Insurance Company, 1934.

Because of the great importance the pneumoconiosis and especially the silicosis problem have assumed within the past few years, the Trudeau School of Tuberculosis devoted one week of the regular 1934 course exclusively to silicosis and tuberculosis. The symposium was under the direction of L. L. Gardner. The etiology of silicosis was presented by R. R. Jones of the U. S. Public Health Service, who emphasized that crystalline silica was the essential causative factor. D. L. Cummings of the Stranac Laboratories described dust measurements, emphasized the importance of routine medical examinations and stated that demonstrable silicosis generally occurred after more than five years exposure to concentrations of pure silica in excess of 5,000,000 particles per cubic foot. The third paper, by Gardner, is much the most complete and perhaps the most important of the series. His own work is tersely reviewed, and much interesting and informative data are added on the relation of tuberculous infection to silicosis. The fourth paper, on occupational history, was given by Cummings, who was followed by Henry K. Kessler of Newark, N. J., who discussed clinical aspects and physical examination. This paper provoked an especially interesting discussion on the degree of disability attending silicosis—a vexing subject on which William S. McCann of Rochester, N. Y. wrote more fully in the last section of the booklet. H. L. Simpson of the Trudeau Sanatorium and H. K. Pancoast of Philadelphia each contributed to the roentgenology of silicosis. Philip Drinker of Harvard described engineering methods of prevention, and A. J. Lanza closed the symposium with an eloquent and timely plea for careful medical control with the pointed suggestion that executives whose employees risk silicosis would do well to interest themselves in preventive measures and in sensible legislation. Dr. Gardner is to be congratulated on this symposium, and the Employers Mutuals on making the several lectures available in book form. However, the transactions do not measure up to the standards of the work of the several speakers, with the possible exception of Gardner's own contribution. Also it is hoped that future editions of these symposiums will contain summaries.

**Die Mikrogasanalyse und ihre Anwendung.** Von Dr. Heinrich Schwarz. Privatdozent an der Universität Wien. Monographien aus dem Gesamtgebiete der Mikrochemie. Paper. Price 21 marks. Pp. 286 with 52 illustrations. Vienna & Leipzig: Emil Halm & Co. 1933.

The author covers all well known methods of gas analysis in this volume, as well as the purely micro methods of Krogh, and includes a description of the various methods of determining the gas content of fluids. Most emphasis is placed on the manometric methods of Van Slyke and Neill to which fifty-five pages are devoted. The usefulness of the methods in biologic and physiologic problems is covered. The work includes all necessary tables to aid calculation. The author writes in a style that is easily read or translated. The format of the book is good and the illustrations are adequate.

**Doctor Moon.** By Catherine Meadows. Cloth. Price \$2.50. Pp. 313. New York: G. P. Putnam's Sons, 1935.

This is a novel based on the life of the famous Harvey Hawley Crippen. The Crippen case is one of the most important in criminology, deriving its interest from the medical background of the murderer and from the fact that the radio was used in his capture. The novel provides not only an excellent picture of its period but also a fine psychologic study of the murderer and of the events leading up to the crime. The book is written in a calm manner, which adds much to its suspense and therefore to its interest. The sequence of the events leading certainly toward a situation in which murder seems inevitable is established by the author with extraordinary understanding.

**Physiopathologie des traversées chimiques et bactériennes dans l'organisme.** Par Noël Flessinger, professeur de pathologie expérimentale et comparée. Paper. Price 45 francs. Pp. 370, with 10 illustrations. Paris: Masson & Cie, 1934.

This volume, based on a course of lectures, is devoted to the consideration of a varied group of phenomena involving the passage of substances through cellular membranes (except the absorption of the products of digestion). Among the subjects treated are the metabolism of proteins, carbohydrates and fats, the role of the liver, kidneys and endocrine organs in regulating the composition of the blood, and disturbances of the passage of materials resulting in gout, icterus, uremia, anuria, polyuria, edema and other conditions. In addition there are chapters on the passage of dyes, of large particles, of bacteria and their toxins, and of heavy metals (mercury, bismuth, gold). The subjects of immunity, allergy and anaphylaxis are discussed from the point of view of the physiology and pathology of passage. In most cases the author dwells not only on the experimental aspects of the question but also on the clinical applications. Unfortunately there is no subject index, and although the author index contains an impressive list of more than 600 names, not a single bibliographic reference is given, thus greatly decreasing the value of the volume to the serious student and to the investigator.

**Medical Tactics and Logistics.** By Colonel Gustavus M. Blech, Medical Reserve Corps, U. S. Army, and Colonel Charles Lynch, Medical Corps, U. S. Army, Retired. Cloth. Price \$4. Pp. 205. Springfield, Ill. & Baltimore: Charles C. Thomas, 1934.

This book is a somewhat natural continuation of the work of the principal author, who several years ago brought out a little book on map reading which still holds its place among military textbooks. Since that time he has published a manual on topography and a number of monographs in military medical journals on the strategic value of the medical service in war. The present book is the formulation of ideas developed in years of service and research in peace and war and must be accepted as authoritative. It lays a scientific foundation for the philosophy of organized military-medical service in war and exemplifies the practical application of this doctrine by a vivid presentation of diverse phases of an imaginary war on American soil. Technical comments aid the student in overcoming difficulties to be anticipated in future military operations of magnitude. A unique and useful feature of the book is a glossary of military terms, which heretofore has been lacking in military textbooks. Four topographic maps accompany the book. The suggestions in the text as to the way of making use of the maps are almost superfluous as the maps show the various battlefields even chorographically. The book is a valuable contribution to military literature, as is demonstrated by the acceptance of the dedication by the authors to former Surgeon General Ireland and the foreword by Surgeon General Patterson. It is an almost indispensable addition to the medicomilitary library.

**Through the Patient's Eyes: Hospitals, Doctors, Nurses.** By Sister John Gabriel, R.N., A.B., Hospital Consultant and Educational Director, Sisters of Charity of Providence. Cloth. Price \$1.50. Pp. 264. Philadelphia: London & Montreal: J. B. Lippincott Company, 1935.

The author of this book has had an extensive experience in nursing administration. Her volume, which is planned primarily for nurses, is intended no doubt to improve the hospital morale and to lead nurses into a better appreciation of the patient's point of view. She considers as well the question of what the patient is to be told, the attitude of friends and relatives, and the general subject of service in the hospital.

**Introduction to Physiological Chemistry.** By Meyer Bodansky, Ph.D., Director of Laboratories, John Sealy Hospital, Galveston. Third edition. Cloth. Price \$4. Pp. 662 with 39 illustrations. New York: John Wiley & Sons, Inc.; London: Chapman & Hall Ltd., 1934.

The general plan of the previous edition has been followed in the rewriting of this book. Much of the material has been extended to include the more recent advances. The confirmation of the isolation of urease, the isolation of trypsin and the study of these isolated enzymes is discussed in the present edition as is also the importance of secretion of mucus in the reduction of gastric acidity. In the case of the vitamins there is much general knowledge but in a few instances the author's



ideas of therapeutic value are quite optimistic. The section on hormones has been rewritten to include analysis of crystalline insulin and a discussion of the importance of the adrenal cortical hormone. Approximately a hundred pages has been added to the text. The book is replete with bibliographic references, which enhance its usefulness. The discussion is presented in simple, understandable style. The book is not of a type suitable for clinical teaching but is one that should serve well the needs of the basic science or medical student.

## Medicolegal

**Pneumoconiosis Attributed to Inhalation of Coke Dust.**—Grammer was employed as a still cleaner by the Mid-Continent Petroleum Corporation. The work of a cleaner was to rake down coke burning or smoldering, in stills that escaped the mechanical rake, and sweep it out. The breaking up of these coke deposits gave off dust and a trace of gases. Grammer worked steadily in that capacity for about ten years, at the expiration of which time he became ill and died. His physician diagnosed his condition as pneumoconiosis. The widow of the workman, as the administratrix of his estate, brought a common law action against the Mid-Continent Petroleum Corporation for the workman's wrongful death alleging that the corporation failed to provide Grammer with a reasonably safe place in which to work and with reasonably safe appliances with which to work and that it failed to warn or to instruct him with respect to the dangers incident to the work. The trial court, at the close of the plaintiff's evidence, directed a verdict for the defendant, and the plaintiff appealed to the United States circuit court of appeals, tenth circuit.

Among other reasons for directing a verdict, the trial court was of the opinion that there was no substantial proof that death resulted from the workman's work. The proof was most unsatisfactory, said the circuit court of appeals. Conceding that death resulted from pneumoconiosis, the attending physician's opinion that it resulted from the work was formed he testified, because he could find no other reason for it. However said the court, pneumoconiosis concededly results from deposits of foreign material, and Grammer did work in a dust-laden atmosphere. That the physicians who testified never knew of another still worker becoming so affected, and that the medical books contain reference to no other case, merely goes to the weight of the evidence. In the opinion of the appellate court, the evidence was sufficient to justify a submission of the question to the jury. If Grammer died of pneumoconiosis and if his occupation had anything to do with it, it was because of the dust in which he worked. He knew the dust was present when he took the job and he kept it year after year. He knew it was harmful to the lungs, for he was furnished with a respirator and told to wear it. While assuming the ordinary, known risks attendant on inhaling dust-laden air, he did not assume the risk of any concealed dangers lurking in the dust. The plaintiff contended that the presence of carbon monoxide and hydrogen sulphide in the stills contributed to the pneumoconiosis. Any finding by a jury, said the court, that hydrogen sulphide or carbon monoxide had anything to do with the pneumoconiosis would rest on speculation. There was nothing in the record to warrant a finding that, after the forced ventilation, there remained in the stills a sufficient amount of the gases to do injury. There was furthermore, no evidence of acute or chronic poisoning of still workers due to either gas.

The petroleum corporation continued the court, was engaged in the refining of oil a business attended with some danger as are nearly all constructive undertakings. Its equipment was standard and not defective. It followed the approved practices. It did all that was then known to minimize the risk to its employees. It operated year after year with no occupational disease resulting from the work. It had no reason to suspect any such. Tested by the principles of fault which underlie recovery for injuries at common law, concluded the court, we do not believe that the plaintiff has established her case. The judgment of the trial court was consequently affirmed.—*Grammer v. Mid-Continent Petroleum Corporation* 71 F. (2d) 38

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N. J. June 10-14 Dr. Olin West 535 North Dearborn Street Chicago Secretary
- American Academy of Pediatrics New York June 7-8 Dr. Clifford G. Grullee 636 Church Street Evanston Ill. Secretary
- American Association for the Study and Control of Rheumatic Diseases Atlantic City N. J. June 10 Dr. Loring T. Swaim 372 Marlborough Street Boston Secretary
- American Association for Thoracic Surgery New York, June 3-5 Dr. Duff S. Allen, 3720 Washington Boulevard St. Louis Secretary
- American Association of the History of Medicine Atlantic City, May 6 Dr. Edward J. G. Beardsley, 1919 Spruce Street Philadelphia, Secretary
- American Association on Mental Deficiency Chicago April 25-27 Dr. Groves B. Smith Beverly Farms Godfrey Ill. Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr. Lyman Richards 319 Longwood Drive Boston Secretary
- American College of Physicians Philadelphia April 29-May 3 Mr. E. R. Loveland 133 South 36th Street Philadelphia Executive Secretary
- American Dermatological Association White Sulphur Springs, W. Va. May 2-4 Dr. William H. Guy 500 Penn. Avenue Pittsburgh Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C. Wright 1601 35th Street N. W., Washington D. C. Secretary
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- American Society for Clinical Investigation Atlantic City May 1-4 Dr. H. L. Blumgart 330 Brookline Avenue Boston Secretary
- American Society of Clinical Pathologists Atlantic City N. J. June 7-11 Dr. A. S. Giordano 531 North Main Street South Bend, Ind. Secretary
- American Surgical Association Boston June 6-8 Dr. Vernon C. Davis 59 East Madison Street Chicago, Secretary
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- Association for the Study of Allergy Atlantic City N. J. June 10-11 Dr. Warren T. Vaughan 808 Professional Building Richmond, Va. Secretary
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- Association of American Physicians, Atlantic City May 7-8 Dr. James H. Means Massachusetts General Hospital Boston Secretary
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- Medical Women's National Association Atlantic City N. J. June 9-11 Dr. Alice I. Conklin 55 East Washington Street Chicago Secretary
- Mississippi State Medical Association Biloxi May 14-16 Dr. T. M. Dye McWilliams Building Clarksdale Secretary

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New Jersey Medical Society of Atlantic City April 30-May 2 Dr J B Morrison 66 Milford Avenue Newark Secretary  
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North Dakota State Medical Association Minot May 27-28 Dr Albert W Skelley 201 1/2 Broadway, Fargo Secretary  
Oklahoma State Medical Association Oklahoma City May 11-15 Dr I S Willour 203 Ainsworth Building McAlester Secretary  
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South Carolina Medical Association Florence April 23-25 Dr E A Hines Senece Secretary  
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## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk ( \* ) are abstracted below

### Archives of Ophthalmology, Chicago

13 151 320 (Feb.) 1935

- \*New Theory of Binocular Vision F H Verhoeff Boston—p 151  
Nematode Thelazia Californiensis as Parasite of Eye of Man in California C A Kofoid Berkeley Calif and O L Williams Stockton Calif—p 176  
Relation of Glaucoma to Blood Pressure P Weinstein Budapest Hungary—p 181  
Chemistry of Lens V I Lipids A C Krause Baltimore—p 187  
Detachment of Retina: Operative Results in One Hundred and Fifty Cases J H Dunnington and J P Macne New York—p 191  
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Metastasis in Choroid From Adenocarcinoma of Testicle I Goldstein and D Wexler New York—p 207  
Age as an Important Factor in Amount of Light Needed by Eye C E Ferree G Rand and E F Lewis Baltimore—p 212  
Cholesterol Content of Cataractous Human Lenses P W Salt and C S O'Brien Iowa City—p 227  
Nyctalopia in Infants: Report of Case of Monocular Horizontal Type P J Moorad Canandaigua N Y—p 238

**Theory of Binocular Vision**—Verhoeff states that corresponding retinal units are represented separately somewhere in the brain but that each of every pair is represented in consciousness by the same single unit. When this conscious unit receives the stimulus from one retinal unit it excludes the stimulus from the corresponding unit. For the process by which, in consciousness, stimuli from one eye are thus substituted for those from the other the term 'replacement' is suggested. The controlling factor in this process is attention. For individual retinal units replacement is always totally complete but for retinal images it may be complete or incomplete. Replacement cannot reverse the relation of a conscious image to its contiguous background unless this reversed relation already exists between one of the retinal images and its own background. For the seeing of two corresponding images as one the term 'unification' is suggested. True unification is accomplished by the complete or partial replacement in the conscious image of one retinal image by its corresponding image. When the two retinal images are nearly alike the conscious image has a nearly con-

stant value, which is nearly the same as that of each retinal image seen with one eye occluded. When the two retinal images differ in intensity or color, the attention and therefore the replacement may fluctuate (rivalry). So-called fusion of disparate retinal images does not occur but seems to occur when two similar disparate images produce the effect of depth and one of them disappears by replacement. It is suggested that this process be termed "quasi-unification." In the stereoscopic perception of depth, quasi-unification generally occurs, but depth perception is possible when both of any pair of disparate images are visible. Two disparate images, as projected on the horopter, appear about half the distance apart when seen stereoscopically as they do when seen in binocular simultaneous vision. When a disparate image disappears during stereopsis, the position of its fellow remains unchanged. Binocular luster is produced when, as the result of replacement, there is represented in a conscious area a mosaic consisting of units or minute areas of high intensity interspersed with areas of low intensity. It differs essentially from monocular luster only in the fact that it is inconstant. Since in stereoscopic vision one of each pair of disparate images can be and generally is invisible, since crossed images cannot be consciously distinguished from uncrossed disparate images and since binocular fixation can occur when one of the images fixed is invisible, it is evident that the process on which stereoscopic perception of depth depends cannot be recognized consciously. Since there is good reason to believe that corresponding retinal images are represented separately in the occipital lobes, it seems possible that the sensory nervous mechanism for stereoscopic perception of depth is situated chiefly in this region.

### Arch. of Physical Therapy, X-Ray, Radium, Chicago

18 65 128 (Feb.) 1935

- Practical and Experimental Uses of Fluorescence in Medicine C J Sutro and M S Burman New York—p 71  
Anterior Poliomyelitis and Its After Care L W Hubbard Warm Springs Ga—p 76  
Moot Aspects of Short and Ultrashort Wave Therapy C K Gale New York—p 80  
\*Ultraviolet Therapy of Gonococcal Cervicitis: Preliminary Report M Abramson Minneapolis—p 84  
Results of Short Wave and Ultrashort Wave Therapy (Radiotherapy) D H Kling Los Angeles—p 88  
The Flasher Sinusoidal Machine J Weiss Brooklyn—p 95  
Zinc Ionization in Intumescent Rhinitis M L Harris Brooklyn—p 97  
Zinc Ionization in Otolaryngology C B Sputh Indianapolis—p 98  
Chronic Otorrhea with Especial Reference to Zinc Ionization and Ultraviolet G P Morison Martinsburg W Va—p 101

**Ultraviolet Therapy of Gonococcal Cervicitis**—Abramson treated fifty cases of gonococcal cervicitis with ultraviolet rays. The patients showed a profuse purulent cervical discharge with marked erosion and eversion of the lips of the cervix. In most cases an associated urethritis was present and three presented a bilateral Bartholin's cyst. The vagina and cervical canal were swabbed clean with cotton. A cotton applicator was placed in powdered Carica papaya and then carried to the cervical canal. Within twenty to forty seconds the mucus had been entirely digested and liquefied and the cervical canal was clean and could be treated properly. Following this cleansing the cervical canal and any erosions were painted with 10 per cent silver nitrate. The orificial applicator was then inserted into the canal to the internal os and treatment given. All cases were started with a minute and a half exposure. The length of time of the exposures was rapidly increased to ten minutes. An exposure of three minutes was just as effective clinically as the longer treatments, therefore treatments of a maximum of only three minutes were given. With few exceptions after four or five treatments the cervical smears became negative with no subsequent positive smears. The amount and character of the discharge rapidly changed from the profuse purulent type to normal. On returning for a checkup preliminary to discharge, all cases showed a normal cervical secretion at least three negative smears and no clinically suggestive signs. The effect of the ultraviolet irradiation was not as rapid in curing a marked and extensive erosion of the cervix as in stopping the discharge. Cases of erosion not healing after several ultraviolet treatments were treated by the Kimble-Jaros and Cherry techniques of cervical coagulation. In

every case treated the end result was healing of the lesion. Patients were treated twice weekly and the average number of treatments given was twenty. There were no ill effects from the treatment, although two of the cases showed a small amount of bleeding after each removal of the applicator. Four patients also complained of uterine cramps at various times during the treatment but these were not constant and did not affect the results. In comparing seventy patients who had been on the usual routine treatment it was found that the average case was treated twice weekly, and that the average length of treatment was eighteen months.

### Archives of Surgery, Chicago

30 179-370 (Feb.) 1935

- Etiology and Treatment of Clawfoot.** Report of Results in One Hundred and Two Feet Treated by Anterior Tarsal Resection. J. T. Saunders. New York.—p. 179.
- \*Massive Intravenous Injections.** Experimental Study. H. J. Warthen. Richmond, Va.—p. 199.
- \*Primary Isolated Lymphogranulomatosis of the Stomach.** Report of Case. H. N. Comando. Newark, N. J.—p. 228.
- Congenital Absence of the Penis.** R. B. Drury and H. H. Schwarzell. Columbus, Ohio.—p. 236.
- Effects of Local Immunization on Development of Experimental Abscesses of Lung.** W. M. Tuttle. St. Louis, and P. R. Cannon, Chicago.—p. 243.
- \*Epithelioma Following Avulsion of Scalp.** Report of Case. E. L. Burns. St. Louis.—p. 266.
- Gastric Secretion.** VI. Action of Pilocarpine on Secretions of Transplanted Gastric Pouch Without Auerbach's Plexus. E. Klein. New York.—p. 277.
- Treatment of Fractures of Vertebral Bodies Uncomplicated by Lesions of Cord.** W. A. Rogers. Boston.—p. 284.
- The Schilling Hemogram in Appendicitis.** H. A. Carlson and Lucretia Wilder. Minneapolis.—p. 325.
- Relation of Arteries to Roots of Nerves in Posterior Cranial Fossa in Man.** J. C. Watt and A. N. McKillop. Toronto.—p. 336.
- Acute Appendicitis in Children.** C. S. Stone, Jr. Santa Barbara, Calif.—p. 346.
- Therapeutic Use of Concentrated Streptococcus Serum of New York State Department of Health in Infected Wounds.** Adele E. Sheplar. Martha Jane Spence and W. J. MacNeal. New York.—p. 357.

**Massive Intravenous Injections.**—Warthen states that large amounts of the usual solutions used for infusions may be injected intravenously into dogs without causing death or evidence of cardiac embarrassment. Injections of excessive amounts of fluid result in cerebral or pulmonary edema. The most favorable changes in the blood chemistry occur with infusions of isotonic solutions of dextrose and sodium chloride. A 5 per cent solution of dextrose causes slightly more desirable changes than does a 0.7 per cent solution of sodium chloride. Injections of hypertonic solutions of dextrose and sodium chloride cause distinctly unfavorable changes in the blood chemistry. The blood sugar value increases following infusions of 0.7 per cent sodium chloride solution and decreases following infusions of hypertonic sodium chloride solution. Large infusions of dextrose and of sodium chloride solutions cause little if any change in the fragility of the red blood cells. There is a marked acceleration of the pulse rate during intravenous infusions. The injection of fluids intravenously results in an initial rise in the arterial blood pressure. This is followed by a secondary fall to, or slightly below, the preinjection level during infusions of isotonic solutions. This secondary fall is diminished or absent during infusions of hypertonic solutions. There is a marked increase in the venous pressure during large intravenous infusions. Diuresis is most marked following infusions of 5 per cent dextrose solution. Edema of the subcutaneous tissues does not occur following the rapid injection of large amounts of fluid intravenously. Edema of the wall of the stomach and of the intestine associated with fluid in the gastro-intestinal tract and in the peritoneal cavity does occur following large intravenous infusions. The intravenous injection of 10 per cent dextrose solution results in frequent fatalities in dogs.

**Primary Isolated Lymphogranulomatosis of Stomach.**—Comando points out that Hodgkin's disease may originate in the lymphoid tissue of the gastro-intestinal tract and remain as a localized tumor for some time. The diagnosis usually made is that of carcinoma. Before the days when gastric resection was the operation of choice for gastric tumors and for infiltrating gastric ulcers, virtually no cases similar to the one the author

describes were reported in the literature. This type of gastric lesion is a distinct clinical entity, and the favorable results that have followed operative treatment in several cases more than justify the radical operation. The pathologic changes noted in his case were those of an infiltration of the distal portion of the pars media and the proximal part of the pyloric portion of the stomach. A Wassermann test was advised in order to rule out syphilis before an interpretation of the condition as a malignant process was accepted. An increased density was noted in the region of the liver. A small deposit was noted in the lower lobe of the left lung. The patient left the operating room in good condition and made an uneventful recovery. In two months he had gained 25 pounds (11.3 Kg.), had returned to his usual occupation and was able to eat all kinds of food. A careful follow up has shown no evidence of any recurrence and the patient continues to feel well.

**Epithelioma Following Avulsion of Scalp.**—Burns describes the late onset of fatal complications and their character following avulsion of the scalp. The sequence of events was (1) spontaneous epithelization over a period of sixteen years, (2) subsequent ulceration and infection of a portion of the healed area during pregnancy, (3) development of osteomyelitis of the skull, which later necessitated removal of the top of the calvarium, (4) failure in attempts at plastic repair, and (5) death with symptoms of meningitis twenty-one years after the accident. At the time of necropsy, direct growth of tumor cells across the meninges and through the brain substance was established. From the histologic study it seems probable that these cells preceded and marked the path of infection which developed later. The external irritating agencies played the most important part in producing a malignant tumor.

### Arkansas Medical Society Journal, Fort Smith

31: 143-166 (Feb.) 1935

- Colon Dysfunction.** H. G. Rudner. Memphis, Tenn.—p. 143.
- Chia mai Syndrome.** Report of Cases. A. H. Mann. Texarkana.—p. 149.

### Canadian Public Health Journal, Toronto

26 1-52 (Jan.) 1935

- Contact with Infection in Tuberculosis.** Its Role in Disease Production and Protection. S. L. Cummins. Cardiff, Wales.—p. 1.
- Development of Public Health in Prince Edward Island.** B. C. Keeping. Charlottetown, Prince Edward Island.—p. 9.
- Housing in Montreal.** A. Cousineau. Montreal.—p. 15.
- Public Health Aspects of Wading Pools for Children.** W. J. McCormick. Toronto.—p. 26.
- Government Control of Veterinary Biologic Products.** G. Hilton. Ottawa, Ont.—p. 33.

### Journal of Urology, Baltimore

33 83-200 (Feb.) 1935

- Dynamic Hydronephroses and Sympathectomy of Ureter.** L. Caporale. Turin, Italy.—p. 83.
- Surgical Treatment of Hydronephrosis.** J. C. Kimbrough. Washington, D. C.—p. 97.
- \*Complete Nephro-Ureterectomy.** New Method Employing Principle of Electrocoagulation to Intramural Portion of Ureter. J. A. C. Colston. Baltimore.—p. 110.
- Papillary Carcinoma and Hypernephroma Occurring in the Same Kidney.** Report of Case. J. F. Balch. Indianapolis.—p. 138.
- Nephrectomy Versus Antinephrectomy in Renal Tuberculosis.** T. E. Gibson. San Francisco.—p. 145.
- Extrusion Operation for Tuberculosis of Epididymis.** A. B. Cecil. Los Angeles.—p. 160.
- \*Further Studies of Methylene Blue in Treatment of Urinary Tuberculosis with Presentation of Purified Drug.** B. E. Greenberg. M. L. Brodny. T. L. Davis and Catherine Armstrong. Boston.—p. 168.
- Diversion of Urinary Stream.** G. G. Smith. Boston.—p. 179.
- Automatic Intermittent Bladder Irrigation Apparatus.** J. R. Perdue. Durham, N. C.—p. 198.

**Complete Nephro-Ureterectomy.**—Colston outlines a simplified technic by which complete nephro-ureterectomy can be accomplished, avoiding the technical difficulties and postoperative complications that may occur when a cuff of mucous membrane about the ureteral orifice is excised. The operation is indicated in the treatment of primary tumors of the ureter and papillary tumors of the pelvis of the kidney. In many cases of renal tuberculosis in addition to nephrectomy, there is also a definite indication for ureterectomy. The extent of the tuberculous process in the ureter can best be determined by a study of the ureterogram. Alternate areas of constriction and dilation

tation with a "moth eaten" appearance of the edges of the pyelographic medium in the ureter provide sufficient evidence to diagnose an extensive ulcerative tuberculous ureteritis. In such cases excision of the ureter is definitely indicated. The operation of nephro ureterectomy or ureteronephrectomy entails little more shock to the patient than a simple nephrectomy. Three cases presenting different pathologic conditions are reported. Previous to the operation the bladder is distended with sterile water. The anesthesia may be chosen according to the surgeon's preference. The usual incision is made commencing in the costal angle and extending down below the twelfth rib for a variable distance depending on the necessity of the case. The muscles are divided, the deep fascia is opened and divided up to and including the costovertebral ligament. The kidney is separated from adhesions and the pelvis and ureter are dissected free, the separation of the latter structure being carried down to the brim of the bony pelvis. The vascular pedicle is isolated and controlled with three clamps; the kidney is excised and the vascular stumps are tied twice with chromic catgut. The kidney is replaced in the wound which is packed with gauze. The patient is then turned to a prone position with the head somewhat depressed and tilted on the table away from the side of operation. An incision is made parallel with Poupart's ligament; the muscles are divided in the line of their fibers; the peritoneum is pushed toward the midline and the ureter is picked up and separated from the retroperitoneal structures. The ureter is completely separated from all structures down to its entry in the bladder. It is clamped twice just above the bladder and divided with the electric cautery. The exposed ureteral mucosa of each stump is thoroughly and completely destroyed by the electrocautery; the proximal stump is tied with catgut and the clamp is removed. The distal stump of the ureter is grasped by its wall on each side, the clamps being placed in such a manner as not to occlude the lumen. The occluding clamp is removed. A coagulating electrode with a bulbous end of about 10 mm. is introduced into the ureteral lumen and passed slowly back and forth through the lumen with an appropriate current strength until the entire mucosa of the ureter has been destroyed. The distal stump is ligated and the wound is closed in layers with tube drainage. The patient is replaced in the nephrectomy position and by gentle traction and blunt dissection the ligated proximal stump is drawn up and the kidney and ureter are removed intact. The nephrectomy incision is closed in layers with drainage.

#### Methylene Blue in Treatment of Urinary Tuberculosis

—The studies of Greenberg and his associates indicate that the impurities in methylene blue are responsible for the untoward symptoms produced when the drug is used in urinary tuberculosis, thus demonstrating that the blue dye is present as in the spontaneously colored kidneys but in the nonblue form and that the production of a pure drug is essential. Through the work of Armstrong the authors are now provided with an almost perfectly pure product. They have used this in four cases. It has produced no irritating symptoms and the cases show improvement as in the cases which benefited by the commercial product when tolerated. Whatever benefit results from the use of methylene blue should be ascribed to the dye and not to its impurities. A method has been devised for the preparation of pure methylene blue.

#### Laryngoscope, St. Louis

45 81 162 (Feb.) 1935

- Window Operation for Hematoma Auris and Perichondritis with Effusion R C Howard New York—p 81  
Otomycosis in Hawaii C W Trexler Honolulu T H—p 106  
Hydrostatic Ionization of Nose C K Gale New York—p 110  
Chronic Sinusitis in Children Diagnosis and Treatment Case Reports W Spielberg New York—p 114  
Edema of Retina Due to Acute Maxillary Sinusitis H Dintenfuss Philadelphia—p 138  
Intestinal Bacterial Flora in Chronic Sinus Disease S N Parkinson Oakland Calif—p 140  
Some Clinical Observations on Influence of Certain Hygroscopic Agents in Cigaretts F B Flinn, New York—p 149

**Hydrostatic Ionization of Nose**—Gale uses the following technique. The patient is seated with the head slightly inclined forward. The nasal tip of a glass tube about  $7\frac{1}{2}$  inches long with a sealed in electrode at the base of the tube is inserted

into one nostril, sufficiently snug to prevent leakage. The positive pole of the galvanic apparatus is connected with the sealed in electrode, while the patient holds in one hand a moistened pad connected with the negative electrode. The top of the tube is funnel shaped and through it the ionizing solution (1 per cent zinc sulphate) is slowly poured. Since the top of the glass tube is above the level of the nose, the solution in the nose will rise to the same level it occupies in the tube. In this way the entire nasal cavity will be flooded. As the fluid touches the nasopharynx, the soft palate is automatically raised and the solution begins to escape from the opposite nostril. At this point the patient occludes the opposite nostril, and the entire nose is filled with ionizing solution and ionization is already taking place, as electrical contact has been made. The patient holds the mouth open and breathes deeply. There will be some slight escape of solution from the throat, which is readily made up by pouring more solution into the funnel to keep it at the proper level. The duration of treatment is from ten to twenty minutes, and from 6 to 10 milliamperes of current is used. The author's results obtained in allergic conditions of the nose and chronic catarrhs have been good.

#### Michigan State M. Society Journal, Grand Rapids

34: 59 138 (Feb.) 1935

- Appraisal of Methods of Treating Pneumonia C C Sturgis Ann Arbor—p 59  
Treatment of Facial Wounds Due to Motor Accidents C L Straith Detroit—p 64  
Biologic Unity of Hypertensive Arterial Disease E J Stueglitz Chicago—p 70  
Suggestion for Classification of Certain Allergic Dermatoses M B Sulzberger New York—p 78  
Extrapleural Ovarian Cyst Report of Case W L Hackett and M M Silverman Detroit—p 84  
Gridiron Incision in Appendicitis C R Davis Detroit—p 85  
Welfare Medical Service in Oakland County R G Tuck Pontiac—p 89  
Idiopathic Megacolon Occurring in Woman Forty Five Years of Age E J Rennell Traverse City—p 92  
As Seen Abroad J Powers Saginaw—p 93

#### Missouri State Medical Assn Journal, St. Louis

32 37 80 (Feb.) 1935

- \*Experimental Production of Fat (Pancreatic) Necrosis M P Neal and M M Ellis Columbia—p 37  
Influence of Pneumothorax Treatment on Prognosis of Tuberculosis A C Henske and C W Ehlers St. Louis—p 41  
Amebiasis A S Welch Kansas City—p 45  
Carcinoma of Cervix Results of Treatment in One Hundred and Thirty Six Cases E S Auer St. Louis—p 47  
Pregnancy Test as Guide in Management of Ectopic Pregnancy M A Roblee St. Louis—p 50  
The Neurotic Challenge G W Robinson Jr. Kansas City—p 53  
High Blood Pressure as Symptom and When It May Be Called Malignant E Schisler St. Louis—p 56

**Experimental Production of Fat Necrosis**—Neal and Ellis produced experimental fat necrosis by the injection of commercial pancreatins pancreatic secretions from dogs and purified and concentrated lipase fractions derived from animal and vegetable sources. The various lipase fractions possessed physical and chemical properties characteristic of enzymes in that they were not thermostable; they were inactivated by ethyl alcohol in strengths above 50 per cent, strong acids and strong alkalis, and they decomposed ethyl butyrate. The highly purified fractions were colloidal in character and were globulin-like. The lipase containing fractions showed no species specificity for animals in their ability to produce fat necrosis, as evidenced by the fact that the lesion has been experimentally produced in vertebrates (fish, turtles, birds and mammals) in which the body temperatures ranged from 18 to 43 C (64.4 to 109.4 F). Clinical fat necrosis goes through a normal process of repair and is not a fatal lesion, but the condition that precedes it and is responsible for it is often fatal. The presence of fat necrosis in the intra-abdominal fat or in wounds of the abdominal wall indicates a damage either to the pancreas or to a pancreatic duct. The fat necrosis then is a secondary and not a primary lesion. In experimental animals all stages of the lesion up to complete repair have been found. In the human subject at necropsy or in cases in which a second surgical procedure is necessary within the abdominal cavity after fat necrosis had been observed at a previous operation

one may find repair even to a complete disappearance of such previous areas. In the experimental work the authors used every reasonable animal and chemical control to prove that they were dealing with a purified lipase fraction and that the various extractives employed were not capable in themselves of producing these changes. Injections of the extractives of  $p_H$  values even beyond the ranges employed have failed to produce the condition. Histologic examinations of all material were done, irrespective of the gross observations, as a means of eliminating false interpretations, such as postmortem changes, and to prove that pancreatic lesions were not responsible for the changes.

### New York State Journal of Medicine, New York

35: 101 146 (Feb 1) 1935

- Vegetative Disturbances of Cerebral Origin* J H Globus New York —p 101  
*The Common Cold* H S Diehl Minneapolis —p 109  
*Rupture of Suppurative Cervical Adenitis into Middle Ear* M B Brahdy and L H Schwartz Mount Vernon —p 117  
*Use of Cecal Drainage in Ruptured Appendicitis* G M Dorrance and S W Nealon Jr Philadelphia —p 119  
*Classification of Mental Disorders* R E Herold Willard —p 121

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- Action of Autonomic Nervous System as Explanation for Therapeutic Value of Carbonic Acid Baths in Degenerative Cardiac Disease* A Lambert New York —p 147  
*Treatment of Diabetic Coma* H O Mosenthal New York —p 157  
*Diabetic Regimen in Surgical Cases* A H Terry New York —p 159  
*Gastrojejunal or Marginal Ulcer* D P MacGuire New York —p 161  
*Advanced Cardiac Insufficiency Results of Intensive Ambulatory Treatment with Diuretic Measures* M Friedenson New York —p 165  
*Phases of Otolaryngology of Interest to the General Practitioner* M F Jones New York —p 169  
*Westchester County Child Health Examination Program* I Hall New Rochelle —p 172

### Pennsylvania Medical Journal, Harrisburg

38: 309 388 (Feb) 1935

- Surgical Treatment of Chronic Heart Disease by Complete Removal of Normal Thyroid* H L Blumgart Boston —p 309  
*Endocrinology Present Day Summary* R Denison, Harrisburg —p 313  
*Running Ears and Practice of Medicine* G M Coates Philadelphia —p 320  
*Blood Transfusion Clinical Application* A P Parker Philadelphia —p 324  
*\*Treatment of Prenatal Syphilis with Acetarsone (Stovarsol) Preliminary Report of Results in Seventy Three Cases* D M Pillsbury and H H Perlman Philadelphia —p 327  
*Report of Three Years Clinical Study of Scarlet Fever Immunization* Emily P Bacon Philadelphia —p 331

**Treatment of Prenatal Syphilis with Acetarsone** — Pillsbury and Perlman used acetarsone in the treatment of seventy-three cases of prenatal syphilis, no other form of syphilotherapy being given in forty-four. Treatment in a considerable proportion of these cases is not yet completed. The clinical response seems excellent and the initial influence of the drug on the serologic condition of the incompletely treated patients is regarded as satisfactory. Acetarsone has a definite tendency to produce reactions of varied types, some of which may be serious. The advantage of early diagnosis is apparent in the better serologic response in patients less than 1 year of age. Testing of the urine for arsenic may or may not prove a feasible method of control in patients in whom it is suspected that the administration of treatment is being neglected. Acetarsone therapy demands the closest type of observation and control. The following precautions and methods are essential: (1) complete preliminary examination of the patient, including urinalysis, (2) an extremely cautious and reduced dosage level in infants, in patients with the slightest urinary abnormalities and in those who have had previous reactions to the drug, (3) weekly observation and urinalysis, and (4) permanent cessation of acetarsone therapy with the occurrence of any severe reaction. The method deserves continued clinical trial and cannot be regarded as completely evaluated, as (1) adequate information of final results on the basis of five or ten year follow ups is not available, (2) the necessary dosage level is still a subject of considerable dispute, (3) the advisability or necessity of combining it with some type of heavy metal therapy has not been determined, and (4) the drug has a definite tendency to produce reactions, the variety of which is apparently increasing.

### Philippine Islands Med Association Journal, Manila

15: 1 50 (Jan) 1935

- Remarks on Recent Trends in Medical Education* A Garcia Manila. —p 1  
*Food Poisoning Outbreaks in the Philippines* E Hernando and J V Punsalang Manila —p 10  
*Report on Case of Cancer of Sigmoid with Resection of Rectum and Sigmoid* J Eduque Manila —p 26  
*Lobar Pneumonia in Children Under Three Years Old* J Albert and M Abad, Manila —p 29

### Public Health Reports, Washington, D C

50: 163 202 (Feb 8) 1935

- Endamoeba Histolytica in Washings from Hands and Finger Nails of Infected Persons* Bertha Kaplan Spector J W Foster and N G Glover —p 163  
*Comparative Study of Streptococcal Immunity Produced in Rabbits by Heat Killed Cultures by Active Bacteriophage and by Inactivated Bacteriophage* Alice C Evans —p 165  
*Principles of Sanitation and Hygiene for Correctional Institution.* M R King —p 181

50: 203 236 (Feb 15) 1935

- Mottled Enamel in Cattle* H T Dean —p 206  
*Family Survey as Method of Studying Rural Health Problems* Brunswick Greenville Health Administration Studies Number Three. E H Pennell —p 210

### Science, New York

81: 183 210 (Feb 22) 1935

- Role of Carbamino Compounds in Transport of Carbon Dioxide by Blood* W C Stadie Philadelphia —p 207  
*Refractoriness to Ovarian Stimulation in Rhesus Monkey* R K Meyer and E L Gustus Kalamazoo Mich —p 208  
*\*Control of Bronchial Asthma.* N F Shambaugh and S M Alter Los Angeles —p 210

**Control of Bronchial Asthma** — Shambaugh and Alter prevented the attacks of paroxysmal dyspnea in fifty cases of bronchial asthma by a regimen based on elimination, by postural drainage, of the accompanying bronchial and pulmonary exudate. The first therapeutic step is reduction of the viscosity of the bronchial and pulmonary exudate in order to facilitate its evacuation. Then the patient is instructed to kneel on a chair or stool and place both hands on the floor. The more nearly the thorax approximates an inverted vertical position, the more nearly ideal are the results. While in this position the patient coughs as nearly continuously as possible and peroral drainage of the exudate is thus accomplished through the combined agencies of the tussive squeeze, ciliary drainage and the bechic blast. The exudate is then expectorated. The inverted position is maintained for a minimum of three minutes, regardless of productivity. This procedure is carried out at least twice daily, preferably on arising and retiring. Coughing during the interval between drainage procedures is the signal that insufficient evacuation of the bronchial passages has been accomplished. Although it is possible by the foregoing procedure to prevent asthmatic attacks when active infectious foci are present, total and permanent quiescence of the bronchial and peribronchial inflammation will occur only after ablation of these foci. Some of the authors' patients have been asymptomatic for four years without treatment. Their series consists of a group of severe and recalcitrant cases between the ages of 6 and 75 years. Strict adherence to the regimen has not yet failed to keep the patients free from asthmatic attacks.

### South Carolina Medical Assn Journal, Greenville

31: 21-42 (Feb) 1935

- Diagnostic Significance of Visual Fields* D St P Ashill Columbia. —p 25  
*Present Status of the Radiologist in Treatment of Breast Cancer* J P Rousseau Winston Salem N C —p 30  
*The Use of Some Common Drugs in Urology* J E Boone Columbia. —p 34

### Southwestern Medicine, Phoenix, Ariz

19: 33 64 (Feb) 1935

- Surgical Mortality of the Southwest* D M Davis Phoenix, Ariz. —p 33  
*Medical Economics* H E Rodgers Albuquerque N M —p 34  
*Treatment of Pneumonia.* F B Kelly Chicago —p 35  
*Review of Two Hundred and Sixty Eight Appendectomies* S H Newman El Paso Texas —p 41  
*Laboratory Report on Three Cases of Undulant Fever in New Mexico.* Myrtle Greenfield and Thelma DeCapito Albuquerque N M —p 53

## Surgery, Gynecology and Obstetrics, Chicago

NO. 257 634 (Feb. 15) 1915

- Principles of Gastric Surgery D C Balfour Rochester Minn —p 257  
Infection in Clean Operative Wounds Nine Year Study F I Meleney New York —p 264  
Infections of Lip and Face F A Collier and I Iglesias Ann Arbor Mich —p 277  
Experiences with Tubed Pedicle Flaps H Cillies London England —p 291  
Phagedenic Ulceration Its Recognition and Treatment E Holman San Francisco —p 304  
Some Remarks on Crani Cell Tumor of Bone H Platt Manchester England —p 318  
Endocrine Mechanisms in Certain Functional Gynecologic Disorders E Novak Baltimore —p 330  
The Unsolved Fracture K Speed Chicago —p 341  
Sterility, with Especial Reference to Surgical Possibilities B Salomons, Dublin Ireland —p 352  
Hydrocephalus and Spina Bifida W Penfield Montreal —p 363  
Diagnosis and Treatment of Diverticulitis and Diverticulosis I Abell Louisville Ky —p 370  
Repair of Defects Resulting from Full Thickness Loss of Skin from Burns J B Brown and V P Blair St Louis —p 379  
Living Grafts of Thyroid and Parathyroid Glands H B Stone J C Owings and G O Cey Baltimore —p 390  
Statistical Study of Diseases of Esophagus A S Macmillan Boston —p 394  
The Esophagus H P Mosher Boston —p 403  
Esophageal Surgery E D Churchill Boston —p 417

**Phagedenic Ulceration**—Holman presents four cases exhibiting the characteristic features of progressive and relentless bacterial ulceration of the skin and subcutaneous tissues. The inference is that some intestinal organism or organisms are in some way responsible for these infections. In the four cases reported one followed an appendectomy, two followed the draining of axillary abscesses secondary to lesions of the hand—one incurred while handling animal fertilizer the other while grating carrots—and the fourth occurred in a plumber whose clothes were habitually soiled by sewage. In these cases two organisms were invariably found the streptococcus recovered was hemolytic and aerobic. The authors' animal experiments with attempts to reproduce the lesion by inoculation of two organisms singly and in combination corroborate Meleney's observation that two organisms together produce more pronounced lesions than single organisms but in no instance was he or Meleney able to reproduce the progressive lesion seen in the human cases. In studying the factor of individual resistance a basal metabolic rate of minus 23 and minus 25 per cent was observed in the fourth case. The third patient when on the road to recovery, showed a normal metabolic rate of plus 7 per cent. In treating such infections, every effort should be made to increase the resistance of the host to infection. This may be accomplished by transfusions, sun baths and a high vitamin diet, augmented by cod liver oil and vitamin B. The case of Probst and Seelig responded promptly and decisively to blood transfusion from immunized donors. Locally, the resistance of the host to the infecting organisms was affected in the axillary abscesses by the introduction of maggots. In adopting maggot therapy adequate medication, such as morphine, pantopon or sodium amylal, should be employed every two hours to control pain and the maggots must be used in sufficient number so that every part of the wound is being attacked simultaneously. The success of the debridement lies in carrying the incision through absolutely healthy skin and subcutaneous tissues, and abolishing all pockets in which pus may accumulate and stagnate. All overhanging tissue must be removed. On the first admission of the second patient, in the presence of an advanced infection the white cells numbered 15,550 polymorphonuclears 82 per cent banded 47 per cent and segmented 35 per cent. Eleven days later, four days after an extensive debridement the white cells numbered 12,000 polymorphonuclears 82 per cent banded 70 per cent, segmented 12 per cent. Thirteen days later, when the suppuration was under better control, the white cells numbered 9,100 polymorphonuclears 64 per cent banded 17 per cent segmented 46 per cent. The author states that it seems unlikely, from the fatal outcome in this case, that the deep seated axillary abscesses in the first and third cases could have been successfully treated without recourse to maggot therapy. Complete cautery debridement and the abolition of all pockets was obviously impossible. Only maggots could cope with the dirty edematous granulation tissue, containing numerous organ-

isms, which extended in each instance to the very apex of the axilla. One unexpected advantage resulting from the maggot therapy was the healing that occurred in both axillary abscesses without permanent cicatricial contractures. Full range of motion is now present in both cases. In treating axillary abscesses it is important to support the arm in the abducted position by means of the Balkan frame.

**Repair of Defects Resulting from Full Thickness Loss of Skin from Burns**—Brown and Blair outline the essential points of care that have usually proved of benefit for patients in whom a large area of the full thickness of the skin has been destroyed by a burn. 1 The patient should be kept free from pain and from objectionable restraints, sedatives should be used carefully, and interest in the surroundings should be developed. Nutrition must be kept up and transfusions may be required frequently. 2 The local care of the open wounds has for its object the cleaning up of the areas. Surgical drainage is best accomplished by the use of sodium chloride dressings or by the continual sodium chloride bath for from one to three hours a day followed by dry heat or further wet dressings. Many antiseptics (common and proprietary) and gentian violet have been used, but at present the authors rely on surgical solution of chlorinated soda if anything other than sodium chloride is necessary. 3 If large areas are to be covered it is necessary to develop a method of obtaining free skin grafts of suitable thickness in large amounts, cutting them rapidly and ensuring prompt healing of the area from which the grafts are taken. The graft (thick split) that they have found most applicable over open wounds is one that includes from one half to three fourths of the thickness of the skin. 4 The care of the grafted area requires a simplified method of applying a pressure dressing and of keeping it moist if necessary; i. e., when there is reason to fear a degree of infection that might damage the graft, a wet sodium chloride dressing with irrigation tubes incorporated in it is put on and pressure is obtained over the area with sea sponges bound on firmly with heavy gauze rolls. The dressings are kept constantly moist for four days, at which time the first dressing is changed. If the area is quite free from contamination, a sponge pressure dressing is applied with a few layers of grease gauze over the graft. 5 In the repair of late burn contractures, free skin grafts can be used extensively and give permanent bearing surfaces in many instances. They often may be substituted for a tedious, laborious use of pedicle flaps that require multiple operations. If there are sinuses extending down into scar folds that harbor organisms detrimental to the chance of a skin graft taking, a preliminary opening is done and sometimes a huge open wound is produced. In the grafting of all contaminated open wounds, the thick split graft is used rather than a full thickness graft because of the greater assurance of its taking in such a field. If the late contraction is healed so that a clean operation can be done, the use of a full thickness graft can be undertaken much more safely, but even here the split graft can be used satisfactorily and may even be required if the area to be grafted is so large that the necessary amount of full-thickness skin cannot be sacrificed. 6 Burns of the hands deserve special attention in order to prevent deep infection, which rapidly fixes the tendons and joints and produces deformities that may never be overcome. For deep losses, the first treatment should be active surgical drainage, active movement should be encouraged, the fingers should be dressed apart, and the whole hand should be kept in a position of function. The average burn should be ready for grafting in three weeks, if tendons have not been exposed. 7 The rehabilitation of the patient's activities should be started early if possible even before surgical restoration is started. In all the working contacts with patients, a firmness of purpose should be maintained that will tend to keep the patient's morale on the highest possible level.

**The Esophagus**—In addition to pointing out that fibrosis of the esophagus, especially of the terminal portion, is the result of infection from contiguous organs, Mosher shows that fibrosis of isolated areas is fairly common, especially in such chronic infections as arteriosclerosis. In infections of the blood stream, the esophagus is often involved to the extent of ulceration. In acute infections (pneumonia) the esophagus may be infected. Chronic infection as shown by an infiltration of



lymphocytes under the epithelium and in the glands and about the gland ducts, is also common. Dilatation of the subepithelial blood vessels is an almost invariable occurrence in diseases, such as cirrhosis of the liver, which impede the venous circulation. Cirrhosis of the liver and infection of the gall-bladder are among the chief causes of infection of the esophagus. As necropsy specimens of these conditions accumulate, this fact is becoming more and more evident. Hemorrhage into the muscular layers extensive enough to disrupt them may occur when there is back pressure on the esophageal vessels. The glands of the esophagus are especially liable to infection and are probably the chief route by which the esophagus is infected from within. One form of solitary follicle is simply a collection of lymphocytes following a gland duct to the surface. The esophagus can be infected from within and from without and is often infected in both acute and chronic disease. In the esophagus, fibrosis follows infection, as it does in other organs of the body. As the esophagus is so frequently infected, there is abundant cause for strictures or fibrosis to occur in any part.

### Texas State Journal of Medicine, Fort Worth

30: 617 680 (Feb.) 1935

- Amebiasis J P Simonds Chicago—p 624  
Jaundice Its Clinical Significance and Management L B Sheldon Dallas—p 627  
Obstetric Analgesia A T Stewart Lubbock—p 632  
Pelvic Floor Injuries Due to Childbirth C B Sacher Dallas—p 638  
Economics of Radiology J B Johnson Galveston—p 640  
Some Important Etiologic Factors in Rapid Loss of Vision Case Reports in Point B Woodson Temple—p 642  
Complications Peculiar to Pharyngeal Surgery R L Works Browns ville—p 649  
Pulsating Exophthalmos C S Sykes Galveston—p 651  
Visual Studies in Public Schools J G Jones Dallas—p 653  
Value of the County Health Unit in Public Health D C Peterson Austin—p 658

### Western J Surg, Obst & Gynecology, Portland, Ore

43: 1 60 (Jan.) 1935

- Spinal Tumors Report of Six Cases A J McLean Portland Ore—p 1  
Problems in Hydrodynamics of Analgesics in Subarachnoid Fluid of Man Diazotized Novocain in Artificial Dural Sacs G R Vehrs Salem Ore—p 16  
Postoperative Incisional and Recurrent Hernias of Anterior and Lateral Abdominal Wall A P Heineck Chicago—p 33  
Progressive Change of Myofibroma to Spindle Cell Sarcoma A A Matthews and R F Stier Spokane Wash—p 40

### West Virginia Medical Journal, Charleston

31: 49 96 (Feb.) 1935

- Anesthesia in West Virginia E B Tucker Morgantown—p 49  
\*Artificial Rupture of Membranes as Means of Inducing Labor M P Rucker Richmond Va—p 54  
Cancer of Rectum C C Mechling Pittsburgh—p 57  
Evolution of Psychiatry E F Reaser Huntington—p 60  
Hyperthyroidism M H Porterfield Martinsburg—p 67  
Some Notes on Value of Radiation in Gynecology W Neill Jr Balti more—p 71  
Relation Between the Operating Room and the Laboratory W T Gocke, Clarksburg—p 73  
Spinal Cord Tumor Report of Case W Bronaugh Belpre Ohio—p 75  
Postmortem Cesarean Section W E Hoffman Charleston—p 78

**Artificial Rupture of Membranes as Means of Inducing Labor**—Rucker believes that rupture of the membranes is an efficient means of inducing labor at term and a useful method in certain cases of marginal placenta praevia and toxemias of pregnancy. With a proper technic there seems to be less risk of infection than in uncomplicated spontaneous labors. Apparently there is some risk of a contraction ring developing. The risk to the baby is not great. There is a small chance of the cord prolapsing, especially if the presenting part is not engaged.

### Wisconsin Medical Journal, Madison

34 77 152 (Feb.) 1935

- Prevention of Surgical Complications E S Judd and G W Waldron Rochester Minn—p 87  
Treatment of Hay Fever by Ionization Method J A Hurlbut Madison—p 93  
Present Status of Arthroplasty W R MacAusland Boston—p 95  
Some Everyday Problems in Diagnosis and Treatment of Cancer E Fischel St Louis—p 100  
Summary of Causes of Anemia with Fundamentals Concerning Treatment H Z Giffin Rochester Minn—p 106

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Physical Medicine, London

9: 177 200 (Feb.) 1935

- Occupational Therapy as Practiced in Children's Hospitals for Surgical Tuberculosis H Gauvain—p 179  
The Debilitated Child W E Snell—p 181  
The Aged Child Some Points in Prophylaxis from Physical Treatment Point of View J Menell—p 183  
Prevention of Rheumatism in Young Children J F H Dally—p 185  
Nasal Catarrh in Children A L Yates—p 187  
Physical Treatment of Paralysis in Children R G Gordon and M F Brown—p 189  
Treatment of Fractures of Limbs in Children F D Saner—p 192

### British Journal of Surgery, Bristol

22 403 638 (Jan.) 1935

- \*Etiology of Vascular Symptoms of Cervical Rib D M Blair F Davies and W McKissock—p 406  
Diffuse Intraduct Carcinoma of Breast E H Lepper and A H Baker—p 415  
Serial Radiographic Appearances of Neuropathic Shoulder Joint J F Brailsford—p 424  
\*Renal Adrenal Adherence T B Davie—p 428  
Collective Inquiry by the Fellows of the Association of Surgeons into Gastrojejunal Ulceration G Wright—p 433  
Chronic Interstitial Mastitis F d Abreu—p 456  
\*Interstitial Radium Treatment of Carcinoma of Breast Description of Radical Technic R G Hutchison—p 465  
Diaphragmatic Hernia T Dunhill—p 475  
Congenital Hernia Through Right Dome of Diaphragm F Forty—p 500  
Intestinal Herniation Through a Mesenteric Hiatus E S J King—p 504  
Dyschondroplasia (Ollier's Disease) Report of Case D Hunter and P Wiles—p 507  
Colostomy W B Gabriel and O V Lloyd Davies—p 520  
Adenomas of Pituitary with Especial Reference to Pituitary Basophilism of Cushing W Susman—p 539  
Perforation of Carcinoma of Stomach into General Peritoneal Cavity I Aird—p 545  
Bilateral Bipartite Patellas R George—p 555

**Etiology of Vascular Symptoms of Cervical Rib**—Blair and his co-workers examined histologically the brachial plexus from a case of cervical rib in which the vascular affects were pronounced. They agree with the view of Telford and Stopford that the clinical picture in these cases is one of irritation of the sympathetic (vasoconstrictor) fibers passing to the distal arteries of the upper limb, and not one of paralysis of sympathetic fibers, as other observers thought. In their case the rapid return of pulsation in the radial, ulnar and brachial arteries after operation signifies that thrombosis had not supervened on the arterial spasm. The increased tension of the arterial walls and the diminution of their lumen had alone been sufficient to render pulsation undetectable. That pulsation in these arteries however, did not return immediately to normal on removal of the cervical rib and the incomplete disappearance of pain after this operation suggest that the irritation of the sympathetic fibers is not due merely to mechanical pressure of the rib but that a chronic aseptic inflammatory lesion in the nerves immediately related to the rib is produced by the pressure irritation. The thickening of the endoneurium and the proliferation of endoneurial nuclei observed by the authors in the lower trunk of the brachial plexus (particularly in its inferior part) and in the distal part of the first dorsal nerve, where it came into immediate relation with the cervical rib, appear to them to be of special significance. They interpret these histologic observations as evidence of irritation by the rib in the immediately related nerves. The collection of nerve fibers (largely unmyelinated) which, for a distance of one fourth inch had a separate existence in the inferior part of the lower trunk of the plexus, cannot be considered an unjoined ramus as Telford and Stopford claim for the separate bundle of unmyelinated fibers. In the present specimen the number of unmyelinated fibers in this collection forms only an extremely small fraction of the total number of unmyelinated fibers in the lower trunk of the plexus, and it is difficult to believe that irritation of these few unmyelinated fibers can be responsible for such widespread arterial spasm as was present. The fact that only the lower trunk and the first dorsal nerve showed



histologic evidence of proliferation of endoneurium and endoneurial nuclei and the authors' interpretation that this lesion was responsible for the widespread irritative effects on the sympathetic vasoconstrictor fibers to the vessels of the limb implies that a large proportion of the vasoconstrictor unmyelinated fibers enter the limb by way of the lower trunk or that these fibers in the lower trunk of the plexus have a particularly widespread distribution to the arteries of the limb. Unmyelinated fibers in general are more numerous in the lower trunk. The authors are unable to give any information as to whether the nerves on the under aspect of the subclavian artery, derived from the sympathetic chain and from the ansa subclavia were in any way affected. The lesion affected principally the unmyelinated vasoconstrictor fibers in the inferior part of the plexus. There was no anatomic segregation of the unmyelinated fibers which would explain their special involvement. It is desirable that operative treatment, whether removal of the cervical rib or division of the scalenus anterior muscle allowing the rib to droop, should be undertaken as early as possible to relieve the plexus from harmful pressure.

**Renal-Adrenal Adherence**—In the course of the routine performance of approximately 1,500 postmortem examinations Davie has on six occasions observed a degree of bilateral renal adrenal adherence which would have rendered impossible the removal of the kidney without the coincident removal or serious laceration, of the adrenal. In all these cases (adults) the small amount of loose connective and fatty tissue that usually separates the anterosuperior surface of the kidney from the postero-inferior aspect of the superposed adrenal was absent in whole or in part. In some of the cases the lower portion of the adrenal was tunned out and applied closely to the upper third of the anterior surface of the kidney and section showed either complete absence of any capsular connective tissue between the two organs or else the presence of only a single attenuated layer of fibrous tissue separating the two organs and serving as a capsule for both. No other forms of developmental abnormalities were present. In particular, in none were there macroscopic evidences of adrenal rests within the renal parenchyma nor were any of these rests discovered in the considerable number of sections cut for histologic examination. No ectopic adrenal fragments were found.

**Interstitial Radium Treatment of Carcinoma of Breast**—Hutchison describes an interstitial radium technic for carcinoma of the breast that he believes is sound in principle, safe in practice and is claimed to be a radical radium implantation, the main features of which are the following. According to the size of the breast one or more layers of needles are inserted from the medial and lateral sides, in such a way that the needles of the deepest layer, undercutting the breast do not meet in the center and that any subsequent more superficial layers approximate gradually more closely until the effect achieved is that of a cone of radioactive foci with a central zone adequately irradiated but not containing actual needles. The peripheral ends of the needles are crossed at the base of the cone, and occasionally in the subareolar area one or more needles are inserted at an angle of 90 degrees to the deeper planes to close the apex of the cone. Such peripheralization of radium foci avoids the high central intensity, falling rapidly toward the periphery, inevitable when any volume of tissue is implanted in a uniform or in a cartwheel manner. The needles used are of a content of 3 mg, active length 45 cm, screened by 0.5 mm of platinum and of 2 mg, active length 3 cm with similar filtration. The technic is also given for the irradiation of tumors of the axilla, supraclavicular area and mediastinum. Stereoscopic roentgenograms bear out the contention that it is possible to irradiate the breast and its lymphatic areas in a satisfactory manner. The needles are left in position for seven days as a rule. As experience of distribution of radium foci and of total dosage accumulates, complete disappearance not only of the tumor mass but also of glandular deposits becomes more and more frequent. There appears to be an optimal dosage at which even the largest primary and secondary masses provided the tumors are of the sensitive type, undergo complete resolution leaving no trace of their presence. The radical technic, as described, has been employed only throughout 1933. It is therefore not possible to speak of its results from a statistical standpoint. The immediate results however are encourag-

ing. The proportion of cases in which disappearance of the primary growth and of its secondaries takes place without leaving any palpable residue is definitely increasing. Up to October 1933 the method was used in twenty-three cases, fourteen of the patients are alive and well, six are alive with evidence of disease, which may yet be amenable to further treatment, and three are dead.

### British Medical Journal, London

1: 239-288 (Feb. 9) 1935

- Clinical Science and Ophthalmology A M Ramsay—p. 239  
Etiology of Puerperal Infection with Especial Reference to Droplet Infection C G Paine—p. 243  
\*Concentrated Liver Extract for Parenteral Administration in Pernicious Anemia E F Scowen and A W Spence—p. 246  
Retrograde Jejuno-gastric Intussusception Acute and Chronic A W Adams—p. 248  
Retrograde Intussusception of Jejunum Following Gastrojejunostomy R K Debenham—p. 250  
Problems of the Climacteric J Whittingdale—p. 251

**Concentrated Liver Extract for Parenteral Administration in Pernicious Anemia**—Scowen and Spence used a liver extract in six patients having pernicious anemia which overcomes the disadvantages of cost and frequent injection. The preparation is a protein free aqueous extract of liver, 1 cc. being extracted from 25 Gm of liver and equivalent in activity from thirty to 100 times this weight of fresh liver by mouth. Only one intramuscular injection of from 5 to 10 cc is necessary to bring about marked clinical improvement and to raise the blood count to the normal level. Maintenance doses of 5 cc are required only at intervals of one or two months. On the third or fourth day after the initial injection the patients experienced a return of strength and a sense of well being. This often preceded, but sometimes coincided with, the beginning of the reticulocyte response. Reticulocytosis usually started on the third or fourth day and rose to a maximum on the fifth or sixth. In three cases the maximal response did not rise above 15 per cent. The degree of reticulocytosis bore no relation to the eventual rise of red cells. A reticulocyte rise was not observed after subsequent injections. If the initial dose of the liver extract was adequate the red cells and hemoglobin increased steadily after a single injection to reach a normal figure in four or five weeks. Two patients however who received an initial dose of 5 cc failed to touch a normal level until a second dose was given. As a rule an initial dose of 8 cc. of the preparation appears to be adequate, but in severe cases a dose of 10 cc is desirable. The interval between maintenance doses varies not only from patient to patient but in each individual from time to time. A blood count should be done every two weeks and any indication of a fall calls for a further injection.

### Edinburgh Medical Journal

42: 49-100 (Feb.) 1935

- \*Heredity in Cancer and Its Value as an Aid in Early Diagnosis Madge Thurlow Macklin—p. 49  
Studies in the Nephrotic Syndrome D M Lyon and D M Dunlop—p. 68

**Heredity in Cancer**—Macklin asserts that cancer (covering all tumors, benign or malignant) is due to an inherited factor in other words it is hereditary. One cannot say that it is a mere predisposition that is inherited, for that means that a precipitating cause must always be present, and there are numerous records in which there is no evidence of a precipitating cause. Cancer cannot be ascribed to chronic irritation as the sole cause, for such injury is not always followed by cancer and cancer is not always preceded by such injury. Cancer is not an entity any more than infectious diseases are an entity. Cancer of a specific type in a specific organ at a specific age tends to occur in families. When viewed in this light, it is evident that cancer is not so frequent that it is to be expected in several members of a family on the basis of chance alone. In a series of families selected merely because two members in the family had died of the same type of tumor the author observed that related persons were affected ten times as often as unrelated persons. Related persons were represented by parents and children or by brothers and sisters, unrelated persons were represented by husband and wife. The latter class

exemplify the number of times one might expect two people in a family to be affected if cancer were due to chance alone. Chronic irritation when present appears to play a part in accentuating the speed of a reaction that was destined to occur at a later date. Sometimes the reaction would have been so long delayed past the normal span of life that the chronic irritation assumes the part of the sole etiologic agent, for practical purposes. In other cases it plays no part whatever. Identical twins who have the same type of tumor in the same organ and frequently at the same age afford excellent proof of the part that inheritance plays in the production of cancer. Belief in the inheritance of cancer offers opportunity for early diagnosis. No one patient can be periodically examined for all the types of tumor that may occur. They can be examined periodically for the type or types of tumor that are most common to the other members of their family.

### Journal of Physiology, London

83 255 382 (Feb 9) 1935

- Effect of Choline on Liver Fat of Rats in Various States of Nutrition C H Best and M Elinor Huntsman—p 255  
Choline and Liver Fat in Phosphorus Poisoning C H Best D L Maclean and Jessie H Ridout—p 275  
Comparative Study of Effects of Adding Different Sugars to Perfusion Fluid Through Frog's Heart and Influence of Insulin Over It R K Pal and S Prasad—p 285  
Presence in Vagus of Fibers Transmitting Impulses Augmenting Frequency of Respiration M Hammouda and W H Wilson—p 292  
Muscular Work in Dogs Submitted to Different Conditions of Cardiac and Splanchnic Innervations A Samaa—p 313  
Antagonistic Cardiac Nerves and Heart Rate A Samaa—p 332  
Inhibition of Water Diuresis by Afferent Nerve Stimuli After Complete Denervation of Kidney G W Theobald and E B Verney—p 341  
Measurement of Red Cell Volume VI Different Fragility of Red Cells of Various Mammals E Ponder—p 352  
Excitation and Inhibition in Retina and in Optic Nerve R Granit and P O Therman—p 359

### Journal of Tropical Medicine and Hygiene, London

38:29-40 (Feb 1) 1935

- Tropical Aphthae or Sprue and Its Treatment G E Brooke—p 29  
Elephantiasis in South Africa and Basutoland F G Cawston—p 34

### Lancet, London

1 187 244 (Jan 26) 1935

- Surgery of Spinal Tumors L Rogers—p 187  
Biologic Problems in Chemotherapy W Yorke and F Murgatroyd—p 191  
\*Postural Hypotension Report of Case W F Croll and R J Duthie note by J A MacWilliam—p 194  
Prostatic and Gastric Uremia Notes J A Ryle—p 198  
Observations on Treatment of Burns A M Clark and R Cruickshank—p 201

**Postural Hypotension**—Croll and Duthie state that while only eighteen cases of postural hypotension have been recorded, many cases may have escaped detection through failure to ascertain the blood pressure in the erect as well as in the supine posture. Giddiness on suddenly assuming the standing from the sitting or recumbent position is not uncommon and may be due to the curious failure of the blood pressure to adjust itself to the altered position found in postural hypotension. The authors present the case of a man, aged 37, otherwise apparently normal from the cardiovascular standpoint, whose blood pressure showed remarkable variations with change of posture, a marked fall of pressure accompanied by giddiness invariably taking place when the patient changed from the supine to the standing posture. The fall of pressure was associated with a decrease in the water excretory function of the kidneys. The pulse rate showed a normal response to the change of posture. Abdominal compression, the application of tourniquets round the limbs and the administration of epinephrine, solution of pituitary and histamine alike failed to prevent the fall of pressure taking place.

### Medical Journal of Australia, Sydney

1:37 74 (Jan 12) 1935

- An Address G Weigall—p 37  
Tuberculous Meningitis in the Adult with Especial Reference to Mechanism of Symptoms A S Walker—p 40  
Attempt to Propagate Poliomyelitis Virus in Developing Egg F M Burnet—p 46  
Osteomyelitis D I Fitzpatrick—p 48  
Relationship of Allergy to Autonomic Nervous System S Pern—p 49

### Annales des Maladies Veneriennes, Paris

30 81 160 (Feb) 1935

- Rapid Treatment of Gonorrhea H Hecht—p 81  
\*Role of Trichomonas Vaginalis in Development of Vaginitis Treatment D Bykhovsky and M Gouchansky—p 92

**Trichomonas Vaginalis in Vaginitis**—Bykhovsky and Gouchansky found trichomonas in 52 per cent of their patients who had purulent vaginitis. Trichomonas vaginitis shows a typical clinical picture but may sometimes simulate gonorrhea. It is characterized by a chronic course and a tendency to relapse. According to their observations, the most stable results are obtained by applying a combined treatment of mercuric chloride and lactic acid and prolonging the duration of treatment. Symbiosis of trichomonas and gonococci is common and must always be considered a possibility. In such cases antitrichomonas therapy aggravates the course of the gonococcal process. They believe that at least one if not the only method of infection is by coitus. The cases definitely of this origin confirm the pathogenic power of trichomonas.

### Archivo Italiano di Chirurgia, Bologna

39 1116 (Jan) 1935

- Postoperative Humoral Variations Modifications of Refractive Index P Cazzamali—p 1  
Ossification in Postoperative Scars Etiopathogenesis P Ljvraga—p 29  
\*Hypercholesterolemia in Pathogenesis of Hepatic Calculi G M Giuliani—p 61  
Operation of Crural Hernia by Inguinal Route Late Results B Herzberg—p 91

**Hypercholesterolemia in Pathogenesis of Hepatic Calculi**—Giuliani says that excess of cholesterol in the bile of the gallbladder is the determining factor of cholelithiasis. His statement is supported by chemical, clinicochemical and experimental research. The concentration of cholesterol in the bile of the strawberry gallbladders, removed by cholecystectomy and chemically studied by the author, reached 8 per thousand and 11 per thousand, respectively, in comparison with the normal concentration. The concentration of cholesterol in the bile, obtained by duodenal sounding six or seven years after cholecystectomy in the same patients, reached only 1 per thousand. Experimental stasis of the gallbladder was produced in dogs by means of fixation of the gallbladder to the duodenum. It resulted in the development of a strawberry gallbladder, formation of calculi and increase of the cholesterol in the bile of the gallbladder. The formation of calculi, the development of a strawberry gallbladder and hypercholesterolemia were obtained in dogs by the introduction of culture broth of colon bacillus in the gallbladder, both when the organ was left in its place and when, after the introduction of the broth, it was fixed to the duodenum. The author concludes that biliary stasis and infection are the local causal factors of hypercholesterolemia in which the strawberry gallbladder and cholelithiasis originate, and that cholecystectomy is the proper treatment of cholecystitis with or without calculi.

### Brasil-Medico, Rio de Janeiro

49:45 66 (Jan 19) 1935

- Vitamin B and Thyroid F A de Moura Campos—p 45  
\*Biliary Giardiasis A. Balena—p 47

**Biliary Giardiasis**—Balena discusses the role of Giardia intestinalis in the pathology of the biliary tract. His studies are based on the observation of nineteen cases. He regards Giardia intestinalis as the direct agent of the inflammation of the gallbladder commonly associated with the infestation. The author describes three clinical forms of biliary giardiasis: (1) the gastropastic form, characterized by cramps of the stomach and by clinical and objective symptoms similar to those of duodenal ulcer, (2) the pseudolithiasic form, which includes the pseudocholelithiasic and the pseudonephrolithiasic types, and (3) the cardiac form, which includes the arrhythmic and the anginal types. The different syndromes produced by the infestation originate in a chronic catarrhal cholecystitis of the simple or the exfoliative type. The most frequent complications of the infestation are hepatic cholangitis, secondary to chronic cholecystitis and suppurative cholecystitis caused by pyogenic associated bacteria. As the infestation has been found only among persons living in certain rural centers it is advisable

to examine the feces periodically, after the administration of an alkaline purgative, for the detection of carriers who should be isolated and treated. The treatment consists in draining the duodenal and the cholecystic bile, after which intravenous injections of neosphenamine are given. This treatment is given at intervals of one week but is discontinued after the parasite in the bile has completely disappeared. To prevent a recurrence, it is advisable to give the patient one or two tablets of acetarsone on an empty stomach in the morning for several months. The tablets are given for five consecutive days, with intervals of three days of rest. By this treatment the permanent disappearance of the parasite from the bile is obtained.

### Prensa Medica Argentina, Buenos Aires

22: 359-408 (Feb 20) 1935

- \*Connective Tissue Tumors of Giant Cell Type F R Ruiz and E. A Rossi—p 359  
Acute Neuralgia of Infectious Origin Cases T Malamud B Iussem and I Ayler—p 392  
Mesoscuritis of Azygos Lobulus A J Rey and J C Rey—p 401

**Connective Tissue Tumors of Giant Cell Type**—Ruiz and Rossi say that connective tissue tumors of the giant cell type are relatively benign, do not give metastasis and, if properly removed, do not recur. Their recidivation is slightly more frequent than that of benign tumors. They should not be designated as sarcomas, because the latter are often highly malignant while the former are not. The designation of gigantocellular sarcoids is preferable. Gigantocellular sarcoids may complicate a preexisting fibrous osteitis. The stroma is of typical fibroblastic cells, and in certain cases of irritability it changes to a hemangio-endotheliomatous type. The giant cells of these tumors are plasmodia *sui generis* with the typical characteristics of the giant cell of reaction against foreign bodies. They are entirely different from myeloplaxes and osteoclasts, on the one hand, and from the large cells (improperly called giant cells) of true sarcoma, on the other. They originate in the coalescence of endothelial cells, do not form vessels and constitute the limits of lacunar spaces. The tumors are highly vascular, with a predominance of the lacunar over the capillary vascularization. There are frequent foci of hemorrhages and of hematic pigments. Predisposition and trauma seem to be the etiologic factors. The characteristics of the giant cells and stroma of these tumors seem to indicate their inflammatory origin.

### Deutsche medizinische Wochenschrift, Leipzig

61: 201-244 (Feb 8) 1935 Partial Index

- Newer Methods of Electrocardiography in Human Subjects W Tren delenburg—p 201  
\*Spontaneous Hypoglycemia as Transitory Symptom. Unverricht—p 207  
Temporary Disturbances of Cardiac Conduction (Partial Auriculoventricular Block) L Spreng—p 209  
\*Sensitivity to Epinephrine and Valvular Lesions D Gross—p 219

**Spontaneous Hypoglycemia as Transitory Symptom**—Unverricht states that patients with spontaneous hypoglycemia often show no organic changes. In the hope of detecting a definite syndrome that would permit the diagnosis of spontaneous hypoglycemia in general practice, he subjected patients with spontaneous hypoglycemia to dextrose tolerance tests, to starvation and to physical exertion. He detected varying symptoms but a definite syndrome could not be found. The only manifestation that all had in common was a feeling of weakness and somnolence. They were easily fatigued, had a deficient concentration capacity, felt depressed and complained of pressure in the head, flatulence, excessive sweating, eructation, vascular spasms, oppression of the heart, irritability, spasm in the region of the gallbladder and hyperacidity. The patients presented one or several of these symptoms. An unprepared examination of the blood sugar generally revealed nothing abnormal, but after a twelve or twenty-four hour fast, after a dextrose tolerance test or after physical exertions, great reductions in the blood sugar became evident and occasionally tremor, chills, excessive perspiration and accelerated pulsation developed. All these patients with transitory hypoglycemia had the urge to eat frequently and showed a preference for sweets and alcohol. The origin of transitory hypoglycemia is not clearly understood as

yet, but on the basis of its manifestations the author is inclined to believe that it results from a disturbance in the correlation of the various endocrine and nervous factors. The chief cause is probably an increased excretion of insulin, which in turn is caused either by disease of the islands of Langerhans or by their irritation by extra-insular factors. In three cases observed by the author, the spontaneous hypoglycemia represented a phase of prediabetes, because the loss of equilibrium in the carbohydrate metabolism resulted in fluctuations toward both sides. He observed also that some cases of hypoglycemia are caused by hepatic disturbances, but not all patients had disorders of the liver.

### Sensitivity to Epinephrine and Valvular Lesions—

Gross determined alterations in the equilibrium of the sympathetic nervous system in patients with valvular lesions of the heart by testing the sensitivity for epinephrine. He observed sympathicotonia in valvular insufficiency and vagotonia in valvular stenoses.

### Deutsche Zeitschrift für Chirurgie, Berlin

244: 405-470 (Jan 22) 1935

- \*Fractures of the Femur H von Brücke—p 405  
Use of Rust Free Nails in Treatment of Fractures O Hilgenfeldt—p 433  
Treatment of Pseudarthrosis of Long Bone by Surrounding It with a Rib Transplant F Breuer—p 445  
Isolated Syphilis of Patella H R Paas—p 452  
Appendicitis and Unspecific Inflammatory Tumors of Ileocecal Region T Straaten—p 457  
Tumor Forming Tuberculosis of Spleen S Fassraier—p 463

**Fractures of the Femur**—Von Brücke reports the results obtained in 327 cases of fracture of the femur treated between 1922 and 1931 in the surgical clinic of Egon Ranzi in Vienna. Of these, 12 per cent were pathologic fractures. In one case of osteitis fibrosa cystica generalisata, fracture of both femurs healed on the removal of an adenoma of a parathyroid gland. The predisposition to the pathologic fractures of the area immediately below the lesser trochanter was demonstrated experimentally to be due to the fact that this area constitutes the weakest part of the femur. The treatment consisted mainly of extension with secondary manual reduction of the fragments. Operation was performed in 25 per cent of the cases. In recent years the operative treatment as well as the primary plaster cast has been given up more and more in favor of the extension method of treatment. The mortality amounted to 13.8 per cent. Only one case of pseudarthrosis was observed in a woman, aged 80. The results of treatment were excellent or satisfactory in 90 per cent and unsatisfactory or bad in 10 per cent. The average shortening of the limb amounted to 0.87 cm and the average flexion of the knee to 54 degrees. The author considers the primary plaster cast and the operative intervention the principal causes of bad results. The principal difficulty in the treatment is the avoidance of injury to the knee joint. Such injuries are caused not so much by the extension as by the plaster-cast immobilization. To prevent limitations of movements of the knee joint the author recommends that the extension be kept up as long as possible and that the knee be handled with the greatest care on the removal of the cast.

### Deutsches Archiv für klinische Medizin, Berlin

177: 209-344 (Feb 6) 1935 Partial Index

- Red Blood Picture in Diseases of Liver B Malamos—p 209  
\*Practicability of Gastrography in Diagnosis E Kolta and A Scholtz—p 224  
Gallstone Formation Before the Age of 30 G Lemmel—p 262  
\*Vomiting of Blood in Organic Diseases of Nerves G Bodechtel—p 268  
\*How to Explain the Rapid Course of Acute Endocarditis Caused by Streptococcus Viridans Compared to Endocarditis Lenta Gertrude Schwalbe—p 283

**Gastrography in Diagnosis**—Kolta and Scholtz were able to demonstrate by means of gastrography that in diseases of the biliary tract the gastric contractions increase following the ingestion of butter, while in other disturbances, such as ulcer and catarrh the movements of the stomach cease entirely. This is helpful in the differentiation of the two groups of disorders.

### Vomiting of Blood in Organic Diseases of Nerves—

Bodechtel points out that a report by Cushing in which that author calls attention to the appearance of peritoneal symptoms

following operations for cerebellar tumors and the necroptic detection of new and perforated gastric ulcers in such patients, directed his attention to similar cases observed by him. After pointing out that Russian authors made similar observations on the basis of animal experiments conducted in 1923 (entirely independent of Cushing's studies), Bodechtel gives the histories of a number of cases that he observed. He thinks that the changes in the so-called sympathetic cell groups of the spinal cord and of the brain stem, which he observed in two of his patients, might be of especial interest since they present a proof for the hypothesis of the existence of a connection between the diencephalon and the visceral nucleus of the medulla oblongata. The impairment of these connecting tracts may elicit sympathetic disturbances in the same manner as a lesion of the sympathetic centers in the diencephalon and the medulla oblongata.

**Acute Endocarditis and Endocarditis Lenta**—Schwalbe stresses the differences between acute endocarditis caused by *Streptococcus viridans* and endocarditis lenta. Since former studies on this problem disclosed no difference in the type and the virulence of the various strains, it is necessary to find other factors that cause a fulminant course although the pathogenic organism is not highly virulent. The author thinks that the severe lesions of the heart and the congenital or acquired valvular lesions should be given first consideration. She admits that in some instances the defect may become so rapidly decompensated that death follows quickly as a result of it. However, in the majority of cases of acute endocarditis that is not the case. On the contrary, the severity of the infection usually causes the fatal outcome. On the other hand, superinfections may bring on a turn for the worse, such as pneumonia, meningitis, uremia or the existence of an old tuberculosis. Moreover the patient's general condition should not be disregarded. An undernourished body and one that has been exhausted by cares and excitement is hardly capable of mobilizing the necessary defense powers. To be sure this factor is probably rarely of significance in the case of a fulminant course. The author points out that her theories about the cause of acute endocarditis *viridans* are essentially the same as those expressed by Schottmüller. Since the cases in question form exceptions to the aspects of the typical picture of endocarditis, it is to be assumed that the virulent conditions have been shifted that is as a result of reduced defense power and impairment of the heart the organism is not equal to the increased requirements.

### Jahrbuch für Kinderheilkunde, Berlin

144: 63 126 (Feb.) 1935

\*Influence of Antirachitic Therapy on Electrocardiogram of Children  
W. Uhse—p. 63

\*Quantity of Blood During Collapse in Alimentary Intoxication of Nourlings  
H. Seckel—p. 81

Studies on Psyche of Mongolian Idiots  
Margret Kulenkampff—p. 87

**Influence of Viosterol on Electrocardiogram**—Uhse points out that, in addition to the therapeutic effects viosterol also exerts a toxic influence, and he substantiates this by reviewing the literature and by his own observations. In all, he examined eighty-two children. The first group of twenty-one children had been treated with a viosterol milk of which 0.5 liter contained approximately three drops of standardized viosterol in oil. In all these children the treatment had the desired antirachitic effect, but seventeen of them showed an abnormal electrocardiogram. A second group of sixteen children was treated with viosterol in oil, and all but one showed changes in the electrocardiogram. A third group of twenty children was given cod liver oil with viosterol, and disturbances in the electrocardiogram developed in fifteen. The fourth group of eight children was treated with pure cod liver oil, and seven developed electrocardiographic changes. The fifth group of seventeen children was subjected to quartz lamp irradiations, and these showed no changes in the electrocardiograms at the end of the treatment. The electrocardiographic changes that developed in the first four groups were nearly always in the final wave that is in the part that begins with S and ends after T. The question of whether there is a connection between the dosage of viosterol and the pathologic manifestations in the electrocardiogram is answered by the fact that in the author's cases the minimum doses were given and still the changes developed. The electrocardiographic changes that develop fol-

lowing medication with viosterol largely resemble those which develop after infections, such as scarlet fever myocarditis in which myocarditic foci are present. Thus it appears possible that medication with viosterol may lead to myocardial impairment. However, while most postinfectious electrocardiographic changes are only transitory, those caused by viosterol are still present from six to nine months later. It is worthy of note that the sensitivity to viosterol decreases with the age of the children. The author observed that nurslings and small children who are less than 2 years old are most likely to develop electrocardiographic changes following treatment with viosterol. Older children and adults are less exposed to this danger. Moreover, children with rickets tolerate viosterol better than those without rickets.

**Alimentary Intoxication of Nurslings**—Seckel shows that during alimentary intoxication of nurslings there develops a true circulatory collapse with reduction of the circulatory quantity of the blood. This decrease in the circulating amount of blood is due to inspissation as well as to storage in the depot organs. Both these factors lead to a retardation of the blood stream and to a reduction in the minute and beat volume of the heart. The smaller beat volume of the heart during collapse is indicated by a diminished size of the cardiac shadow in the roentgenogram and by the diminution or the complete disappearance of the first heart sound.

### Monatschrift für Geburtshilfe u. Gynäkologie, Berlin

98 321 380 (Feb.) 1935

\*Surgical or Ray Treatment of Myomas? H. Guthmann and W. Atzert.  
—p. 321

Genital Hematoma of the New Born as Birth Trauma  
E. Klatfen and R. Wagner—p. 340

Progress of Gynecologic Hormone Therapy  
H. Buschbeck—p. 344

\*Treatment of Suppurating Tumors of Adnexa  
S. S. Barjaktarovic—p. 352

**Treatment of Myomas**—Studies of 501 cases convinced Guthmann and Atzert that the results of surgical treatment and of ray therapy are approximately the same if the effect of the total roentgen menolipsization is compared with the total extirpation of the uterus, and if the effect of temporary menolipsization is compared with partial extirpation. The disturbances that develop as sequels of the treatment of myoma are about the same with the two methods of treatment. The symptoms of abolished function, for instance, appear with about the same frequency after total roentgen menolipsization as after total hysterectomy with the removal of both ovaries (in about 87 per cent of the cases). The preservation of one ovary produced a more favorable result, since the symptoms of abolished function appeared in only 63 per cent of these cases. But even in enucleation of the myomas, in which the genital function is not interfered with, symptoms of abolished function are present in 235 per cent of the cases. This indicates that the psychic factors play an important part. The increase in weight was about the same in all types of treatment, as regards the incidence as well as the degree of increase. Cohabitation was impeded by processes of involution in about 14 per cent of the cases after irradiation as well as after surgical treatment. These and other observations convinced the authors that the treatment of myoma should be individualized. In determining the best therapeutic methods the following factors should be considered: (1) the type of myoma (subserous, intramural submucous, intraligamentary), (2) the complications, (3) the age of the woman, (4) the preservation of the menstruation and the conception capacity, (5) incretory disturbances and (6) nervous disturbances.

**Treatment of Suppurating Tumors of Adnexa**—Barjaktarovic treats suppurating tumors of the adnexa in the following manner. After a thorough irrigation with antiseptic solutions, the vagina is dilated by écarteurs. The lower lip of the uterine cervix is grasped with a mouse tooth forceps and is drawn, horizontally and slightly upward, to the vaginal opening. In this manner, the posterior vaginal vault is completely exposed and easily accessible. Then the upper vaginal écarteur is removed and the posterior vaginal vault is iodized and dried. If the cervix is drawn forward horizontally, a bend is formed in the vaginal vault that corresponds to Douglas' pouch. The puncture is made in this bend. The needle should be parallel to the uterus. This is especially important, if only a portion of

the tumor has entered the Douglas pouch. After the needle has reached Douglas' cavity, it is directed toward the right or the left to reach the tumor. In the event that the tumor is located high up, an assistant has to exert pressure on the abdomen in order to press the tumor down into Douglas pouch. After the tumor has been punctured with the needle, the pus is pumped out and 2 or 3 1,000 solution of ethoxydimmo-acridine lactate is introduced and then withdrawn again. The quantity of the solution should be the same as that of the pus which has been removed. The solution is introduced and removed several times until it returns clear. As a rule the third irrigation yields clear fluid. The author employed this method in 137 cases of suppurating tumors of the adnexa. In the majority of cases, complete cure was effected, in the others, improvement was obtained.

### Münchener medizinische Wochenschrift, Munich

82 243 282 (Feb 14) 1935 Partial Index

- Therapy of Epicondylitis of the Humerus H Pirker—p 246  
Significance of Occupational and Sport Injuries in Dupuytren's Contracture O Schnitzler—p 248  
How to Test Function of Auditory Tube Particularly for Purposes of Examination of Aviators F Zollner—p 249  
Modified Takata Reaction in Liver Disease Lilly Rappolt—p 253  
Simple Ulcer of Cecum W Thaler—p 255  
Hypersensitivity of Skin to Balsam of Peru W Engelhardt—p 256

**Takata Reaction in Liver Diseases**—In reviewing the history of the Takata reaction, Rappolt points out that Jezler and Staub employed it first on the serum of patients with hepatic disturbances. She describes the results obtained with the test on 348 patients with suspected hepatic disorders. Of the patients in whom cirrhosis of the liver was certain, 85 per cent had a positive Takata reaction. In patients with chronic alcoholism and cirrhosis, however, the reaction was usually negative. In icterus and other hepatic disorders 20 per cent gave a positive flocculation reaction, and in all these a considerable damage of the liver could be suspected. Of the patients with various other disturbances, 37 per cent had a positive Takata reaction and approximately 75 per cent of these positive cases showed a decompensated circulatory disorder with stasis of the liver. The positive Takata reaction was always accompanied by an increase in the seroglobulin but there was no absolute parallelism between the outcome of the Takata reaction and the degree of the globulin increase and the sedimentation speed of the erythrocytes. The author concludes that the Takata reaction is a valuable diagnostic aid in differentiating a cirrhosis of the liver from other hepatic disorders.

**Simple Ulcer of Cecum Simulating Appendicitis**—Thaler gives the history of a woman aged 38 who complained of symptoms indicative of appendicitis. The operation revealed that the appendix was normal, but inspection of the cecum disclosed a simple ulcer the size of a hen's egg. An ileocecal resection was done and the postoperative course was at first uneventful, but later peritonitis developed and the woman died. A review of the literature disclosed that a high percentage of patients with cecal ulcer die of perforation peritonitis. The author's aim in reporting this case was to call attention to the fact that cecal ulcers often simulate appendicitis and to stress that when the appendix is found normal, the colon should be carefully inspected for the presence of ulcer.

**Hypersensitivity of Skin to Balsam of Peru**—Engelhardt states that hypersensitivity of the skin to balsam of Peru is present in 2 per cent of persons who have no skin disease and have never used ointments. In patients with skin disease who have used ointments much, hypersensitivity exists in 10 per cent. The hypersensitivity to balsam of Peru is monovalent; that is, tests disclosed no polyvalent sensitization to other eczematous substances and no nonspecific irritability of the skin. All constituents of balsam of Peru are involved in the sensitization, for they all produce positive hypersensitivity reactions. In view of the high sensitizing power of balsam of Peru it is inadvisable to treat large wound surfaces including chronic eczemas, for long periods with balsam of Peru. At any rate the patch test (Jadassohn-Bloch) should be made whenever extensive application of a preparation containing balsam of Peru is intended.

### Zentralblatt für Chirurgie, Leipzig

62 433 480 (Feb 23) 1935 Partial Index

- Fundamentals in Treatment of Intermaxillary Bone in Bilateral Harelip E Feldmann—p 434  
Torsion of Pendulus Gallbladder W Porzelt—p 439  
\*Transfusion of Human Blood Serum for Control of Bleeding A Filatov and N Kartasevskij—p 441  
Operative Intervention for Recurring Hydrops of Knee F Mandl—p 445

**Transfusion of Serum for Control of Bleeding**—In the modern conception of the therapeutic effect of blood transfusion the principal role, according to Filatov and Kartasevskij, is assigned to the introduction of living erythrocytes in the blood of the recipient, while that of the blood serum has been but little investigated. The authors studied the effect of blood serum transfusion as well as the question of conservation of the serum for the last one and one-half years. The blood of the donor was received in a flask half filled with a preservative (sodium citrate 5, sodium chloride 9, distilled water 1,000). The mixture was kept from three to four days in the icebox and the supernatant serum siphoned off and placed in sterile flasks having a capacity of from 50 to 250 cc. Serum transfusion was practiced in seventy-two cases. The authors conclude that the hemostatic effect of serum transfusion equals that of whole blood transfusion. The serum may be preserved for months though the exact limit has not been determined. Smaller quantities (from 50 to 150 cc) of serum are adequate for hemostatic purposes. Because it does not contain agglutinins, the serum from groups A and B may be given any patient without determining his blood group. Further study is required to determine the question of applicability of serum transfusion for the purpose of replacement as well as for its efficiency in manifesting the immunobiologic properties of whole blood transfusion.

### Sovetskaya Klinika, Moscow

19 599 1053 (Nos 109 112) 1933 Partial Index

- \*Morphologic Manifestations of Allergic Reactions in Man A I Abrikosov—p 619  
\*Differential Diagnosis of Spasm and of Occlusion of Coronary Arteries L I Fogelson L F Limcher and M G Traynias—p 736  
\*Rational Classification of Rheumatic Disorders L B Bukhshtab—p 765  
\*Dyskinesia of Biliary Tracts E S Shakhbazyan—p 964

**Morphologic Manifestations of Allergic Reactions**—Abrikosov states that morphologic manifestations of allergic reactions are of two types: (1) new and peculiar alterations in a tissue that hitherto has presented nothing abnormal and (2) alteration of the type of previously existing inflammation. The peculiar alterations in a previously normal tissue are of the nature of hyperergy, best characterized as alterations of the type of Arthus's phenomenon. Here belong changes of the mesenchymal tissue in acute rheumatism, changes of the wall of the vessels in malignant nephrosclerosis, nodous periarteritis and obliterating thromboangitis (Bürger). The hyperergic alterations of the walls of the blood vessels seen in various infectious diseases likewise belong here. The essential feature in all is a peculiar necrobiotic disorganization of the mesenchyma in the form of an initial "fibrinoid swelling" of tissues with consequent inflammatory manifestations and sclerosis. The change in the character of the inflammatory reaction in hyperergy manifests itself in a rapid course and a disproportion to the causative factor. The morphologic changes observed are those of exudation, hemorrhagic manifestations and, not infrequently, circulatory disturbances in the form of stasis. A chronic mild inflammatory process with a predominance of proliferation and a tendency to fibrosis characterizes the anergic reaction. The author calls attention to the fact that a number of allergic reactions manifest themselves in functional rather than morphologic reactions as for example, the muscular spasm of bronchi in asthma or the pylorospasm. On the other hand certain allergic reactions present ordinary alterations without any specific character such as the manifestations of serum disease, of rhinitis in hay fever, of the alimentary idiosyncrasies and of eczema.

**Diagnosis of Occlusion of Coronary Arteries**—Fogelson and his co-workers state that the clinical picture of an attack of angina pectoris does not enable one to diagnose a coronary occlusion in many instances. This question can be

decided, however, by an electrocardiogram. Sclerosis of the coronaries is not necessarily accompanied by spasmodic phenomena. A vascular spasm in the presence of normal nerve plexuses of the adventitia need not cause painful sensations in every instance. Consequently, a coronary occlusion may take place without causing painful sensations and be recognized only in the electrocardiogram. The changes in the electrocardiogram enable one to estimate the magnitude of the involved cardiac segment. The rapidity of return to normal judged from protracted electrocardiographic observations is an indication of the size of the newly formed scar and the establishment of collateral circulation. If the electrocardiogram fails to return to normal, the involved segment is large and has been replaced by a scar. On the other hand, a rapid return to normal indicates that the involved segment of the myocardium is not large, that the sclerotic process in the coronaries is not extensive and that a collateral circulation has been reestablished. The authors conclude that a spasm of the coronary vessels constitutes the cause of an anginal attack and that the spasm may lead to their occlusion. The latter is observed in the majority of instances of sclerosed coronaries. The clinical picture is not always sufficient to enable one to diagnose thrombosis. Severe anginal attacks may pass without coronary occlusion taking place, and on the other hand coronary thrombosis may fail to give rise to a painful syndrome. The determining factor in the differential diagnosis between a spasm and occlusion is the electrocardiogram. Systematic electrocardiographic observations make it possible to estimate the magnitude of the myocardial segment involved, as well as the rapidity of the resolution of the myelomalacal focus.

**Classification of Rheumatic Disorders**—Bukhshtab proposes the term "true rheumatism" for a clinical entity the etiology of which has not been completely elucidated but which presents lesions of the connective tissues, particularly of the heart. This lesion is a granulomatous process described by Aschoff and considered an expression of a particular hyperergic condition of the organism. The heart is always affected and therefore constitutes a specific primary factor. The polyarthritis is a secondary factor and, while usually present may be absent. These truly rheumatic acute polyarthritides seldom pass into a chronic stage. The invalidism that ensues is always cardiac in nature. The clinical characteristic of this disease, according to the author, is a biologic reaction to cooling. The reaction consists in lowering of the leukocyte count when a joint is exposed to the cooling effect of ether. This occurs only in the blood of a "true rheumatic patient" and is absent in other forms of so-called rheumatism. The correctness and constancy of the reaction have been confirmed by observations of various authors on some 500 patients. This reaction enables one to recognize rheumatism in its vascular form, in the absence of joint involvement.

**Dyskinesia of Biliary Tracts**—Shakhbazyan states that the diagnosis of dyskinesia of the biliary tracts is difficult. Its recognition is possible only through elimination of other diseases of the biliary tract and of the adjacent abdominal viscera, such as the pancreas, the stomach, the duodenum and the right kidney. The most important clinical methods of investigation are duodenal drainage and cholecystography (normal B bile and normal gallbladder shadow). The average of wrong diagnoses is at least 50 per cent. Surgical therapy for the so-called dyskinetic disturbances of the biliary tracts is poorly founded. The late results of the various procedures, such as cholecystectomy, choledochoduodenostomy or stretching of the sphincter of Oddi, give poor results. The internal medical treatment, as a rule, brings about the desired results.

### Hygiea, Stockholm

97:49-80 (Jan 31) 1935

- Fractures of Forearm in Children. E Edberg—p 49  
 \*Erythema Nodosum in Previously Tuberculous Persons, Especially Recurrent Erythema Nodosum. C en R Lemming—p 60

**Erythema Nodosum**—Lemming presents thirty cases of erythema nodosum in previously tuberculous persons mainly adults analyzing the nineteen cases of recurrent erythema nodosum. He finds in addition to erythema nodosum due to

primary infection, the following main types on a tuberculous basis: 1 Erythema nodosum following infections causing a reversal in allergy, (a) in connection with an exacerbation of the tuberculous process or activation of an older form, or (b) sensitization by unspecific protein substances (bacteria toxins) of a tuberculin positive person, without signs of active tuberculosis. 2 Erythema nodosum on the basis of an exogenous reinfection, the patient passing through a new (somewhat modified?) primary stage, or a superinfection activating the primary focus. 3 Erythema nodosum due to a superinfection, the effect of which is a marked tuberculinization and increase in allergy without signs of active tuberculosis. 4 Erythema nodosum in grave active pulmonary tuberculosis, when an anergic condition due to deficient antibody formation is followed by a spontaneous flaring up of the immune body formation of the organism, with consequent increase in allergy.

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**Cancer in So-Called Atheromas**—Hval reports one case of papilloma developed in a retention atheroma and twelve cases in which the atheroma developed into carcinoma. Of the twelve, ten were in women and two in men, all but two of the patients were more than 50 years of age. In ten cases there was squamous epithelial cancer with canceroid pearly formation, one instance with papillomatous structure being regarded as a probable transition form. Relatively marked inflammation was seen in these cases. In two cases the tumor was of certain papillomatous nature, in one there was mucous degeneration, and in both the cell form resembled that in basal cell carcinoma of the skin. The author says that the malignant development occurs in cysts that have been of unchanged size for many years, seems to be slow in all cases, and is relatively benign. Beginning growth of the cysts, suppuration or beginning pain have led to their removal. On excision of painful or suppurating atheromas in older persons the possibility of carcinomatous degeneration should be borne in mind.

**Sarcoma with Unusual Localization**—The first case of polymorphic cell sarcoma of the penis in a man aged 63 is attributed to trauma at the site one year earlier. One of the two cases of subungual sarcoma was in a girl of 15, the other in a woodchopper aged 40. Hval says that both cases presented a characteristic history with unusually pronounced pain in the finger after the lapse of months a not particularly characteristic ulceration appeared. In long-continued onychias the possibility of sarcoma should be considered and histologic examination of a specimen excision made. Treatment must be radical, and favorable results depend largely on early diagnosis.

**Total Gastrectomy for Cancer**—In Bull and Stang's case, with large cancer along the upper part of the major curvature up to the cardia, total gastrectomy with retrocolic esophagojejunostomy and jejunojejunostomy was performed in February 1933. The patient was a man, aged 40, in good general condition, there were no large glandular metastases and the intra-abdominal portion of the esophagus was free from cancer and long enough to make it unnecessary to loosen the esophagus from the hiatus in the diaphragm. After-examination in March 1934 revealed that he had been in full work as a railroad machinist since August 1933 and had gained 7 Kg. He takes from 0.5 to 0.75 Kg of liver weekly. There was a slight anemia with an almost normal blood picture. Absorption tests showed a protein loss of 32 per cent a fat loss of 30.14 per cent and a carbohydrate loss of 1 per cent the loss of protein and of fat being slightly higher than in normal persons.



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## PERIPHERAL VASCULAR DISEASE

ITS SIGNIFICANCE FOR GENERAL PRACTITIONERS  
AND SPECIALISTS

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CHICAGO

It is no exaggeration to say that thousands of individuals are unconscious or mildly conscious of a progressive interference with their peripheral circulation. Their feet may be pulseless but still in a stage of compensation. Their margin of safety is minimal. Their "rheumatic" pains come and go with changes of weather, mechanical stress or emotional load. An occasional numbness or tingling of the extremities is disregarded. They undergo an annual or semiannual physical examination during which peripheral circulation is ignored, although the heart is carefully examined, chest plates are taken and electrocardiograms are read. Insurance examinations may be made or physical examinations when they apply for a new job, but nobody palpates the pedal pulses.

As a result, the middle aged wage earner, the insured policyholder, or the railroad or street car conductor suddenly develops a serious interference with the peripheral blood flow. Did this really come out of a clear sky? In most instances this was surely not the case. The lesion had existed for a considerable time and was probably caused by a sudden aggravation of a chronic progressive arterial obstruction.

Who sees these patients first? Undoubtedly the general practitioner. Many cases of peripheral vascular disease are also encountered by internists, orthopedic surgeons, traumatic and industrial surgeons, neurologists and dermatologists, whose special field of interest lies somewhat apart from problems of peripheral circulation.

In the maze of newer, often conflicting, data the study of peripheral circulation has been confined so far to a few peripheral circulatory clinics, where facilities are available for special study and therapeutic research. What is to happen meanwhile to the mass of people scattered among the practices of the general practitioner and many of the specialties?

The study of peripheral circulation has advanced to a point at which a simple office procedure can be included in the course of a thorough physical examination. It is my purpose in this paper to outline such methods of examination, evaluate their meaning and indicate the therapy of the most common peripheral circulatory disturbances.

## METHODS OF EXAMINATION

*The Peripheral Pulse*—Very seldom is anything else but the radial pulse palpated. In most individuals the palpation of the dorsalis pedis, posterior tibial, popliteal and femoral arteries offers no difficulty. It must be remembered that in 4 per cent of cases the dorsalis pedis pulse is absent and that in another 8 per cent the artery is in a lateral position from the customary site.<sup>1</sup>

Absence of pedal pulses is not infrequently found in older male patients who have no complaints. Their feet are warm and of good color, the slow gradual occlusion of the main vessels has permitted the development of an adequate collateral circulation. An absence of a palpable pulse wave furthermore is not an absolute indication that the vessel is completely obstructed. When the wall is rigid an even trickling of blood may still occur through the pulseless artery. Some arteries may pulsate at times and not at others, indicating a spastic element.

*The Skin Temperature*—The skin temperature of a given extremity depends on temperature and humidity of the examining room and body temperature. Should these factors be fairly controlled, in that the examination is made in a room around 22 C (70 F), with the patient resting, and normal mouth temperature, the skin temperature is then dependent chiefly on blood flow. Should this be diminished, the skin temperature will drop. Excessive perspiration, a sign of increased sympathetic stimulation, lowers the temperature by loss of heat. A dry skin, such as occurs after sympathectomies, will give a feeling of warmth but also measurably higher values of temperature. Skin temperatures can be estimated by the palm of the hand or finger tips, and differences larger than 0.5 degree centigrade are easily discernible. A mercury skin thermometer is handy and inexpensive. For practical purposes it substitutes well for the complicated and expensive electrical thermometers.

The value of skin temperature readings is limited to

- 1 Sudden drop in temperature of one extremity as a sign of inadequate arterial inflow.
- 2 Marked differences between symmetrical areas on two extremities.
- 3 A rise in temperature after various diagnostic measures that aim to relieve vessel spasm and thus determine the spastic element in the vascular occlusion.

Certain it is that an elaborate battery of wires and galvanometers in rooms with constant temperature and humidity should not intimidate the general practitioner to use his head and fingers. The information obtained will be equally useful.

From the Department of Surgery, University of Illinois School of Medicine.

1 Reich, R. S. Pulses of the Foot. Their Value in Diagnosis of Peripheral Vascular Disease. Ann. Surg. 99: 613-622 (April) 1934.



*Postural Changes of Color*—Pallor on elevation, which can be accentuated by rapid dorsal and plantar flexion,<sup>2</sup> and rubor in the dependent position are signs of diminished blood flow. At a certain level, which is usually below the horizontal position, the pallor changes into the normal color of the skin without showing the reddish hue of capillary stagnation. This is the optimal position for the patient. Mont Reid<sup>3</sup> has strongly deprecated the senseless habit of elevating the legs of patients who are suffering from obliterative arterial disease. The elevated position only accentuates the difficulty of arterial inflow. Many patients have discovered that they rest much better when the foot is from 20 to 30 degrees below heart level and this optimal position should be determined for every patient. A dependent rubor is often seen in older patients and is not, in itself, an alarming symptom.

*The Cutaneous Histamine Reaction*<sup>4</sup>—For a long time methods of producing a reactive hyperemia have been used to demonstrate the extent of collateral circulation. Of these, the simplest and most definite is the intradermal injection of histamine, a powerful vasodilator. The acid phosphate salt of histamine in a 1:1,000 solution is obtainable in ampules. When 0.1 cc is injected intradermally within five minutes a characteristic flare is produced, with a wheal in the center. This flare is absent when (1) there is not enough head pressure in the skin vessels to fill up the arterioles dilated by histamine, (2) when an arterial spasm exists, which the histamine is unable to overcome, or (3) when the sensory nerves of the skin have degenerated, following peripheral nerve injury. The cutaneous histamine reaction gives the following information in patients with manifest or suspected vascular disease.

1. In patients with frank gangrene the lowest level of safe amputation is determined. When histamine wheals are placed at various levels of the extremity, avoiding bony prominences where the skin is under tension, the lowest level at which a normal histamine flare can be detected may be used as a site of a circular amputation. Circulation of the bone is usually affected at a skin level with normal response, for which allowances have to be made.

2. During a course of conservative treatment with drugs and physical measures, the improvement of the collateral circulation can be visualized.

*Blood Pressure Measurements*<sup>5</sup>—It is astonishing how little use is made of the ordinary blood pressure apparatus in the study of peripheral vascular disease, and yet a great deal of information can be gained, particularly if the dial type is used. The cuff can be placed above the ankle and above the knee. Differences of blood pressure on the two sides are significant. The level of systolic and diastolic pressures may be determined by palpation, by auscultation, or simply by watching the incoming pulse waves by the oscillations of the needle. In such determinations the patient should be in a horizontal position, possibly relaxed. In the sitting or standing position these pressures are much higher.

Far more satisfactory than an ordinary blood pressure apparatus is the oscillometer, which was especially constructed for this purpose. The data derived from this apparatus will inform the investigator about the level of the vascular obstruction, the intensity of myocardial contractions and the elasticity of the vessel wall, but it will not register the extent of collateral circulation, much of which does not pulsate. The oscillometer is not necessary for making a diagnosis, but it is invaluable for a thorough vascular study.

*Reflex Dilatation to Heat*—Peripheral vascular obstruction usually consists of two components (1) organic stenosis or obliteration of an arterial segment and (2) a vessel spasm, which is not permanent and which may be relieved by various measures. While there are pure examples of both types, such as a terminal stage of senile gangrene and Raynaud's disease, one is mostly confronted by a mixture of these two forms. There have been a number of measures suggested to differentiate vascular occlusions, such as induction of artificial fever,<sup>6</sup> procaine hydrochloride block of peripheral nerves,<sup>7</sup> or paravertebral ganglions<sup>8</sup> and spinal anesthesia. None of them could be well applied by the general practitioner. The recently described test of Landis and Gibbon,<sup>9</sup> however, gives adequate information as to how much dilatation the vascular bed is capable of producing, when central vasoconstriction is abolished. The examination should be made in a room preferably not warmer than 22°C (70°F). The temperature of the big toe is determined with a skin thermometer, for which even an ordinary fever thermometer can be used. Then the hands and arms of the patient are immersed in hot water (about 45°C or 113°F) for twenty minutes. This produces a reflex vasodilatation on the lower extremities. The rise in temperature, measured on the big toe, is the index of the amount of vasoconstriction that the reflex heat overcomes. When the normal vasodilatation level of 33°C (91.4°F)<sup>10</sup> is obtained, the test has demonstrated a sufficient vascular bed to overcome the organic obstruction. However, as frequently occurs in older, arteriosclerotic individuals should the rise in temperature not be sufficient to reach the normal vasodilatation level, one must assume a deficiency of the available collaterals, a diminution of safety factors. This test then not only reveals the element of spasm in a given patient but has prognostic value, as it measures available collaterals.

*Other Methods of Examination*—The aforementioned procedures can be readily carried out without any special equipment. They permit of a fairly accurate estimation of the patient's peripheral vascular status. There are naturally special methods of examination, such as roentgen examination for calcified vessels, blood vessel visualization after the injection of opaque substances into the arteries, biopsies of vessels, determinations of blood volume or blood viscosity, the plethysmograph,<sup>10</sup> and exploration of other vessels in the body by electrocardiogram and ophthalmoscope.

6 Brown G E. The Treatment of Peripheral Vascular Disturbances of the Extremities. J A M A 87:379-383 (Aug 7) 1926.

7 (a) Morton J J and Scott W J. The Measurement of Sympathetic Vasoconstrictor Activity in the Lower Extremities. J Clin Investigation 9:235 (Oct) 1930. (b) de Takats, Géza. The Differentiation of Organic and Spastic Vascular Occlusions. Ann Surg 94:321 (Sept) 1931.

8 White J C. Diagnostic Blocking of Sympathetic Nerves to Extremities with Procaine. J A M A 94:1382-1388 (May 3) 1930.

9 Landis E M, and Gibbon J H Jr. A Simple Method of Producing Vasodilatation in the Lower Extremities. Arch Int Med 52:785-803 (Nov) 1932.

10 Johnson C A. Studies on Vascular Phenomena, Surg Gynec. & Obst 55:731 (Dec) 1932.

2 Samuels S S. The Early Diagnosis of Thrombo-Angiitis Obliterans. J A M A 92:1571 (May 11) 1929.

3 Reid M R. The General Care of Peripheral Vascular Diseases. Ann Surg 96:733-743 (Oct) 1932.

4 de Takats Géza. The Cutaneous Histamine Reaction as a Test for Collateral Circulation in the Extremities. Arch Int Med 48:769 (Nov pt. 1) 1931.

5 Pearce H E Jr, and Morton J J. The Blood Pressure in the Arteries of the Extremities in Normal Subjects and in Patients with Peripheral Vascular Disease. Am J M Sc 183:485-494 (April) 1932.

some of which are employed in certain cases and are not part of the simple routine just outlined. With the palpation of pulses, the estimation of skin temperature, observation of postural color changes, the determination of the histamine reaction and, finally, study of blood pressure and reflex vasodilatation the general practitioner can form a well grounded opinion about the peripheral vascular status of the patient.

#### PRINCIPLES OF DIAGNOSIS AND MANAGEMENT

The object of management in peripheral vascular disease naturally depends on the character of the lesion. Having divided these lesions into organic and functional, I shall briefly discuss the leading principles in the management of these disorders.

**Organic Lesions**—Flow of arterial blood to the periphery may be interfered with by congenital anomalies, which mostly take the form of multiple arteriovenous fistulas.<sup>11</sup> Their cure is essentially surgical. An early attack on the anomalous communications, provided they are susceptible of approach, gives excellent results.

Traumatic lesions of arteries produce thrombosis, expulsive hemorrhage or aneurysm. Their management is purely surgical and is not within the scope of this article. It must be emphasized however, that many of the previously dreaded, formidable procedures have become safe or limb saving operations. The preoperative estimation of collateral reserve, the improved surgical technique and the measures that are now known to increase the vascular bed in times of stress have produced gratifying results. The early recognition of a peripheral embolism and its surgical relief within the first sixteen hours is one of the latest triumphs of medical progress.<sup>12</sup>

Other nonmechanical injuries of arteries, caused by cold, heat, lead or arsenic, radium, x-rays and electricity, always produce the same reaction in the vessel wall, namely, a proliferation of the intima, subintimal cushions of granulation tissue, stenosis and finally thrombosis of the artery. From a prognostic point of view it is important to know that the extent of initial injury can hardly permit an estimate of the final damage to circulation. Thus a simple frost bite manifestly involving one or two toes may gradually lead to an endo-arteritis at a much higher level, and this is true of all other forms of injury.

The treatment of all such injuries is highly conservative. The vessel spasm that appears as a direct or reflex stimulation of the arterial musculature seems to be best relieved by large doses (from 40 to 60 grains, or 2.6 to 4 Gm.) of theobromine sodium acetate.<sup>13</sup> Papaverine by mouth or even intravenously also relieves vessel spasms and may tide the patient over a critical period in incomplete peripheral or pulmonary embolism.<sup>14</sup> Collateral circulation is encouraged by continuous heat produced by an electrical baker. The temperature in the baker should be around 85 to 98 F, never above 100 F.<sup>15</sup> The use of intermittent negative pressure to suck in more blood and hasten the formation of collateral circulation has been proposed by

Landis and Gibbon<sup>16</sup> and by Herrmann and Reid.<sup>17</sup> This method, used in the properly selected case with certain precautions, seems an effective principle of developing adequate collaterals.

In the acute and subacute forms of vascular injury, active postural exercises, as described by Buerger, are not advocated. They may aggravate pain and are not in keeping with the important principle of rest for such an extremity. I feel the same way about the alternate hot and cold baths. Their proper place will be discussed later.

**Infections** The majority of authors feel that Buerger's disease (thrombo-angitis obliterans) is an infectious disease of unknown etiology.<sup>18</sup> Certain it is that a number of known specific infections such as syphilis, tuberculosis, typhoid and paratyphoid, streptococcal infections in the presence of bacterial endocarditis, scarlet fever, general septicemia and rheumatic infections may affect the peripheral arterial tree probably more often than is suspected. The role of ergot in producing vascular occlusions has also been reemphasized.<sup>19</sup> Evidence of specific infections elsewhere in the body together with the aid of biopsies of smaller vessels may help to differentiate a group of infections from Buerger's disease. In fact, there may be a time when true Buerger's disease will become more and more infrequent, because many of the cases diagnosed at present as Buerger's disease will be differentiated into vascular infections of known etiology. The recovery of the offending organism permits the use of autogenous vaccines, which is the rational therapy.

So long as the causative organism in Buerger's disease is unknown, the use of nonspecific vaccines offers the best line of therapy. It is not sufficiently emphasized that a nonspecific vaccine may desensitize a patient to another specific organism.<sup>20</sup> There is some clinical evidence that in Buerger's disease the vascular endothelium is abnormally vulnerable to injury. Thus a slight sore throat, an infection of the upper respiratory tract, or a slight trauma may aggravate or light up a quiescent process. An ardent advocate of hypertonic salt solutions in the therapy of Buerger's disease has observed venous thrombosis after the use of 5 per cent solutions of sodium chloride.<sup>21</sup> The therapy of Buerger's disease, to my mind, is primarily an effort to desensitize the patient to an unknown agent or agents. The patient may be sensitive to tobacco,<sup>22</sup> but this is probably only a part of the abnormal vulnerability to vascular insults, some of which are bacterial.

The administration of triple typhoid vaccine, strongly advocated in the therapy of Buerger's disease, has been the method of choice in my clinic. However, I do not believe that the creation of intense reactions, chills and fever is important. On the contrary, such reactions during the chills have been known to lead, although very rarely, to thrombosis.<sup>23</sup> It has been my custom to

11 de Takáts Géza Vascular Anomalies of the Extremities *Surg Gynec & Obst* 55: 227 (Aug.) 1932

12 Pearse H. E. Jr. Embolotomy for Arterial Embolism of the Extremities *Ann Surg* 98: 17-32 (July) 1933

13 Scupham G. W. The Effect of Theobromine in Peripheral Vascular Diseases *Arch Int Med* 54: 685 (Nov.) 1934

14 Denk W. Zur Therapie der arteriellen Embolie. *München med Wchnschr* 81: 437-439 (March 23) 1934

15 Sevringhaus E. L. A Constant Temperature Foot Cradle. *Am J Sc* 18: 509-511 (April) 1934

16 Landis E. M. and Gibbon J. H. Jr. Effects of Alternate Suction and Pressure on Blood Flow to Lower Extremities. *J Clin Investigation* 12: 925-961 (Sept.) 1933

17 Herrmann L. G. and Reid M. R. Passive Vascular Exercises Treatment of Obstructive Vascular Diseases of the Extremities. *J Med* 19: 524-529 (Dec.) 1933

18 Brown G. E. Thrombo-Angitis Obliterans. Buerger's Disease. *Surg Gynec & Obst* 58: 297-311 (Feb.) 1934

19 Kaunitz, Julius. Chronic Endemic Ergotism. Its Relation to Thrombo-Angitis Obliterans. *Arch Surg* 25: 1135 (Dec.) 1932

20 Rusznayk, S. and Korányi, A. Ueber den Wirkungs Mechanismus der Protein Therapie. *Klin Wchnschr* 6: 1332-1334 (July) 1927

21 Samuels S. S. Gangrene Due to Thrombo-Angitis Obliterans. *J A M A* 102: 436-422 (Feb. 10) 1934

22 Sulzberger M. B. Recent Immunologic Studies in Hypersensitivity to Tobacco. *J A M A* 102: 11-12 (Jan. 6) 1934

23 Hench P. S. Usual and Unusual Reactions to Protein (Fever) Therapy. *Arch Int Med* 49: 1-25 (Jan.) 1932

start with as little as 1,000,000 bacteria intravenously and, should this produce a febrile reaction or malaise, to reduce the dose to 100,000. Exactly as in the therapy of rheumatic disease,<sup>24</sup> the minimal dose producing a favorable local response without a general reaction is the optimal dose. When such a dose is once determined, it is repeated until no relief of symptoms is obtained. At this time an increase in the dose is advisable, but never one that will produce a high temperature with chills. The vaccine therapy requires considerable skill and experience. When not properly handled, it may aggravate the patient's condition.

Because of the increased viscosity of the blood, which has been demonstrated in these patients, a sufficient water intake of from 3 to 4 quarts of water should be maintained. When this water contains some salt in the form of Ringer's solution or separately 10 Gm of table salt to every quart of water is consumed during the day, the water will be much better retained than if it is taken without salt.<sup>25</sup> I do not specially advocate, however, large doses of salt solution intravenously, as venous thrombosis frequently occurs.

Smoking is absolutely prohibited, it produces or aggravates vessel spasm.<sup>26</sup> Demicotinized tobacco tastes so bad that it serves as an excellent transition to complete abstinence. Alcohol on the other hand, if the patient is used to it, is not harmful when moderately used. Its peripheral vasodilator effect is common knowledge. It is doubtful, however, whether its use as an analgesic in the excruciating pain of vessel obstruction should be encouraged. These patients may become chronic alcohol addicts and will require and request more and more for the relief of pain.

Nor should morphine be given if its use can possibly be avoided. Should the pain be due to ischemia vasodilators, such as theobromine, and continuous heat are most helpful. If the pain is due to a peripheral neuritis, which may accompany inflammatory or degenerative vascular lesions, a combination of 5 grains (0.3 Gm) of amygdopyrine and one-half grain (0.03 Gm) of phenobarbital is of benefit. The desensitization of the foot by injections of alcohol<sup>27</sup> or section and immediate suture of the sensory nerves of the foot<sup>28</sup> is not a harmless procedure. It deprives the foot of important defense mechanisms such as pain on injury and reactive hyperemia in infection. In my limited experience with these methods, the immediate result was a dramatic relief from pain, the late result was an amputation. The removal of infected foci is well worth while, not with the idea that the process in the vessel wall will be influenced but to prevent further flare ups, further sensitizations.

Sympathectomy in Buerger's disease has been debated pro and con. The difficulty of evaluating the effect of sympathectomies in this disease lies in the fact that (1) the etiology of Buerger's disease is unknown and its general vascular distribution is variable, and (2) the effect of sympathectomies on the peripheral vascular bed is far from being clear. The following

considerations have influenced me against performing sympathectomies in true Buerger's disease.

1 It is a generalized vascular infection, involving not only peripheral vessels but any other vessel, coronary, renal, cerebral or mesenteric. 2 The extremity uninvolved at the time of sympathectomy is not protected from extension and progress of the vascular occlusion at a later time.<sup>29</sup> 3 The end results are not strikingly different from those obtained by conservative measures.<sup>18</sup> It must be emphasized, however, that a group of vascular diseases which exhibit vessel spasm and are due to chronic endo-arteritic processes respond very well to sympathectomy. This is the group that Mont Reid designates as endarteritis obliterans.<sup>30</sup> Unfortunately, the medical profession at large has not made any distinctions in the past between Buerger's disease and endarteritis obliterans. In fact, these two conditions are frequently used as synonyms.

Buerger's disease (thrombo-angitis obliterans) is a progressive vascular inflammation attacking chiefly young males who are not necessarily Jews or smokers. There is a characteristic history of spontaneous phlebitis or cutaneous nodules resembling rheumatic nodules, a slow but steady or intermittently exacerbating progress of the disease that involves many arterial segments. In analogy of the typical syndrome of migrating phlebitis, this disease is a migrating arteritis, with secondary thrombosis and recanalization.

This should be contrasted with the occlusion of a single vessel or vascular tree, which may be due to any one of the traumatic or infectious processes already enumerated. There is no history of phlebitis or cutaneous nodules, no evidence of progression, and no change in blood viscosity or blood volume. Such a patient has a healed scar in place of a normal artery. Should this maintain a reflectoric vessel spasm, sympathectomy will relieve it.

**Degenerative Processes.** The narrowing or occlusion of peripheral arteries due to atheromatous plaques of the intima or calcification of the media (Monckeberg's sclerosis) is the most frequent peripheral vascular disease, seen usually in senescence but occasionally in adolescents, particularly if they are diabetic.<sup>31</sup> So long as myocardial function is sufficient, the increased peripheral resistance is overcome by an increased stroke volume of the heart and by a gradual development of collateral circulation. This state of compensation is mainly endangered by the failing of the cardiac reserve manifested by the falling of blood pressure. It is for this reason that arteriosclerosis with hypotension<sup>32</sup> frequently gives rise to peripheral circulatory disturbances. The treatment of these arteriosclerotic patients, who complain of intermittent claudication and later of rest pain, numbness, tingling or burning of the feet, must utilize all the vasodilators, sedatives and physical measures discussed here and also abstinence from tobacco. In addition, the passive vascular exercises, as described by Reid and Herrmann<sup>17</sup> have a real field in developing and sustaining collateral circulation. In my experience the alternating negative positive pressure treatment has been effective, provided the pumping action of the heart is adequate and provided the main arterial channels at the iliac and femoral vessels are sufficiently

24 Zimmer, Arnold. *Die Behandlung der rheumatischen Krankheiten*. Leipzig: Fischers medizinische Buchhandlung, 1930. Crowe H. W. *Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases*, ed. 2. New York: Oxford University Press, 1932.

25 de Takats Geza. *Push Fluids*. *Am J Surg* 11: 39-44 (Jan) 1931.

26 Maddock W. and Coller, F. A. *Peripheral Vasoconstriction by Tobacco Demonstrated by Skin Temperature Changes*. *Proc Soc. Exper Biol & Med* 29: 487-488 (Jan) 1932.

27 Smithwick R. M. and White J. C. *Elimination of Pain in Obliterative Vascular Disease of Lower Extremity*. *Technic for Alcohol Injection of Sensory Nerves of Lower Leg*. *Surg Gynec & Obst* 61: 394 (Sept.) 1930.

28 Laskey N. F. and Silbert Samuel. *Thrombo Angitis Obliterans*. *Ann Surg* 98: 55-69 (July) 1933.

29 Personal observation.

30 Reid, M. R. *Diagnosis and Treatment of Peripheral Vascular Diseases*. *Am J Surg* 24: 11-35 (April) 1934.

31 White Priscilla. *Diabetes in Childhood and Adolescence*. Philadelphia: Lea & Febiger, 1932.

32 Sutton D. C. and Lueith H. C. *Treatment of Hypotension in Arteriosclerosis*. *Illinois M J* 65: 500-502 (June) 1934.

patent to permit suction into the ischemic areas below the knee.<sup>14</sup> Competent medical management with digitalis and possibly ephedrine may maintain blood pressure at an adequate level.

The diabetic vascular disturbance is primarily on an arteriosclerotic basis, appearing however a decade earlier than in the nondiabetic group.<sup>33</sup> Occlusion of the smaller arteries and arterioles, however, seems to be more frequent in the diabetic group. So it occurs that large areas of skin may become gangrenous resembling a skin infarct, while the larger vessels are pulsating well. A differentiation between diabetic gangrenes of a circulatory or of an infectious basis is very important. While the first group requires major amputations the second group can be treated by incisions or minor amputation.<sup>34</sup> The determination of the proper level of amputation has been discussed elsewhere.<sup>35</sup>

*Functional Disturbances* — There is an element of spasm in almost every vascular disease in fact there is a certain amount of vasoconstriction a vasoconstrictor tone, in every normal peripheral vessel but chiefly in the lower extremities. Heat, exercise and other stimuli open up these vessels and previously closed collaterals to a maximal degree, failure to dilate, however means an organic lesion.

Vessels, however, may remain spastic continuously or intermittently or they may be exaggeratedly sensitive to cold, fear, anger or anxiety. All these spasms, especially when they occur symmetrically in the two extremities, are usually designated as Raynaud's disease. It is well known, however, that a number of diverse conditions such as tabes, syringomyelia, multiple sclerosis spastic hemiplegia, poliomyelitis, cervical rib, spina bifida, osteo-arthritis of the spine, traumatic perineuritis, polyneuritis and other diseases that I have analyzed elsewhere<sup>36</sup> are capable of producing vessel spasms, should they be recognized treatment may be directed against the primary cause. In the present state of ignorance as to the cause of Raynaud's disease, one is forced to call this syndrome a primary vessel spasm, with an increased susceptibility to local stimulation but probably still of central origin. One important postmortem report from Foerster's institute described an organic lesion in the cord with the clinical picture of Raynaud's disease.<sup>36</sup>

Should no other primary cause be found and should it prove that interruption of sympathetic vasoconstriction by nerve block or reflex heat relieves a spasm and is capable of producing vasodilatation, a sympathetic denervation of the affected part must be considered. Should the vessel spasms be mild, occurring only during the winter, and be easily controlled by lined gloves, boots and the like, the operation is not indicated. When trophic disturbances are beginning to show—and they first are manifest on the nails and tapering of the finger tips—or should ulceration and gangrene be present, a sympathectomy is indicated. A sympathetic denervation of the upper extremity is accomplished by the removal of the stellate, first and second thoracic ganglions with the intervening trunk and rami, of the

lower extremities by the removal of the second, third and fourth lumbar sympathetic ganglions and the chain. It may well be that this does not constitute a complete sympathetic denervation and that sacral segments may have to be included.<sup>37</sup> Both of these operations have several approaches, the method of Gask<sup>38</sup> for the upper and that of Adson<sup>39</sup> for the lower extremity have been my methods of approach.

Failures from sympathectomy have been frequently observed. When analyzed, they may be due to (1) mistaken indications, (2) insufficient technic, and (3) partial regeneration or neuroma formation. At the present state of knowledge, sympathectomy is advised only in patients exhibiting central or reflectoric vessel spasm. Buerger's disease, arthritis and scleroderma have been excluded from the group. Regarding the technic not only should there be histologic evidence of the removal of the sympathetic chain and ganglions, but a complete removal must be postulated. On the upper extremity the entire stellate ganglion must be excised, and there should be a complete Horner's syndrome, with failure to dilate the pupil with cocaine, on the lower extremity the second lumbar ganglion, which is often covered by the duodenum, must be removed. Many surgeons simply transect the sympathetic chain or remove a small segment. This leads to a third cause of failure, namely, regeneration. The sympathetic trunks regenerate very rapidly unless their trophic ganglion also is removed, hence the importance of removing long segments, together with the ganglions, and of applying alcohol or silver clips to the stumps.

It must be kept in mind that after a powerful vasodilatation of arterioles and capillaries lasting a few weeks, a constriction of the smaller vessels follows, but central or reflex vasoconstriction cannot influence them, only local stimuli. Thus in a patient suffering from Raynaud's disease a digital asphyxia may still develop after a sympathectomy.<sup>40</sup> But the burning pain that occurs at the end of the attack and is associated with rapid vasodilatation is abolished and no reflectoric vasoconstriction or dilatation can occur.

Very little need be said of the opposite type of functional disturbance, namely, vasoparalysis. Erythromelalgia is the prototype of this disease a very rare condition usually secondary to polycythemia. The extremity is hot and hyperemic, and the pain is relieved by exercise, cold baths and radium packs. In acrocyanosis a paralysis of the small venules is said to exist. There is no satisfactory therapy to date.

This brief survey of the principles of examination, diagnosis and management of peripheral vascular disease should focus some attention on these common and often significant disorders of peripheral circulation. Most of such material is primarily in the hands of the general practitioner, some of them will complicate or obscure the problems of other specialties. A more intensive study of these peripheral circulatory disturbances will lead to earlier and better therapeutic results.

122 South Michigan Avenue.

32a de Takáts Géza Obliterative Vascular Disease Preliminary Report on Treatment by Alternating Negative and Positive Pressure J A M A 103:1920-1924 (Dec 22) 1934

33 Joslin E P Treatment of Diabetes Mellitus ed 4 Philadelphia Lea & Febiger 1928

34 McKitterick J S and Root H F Diabetic Surgery Philadelphia Lea & Febiger 1928

35 de Takáts Géza and Mackenzie W D Diagnosis and Treatment of Circulatory Disturbances of the Extremities Surg Gynec & Obst 58:655-667 (March) 1934

36 Gagel O and Watts J W Zur Pathogenese der Raynaud'schen Gangran Ztschr f klin Med 122 110-117 1932

37 Oughterson A W Harvey S C and Richter H G Observations on Sympathetic Vasomotor Pathways Ann Surg 96 744-753 (Oct) 1932

38 Gask, E. E. The Surgery of the Sympathetic Nervous System Brit. J Surg 21:113-130 (July) 1933

39 Adson A W and Brown G F The Treatment of Raynaud's Disease by Resection of the Upper Thoracic and Lumbar Sympathetic Ganglia and Trunks Surg Gynec & Obst 48:577 (May) 1929

40 Lewis Thomas Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation to the Fingers. A Variety of Raynaud's Disease Heart 15 7-102 (Aug) 1929 Gask G E and Ross P J The Surgery of the Sympathetic Nervous System Baltimore William Wood & Co 1934

# LIMITATIONS OF USE OF SILVER NITRATE IN PREVENTION OF OPTHALMIA NEONATORUM

REPORT OF A SURVEY OF NEARLY 28 000 HOSPITAL BIRTH RECORDS AND 2 000 CASES OF OPTHALMIA NEONATORUM

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For fifty years the medical profession has accepted Crede's method for the prevention of ophthalmia neonatorum without dispute. Finding that 2 per cent silver nitrate is too irritating to the eyes of the newborn, physicians in general have reduced the strength of silver nitrate to 1 per cent. Ernst Fuchs in his prize essay of 1884 quotes the statistics of Crede to the effect that 108 per cent of the babies born at the University Clinic and Polyclinic for Obstetrics and Gynecology and School for Midwives at Leipzig had blennorrhea before the use of silver among 2,897 patients, and that following the use of 2 per cent silver nitrate the incidence of blennorrhea dropped to from 0.1 to 0.2 per cent of a total of 1,160 infants. Institutions interested in the blind have recorded a tremendous drop in the number of admissions to the schools for the blind by reason of ophthalmia neonatorum attributing such reduction to the use of silver nitrate.

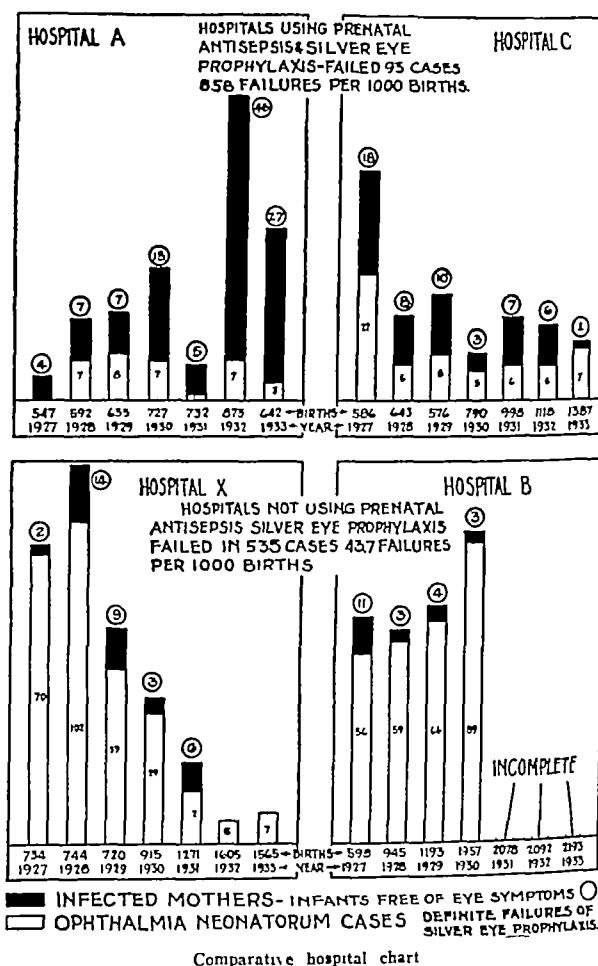
A survey of the records of the department of public health of Philadelphia for the past fifteen years shows that ophthalmia neonatorum has not materially decreased, despite the generalized application of Crede's method of antiseptics. Mayou<sup>1</sup> reported similar statistics for the city of London, indicating that the disease has not been materially held in check for a period of fifteen years. He reports 760 cases in 1915 and 617 in 1930, a decrease, but not a decided one. In Philadelphia, the reported cases range from eighty-two in 1920, reaching a peak of 130 in 1929 and receding to sixty-seven in 1933. It is interesting to note that, of the Philadelphia cases, 28 per cent were gonorrheal while the remaining were nongonorrheal. Lazar's<sup>2</sup> reports indicate that 55 per cent of the ophthalmia neonatorum cases investigated were nongonorrheal, the pneumococcus being most frequently found. His records indicate that 35 per cent of the nongonorrheal types show no organisms whatever and he assumes that they were due to chemical irritants, such as silver nitrate. The records of the department of health of Philadelphia show also that a large proportion of the nongonorrheal types were due to irritants, the chief of which is silver nitrate. In the effort to determine why ophthalmia neonatorum has not decreased, an elaborate survey was made in six of the largest hospitals of Philadelphia. Birth records of 28,000 cases were thoroughly studied and 1,500 cases of ophthalmia neonatorum on file in the bureau of health investigated.

Six hundred and thirty-two cases of ophthalmia neonatorum were found on the records among 27,873 infants, an incidence of 2.2 per cent. This record is twenty-two times the incidence rate recorded by Crede. In all the six hospitals investigated, careful prophylaxis

was carried out. Approximately 30 per cent of these cases were gonorrheal in origin. It appears that the Crede method of prophylaxis is not being carried out in Philadelphia institutions as originally described by the founder or that the instillation of one drop of a germicide has been relied on too much with a sense of complacent security.

## ANTEPARTUM ANTISEPSIS

The most striking fact of the survey is that expectant mothers known to have gonorrhea have not been actively treated for the disease because of the implicit confidence placed on the efficacy of a single drop of silver nitrate in the prevention of gonorrhea of the



eyes of the new-born. In no phase of public health is the child knowingly exposed to an infection and then an attempt made to prevent that infection by a single drop of a germicide. This survey points conclusively to the fact that, in hospitals where a careful attempt was made to treat gonorrhea in the expectant mother, the incidence rate of ophthalmia neonatorum was one-fifth that of hospitals where no attempt was made to treat the gonorrhea during the expectant period. At Hospitals A and C, where routine procedure is carried out to discover the presence of gonorrhea during pregnancy, the incidence rate of ophthalmia neonatorum was 7 and 10 respectively per thousand births. In Hospitals B and X the incidence rate was 61 and 36 respectively per thousand births. There is no doubt that gonorrhea in the expectant mother should be treated, not with the view of a cure, but to reduce the

Work done under the auspices of the Department of Public Health Read before the Philadelphia County Medical Society Oct 24 1934  
 1 Mayou M. S. Observation in Ophthalmia Neonatorum Brit. M. J. 2 972 (Nov 28) 1931  
 2 Lazar N. K. Types of Ophthalmia Neonatorum Not Due to the Gonococcus Arch. Ophth. 6 32 (July) 1931

number of organisms present so as to minimize the likelihood of infection of the eyes of the new-born

At the Jefferson Hospital, in the obstetric department under the direction of Prof P B Bland, every case of gonorrhea in the antepartum stage is placed under treatment. Not a single baby born of a mother so treated developed ophthalmia neonatorum. There is no need for further proof that Crede's method is in need of revision to include antiseptics of the expectant mother known to have gonorrhea.

This survey shows that a large proportion of mothers who did not have positive smears delivered babies with positive gonorrheal ophthalmia. This is but a reflection of the need for more deliberate and careful technique in the examination of the expectant mothers for infection. Crede originally recommended vaginal antiseptics, using 2 per cent phenol (carbolic acid) solution. He obtained good results under this method but later abandoned the antepartum antiseptics and proclaimed to the world that one drop of 2 per cent silver nitrate had almost specific properties. Nowhere in medicine has silver nitrate, either 1 or 2 per cent, been heralded as a specific gonococcicide. In view of the difficulty of a single drop reaching all infected surfaces, Gottlieb and Freedman<sup>3</sup> showed definitely that 1 per cent silver nitrate does not have the effect on the gonococcus that is generally believed. This is substantiated by clinical investigation of the hospital records.

At the Philadelphia General Hospital 1 per cent silver nitrate was used in a series of 106 babies and in the majority of instances was accompanied by moderate and sometimes severe irritation of the eyes. In another series metaphen 1 4,000 then increased to 1 2,000, was used on 143 babies and practically all the eyes were free from irritation. In the silver nitrate group, thirteen mothers with positive gonorrhea delivered ten babies whose smears were negative, indicating that a large proportion of babies escape infection even before any chemical is placed in the eyes. There were three positive smears from the eyes of the new-born, two of which developed gonorrheal ophthalmia. The other was prevented by active treatment. In the metaphen series there were ten mothers with positive smears for gonorrhea, all of whom delivered babies with negative smears. One case of ophthalmia neonatorum developed in the child of a mother from whom no smear was taken. Here again definite proof is presented that a large proportion of the babies born of mothers having gonorrhea escape infection, but of those who do not escape, a single application of any germicide, no matter how powerful, is insufficient to control or prevent the disease.

#### COMPULSORY LEGISLATION

Forty-four states in this country require the use of silver nitrate or some other germicide in the eyes of the new-born. Not a single one requires the treatment of gonorrhea in the expectant mother in the prevention of ophthalmia neonatorum. The fundamental principles of all public health measures deal with the control of disease at its source. Yet in ophthalmia neonatorum all health officers are content to wait until the infant has been exposed to the disease and place full reliance on the prevention after exposure. The records of this survey point conclusively to the fact that the control of this disease will depend entirely on the modification of present laws requiring the treatment

not only of gonorrhea but also of all nonspecific infections of the vaginal tract of the expectant mother during the period of pregnancy.

As 60 per cent of the deliveries in Philadelphia are in hospitals and in view of the fact that a greater proportion of maternity cases will in the future be delivered in institutions, it is important that this phase of prevention be adopted, especially for all ward cases.

The survey points conclusively to the fact that the Negro race contributes the larger proportion of the cases of ophthalmia neonatorum and that vaginal antiseptics is particularly important in hospitals in which a large proportion of this race is confined.

#### CONCLUSIONS AND RECOMMENDATIONS

The following procedures are recommended:

1 Superficial sterilization of the birth canal before delivery of all hospital clinic patients, particularly Negroes.

2 Thorough flushing of the eyes of the new-born with sterile boric acid solution, a 3 ounce (90 cc) solution being used for each eye, followed immediately by instillation of 0.5 per cent solution of silver nitrate. This should be repeated on three successive days. On the fourth and subsequent days during the first two weeks in the hospital or at home, the eyes should be flushed thoroughly by the attending physician with sterile boric acid solution.

3 Compulsory reporting of all cases of ophthalmia neonatorum and the compulsory reporting of the results of the treatment at the end of six weeks.

4 Change in state laws to include prenatal antiseptics.

## FATAL ASTHMA

### REPORT OF CASE WITH BRONCHIAL MEASUREMENTS

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Sir John Floyer<sup>1</sup> in 1698 first suggested that the pathologic physiology of asthma was, basically, a contraction of the muscles in the bronchial wall. Since that time strenuous efforts have been made to demonstrate changes of a characteristic nature that would offer definite proof of this hypothesis. Physiologic facts brought out by animal experimentation seem to offer evidence, by analogy, that muscle contraction plays a part in the production of an asthmatic paroxysm. Several observers, however, notably Coca,<sup>2</sup> refuse to accept this as proved.

The evidence in favor of the theory of bronchospasm is ably presented by Alexander,<sup>3</sup> who quotes many observations, beginning with those of Haller in 1756. The latter noticed that the lung drew itself together on the application of strong acid. Varmer<sup>4</sup> in 1779 reported the contraction of the finer air tubes when exposed to certain irritating fumes and liquids. The first definitely to demonstrate bronchial contractility was

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<sup>1</sup> Floyer, John. A Treatise of the Asthma. London, 1698.  
<sup>2</sup> Coca, A. F. Relation of Atopic Hypersensitiveness (Hay Fever, Asthma) to Anaphylaxis. A Review of Recent Literature. Arch. Path. 1: 96 (Jan.) 1926.

<sup>3</sup> Alexander, H. L. Bronchial Asthma. Philadelphia, Lea and Febiger, 1928, p. 32.

<sup>4</sup> Cited by Alexander.<sup>3</sup>



Williams<sup>4</sup> in 1840. He tied a tube containing colored fluid in the trachea of a dog, and on stimulation of the lung tissue with a galvanic current this fluid rose in the tube nearly 2 inches. He was unable to obtain a similar effect by stimulating the nerves of the lung. Later Longet,<sup>4</sup> using larger animals, namely a horse and an ox, obtained a rise in the column of fluid following nerve stimulation. Volkmann<sup>4</sup> proved that the reaction occurred also on vagal stimulation in the dog. He demonstrated this by placing a flame near the mouth of the tube, on stimulation the flame flickered and once went out. In 1914 Weber,<sup>4</sup> by the oncometer method and using proper control preparations, confirmed the observations of Brodie and Dixon<sup>4</sup> that bronchial constriction played the dominant role in increasing intratracheal pressure when the peripheral end of the sectioned vagus was stimulated.

In 1908 Strümpell<sup>4</sup> suggested that if definite hypertrophy of the bronchial musculature in asthmatic patients could be shown, it would offer the best direct

true bronchial asthma, studied in the manner mentioned, hence we believe that it is of sufficient importance to report. The clinical data are given in considerable detail because the diagnosis is so frequently questioned in these cases.

#### REPORT OF CASE

**History**—A white woman, aged 69, was admitted to the Franklin Square Hospital, Baltimore, Nov. 27, 1929, in the service of Dr. William H. Smith and remained in the hospital until her death, Jan. 15, 1931, a period of one year and forty-nine days. During this time she was seen in consultation by one of us (H. M. B.). Her complaint on admission was shortness of breath.

No definite evidence of allergy was revealed in the family history. A suggestive fact was that her son had had convulsions at the age of 15 months, which were supposed to have been due to a heavy cold.

The patient had had the ordinary diseases of childhood, with no complications or sequelae. She had had two miscarriages. The menopause occurred at the age of 35. There were no significant symptoms pertaining to the cardiovascular, genitourinary, gastro-intestinal or nervous systems.

At the age of 12 years the patient had urticaria. At the time of her admission she was unable to eat fish, strawberries or tomatoes because they caused her to have a skin rash and had done so for years. Sea food also caused nausea and gastro-intestinal discomfort. No other evidences of allergic sensitivity were obtained.

Two years before admission the patient had shortness of breath for one day; this did not recur until the summer before admission. In July 1929, while visiting on a small truck farm, she contracted bronchitis, and this continued for two or three weeks, at which time she noticed a beginning shortness of breath. This recurred almost daily and gradually became more severe. After a few weeks she returned to her home in Baltimore without relief. While on the farm she slept on a feather bed and she stated that chickens were raised as part of the farm activities. Her attacks of shortness of breath continued to become more severe until she was admitted to the hospital by Dr. Smith.

**Examination**—The patient was markedly dyspneic. She was sitting up in bed and talking with difficulty because of labored breathing. The pupils were small and the examiner made the notation "morphism." The chest was emphysematous in appearance, with the percussion note hyperresonant throughout; auscultation revealed numerous sibilant and sonorous rales with prolongation of expiration. The heart did not appear enlarged on percussion. The apex beat could be neither seen nor felt. The mitral sounds were best heard in the fifth intercostal space, 8.75 cm. to the left of the midsternal line. The blood pressure was 178 systolic, 88 diastolic, and the pulse rate was 120 per minute. There was no pulse deficit. No dependent edema was demonstrated over the extremities or the sacral region. The impression of the examiner was that the case was one of bronchial asthma. He stated however that a blood pressure reading of 200 systolic, 120 diastolic had been previously obtained and that "renal asthma" must be ruled out.

The urine was normal except for the finding of two plus albumin in the first specimen which decreased in a few days to a slight trace and persisted in that amount for a long time. Phenolsulphonphthalein kidney function tests on Dec. 2 and 7, 1929, both gave readings of 35 per cent in one hour. Chemical examination of the blood revealed nonprotein nitrogen, 36 mg., creatinine, 17 mg. and blood sugar, 105 mg. per hundred cubic centimeters of blood. Jan. 18, 1930, the figures were nonprotein nitrogen, 35 mg., creatinine 19 mg., and blood sugar, 102 mg. July 31 the nonprotein nitrogen was 41 mg., the creatinine 18 mg., and the sugar 112 mg.

On admission the patient's temperature was normal, rising to 101 F. the third day but returning to normal the sixth day and remaining there for weeks. Repeated sputum examinations were reported negative for Curschmann's spirals, Charcot-Leyden crystals or eosinophils. One is forced to discount this in view of the technician's lack of experience in studying asthmatic sputums and in view of the further fact that numerous

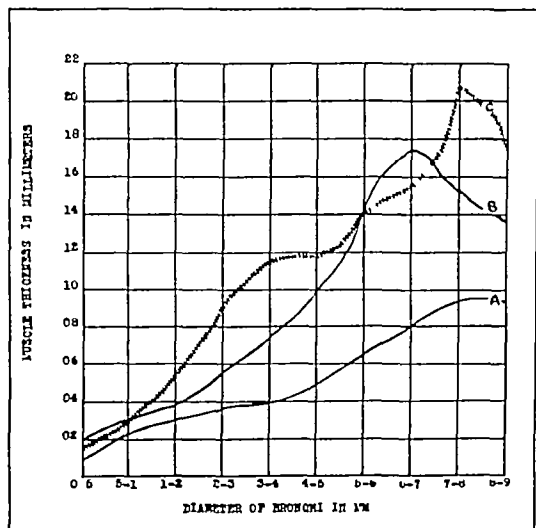


Fig. 1—A, curve plotted from Huber and Koessler's nonasthmatic material; normal; B, composite curve of the three cases reported by Kountz and Alexander; C, curve plotted from our own case of fatal asthma.

proof of the occurrence of bronchospasm during the paroxysms.

In 1922 Huber and Koessler<sup>5</sup> introduced a greatly improved method for studying pathologic material from asthmatic cases. This consisted of careful measurements of the different bronchial coats in the lungs of asthmatic patients, as compared with similar measurements in nonasthmatic persons. They studied six cases of alleged fatal asthma in this manner. Rackemann<sup>6</sup> however has shown that, of the six, only one may be considered as showing the pathologic changes of uncomplicated bronchial asthma. In 1928 Alexander and Kountz<sup>7</sup> reported three acceptable cases of fatal asthma studied in this manner. These four cases are the only ones thus far reported that may be considered as representing fatal true, uncomplicated bronchial asthma studied by the exact method of Huber and Koessler. The case reported here is, we believe, a fatality from

<sup>5</sup> Huber, H. L. and Koessler, K. K. The Pathology of Bronchial Asthma. Arch. Int. Med. 30: 687 (Dec.) 1922.

<sup>6</sup> Rackemann, F. M. Fatal Asthma. Report of a Case with Autopsy. Boston M. & S. J. 19: 4: 531 (March 25) 1926.

<sup>7</sup> Kountz, W. B. and Alexander, H. L. Death from Bronchial Asthma. Report of Three Cases. Arch. Path. 5: 1003 (June) 1928.



specimens which appeared microscopically to contain spirals were reported as normal. Several differential white cell counts were negative for eosinophils.

Skin tests were made by one of us (H. M. B.) the cutaneous technique being used. These were negative to all common inhalants and foods.

*Course in the Hospital*—During the patient's prolonged stay in the hospital the asthma recurred almost daily many times persisting without a break for several days. The paroxysms were usually quite severe but were controllable by varying doses of epinephrine except in rare instances. A very significant fact was her lack of improvement following the administration of morphine, even though at times doses sufficient to cause drowsiness and, on one occasion pupillary contraction were given. October 26 after a gradual rise during the previous few days, the temperature suddenly rose to 103 F. A note made by the attending physician at the time stated that he felt that pneumonia might be developing. No definite signs were found however, on repeated examinations. Forty-eight hours later the temperature returned to 99 F and after a period of a few days did not rise above this figure any time during the twenty-four hours. There were no further noteworthy changes in the temperature. The blood pressure readings were of interest. During the periods in which the patient was free or relatively free of asthmatic symptoms the systolic pressure varied from 122 to 158 mm of mercury and the diastolic from 63 to 98. During the times that the patient was having severe asthma the systolic pressure varied from 178 to 200 and the diastolic from 120 to 130, a finding at variance with the statements of some observers. An interesting phenomenon noted was that immediately after the administration of epinephrine during severe asthmatic symptoms a rise in blood pressure occurred to be followed by a considerable decrease varying proportionately with the improvement in the asthmatic attack achieved by the medication. This has been aptly called the paradoxical epinephrine reaction. Removal of all feathers and other animal products from the patient's bed was without beneficial effect.

At the request of one of us (H. M. B.) the medical resident who was present when the patient died made the following notation:

"For twenty-four hours prior to her death she presented an ashy appearance. Her asthma grew worse attacks were more frequent and lasted longer while the intervals of comparative freedom between the attacks grew shorter and shorter. Just before death she was given epinephrine in 15 minim doses with but slight relief. About ten minutes before death her blood pressure was 200/110 mm of mercury showing as usual, an increase during an attack. Her heart seemed to do well as no signs of congestion were noted such as edema over the sacrum, excessive sputum or increase in the size of the liver. She became increasingly short of breath gasping for air until comatose. It seemed as though she had suffocated because her heart continued to beat for a few seconds after respiration ceased."

The absence of cardiac failure suggested by the foregoing observation, would seem to be confirmed by the pulse chart which showed a rate of 118 on January 14 and a rate of 114 on the day of death, in spite of a preceding twenty-four hours of terrific respiratory difficulty. At the time of death the patient's temperature was 99 F a figure that had not been exceeded during the previous week.

#### POSTMORTEM EXAMINATION

Permission for only a partial autopsy was obtainable and this coupled with a very limited amount of time at our disposal, owing to factors over which we had no control precluded our doing much more than removing certain organs for later detailed pathologic study, namely the lungs the heart and the kidneys.

The body was moderately well nourished and showed no signs of marked loss of weight. An incision was made in the midline of the abdomen from the upper part of the manubrium almost to the pubis.

The pleural cavities contained practically no fluid. Both lungs were adherent to the chest wall over their entire surface by fine adhesions which were separated readily by the fingers. Both lungs were markedly and uniformly distended throughout

and were definitely less elastic and less crepitant than usual. No gross nodulations or fibrosis were noted.

The pericardial sac contained about 200 cc of a clear straw-colored fluid. The pericardium was smooth throughout. The heart was small and the musculature appeared to be in good condition. No abnormalities of the coronaries were noted.

The contents of the abdomen were essentially negative on rapid examination. Both kidneys were removed.

Both lungs were generally emphysematous with a few friable fibrous tags on the external pleural surfaces bilaterally. The lungs were acutely distended and a coarse crepitant or crackling sensation was elicited on palpation. There was no evidence of nodular consolidation externally, although the organs felt comparatively heavy.

A sectioned surface presented for the most part irregular sized thickened bronchi embedded in emphysematous lung tissue. The majority of these bronchi were filled with a glistening



Fig 2—A bronchus containing both asthmatic and pneumonic exudate, X30

ing, hyalinized exudate. In some of the small bronchioles there appeared to be a purulent exudate around which there was a halo of consolidation in the surrounding lung tissue. It appeared that this pneumonic exudate had been confined to this region by the hyalinized plugs present farther up in the bronchial tree.

The many sections taken from the lungs showed the same general conditions, the chief one being definite changes in the bronchial walls and lumens. All coats were thickened in this process. As will be seen by the accompanying chart, this was most evident in the smooth muscle layer of the medium sized bronchi. There was some degeneration and desquamation of the epithelium of the mucosa. There was hyalinization of the basement membrane of the epithelium. The submucosa was edematous and infiltrated with lymphocytes and eosinophils. The mucous glands were for the most part hypertrophied. Much of the cartilage in the larger bronchi showed hyalinization. The mucous exudate in the lumen was most characteristic. It appeared in whorls and laminae, richly infiltrated with eosinophilic cells. The alveoli of the lungs showed marked dilatation fragmentation of interalveolar walls and intercom-

munication In some of the small bronchioles a rich leukocytic exudate was seen without fibrin or mucus This exudate was present also in some of the air sacs about the terminal bronchioles This leukocytic exudate offered a marked contrast to the mucous exudate of asthma when the two were observed in the same bronchus, as was the case in several of our specimens (fig 2)

The heart was slightly hypertrophied weighing 400 Gm There was no gross evidence of myocardial fibrosis or valvular lesions The coronary vessels were not tortuous or thickened There was evident hypertrophy of the right side of the heart The myocardium of the right ventricle measured 6 mm in thickness while the left measured 18 mm Microscopically there was a slight increase in the size of the individual muscle fibers There was also a slight increase in the amount of interstitial fibrous tissue No cellular infiltration or vascular thickening was noted

*Bronchial Measurements (in Millimeters)\**

	Outside Diameter	Lumen Diameter	Muscle Thickness	Subepithelial Thickness
1	0.400	0.370	0.01	
2	0.60	0.501	0.0325	
3	0.875	0.670	0.0275	0.0125
4	1.000	0.815	0.0400	0.040
5	1.100	0.700	0.040	0.080
6	1.125	0.730	0.0375	0.0625
7	1.375	0.830	0.0600	0.1375
8	1.500	0.750	0.0472	0.0872
9	1.385	0.025	0.0325	0.0125
10	1.875	0.040	0.1525	0.225
11	2.000	1.000	0.0425	0.095
12	2.375	1.125	0.0600	0.055
13	2.500	1.600	0.0725	0.150
14	2.375	0.630	0.1575	0.2125
15	2.500	1.750	0.0975	0.05125
16	2.625	1.025	0.1275	0.2000
17	3.100	1.375	0.1300	0.2000
18	3.250	2.500	0.0825	0.0900
19	3.250	1.825	0.1200	0.0075
20	3.375	2.250	0.1100	0.1300
21	3.375	2.625	0.1025	0.1300
22	3.500	2.750	0.1125	0.0972
23	4.000	2.000	0.0750	0.0850
24	4.175	2.375	0.1125	0.1300
25	4.000	2.375	0.0900	0.1100
26	4.250	2.625	0.0900	0.05125
27	4.250	2.375	0.1250	0.0800
28	4.250	2.375	0.1550	0.11725
29	4.125	1.250	0.1300	0.09725
30	4.750	3.250	0.1075	0.0600
31	5.000	2.750	0.1500	
32	5.250	3.375	0.1550	
33	6.025	3.250	0.1475	
34	7.250	4.875	0.2175	0.16725
35	7.250	5.500	0.2175	0.16725
36	8.875	4.500	0.1450	

\* Most of the bronchial measurements were done by Dr Paul M Schwartz

The kidneys were not unusual Their size and weight were within normal limits On the cut surface the normal architecture was preserved The histologic picture was one of an extremely mild chronic nephritis There was an occasional scarred and hyalinized glomerulus with some slight infiltration of small round cells in the interstitial tissue There was also some mild tubular degeneration but no more than is frequently encountered at autopsy in elderly individuals who were without clinical evidences of nephritis during life

#### METHOD OF PREPARATION AND STUDY

Numerous blocks were taken from both lungs The majority of these were cut approximately at right angles to the bronchial tree, so that the resulting section would be a cross section of the bronchus This tissue, fixed with solution of formaldehyde, was embedded by the routine paraffin method The sections were cut at 7 microns and stained by hematoxylin and eosin Numerous bronchi were studied and measured according to the method devised by Huber and Koessler<sup>6</sup> This consists of accurate measurements of the bronchi

and their different layers by means of a (Spencer) eyepiece micrometer Huber and Koessler included not only the muscle layer but also the mucous and subepithelial coats We found that the limits of the latter layers were most difficult to determine clearly, and we felt that they offered little trustworthy information The muscle layer, however, was usually quite distinct and readily measured

The bronchi measured by us varied from 0.4 to 8.875 mm in diameter, outside measurement, as seen in the accompanying table Our means of establishing comparative values for the figures obtained in measuring the muscle layer was to take the mean average of from six to eight measurements of the muscle layer at right angles to the lumen as compared with the average of a similar number of measurements of the outside diameter This was the procedure followed by Huber and Koessler The results of these measurements have been plotted, as shown in figure 1 This shows the relationship between muscle thickness and outside bronchial measurements at a given level

As previously mentioned, Rackemann<sup>6</sup> has cast doubt on the authenticity of Huber and Koessler's asthmatic material In view of this doubt which we feel is entirely justified, our graph includes the normal curve, *A*, of Huber and Koessler for purposes of comparison, the composite curve, *B*, of the three cases reported by Alexander and Kountz<sup>7</sup> as fatal asthma and the curve of our own case of fatal asthma, *C*, which is shown as a heavy dotted line

Examination of this graph shows clearly the definite increase in the thickness of the muscle layer in asthmatic patients dying during and as the result of an attack, when compared to the thickness of the muscle layers in the bronchi of similar size obtained from non asthmatic patients This muscular hypertrophy is most apparent in the bronchi from 3 mm to 7 mm in diameter

#### COMMENT

From a pathologic standpoint the changes observed in the bronchial structures as well as the unusual contents of the lumen coincide with those reported by Huber and Koessler and by Alexander and Kountz In our opinion, whorling and inspissation of mucus, together with the heavy eosinophilic infiltration, are characteristic of bronchial asthma These mucous casts of the small bronchi represent embryonic Curschmann's spirals, which are later coughed up after the relaxation of the muscle spasm They should be present "in situ" in those cases in which death comes during an asthmatic paroxysm

The degeneration of the mucous glands is probably the result of prolonged overactivity The eosinophilic infiltration is as yet inadequately explained The changes in the heart and kidneys in this case were negligible The slight hypertrophy of the right ventricle was to be expected with partial obliteration of the capillary bed by the associated emphysema The manifestations of a mild chronic nephritis with some tubular degeneration appears unrelated to the outstanding features in this case

#### CONCLUSION

This case offers further confirmation of Huber and Koessler's assertion that the musculature of the bronchi is thickened in asthmatic patients when compared with normal controls

101 West Read Street.

ACUTE COR PULMONALE RESULTING  
FROM PULMONARY EMBOLISM

## ITS CLINICAL RECOGNITION

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AND

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BOSTON

The immediate result of a high degree of occlusion of the pulmonary artery is sudden dilatation of the right ventricle and right auricle, which may best be termed acute cor pulmonale in contrast to the well known cor pulmonale of chronic nature associated with progressive enlargement of the right side of the heart secondary to certain pulmonary diseases. The clinical evidence of the acute cor pulmonale resulting from pulmonary embolism deserves consideration because of the frequency and importance of the condition and of the common difficulty in diagnosis. The growing readiness of surgeons to undertake the operative procedure for the removal of the embolus from the pulmonary artery further emphasizes the importance of establishing the correct diagnosis, and until this can be done the entire procedure must be regarded as extremely hazardous.

During the past two years we have encountered several instructive cases of pulmonary embolism which have shown, we believe, the clinical characteristics of the acute cor pulmonale. We shall herewith report these cases in order to present more clearly than has been done hitherto the clinical condition which we would designate by the term "acute cor pulmonale." A brief preliminary report of our observations without this specific designation was made in 1933.<sup>1</sup>

## HISTORICAL SURVEY

The literature as illustrated by the papers of Hamburger and Saphir<sup>2</sup> and of Averbuck<sup>3</sup> recognizes the difficult problem of distinguishing clinically between pulmonary embolism and coronary occlusion but offers little in the way of a complete symptomatology that is of assistance in making a positive diagnosis. It is not the type of case in which a postoperative patient abruptly dies that is confusing but rather the instance in which the patient survives the acute attack for hours and days and also the unsuspected case of venous thrombosis followed by pulmonary embolism that is occasionally encountered in routine medical practice. It is our purpose to direct attention to some of the clinical signs found in acute cor pulmonale resulting from sudden occlusion of a large pulmonary artery.

The incidence of pulmonary embolism varies according to the statistics of different writers as Hosoi<sup>4</sup> indicated when he found after an extensive review of the literature that it was between 0.10 and 0.67 per cent in postoperative cases. In his own series it occurred in one out of every 1000 hospital patients, and Lockhart-Mummery<sup>5</sup> reported it as one in every 1000 surgical cases. Henderson<sup>6</sup> found that 6 per cent of the postoperative deaths at the Mayo Clinic between 1917 and 1927 were due to pulmonary emboli. Apparently there is also a geo-

graphic difference, for a survey made by Rosenthal<sup>7</sup> shows that there had been a distinct rise in the frequency of pulmonary embolism in central Europe between the years 1919 and 1928 whereas the reports of the North American clinics failed to show a similar increase.

Pulmonary embolism is seen clinically most frequently as a complication after operation. It may occur at any time in the postoperative course but is usually observed from eight to fourteen days after operation. Henderson<sup>6</sup> has noted that there were a few more females in his series of fatal cases than there were males and that the average age was 53.2 years, whereas the average age of all the patients operated on was 42.8 years. The average blood pressures in the cases of pulmonary embolism before the embolism occurred was 138 systolic and 82 diastolic, although a few patients had systolic pressures over 200. Farr and Spiegel<sup>8</sup> found that the average age of their patients who died of pulmonary embolism was 50 years and that it was 35 years in those with clinically diagnosed pulmonary embolism who recovered. Observations made by Snell<sup>9</sup> suggest that obesity is a factor favoring the occurrence of pulmonary embolism. Hampton and Wharton<sup>10</sup> report that 50 per cent of their patients died within thirty minutes of the onset of the pulmonary embolism, 25 per cent died within fifteen to twenty-four hours and 10 per cent recovered.

Sufficient evidence is available from clinical experiences and experimental demonstrations to substantiate the opinion that the right heart is considerably involved in occlusion of the pulmonary artery by an embolus. Lockhart-Mummery<sup>5</sup> stated that the right heart dilated as a result of the sudden strain thrust on it and Sir Gordon Watson in his discussion of the same paper concurred with this opinion. Hamburger and Saphir<sup>2</sup> have made similar observations in a clinical study of pulmonary embolism. Among the eight cases at the Massachusetts General Hospital in which a pulmonary embolectomy has been performed the pulmonary artery was found to be dilated at the time of operation in all except three. Failure of the right ventricle, a state of shock, and inability of the blood to pass a large obstructing thrombus seem likely explanations in those instances in which the pulmonary artery was found not to be dilated.

The experiments of Cohnheim<sup>11</sup>, Mann,<sup>12</sup> Underhill,<sup>13</sup> Haggart and Walker,<sup>14</sup> Moore and Binger,<sup>15</sup> Miller and Rogers,<sup>16</sup> and Gibbon, Hopkinson and Churchill,<sup>17</sup> who have produced pulmonary embolism in animals, likewise demonstrate the sudden burden imposed on the right heart. There is a distinct difference in the changes whether or not the pulmonary artery is completely or only partially occluded, or if only one branch of the artery is occluded. In the first instance the condition proceeds rapidly to a fatal termination unless the occluding factor is removed, in which event recovery may ensue. In the second and third instances it has been shown that no marked change takes place in the general circulation until from 52 to 66 per cent of the pulmonary circulation has been cut off, according to Haggart and Walker,<sup>14</sup> and that there must be from 61 to 86 per cent of the pulmonary artery occluded before there is a fall in systemic blood pressure, according to Gibbon and his associates.<sup>17</sup>

The majority of the case reports of pulmonary embolism describe the patient as being in a state of shock with a feeble

From the Cardiac Clinic and Laboratory of the Massachusetts General Hospital.

1 White P. D. and Brenner Oscar. Pathological and Clinical Aspects of the Pulmonary Circulation. New England J. Med. 209 1261 (Dec. 21) 1933.

2 Hamburger W. W. and Saphir Otto. Pulmonary Embolism Complicating and Simulating Coronary Thrombosis. M. Clin. North America 16 383 (Sept.) 1932.

3 Averbuck S. H. The Differentiation of Acute Coronary Artery Thrombosis from Pulmonary Embolization. Am. J. M. Sc. 187 391 (March) 1934.

4 Hosoi K. Pulmonary Embolism and Infarction. Ann. Surg. 95 67 (Jan.) 1932.

5 Lockhart-Mummery J. P. Postoperative Pulmonary Embolism. Brit. M. J. 2 850 (Nov. 8) 1924.

6 Henderson E. F. Fatal Pulmonary Embolism. Arch. Surg. 15 231 (Aug.) 1927.

7 Rosenthal S. R. Thrombosis and Fatal Pulmonary Embolism. Arch. Path. 14 215 (Aug.) 1932.

8 Farr C. E. and Spiegel R. Pulmonary Infarction and Embolism. Ann. Surg. 89 481 (April) 1929.

9 Snell A. M. The Relation of Obesity to Fatal Postoperative Pulmonary Embolism. Arch. Surg. 15 237 (Aug.) 1927.

10 Hampton H. H. and Wharton L. R. Venous Thrombosis. Pulmonary Infarction and Embolism Following Gynecological Operations. Bull. Johns Hopkins Hosp. 31 95 (April) 1920.

11 Cohnheim J. F. Lectures on General Pathology. London. New Sydenham Society. 1 54 1889.

12 Mann F. C. An Experimental Study of Pulmonary Embolism. J. Exper. Med. 26 387 (Sept.) 1917.

13 Underhill S. W. F. An Investigation into the Circulation Through the Lungs. Brit. M. J. 2 779 (Nov. 12) 1921.

14 Haggart G. E. and Walker A. M. Physiology of Pulmonary Embolism as Disclosed by Quantitative Occlusion of the Pulmonary Artery. Arch. Surg. 6 764 (May) 1923.

15 Moore R. L. and Binger C. A. L. Observations on Resistance to the Flow of Blood to and from the Lungs. J. Exper. Med. 45 655 (April) 1927.

16 Miller R. H. and Rogers Horatio. Postoperative Embolism and Phlebitis. J. A. M. A. 93 1452 (Nov. 9) 1929.

17 Gibbon J. H. Jr., Hopkinson M. and Churchill E. D. Changes in the Circulation Produced by Gradual Occlusion of the Pulmonary Artery. J. Clin. Investigation 11 543 (May) 1932.

## ACUTE COR PULMONALE—McGINN AND WHITE

JOUR. A. M. A.  
APRIL 27 1935

pulse, apprehension, sweating, pallor, dyspnea and a low blood pressure. Cyanosis is frequently present and often extremely marked, whereas in other patients the pallor predominates. Whether or not chest pain is present depends largely on the analysis of the examiner. Nystrom<sup>18</sup> speaks of the patients having a "stitch in the side" and Lord<sup>19</sup> believes that although pain is sometimes present and often referred to the shoulders a considerable degree of the discomfort is due to excessive respiratory distress marked by little or no obstruction to the passage of air. Many cases are described as presenting sub-sternal oppression, but there are few descriptions of the unbearable pain generally associated with coronary occlusion unless a pleural friction rub is present also. Hemoptysis is occasionally reported, not infrequently associated with frothy sputum.

The reports of Farr and Spiegel<sup>8</sup> and Hampton and Wharton<sup>10</sup> indicate that dilatation of the right ventricle is usually marked and the opinion is generally held that it is the cardiac embarrassment that is an important factor resulting in death. Hall and Ettinger<sup>20</sup> have concluded that death is due to mechanical reasons after pulmonary embolism rather than to reflex stimulation of the vagus nerves. The literature contains very few references however to the auscultatory changes in the heart. Lord<sup>19</sup> states that the pulmonary second sound may be accentuated and refers to Litten who has observed a rough systolic murmur in the second left inter-space often accompanied by a thrill. This murmur may be heard all over the anterior thorax and sometimes in the back in the region of the third dorsal vertebra. Lord<sup>19</sup> has also stated that the cervical veins may be greatly dilated and pulsating and that an increase of cardiac dulness to the right can sometimes be demonstrated.

Occasionally a case of pulmonary embolism is reported in which the clinical picture presented is of a neurologic nature such as hysteria or convulsions. These symptoms are explained on the relative cerebral anoxemia. Hampton and Wharton<sup>10</sup> have also described cases in which the abdominal symptoms of distention tenderness and vomiting predominated.

The electrocardiogram may give graphic evidence of the strain that the heart is undergoing following pulmonary embolism. Frommel<sup>21</sup> has reported his observations on the cardiac rhythm of rabbits in which experimental pulmonary embolism had been produced. The electrocardiograms that he obtained showed four stages occurring in the following sequence first, there was a sino-auricular tachycardia second, changing into auricular fibrillation and, fourth ventricular flutter followed by ventricular fibrillation. Otto<sup>22</sup> found that the T waves in dogs became inverted when the pulmonary artery was totally occluded and death of the animal ensued. When the artery was partially occluded the T waves were at first inverted and then slowly became upright and presented a picture similar to that which Otto found in ligating the right coronary artery.

Buchbinder and Katz<sup>23</sup> found no significant variations in the electrical axis deviation of electrocardiograms taken of dogs in which intravenous metallic mercury had been injected and some of which had had the pulmonary artery clamped. They did note aberrations in the ventricular complexes and T wave changes. Krumbhaar<sup>24</sup> experimenting on cats found similar changes when the pulmonary artery was clamped and, in addition observed an increase in the size of the P waves, ventricular fibrillation, and auriculoventricular block.

Recently, with the assistance of Dr. Holt Bradshaw of the Anesthesia Department of the Massachusetts General Hospital, one of us (McGinn) has been conducting pulmonary arterial occlusion experiments on cats, the results of which are to be published in detail in a later report. Consistent changes in the T waves of the electrocardiograms after complete occlusion of the pulmonary artery, increased PR intervals, complete heart block and ventricular tachycardia have been observed. Immediately after occlusion of the pulmonary artery, the right auricle and right ventricle become greatly dilated (acute cor pulmonale). A secondary effect of the occlusion is asphyxia, which can by itself cause dilatation of the chambers of the heart. It is difficult to determine whether the dilatation or the asphyxia per se is primarily responsible for the subsequent changes seen in the electrocardiograms. Lundy and Woodruff<sup>25</sup> have produced dilatation of the heart chambers of dogs by introducing balloons and then distending them with air. They found changes of the axis deviation in the electrocardiograms and one tracing taken when the right ventricle was dilated, showed inversion of the T wave in lead 3. Many observations have been made of electrocardiograms taken during anoxemia and total asphyxia and frequently alterations in the T waves have been found. Some of the electrocardiograms of asphyxiated cats presented by Lewis and Mathison<sup>26</sup> and by Lewis, White and Meakins<sup>27</sup> show in addition to previously noted changes, inversion of the T waves in lead 2.

## REPORT OF CASES IN PRESENT STUDY

The opportunity has come to us during the last year to obtain observations concerning nine patients suffering from pulmonary embolism and to study electrocardiographic records of seven of these cases. Three of the seven patients have recovered and have provided us with subsequent tracings, while the other four patients died and the diagnosis was confirmed at post-mortem examination.

CASE 1—E. C. a white man, aged 42 married entered the hospital following lower right quadrant pain and nausea of thirty hours' duration. Under gas-oxygen ether anesthesia a gangrenous appendix was removed and drains were inserted. The course after operation was marked by a temperature that daily approached 102 F. On the ninth postoperative day he suddenly had a severe pain in the right lower part of the thorax and respirations became more rapid. The following morning his color was good but he was apprehensive and perspiring and had a pulse rate of 130. The right side of the chest did not expand fully and there were dulness diminished breath sounds and rales at the base. Roentgenograms showed both sides of the diaphragm to be slightly elevated but to move with respiration. There was mottled dulness at the right lower lobe and also mottling around the lung roots. There was no pleurisy, cough or sputum. Four days later a phlebitis of the right lower leg became apparent.

On the thirtieth day after operation he suddenly became dyspneic and complained of substernal distress. The pulse rate rose to 130, and the blood pressure dropped to 90 mm of mercury systolic and 70 mm diastolic. The following day a slight but definite to and fro friction rub was heard at the base of the heart, his color was not good, and the sounds of the heart were of poor quality at a rate of 100. The pulmonary second sound was accentuated and there was an increased pulsation of the pulmonary artery palpable in the second left interspace near the sternal border. The blood pressure rose to 120 mm systolic and 90 diastolic, and the white count rose to 28,000 from 12,800. The next day the friction rub was diminished, there was an increased venous pulse in the neck, fine rales were present at both lung bases, and there were dulness and bronchial breathing at the angle of the right scapula. A third episode somewhat similar to the other two occurred on the forty-ninth day after operation. He complained of substernal discomfort and pain in both shoulders on that occasion.

- 18 Nystrom G. Experiences with the Trendelenburg Operation for Pulmonary Embolism. *Ann Surg* 92: 498 (Oct.) 1930
- 19 Lord F. T. Diseases of the Bronchi, Lungs and Pleura. Philadelphia Lea & Febiger 1925 p. 483
- 20 Hall G. E. and Ettinger G. H. An Experimental Study of Pulmonary Embolism. *Canad M A J* 28: 357 (April) 1933
- 21 Frommel E. Les troubles du rythme cardiaque au cours de l'embolie pulmonaire mortelle. *Etude electrocardiographique* mentale J. de physiol et de path. gen. 26: 247 (June) 1928
- 22 Otto H. L. The Effect of a Sudden Increase in the Intracardiac Pressure on the Form of the T Wave of the Electrocardiogram. *J Lab & Clin Med* 14: 643 (April) 1929
- 23 Buchbinder W. C. and Katz L. N. The Electrocardiogram in Acute Experimental Distention of the Right Heart. *Am J M Sc* 187: 785 (June) 1934
- 24 Krumbhaar E. B. Note on Electrocardiographic Changes Accompanying Acute Increased Pressure Following Pulmonary Artery Ligature. *Am J M Sc* 187: 792 (June) 1934

- 25 Lundy, C. J. and Woodruff L. W. Experimental Left and Right Axis Deviation. *Arch Int Med* 44: 893 (Dec.) 1929
- 26 Lewis T. and Mathison G. C. Auriculoventricular Heart Block as a Result of Asphyxia. *Heart* 2: 47 1910 1911
- 27 Lewis Thomas White P. D. and Meakins J. The Susceptible Region in A V Conduction. *Heart* 5: 289 1913 1914

He was discharged from the hospital ninety four days after his operation. His white count and temperature had continued to be elevated, necessitating cautious supervision of his convalescence. Five months later complete recovery was established and he returned to his office work.

The electrocardiogram (fig 1) taken two hours after the attack on the thirtieth day after operation showed sinoauricular tachycardia at a rate of 130. The ST interval of lead 1 had a slightly low origin and there was a gradual ascent of the ST interval in lead 2. There was a late and definite inversion of the T wave in lead 3. The QRS waves were unusual rather wide S in lead 1, notched QRS in lead 2, and inverted QRS in lead 3. There was a distinct change in the electrocardiogram taken four weeks after the attack (fig 2). Normal rhythm was present at a heart rate of 80. The ST

intervals originated at the base line the T waves in lead 3 had become upright and the T waves in lead 1 were iso electric. The inverted Q waves in lead 3 had disappeared. Slight left axis deviation was present.

CASE 2—E B, a white woman aged 50, single, entered the hospital because of uterine bleeding, for which a supravaginal hysterectomy was done. The uterus was reported by

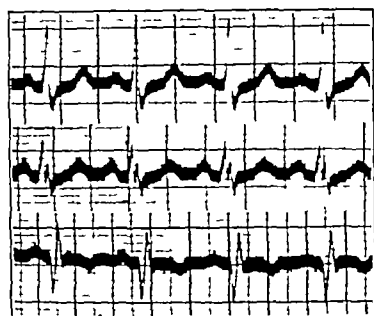


Fig 1 (case 1)—Three leads two hours after attack of pulmonary embolism

the pathologist to have endometrial polyps and leiomyomas. Her past history revealed four previous hospital admissions, for a peritonissar abscess in 1911, for removal of a hemangioma of the face in 1922, for cauterization and excision of a growth of the rectum thought to be tuberculous in 1926, and for a proctoscopy in 1930. Physical examination showed no abnormalities except for the pelvic trouble. The blood pressure was 150 mm of mercury systolic and 90 diastolic. No murmurs or enlargement of the heart were noted, the aortic second sound was snapping.

The operation was performed under gas-oxygen anesthesia without untoward incident. For the first seven days after operation the temperature rose in the afternoon but never over 100 F. On the fifth day after operation she complained of tenderness in the left calf but there were no localizing signs of phlebitis. On the sixteenth day after operation and after two days of being up in a chair, she suddenly felt a 'gaseous distress' in the lower left side of the chest and had considerable dyspnea but no pain. There was no cyanosis but she was pale and perspired profusely. Physical examination showed a slightly prominent jugular pulsation, an increased pulsation palpable in the second left interspace over the pulmonary artery, in which area there was also a definite gallop rhythm and a blood pressure of 120 mm of mercury systolic and 70 diastolic. These clinical signs disappeared within thirty-six hours. A portable x-ray film showed the diaphragm to be high on the right, but there were no definite pathologic changes evident in the lung fields.

The differential diagnosis rested at first between coronary thrombosis and pulmonary embolism. Three days after the first episode of dyspnea she had another suffocating attack with pressure most noticeable in the left side of the chest, sharp pain in the shoulder, and a pleural friction rub. This was thought to be the result of another pulmonary embolus causing diaphragmatic irritation. Transitory cyanosis was noted and an apparent phlebitis was localized in the left popliteal space. Despite the critical condition at that time the patient proceeded to a full recovery and was ready for discharge fifty-nine days after operation.

An electrocardiogram (fig 3) made twelve hours after the attack showed sinoauricular tachycardia at a rate of 125, a slightly low origin of the ST interval in lead 1, and a gradual "staircase" ascent of the ST interval in lead 2. There was

deep and late inversion of the T wave in lead 3. There was a Q wave present in lead 3. There was a moderate degree of right axis deviation. An electrocardiogram (fig 4) made six weeks after the attack showed normal rhythm at a rate of 100. The ST intervals in all leads arose at the base line. The T waves were iso electric in all leads and the inverted Q wave in lead 3 had disappeared. The PR interval was prolonged (0.25 second). Slight left axis deviation was present.

CASE 3—J R, a white man, aged 60, married, entered the hospital with the complaint of having had monthly attacks of pain in the right upper quadrant of the abdomen and epigastric soreness for seven months. The attacks came at night and were accompanied by vomiting, jaundice, high colored urine and light stools. The history was unimportant except for a strangulated hernia operated on seventeen years before. Physical examination showed only one abnormality, namely, tenderness on pressure in the right upper quadrant of the abdomen. The blood pressure was 130 mm of mercury systolic and 70 diastolic. Cholecystectomy was done under gas-oxygen ether anesthesia, and a chronically inflamed gallbladder with a large stone in it was removed.

Early in the morning of the eighth day after operation he suddenly became dyspneic and blue black, with moist skin. The pulse rate rose to 120 and the blood pressure dropped to 90 mm of mercury systolic and 70 diastolic. He coughed frequently, although there was no evidence of hemoptysis until some hours later. There was no apparent increase of venous pressure, but the right border of the heart was percussed beyond the right sternal margin. He had no chest pain but stated that earlier in the night there was a cramplike pain in the right lower leg. Prior to this episode he had been doing well except for an afternoon elevation of temperature to 100 F. His postoperative orders had included turning him from side to side every two hours. Roentgen examination showed the right diaphragm to be high and sharply domed. He was placed in an oxygen tent and quickly improved, the blood pressure again reaching its normal level.

On the fifteenth day after operation, while using a bed pan he suddenly became dyspneic and ashen in color, at this time he showed a pulse rate of 120 and a blood pressure of 80 systolic. His neck veins were visible but not greatly distended. He had neither pain nor hemoptysis. He grew rapidly worse and lost consciousness. A pulmonary embolectomy was done by Dr Churchill and a large embolus was removed from the pulmonary artery although the heart continued to beat irregularly for half an hour respirations were not reestablished.

An electrocardiogram (fig 5) made twelve hours after the first attack showed normal rhythm at a rate of 110. There was a low origin of the ST interval in lead 1 and a gradual ascent of the ST interval in lead 2.

In lead 3 there was a Q wave and a definite and late inversion of the T wave. An electrocardiogram taken fifty-four hours after the attack showed the same changes.

Postmortem examination showed the operative wounds of cholecystectomy, appendectomy and pulmonary embolectomy. The right lung was collapsed, soft and gray, and weighed 300 Gm. The corresponding pulmonary artery was filled with a fine elastic partly deep red and partly red gray thrombus measuring 12 cm in length and 3 cm in diameter. The left lung weighed 350 Gm and its arteries contained a few, small, adherent firm clots. There was an area in it, 4 by 3 cm, that was firm and deep red. The heart weighed 320 Gm, the right ventricular wall measuring 3 mm and the left 15 mm in thickness. The valves were normal except for the pulmonary, which was slightly stenosed by the operative suturing. The coronary arteries were normal. The aorta showed slight sclerosis, an old

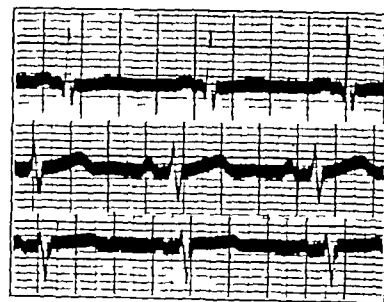


Fig 2 (case 1)—Four weeks after attack

fibrous pleuritis was found on the left side, and the kidneys showed a chronic vascular nephritis

**CASE 4**—S G, a white man, aged 45, married, came to the emergency ward of the hospital complaining of abdominal pain. Eleven days before entry the patient went to bed because of a severe shaking chill. He awoke the next morning drenched in sweat and with an abdominal pain at both sides of the umbilicus, described as being severe enough to cause him to groan. After two days the pain became localized below the midcostal margin toward the right side, then it disappeared for a few days but returned the night before he came to the hospital. Because of tenderness of the abdomen and a white count of 13 000 he was sent to the hospital medical ward for observation.

On the sixth day in the hospital he had a sudden acute pain in the right side of the chest and examination the following day showed slight dullness and diminished breath sounds at the base of the right lung. Roentgen examination showed obliteration of the right costophrenic angle and limitation of respiratory movement of the right side of the diaphragm, both changes being consistent with a right diaphragmatic pleurisy. The heart shadow showed no definite variation from the normal in size or shape.

On the eighth day tenderness was noted in the right calf, at which point there was a palpable cord that indicated a definite phlebitis. Against orders he got out of bed to go to the lavatory and collapsed on the floor. He complained of substernal pain. Cyanosis was present in the lips and nail beds, and the neck veins were distended. The respiratory and pulse rates and the temperature were elevated. The blood pressure fell to 85 mm of mercury systolic and 65 diastolic. On auscultation a gallop rhythm was heard maximal in the pulmonary region and a pleural friction rub was heard on the right side of the chest. The cyanosis increased despite oxygen therapy and he died about twenty-four hours after his collapse.

An electrocardiogram (fig 6) taken five hours after the attack showed sinus arrhythmia at a rate of 110. The ST interval in lead 1 originated slightly below the base line, and the ST interval in lead 2 arose gradually from below the base line. A Q wave was present in lead 3, and the T wave in this lead was sharply and deeply inverted. The S waves in leads 1 and 2 were rather prominent and wide. The electrocardiogram was repeated ten hours after the attack and showed the same changes.

Postmortem examination showed a large blood clot at the bifurcation of the pulmonary artery, which nearly occluded

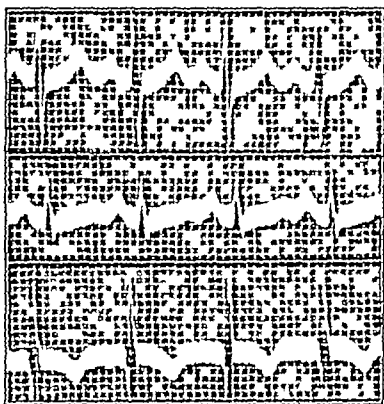


Fig 3 (case 2)—Twelve hours after attack

**CASE 5**—E. C. a white woman aged 57, single entered the hospital with a condition diagnosed as malignancy of the large intestine. Twelve days after admission, under tribrom ethanol and ether anesthesia, an ileotransverse colostomy was performed, extensive carcinoma of the cecum was found.

On the evening of the ninth day after operation the patient was found in a state of shock sweating profusely, pale and with cold clammy extremities a feeble pulse, and rapid respirations. The following afternoon she had an abdominal cramp-like pain with precordial oppression and a sense of suffocation. Shortly afterward she began to perspire profusely, the rates of

pulse and respiration were rapid, and the blood pressure fell to 60 mm of mercury systolic and 50 diastolic. The neck veins were distended. The heart sounds were weak and without murmurs except for the pulmonary second sound, which was markedly accentuated. Abdominal examination showed no abnormalities. She improved the next day, the temperature remaining slightly elevated, the blood pressure rising, and the pulse and respiratory rates decreasing. A few moist rales were heard at the right lung base. Four days later a phlebitis with edema of the right lower leg was found. She continued to improve and was discharged from the hospital forty-three days after admission.

An electrocardiogram (fig 7) made twenty-one hours after the acute attack and on the tenth day after the operation showed normal rhythm at a rate of 105. The ST interval in lead 1 originated slightly below the base line and the ST interval in lead 2 had a gradual upward ascent. In lead 3 there was a deep Q wave and a late and sharp inversion of the T wave. There was also a deep wide S wave in lead 1. A chest lead, the so called lead 4, showed an inverted P wave and a deep Q wave, as normally, but an upright T wave. An electrocardiogram (fig 8) forty-eight hours after the attack showed a normal rhythm at a rate of 105, low origin of the ST interval in lead 1 and gradual ascent of the ST interval in lead 2. In lead 3 the deep Q wave had disappeared and the T wave was iso-electric. Lead 4 had an inverted P wave, a deep Q wave and an inverted T wave, that is it had returned almost to normal.

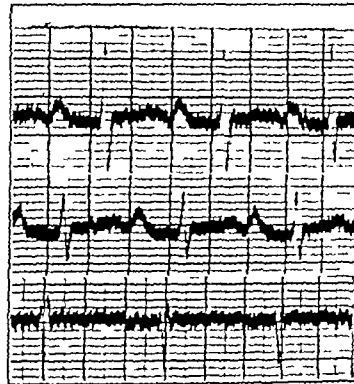


Fig 4 (case 2)—Six weeks after attack

**CASE 6**—A H, a white man, aged 69, married entered the Pennsylvania Hospital where the diagnosis of benign hypertrophy of the prostate gland was made. Under spinal anesthesia, a transurethral operation was carried out and the patient was discharged thirteen days later in good condition.

The patient remained well for two weeks after leaving the hospital until a "cold" developed which was accompanied by a chill pain in the lower part of the abdomen and slight dyspnea. A few days later while sitting at breakfast, he suddenly became pale and short of breath but had no pain. The following morning he had pain in the left flank and in the left side of the chest, the latter being aggravated by coughing and deep breathing. He remained in bed for a few days during which time he was continuously dyspneic, but the chest pain had largely subsided. He was readmitted to the hospital.

Physical examination showed that the patient was quite ill. He rested quietly propped up in bed but with rapid shallow breathing. There was an ashen pallor to his face with moderate cyanosis and moderate congestion of the neck veins. The breath sounds were bronchovesicular and were diminished at the left base where many fine crackling rales were heard. A pleural friction rub was audible in the left axilla. Examination of the heart showed it to be of normal size with a harsh apical systolic murmur, but otherwise the sounds were clear. The pulmonary second sound was greater than the aortic second sound and the blood pressure was noted to be 108 mm of mercury systolic and 80 diastolic. The liver edge was palpable three fingers below the costal margin and there was slight pitting edema over both tibias.

The patient's condition remained essentially unchanged with the pulse rate varying between 140 and 150 and the respiratory rate between 36 and 44. The day after admission he suddenly became much weaker and died shortly afterward. The differ

28 This case is reported through the kindness of Drs. Arthur Newlin and Louis B. Laplace, Philadelphia (Pennsylvania Hospital).



ential diagnosis included coronary occlusion, pulmonary infarction and bronchopneumonia

An electrocardiogram (fig 9) made ten days after the acute attack and twelve hours before death showed normal rhythm at a rate of 105, a sagging ST interval in lead 1 with a slightly diphasic T wave, and a diphasic T wave in lead 2. The QRS complex was notched in lead 3 and was followed by an inverted T wave. There was slight right axis deviation. In lead 4 the P wave was iso-electric, and a deep Q wave was present with an upright T wave.

At postmortem examination the body was well developed, with slight edema of the left leg. An organized thrombus was found at the bifurcation of the pulmonary artery, extending to either side with smaller thrombi in the blood vessels of both lungs. The lower lobes of the lungs were markedly congested. The heart weighed 400 Gm, the thickness of the left ventricle being 14 mm and of the right 5 mm. The heart valves showed some calcification but otherwise were not remarkable. The coronary vessels were patent throughout with a few small atheromatous plaques and one or two larger areas of calcification.

**CASE 7**—A R, a white man aged 48, married, had always enjoyed good health until he sprained his leg while playing tennis. After a few days he resumed his usual activities, but four weeks later he suffered rather acutely from epigastric pain, which radiated up into the left side of the chest and caused pain on respiration for a week. This attack he ascribed to indigestion. Three weeks and again four weeks after that episode he had an attack characterized by a catch in the throat, pounding of the heart, and rapid, difficult respirations. Five days after the second of these "heart spells" he was seen by us in consultation and his heart and lungs appeared to be normal on auscultation and percussion. Fluoroscopic examination showed a full sized heart with a slightly prominent pulmonary artery.

An electrocardiogram (fig 10) made six weeks after the first attack (of "indigestion") and five days after the most recent "heart spell," showed a sinus tachycardia at a rate of 125. The ST interval in lead 1 originated slightly below the base line and the ST interval in lead 2 had a gradual ascent from slightly below the base-line. There was a very small Q wave in lead 3 and an iso electric or very slightly inverted T wave. There was no abnormal axis deviation.

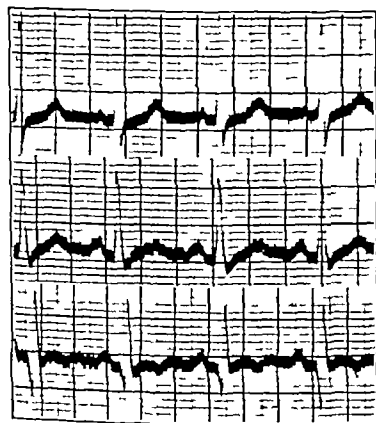


Fig 5 (case 3)—Twelve hours after attack

to the left lower lobe and superimposed on this was a fresh and probably terminal clot. The heart weighed 400 Gm and was normal except for some dilatation and hypertrophy of the right ventricle.

**CASE 8**—D B, a white man aged 56, married, had always been in good health except for an appendectomy at the age of 32 and a phlebitis of the left leg followed by a good recovery at 52. Six weeks before our examination a phlebitis developed in the calf of the right leg following some work in his garden which had entailed considerable stooping. Contrary to the advice of his physician he continued to be up and about until one week later, when he was seized with sudden oppres-

sion. It was believed that he had a normal heart but the possibilities of pulmonary embolism, coronary thrombosis and paroxysmal tachycardia were considered. During the week after our examination he had several spells as previously described and finally died in an attack marked by great respiratory distress and cyanosis.

At autopsy multiple infarcts were found in both lungs. There was an old laminated clot partly occluding the main pulmonary artery

in the anterior part of the left side of the chest. He was restless and apprehensive, had a slight elevation in temperature, and showed an increase in both the pulse and the respiratory rates. It was believed that he was suffering from coronary thrombosis.

Improvement marked his progress until one evening a week later, when he suddenly developed substernal oppression with radiation to the right axilla, accompanied by exhaustion, dyspnea and sweating. In the early morning he became more cyanotic and dyspneic and his condition was very grave. Two observers heard a high pericardial friction rub and one heard a gallop rhythm at the midprecordium, both conditions disappearing in the course of a few hours. The neck veins were moderately distended and the pulmonary second sound was accentuated and reduplicated. The blood pressure was 130 mm of mercury systolic and 80 diastolic. There were slight dullness and diminished breath sounds in the right axilla at which point a pleural friction rub could be heard. After this acute illness he gained strength rapidly and his condition at the present time is excellent.

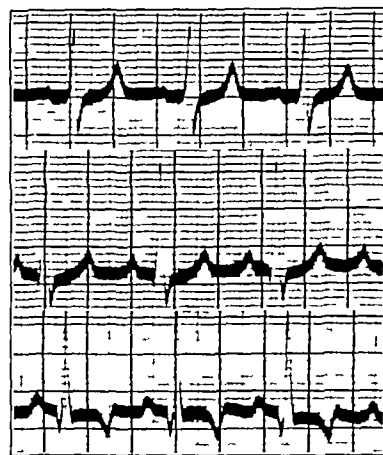


Fig 6 (case 4)—Five hours after attack.

An electrocardiogram made seven days after the original attack and nineteen hours after the most recent episode showed normal rhythm at a rate of 90. There was a tendency to low voltage. The T waves were upright in leads 1 and 2 and there was slight late inversion of the T waves in lead 3. There was no abnormal axis deviation. In lead 4 the condition was normal, with a Q wave and inverted P and T waves.

**CASE 9**—S O, a white woman, aged 61, married, entered the hospital with a condition diagnosed as ureteral stone. Under ether anesthesia a stone was removed from the left ureter. The postoperative course of the patient was satisfactory until the seventh day. At that time while using a bed pan she was overcome by great difficulty in breathing and stated that her chest felt as though somebody were standing on it. She became apprehensive and pale and perspired profusely. Immediate examination of the heart revealed poor sounds at the apex, marked accentuation of the pulmonary second sound and a definite gallop rhythm heard best in the pulmonary area. An examination one hour later showed that the patient's tongue and lips were cyanotic and that the neck veins were not distended and a slight apical systolic murmur was heard. At this time the gallop rhythm had disappeared and the pulmonary and aortic second sounds were of equal intensity. The systolic pressure was 60, and the diastolic pressure could not be determined. She seemed somewhat improved after the acute episode but gradually became weaker and died two and a half hours after the onset of the attack. Permission for autopsy was refused.

#### COMMENT

The majority of the clinical symptoms of pulmonary embolism as observed in these nine cases are also commonly found in coronary thrombosis, these include chest pain or substernal pressure, elevation in the temperature, pulse and respiratory rates, and white count collapse, sweating and pallor, and a fall in blood pressure. In no case was there an acute pain in the chest except with pleurisy, but there was usually a suffocating sensation accompanied in two cases by pain referred to the shoulders.



**Signs**—Râles are frequently heard at both lung bases in coronary thrombosis but, if present, are more apt to be confined to one base in pulmonary embolism. Cyanosis, engorgement of the neck veins, and an accentuation of the pulmonary second sound are more common in pulmonary embolism but may also be present when a large coronary vessel is occluded and acute myocardial failure ensues. In the latter case, however, pulmonary edema precedes evidences of right heart failure, which is not true of heart failure from pulmonary embolism (the acute cor pulmonale). Further attention may be profitably directed toward the clinical evidence provided by the failure of the right heart subsequent to pulmonary embolism. On auscultation of the heart we have heard no significant murmurs but frequently we have heard a gallop rhythm differing from that found commonly after coronary thrombosis in that it is most distinct in the second and third interspaces at the left border of the sternum rather than in the apical area. This we believe is most likely due to dilatation of the right ventricle in pulmonary embolism in contrast to the more common dilatation of the left ventricle in coronary thrombosis. We have been unable accurately to percuss the right border of the heart and thus to demonstrate enlargement in that direction. Not infrequently a dilated pulmonary artery in patients with thin chests can be palpated in the second left interspace. In two cases pericardial friction rubs were loudest in the second left interspace and are interpreted by us as probably due to the dilated pulmonary artery or distended right ventricle rubbing against the pericardium or with the pericardium pressing against the anterior chest wall. Churchill<sup>20</sup> has recently emphasized the importance of determining whether or not the pulmonary artery is distended or collapsed and has observed

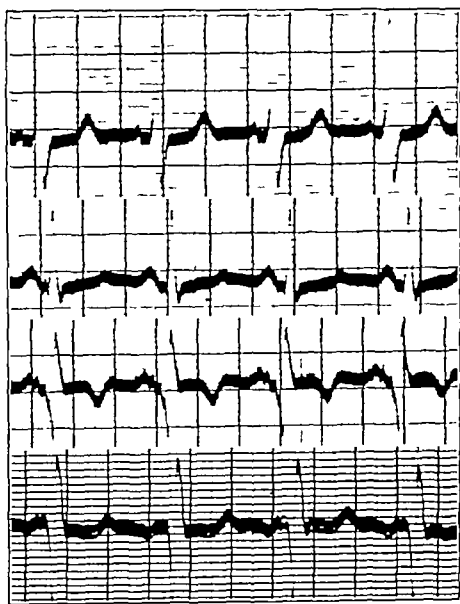


Fig. 7 (case 5)—Three conventional leads and lead 4 twenty-one hours after attack.

at operation that it is occasionally so dilated as to impinge on the under surface of the sternum. In certain cases we feel justified clinically in estimating the relative size of the pulmonary artery.

The presence of engorged and distended neck veins is direct evidence of increased venous pressure resulting

from failure of the right side of the heart and is therefore an important diagnostic sign. There are some cases, however, in which we fail to observe this sign by the time we examine the patient although it undoubtedly is present immediately after the acute occlusion. The most likely reason for this is that the patient is in shock and the blood is not being returned to the right

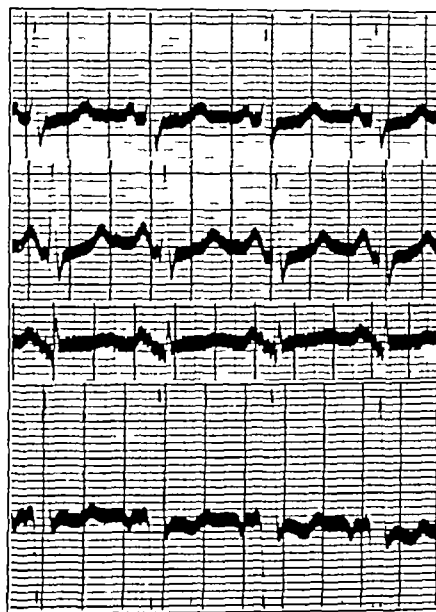


Fig. 8 (case 5)—Three conventional leads and lead 4 forty-eight hours after attack.

side of the heart under sufficient pressure to distend the neck veins. This may also be the explanation in those cases in which the pulmonary second sound is not accentuated and the pulmonary artery is not dilated. We believe that we are on the way to answer the two questions presented by Churchill<sup>20</sup> in his recent paper first, as to the signs of right heart strain and failure from pulmonary embolism and, second, as to the factors responsible for variations in the size of the pulmonary artery and right ventricle.

Certain other features rather definitely point to pulmonary embolism, as when the attacks follow operation or occur in association with a phlebitis and when there is a pleural friction rub present. These are not specific diagnostic points, for they may occur with coronary thrombosis or pneumonia, but when present together they are extremely suggestive of pulmonary embolism.

Roentgenograms have provided but little assistance during the acute stages of pulmonary embolism. It has been observed that one side of the diaphragm, sometimes both, may be unusually high and dome shaped. If the roentgenogram is taken immediately after the attack, the lung fields are most commonly found to be clear, density corresponding to an infarcted area or fluid of a pleural effusion will appear at later examinations if at all. A study of possible change in the heart size in acute pulmonary embolism has not yet been made.

The electrocardiograms of the first five cases reported herewith are notable because of their similarity. They were all taken within twenty-one hours of the acute attack of pulmonary embolism. The electrocardiographic tracings in cases 6, 7 and 8 were taken at longer intervals after the first attacks ten days, six weeks and one week respectively, and although not

identical with the first five cases they show some of the same characteristics. The differences in the time intervals may explain the variations.

The changes in the electrocardiograms that seem to us to be significant when they occur in association and that are demonstrated in all the first five cases of the present series are (1) the prominent S wave and low origin of the T wave in lead 1, the ST segment starting slightly below the baseline, (2) the gradual staircase ascent of the ST interval from the S wave to the T wave in lead 2, and especially (3) the Q wave and definite late inversion of the T wave (commonly considered to be of the coronary type) in lead 3. In no case was there left axis deviation whereas on the other hand one case had very definite right axis deviation and others showed a tendency toward right axis deviation by virtue of the S waves in lead 1 and the R waves in lead 3. The heart rates varied between 110 and 125.

In case 6 the electrocardiogram (fig 9) shows a depressed ST interval with diphasic T waves in both leads 1 and 2 and in lead 3 there is a late inversion of the T wave but the Q wave in lead 3 is absent. The rate is 115, and right axis deviation is present. The electrocardiogram of case 7 shows slightly depressed ST intervals in leads 1 and 2, a very small Q wave in lead 3 and a slight late inversion of the T wave. The rate is 120 and there is no abnormal axis deviation.

In cases 5 and 6 a tracing of lead 4 (chest lead) was made with the right arm electrode placed on the precordium and the left arm electrode on the posterior chest wall. In both of these cases the significant finding is an upright T wave the inverted P and QRS waves not deviating appreciably from the normal. On the other hand, with the common type of coronary thrombosis with infarction in the anterior apical portion of the left ventricle, disappearance of the Q wave in lead 4 is characteristic as well as an upright T wave, while in posterior left ventricular infarction the T wave

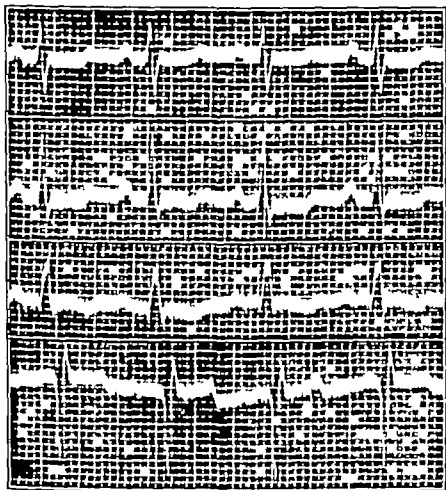


Fig 9 (case 6)—Three conventional leads and lead 4 ten days after attack.

remains inverted. Thus the change in the T wave in lead 4 may prove to be of great importance in the diagnosis of the acute cor pulmonale, as yet we have not enough cases on which to base satisfactory conclusions with reference to this point.

Four of the patients on whom electrocardiograms had been made died and an embolus was demonstrated in the pulmonary artery of each one of them at post-

mortem examination. Electrocardiograms were made in a follow-up study of three other cases, in case 1 four weeks after the attack, in case 2 six weeks after the attack, and in case 5 forty-eight hours after the attack. The first two cases showed in their later records a complete absence of the abnormal electrocardiographic changes of their earlier records, and left axis deviation

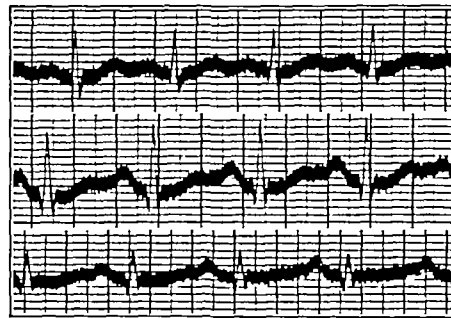


Fig 10 (case 7)—Six weeks after first attack and five days after most recent attack.

had appeared. In case 2 the PR interval increased to 0.25 second. In the follow-up electrocardiogram in case 5, taken only shortly after the attack and twenty-seven hours after the first record, the abnormalities have almost but not completely disappeared. The T wave in lead 4 of this tracing is now slightly inverted.

It is not likely that the electrocardiographic changes are the effect of an elevated diaphragm, because the electrical axis is not shifted to the left. The definite right axis deviation in some cases and the tendency to it in others would seem to preclude the possibility of anoxemia of the myocardium causing all the changes observed, although this complicating factor must be given consideration.

It is our thought that, whether or not these electrocardiographic manifestations are pathognomonic of pulmonary embolism, the consistency with which they have been demonstrated in tracings taken soon after acute attacks of extensive pulmonary embolism has been striking. They may aid materially in differentiating between coronary thrombosis and pulmonary embolism, even though when we first encountered them we feared that they might only confuse the issue. That such electrocardiographic changes do exist in the acute cor pulmonale resulting from sudden occlusion of the pulmonary artery must modify interpretations of these changes, as suggestive of coronary disease. Although it is difficult to obtain electrocardiograms in many of these patients, nevertheless such observations, especially including lead 4, are essential, a large series of cases should be available for study.

Finally, it is evident from our case reports that clinical changes, even in the absence of electrocardiograms, may be sufficient to differentiate clearly between pulmonary embolism and coronary thrombosis.

#### SUMMARY

1 We have presented case histories of nine patients with the acute cor pulmonale secondary to pulmonary embolism, accompanied by electrocardiographic studies in seven of them.

2 The symptoms and signs of extensive pulmonary embolism are variable, but predominating at first are those of shock—namely, collapse, pallor, sweating, apprehension, and a fall in blood pressure—to be followed by reaction to the infarction itself—namely,

fever and elevation of the pulse and respiratory rates. In none of our cases did we find acute chest pain in the absence of pleural involvement, but most of the patients complained of substernal oppression and suffocation. Respiratory distress was marked in all cases.

3 If the state of shock from extensive pulmonary embolism is not too great, or after it has largely cleared, there may be found signs indicative of the secondary effect of the pulmonary embolism on the heart itself, that is, the acute cor pulmonale (dilatation of the right chambers) attended by pulmonary artery dilatation. Auscultation in our cases frequently showed accentuation of the pulmonary second sound, gallop rhythm heard best in and just below the pulmonary valve region, and in two cases a "pericardial" friction rub with maximal intensity in the region of the second, third and fourth interspaces. Cyanosis and engorgement of the neck veins were common manifestations at some time during the attack. These changes remained for only a short period in some of the cases. Pleural friction rubs were heard frequently.

4 Electrocardiograms taken soon after the occurrence of the pulmonary embolism showed similar changes in five of our patients, and in two others taken some time after the attack they had some of the characteristics although they were less definite. The changes that appear significant are the presence of a Q wave and late inversion of the T wave in lead 3, the rather low origin of the T wave with a gradual staircase ascent of the ST interval in lead 2, a prominent S wave and a slightly low origin of the T wave in lead 1 and an upright T wave (with inverted P and QRS waves) in lead 4. In none of our cases was left axis deviation present at the time of the acute episode, whereas the tracings of two patients showed definite right axis deviation.

Electrocardiograms of two patients taken after recovery showed a complete disappearance of the changes already mentioned, and in a third patient there was almost a complete disappearance of abnormalities in a record taken forty-eight hours after the attack and twenty-seven hours after the first electrocardiogram. All three of these cases showed a change in the axis deviation: one had a prolonged PR interval, and in one case in lead 4 the T wave was reverting to normal (inverted). Our follow-up studies indicate that the electrocardiographic changes are temporary and may disappear within forty-eight hours after the attack of pulmonary embolism.

5 It is probable that the changes observed clinically and the electrocardiographic variations in cases showing the acute cor pulmonale consequent on pulmonary embolism are due in large part to dilatation and partial failure of the chambers of the right side of the heart.<sup>29</sup>

<sup>29</sup> Since offering this paper for publication we have observed five additional cases of acute cor pulmonale. The clinical and electrocardiographic observations coincide with those described.

**Good Investments**—When American food budgets are studied carefully in the light of the fact that we must purchase mineral elements and vitamins as well as protein and energy, the money spent for fruits and vegetables is found to make its full nutritional return. The growing realization of this has already resulted in giving fruits and fresh vegetables more nearly the place in practice which for scientific reasons we feel that they should hold. They are not luxuries but good investments. They afford us an excellent opportunity to invest our food money in health and pleasure at the same time.—Sherman H. C. Food and Health. New York: Macmillan Company, 1934.

## SURGICAL DIATHERMY OF CARCINOMA OF THE RECTUM

### ITS CLINICAL END RESULTS

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In 1910 Kolischer introduced and advocated surgical diathermy for the removal of inoperable malignant tumors. In 1913 we employed this method for the removal of two cancers of the colon and three of the rectum in very old persons. The results were excellent. For a number of years we used surgical dia-



Fig. 1—Section of an excised scar in which no carcinoma cells are present.

thermy in cases in which operation was impossible—when the tumor was fixed when the patient was very old (in the seventies) or when there was some other contraindication to a radical surgical procedure, such as disease of the heart or lungs. The results in these isolated cases were so satisfactory that for the past seven years we have used the procedure in practically all cases of cancer in the rectum up to the sigmoid colon which could be reached from below by the glass tube method, which we shall describe later.

Clinically, the results of the treatment are remarkable. After the first or second application of diathermy the patient gains weight, and the hemoglobin content and red cell count of the blood are increased to normal.

From the Henry Levy and L. L. Cohen grant to the Stomach Group of the Michael Reese Hospital. The organization of the Stomach Group is as follows: Alfred A. Strauss, M.D., Siegfried F. Strauss, M.D., James Patejdl, M.D., surgery; Herbert Binswanger, M.D., Jacob Meyer, M.D., medicine; Heinrich Necheles, M.D., physiology; Otto Saphir, M.D., pathology; Robert A. Arens, M.D., roentgenology and from the Surgical Department of the Mount Sinai Hospital.

levels. Even a patient who has lost a great deal of weight or is cachectic loses all the appearances that are characteristic of a person with advanced carcinoma. The gain in weight shown by our patients has amounted to from 15 to 50 pounds (6.8 to 22.5 Kg). This increase in weight, red cell count and hemoglobin content is not temporary. We have observed a number

of six or seven years, and many at the end of three or four years, show no signs of metastasis, loss of weight or cachexia.

Kolischer stated that the electrocoagulation not only produces mechanical destruction of the tumor but causes the throwing off into the circulation of certain substances and antibodies which immunize the patient against further progress of the disease. These substances, in all probability, are similar to the end products of treatment with high voltage roentgen radiation or radium. The reaction may be attributed to an intense stimulation of the reticulo-endothelial system and the consequent local and general phagocytic action of the macrophages. We are investigating this problem by experimentation with animals. We have also made a series of investigations on the blood of patients before, during and after treatment with surgical diathermy in the hope that we might find substances not normally present which would explain the reaction. In a number of instances, moreover, we have placed a cannula in the common thoracic duct, gathering the chyle, in the hope that we might observe chemical changes and secure end products that could be utilized in the treatment of other patients. So far, however, our studies have not shown any changes in the blood or chyle.

The question is whether surgical diathermy inhibits the further progress of the disease along the lymphatics



Fig 2—Section of an excised scar showing dense scar tissue and carcinoma cells

of patients for from three to six years, and they have retained their weight, color and healthy appearance.

In our earlier cases we gave the patient a series of blood transfusions, believing that the blood of young persons has a carcinolytic effect, but in order not to obscure the effect of the surgical diathermy we have not used blood transfusions in the last few years, except when one transfusion was necessary before operation on account of the poor general condition of the patient. We want to emphasize, therefore, that the improvement shown by these patients is not due to other therapy. All the patients received diathermy alone—no treatment with radium or high voltage roentgen radiation and no liver therapy or other measures to increase the red cell count, hemoglobin content or weight. Moreover, the improvement cannot be due to colostomy, which was performed on some of the patients, for twenty-two patients were not subjected to colostomy and they have gained as much weight and look as well as those on whom the operation was performed.

The argument may be brought forth that the patient gains weight because the primary carcinoma is destroyed and therefore there is no absorption of toxins from it. Against this theory is the fact that in many of the cases in which we used surgical diathermy the patient was well along in years and had a large mass which was fixed and practically inoperable and there must have been metastasis at least along the lymph glands in the pelvis. In spite of this, some of the patients at the end

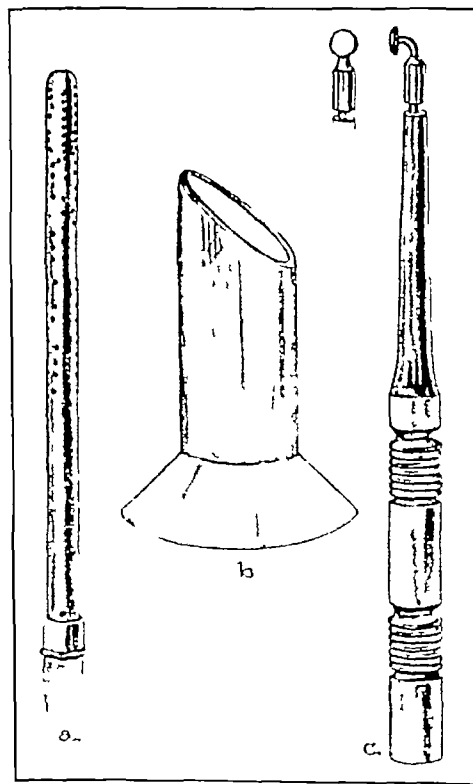


Fig 3—Instruments used in surgical diathermy for carcinoma of the rectum: a, intestinal suction apparatus; b, glass cylinder; c, electrode.

or in distant organs such as the liver. It is our impression that it does. If it did not, surely some of the patients who were treated for advanced carcinoma three or four years ago would by this time show metastasis in the regional lymph glands or in the liver. No evidences of such metastasis have been observed, however. On the other hand, in two cases in which we explored the abdomen on account of symptoms of

disturbance of the bladder, which developed several years after the treatment with surgical diathermy, we removed from the pelvis a few slightly enlarged lymph glands, which contained what appeared to be poorly staining dead carcinoma cells. This indicates at least the possibility that the macrophage and reticulo-endothelial reaction produced by diathermy may have

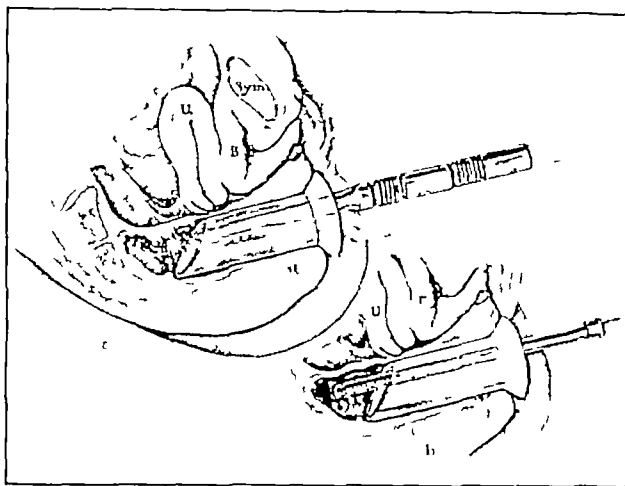


Fig 4—Technic of surgical diathermy for carcinoma of the rectum. In *a* is shown the electrode with the glass speculum in place. In *b* the suction apparatus in place. *U* indicates the uterus, *Sym* the symphysis pubis and *B* the bladder.

destroyed the carcinomatous cells in the regional lymph glands or rendered them inactive.

In four cases we excised the scar in the rectum resulting from the surgical diathermy by a modified Kraske operation. In one case the excision was made five years after the diathermy treatment, in one, three years, and in two, two years. We allowed what we considered to be sufficient time to see whether there would be local recurrence. The excised scar was examined histologically. In two cases no carcinoma cells could be seen (fig 1), but in the other two there were definite carcinoma cells (fig 2). More than two years has elapsed since the excision of the scar in each of these cases, and there has been no recurrence. The histologic sections appear to consist of degenerated carcinoma cells surrounded by a great deal of connective tissue, according to the pathologist, they looked like dead carcinoma cells. This corresponds to the clinical fact that two years after excision of the scar the rectum is perfectly smooth, even in the two cases in which carcinoma cells were seen in the scar.

#### END RESULTS AND MORTALITY RATE

Of the forty-two patients whom we have treated by this method, twenty were females and twenty-two were males. A primary colostomy was performed on twenty and a primary ileostomy on one, twenty-one underwent no such operation.

Thirty-two of the patients had a temperature ranging from 100.6 to 103 F. for several days, the fever usually subsided within eight or nine days. Five of the patients had severe hemorrhages, necessitating packing on from the tenth to the twelfth day. In one patient a rectal abscess developed.

Nineteen patients received one diathermy treatment, eleven received two treatments, seven received three, and five received four. Three patients had undergone an operation for cancer, such as removal of the sigmoid or transverse colon, and in these patients the carcinoma of the rectum was probably an implantation carcinoma.

Only two of the patients died within a week or ten days following the first application of diathermy. One was a man of advanced years in whom peritonitis developed, the other, a man of 71, died of bronchopneumonia nine days after the treatment. Two patients died after about a year as a result of sepsis due to infection of the sacrum from too severe diathermy. One patient died three years after the treatment of what was apparently metastasis in the liver. One died of intestinal obstruction due to two previous operations on the transverse colon. Three patients died of pneumonia. One of these, a man aged 68, had been apparently normal for one year, one, for four months, and the third, aged 73, for three years. One patient died of cerebral hemorrhage one year after treatment with diathermy, and one died of a cerebral embolism six months afterward.

Analysis of the foregoing data shows that only two of the eleven deaths can be considered as immediate results of the surgical diathermy, two were due to sepsis occurring as a result of the diathermy about one year after the treatment, and seven were due to intercurrent diseases associated with old age, namely, pneumonia, cerebral hemorrhage and cerebral embolism.

The other thirty-one patients are apparently in excellent condition—one after seven years, two after six years, seven after five years, nine after four years and twelve after three years or less. They have gained weight and do not look like patients with cancer. The fact that twenty-two of them were not subjected to

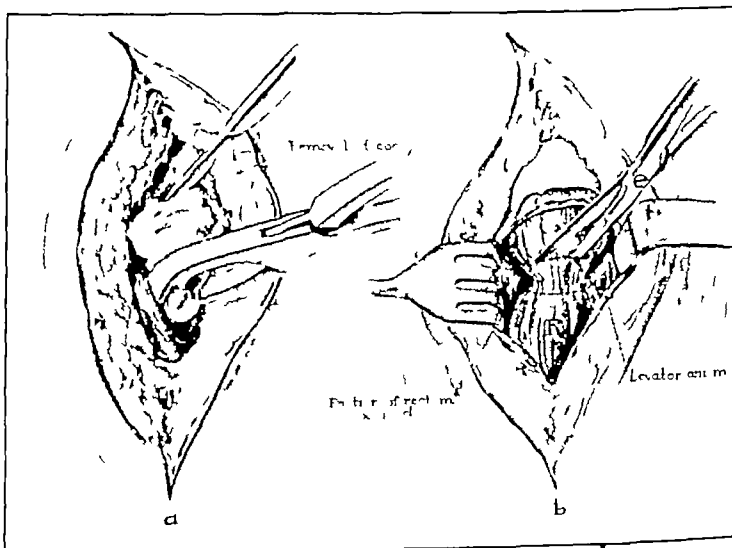


Fig 5—Excision of scar tissue causing stricture of the rectum following diathermy for cancer and intestinal anastomosis through a modified Kraske incision.

colostomy and have full use of the rectum makes the results obtained by this method compare favorably with those secured by radical surgical intervention.

We have reports of at least twenty-five more isolated cases observed by physicians in various clinics who have used this method with results similar to those that we have described. However, they date back only two years.

## THE TECHNIC

In applying surgical diathermy for carcinoma of the rectum we have used the glass tube method. If a sigmoidostomy is performed we use a gridiron incision with a skin flap to hold the sigmoid colon above the skin. We have been using diathermy in more and more cases without a temporary sigmoidostomy. If

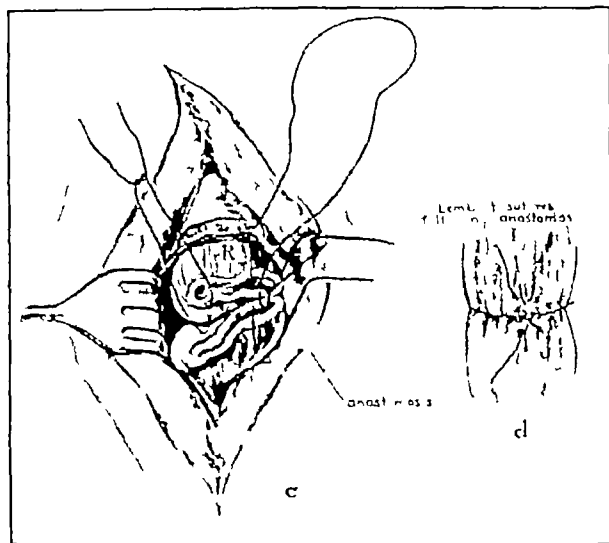


Fig 6—Technic of anastomosis of the cut ends of the rectum with silk sutures and an inner layer of continuous chromic catgut suture

the patient is not in good condition a transfusion of 600 cc of blood is given. We have used only nitrogen monoxide and ether for anesthesia. For several days before operation the patient is given daily 1 ounce (30 Gm) of magnesium sulphate in 7 ounces (200 cc) of water divided into sixteen doses, followed by enemas and irrigation of the lower portion of the sigmoid colon, and finally the lower portion of the sigmoid colon and the rectum are emptied by a suction apparatus. We have been able to coagulate satisfactorily tumors from 4 to 6 inches (10 to 15 cm) above the anus, but we think the greatest value of the method is for tumors that lie just above or within the external or internal sphincter, where radical operation would mean the destruction of the rectum and its sphincters. The rectal sphincter can be stretched so as to admit a glass cylinder, which varies in circumference as well as in length, similar to the old vaginal glass speculum (fig 3b), which is passed up the rectum to the carcinomatous area. We use an intestinal suction apparatus (fig 3a), which not only keeps the wound free from blood but aspirates the smoke that is created by the coagulation. The electrode used is a flat, round tip, which is bent at right angles so that it can coagulate all the parts of an annular carcinoma (fig 3c). It is important to have all the electrode except the tip insulated by rubber tubing, so that exposed metal will not coagulate normal parts of the rectum (fig 4).

Early in this work we coagulated too deeply and too thoroughly. We have come to the conclusion of late that it is best to coagulate superficially and not too severely, wait two or three weeks to see how much has been destroyed, and then give a second, third or fourth application, if necessary, at intervals that can be determined by rectal examination. When this method was used, much less stricture and scar formation resulted and in a number of cases there was

practically none. In several of our early cases, in which we coagulated too thoroughly, the coagulation extended into the periosteal tissue of the sacrum and coccyx and produced perisacral infection and osteomyelitis. In two instances sepsis and death occurred within a year. After we recognized this, in the third case we removed that portion of the coccyx and sacrum and the patient recovered. The results in our recent cases, however, have shown that this is unnecessary. In one instance, peritonitis followed the surgical diathermy. In no instance have we observed bladder fistula, bloody urine or injury to the ureters following this procedure. There have been a number of hemorrhages, none of them fatal, which usually came on from eight to twelve days after the treatment, during the period of sloughing. In most instances the hemorrhage was controlled by packing, in two cases it was so severe that transfusion was required.

The technic for the resection of the scar resulting from surgical diathermy by the Kraske method is as follows. An incision is made in the skin over the lower portion of the sacrum and the coccyx, and the coccyx is removed as usual (fig 5a). The levator ani and rectal muscles are dissected away from the rectum by longitudinal splitting (fig 5b). The scar and the narrowed portion of the rectum proper are cut away with scissors transversely (fig 5b). The cut ends of the rectum are then anastomosed with interrupted silk sutures and an inner layer of continuous chromic catgut sutures (fig 6). The wound is closed in the usual manner without drainage. Figure 7 shows an incision (a) and a sagittal section (b) of the scar to be excised from the rectum.

## CONCLUSIONS

While the glass tube method of surgical diathermy at first seems rather absurd after consideration of the brilliant results that are obtained all over the world from the radical removal of the lower portion of the sigmoid colon and the rectum for carcinoma of the

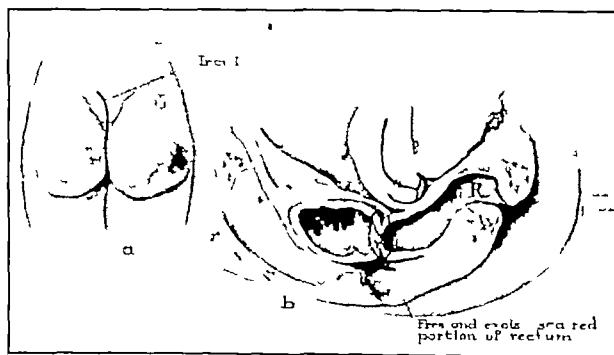


Fig 7—An incision (a) and a sagittal section (b) of a scar to be excised from the rectum

rectum, we feel that the excellent results that we have obtained in our experience of seven years and the simplicity with which the procedure can be performed speak in favor of giving the method a thorough trial for a period of five years more, in which we hope to report a much larger series of cases.

We lay great stress on the fact that in twenty-two cases excellent results were obtained without colostomy, the patient having full use of the rectum. We are great believers in the radical and segmental removal of the entire ascending, transverse or descending colon for carcinoma, especially when the continuity of the bowel can be reestablished and the patient can defecate

normally. It is, however, quite another matter to remove the lower part of the sigmoid colon and the rectum and leave the patient with a permanent colostomy opening. While it may be gratifying to the surgeon to demonstrate a series of such cases many years afterward, we do not believe that many of the patients are happy. And how much better it will be if by surgical diathermy the rectum can be preserved with its full physiologic function and the patient can live as long, or almost as long, as the one who has a permanent colostomy opening!

We are particularly interested in the method since it is the first one in which local destruction of, or local application to, a carcinomatous growth has produced, clinically at least, a permanent systemic effect. It seems to destroy the toxins which are absorbed from the carcinomatous tissue this reaction probably being brought about by an intense stimulation of the reticulo-endothelial system. What the substances are that are liberated into the systemic circulation or into the body by the destruction of the carcinoma by diathermy is an interesting subject for further research.

104 South Michigan Avenue

## THE TREATMENT OF ACUTE EMPYEMA IN CHILDREN

PRELIMINARY REPORT

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BROOKLYN

In eight cases of unilateral empyema in children, the induction and maintenance of an artificial pneumothorax on the sound side was employed to favor drainage and cause earlier obliteration of the empyema cavity. This method was developed following the

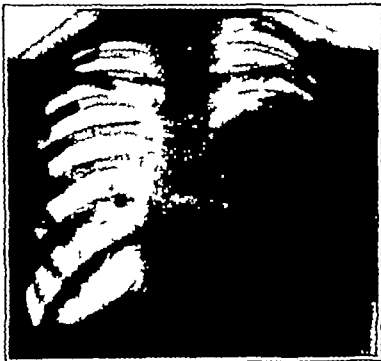


Fig. 1 (case 8)—Empyema before intercostal drainage

observation in one case of bilateral empyema that drainage instituted on the side more markedly affected resulted in clearance of the suppuration within seven days. Since this experience was not entirely unique and has been noticed by other observers, it seems that the most likely explanation for the phenomenon

was that the compression of the untreated side by the effusion resulted in more rapid expansion of the lung on the side of which drainage had been established. It then occurred to one of us (J. R.) that perhaps similar acceleration of the healing in unilateral empyema processes could be obtained by reproducing the condition of compression of the normal lung by artificial pneumothorax.

From Crown Heights Hospital

## PROCEDURE

**Drainage**—From seven to ten days after the termination of the active pneumonic process, closed intercostal drainage is instituted, until which time no diagnostic punctures are made. The chest wall is prepared with iodine and alcohol in the region of a point judged to be the most dependent portion of the cavity (usually in the posterior axillary line). Then after infiltration of the chest wall with 1 per cent procaine hydrochloride

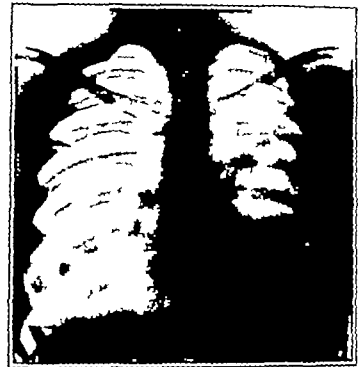


Fig. 2 (case 8)—Three days after intercostal drainage and two days after the first pneumothorax

a small incision is made with a scalpel, and a trocar and cannula (26 French) is plunged into the cavity. The trocar is removed and a catheter previously prepared and clamped at one end is pushed through the cannula into the cavity. The cannula is then removed and a rubber diaphragm cap is passed over the tube down to the chest wall. This cap is then sealed to the chest wall with collodion or rubber cement and reinforced with adhesive strapping. The catheter is also strapped securely to the chest wall and subaqueous drainage is provided for with a T tube, one end of which is connected to a reservoir containing 1 per cent surgical solution of chlorinated soda. Beginning on the second or third day the empyema cavity is irrigated every three hours night and day.

## OBLITERATING THE CAVITY

From two to three days after drainage is begun, artificial pneumothorax is instituted on the unaffected side of the chest. After proper preparation, the skin and subcutaneous tissues in the sixth interspace in the midaxillary line are infiltrated with procaine and the pneumothorax needle introduced into the pleural cavity. Air is then injected 50 cc at a time, and the intrapleural pressure is noted. We never give more than 250 cc at the first injection nor do we ever allow the positive pressure to exceed 3 cm of water at any time. The needle is then quickly withdrawn, the index finger is applied over the puncture wound and it is sealed with cotton and collodion. In forty-eight hours another 250 to 400 cc is administered. Pneumothorax is maintained by successive injections with roentgenoscopy and fluoroscopy as the guide until drainage has ceased, the lung is expanded and the empyema cavity is obliterated.

## OBSERVATIONS

Immediately after the administration of the pneumothorax the patients began to breathe more rapidly and more deeply. The increase in amplitude of respiration was especially noticeable on the side of the empyema (fig. 6). A short time after this a copious purulent discharge from the drainage tube was frequently noted. In a few cases in which the tube was clamped off, pus was forced out round the edges of the tube. In most cases the increase in rate and depth of respiratory movements was unattended by any subjective respiratory distress. In one instance there was moderate dyspnea and this was accompanied by a forceful ejection of pus



## Observations in Eight Cases

No	Admission Date	Age	Sex	Onset of Pneumonia	First Sign of Fluid	Intercostal Chest Drainage	Type of Pneumothorax	Days of Fever	Pneumothorax	Days of Drainage	Comment
1	2/10/34	8	♂	2/16/34 left	2/24/34	3/ 3/34	III	20	3/ 8 150 cc. 3/10 150 cc. 3/12 150 cc. 3/23 240 cc. 3/27 400 cc. 4/ 1 350 cc. 4/ 5 340 cc.	23	After the third air injection, treatment was discontinued because of objection by family physician but when fever continued unabated he allowed us to continue the treatment there was a lapse of treatment for about 11 days
2	3/ 7/34	5	♂	2/20/34 right	3/ 8/34	3/17/34	II	7	3/18 200 cc. 3/20 150 cc. 3/22 150 cc. 3/27 300 cc.	11	Patient developed subcutaneous emphysema of left chest wall on 3/21/34 which completely disappeared on 3/23/34 during the administration of the pneumothorax there was marked increase of drainage from the intercostal drainage tube
3	3/ 7/34	12	♀	2/23/34 left	3/ 4/34	3/12/34	I	8	3/12 250 cc. 3/14 245 cc. 3/18 300 cc. 3/22 240 cc.	4	Roentgen examination of the chest before discharge showed an almost completely expanded left lung with some thickened pleura against advice parents signed release and took child home
Second admission	4/ 2/34	12	♀	2/23/34 left	3/ 4/34	4/ 2/34	I	6	4/ 3 240 cc. 4/ 7 450 cc. 4/13 400 cc. 4/19 400 cc. 4/25 500 cc.	16	Patient was readmitted with history that she developed a sore throat the same day she left the hospital and that night had a slight chill drainage practically ceased on the fourth day except for a few flakes which appeared to be washings from a thickened pleura
4	3/22/34	5	♀	3/12/34 left	3/24/34	4/ 3/34	I	28	4/ 4 240 cc. 4/13 300 cc. 4/20 400 cc. 4/26 400 cc.	17	Patient pulled out tube on four different occasions temperature continued to fluctuate moderately for eleven days after drainage ceased from empyema cavity because of the development of a bilateral suppurative otitis media and follicular tonsillitis
5	4/ 8/34	3½	♀	4/ 1/34 left	4/ 7/34	4/ 9/34	I	14	4/13 150 cc. 4/17 240 cc. 4/21 340 cc. 4/26 400 cc. 4/30 340 cc.	20	Patient developed subcutaneous emphysema on right side on 4/18/34 which disappeared completely on 4/21/34 under the fluoroscope the mediastinum was seen to shift to the left while the pneumothorax was being administered on the right side there was marked increase of discharge through the intercostal tube during this period
6	4/27/34	2½	♂	4/13/34 left	4/20/34	4/28/34	III	8	5/ 1 240 cc. 5/ 3 250 cc. 5/10 340 cc.	10	There was a rise of temperature on the seventh day which appeared to be due to some encapsulation as seen by the x-rays twelve hours after the administration of air to the right side the temperature dropped to normal and remained so there was also a marked increase in drainage
7	6/ 1/34	4½	♂	5/ 4/34 right	5/24/34	6/ 4/34	IV	10	6/ 6 200 cc. 6/ 8 340 cc. 6/10 300 cc. 6/12 600 cc. 6/18 500 cc.	14	After injection of 600 cc. of air into the left pleural cavity causing an almost complete collapse of the left lung there was no discomfort present but great increase in drainage
8	6/24/34	6	♀	6/31/34 left	6/24/34	7/ 9/34	III	6	7/10 240 cc. 7/12 340 cc. 7/14 500 cc. 7/16 400 cc.	9	Uneventful recovery no respiratory embarrassment in spite of massive collapse of right lung
Average days of drainage 13.77 days											

from the empyema cavity. Two children complained of slight pain in the chest and shoulder for three or four minutes following the administration of pneumothorax.

Following the introduction of the artificial pneumothorax in these cases, the clinical appearance of the

by other methods. In other words "pocketing" was not noticed. The appetite improved very quickly and the children gained weight rapidly. By the fourth day after the introduction of the first artificial pneumothorax, most of the pus had been evacuated from the

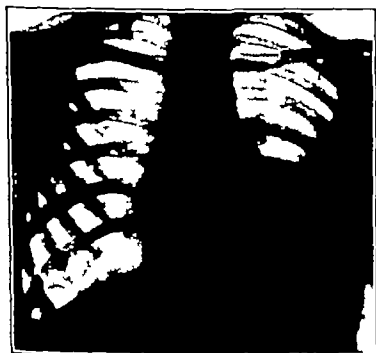


Fig. 3 (case 8)—Six days after intercostal drainage

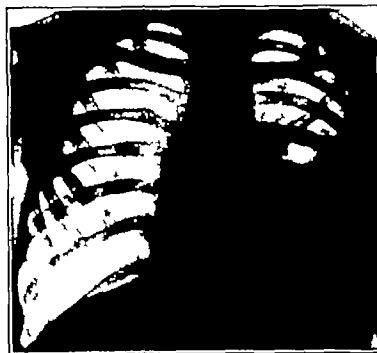


Fig. 4 (case 8)—Eight days after intercostal drainage massive collapse of lung following fourth pneumothorax induction.

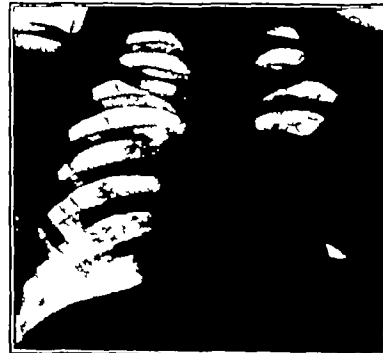


Fig. 5 (case 8)—Empyema side almost clear and lung completely expanded twelve days after intercostal drainage was established. There was no drainage for the last three days. Pneumothorax still visible.

patient became markedly improved. The temperature fell very rapidly, so that the average duration of fever in the uncomplicated cases was less than seven days. Case 5 was complicated with a suppurative otitis media and the duration of the fever was twenty-eight days. Drainage from the empyema cavity ceased on the seventeenth day. More significant, perhaps, the temperature remained down and it didn't show the periods of remission that are so characteristic of empyemas treated

chest. There was very little drainage at that time and the cavity rapidly became smaller as the lung rapidly expanded. Between the seventh and the tenth day after the introduction of the first artificial pneumothorax, the cavity was usually too small to contain 25 cc. of surgical solution of chlorinated soda. The average period until there was no more drainage of pus was 13.7 days after the thoracotomy. The obliteration of the cavity is

demonstrated by comparisons of x-ray films taken before and after the introduction of the artificial pneumothorax (figs 1 to 5). The only complication was subcutaneous emphysema in two cases, which disappeared in from two to four days. In case 7 we had an example of what the artificial pneumothorax will do to an encapsulation or pocketing or an encystment of some of the suppurative fluid. In this instance there was no drainage and signs were present suggesting a still active pneumonic process. This, however, was a faulty interpretation of the condition, because the induction of another artificial pneumothorax quickly caused a very copious drainage with an immediate fall in temperature from 104 to 99, which then continued to stay normal. Here the pneumothorax definitely obliterated a small pocket in the process of formation.

#### MECHANISM

Our studies of the mechanism of these phenomena will be reported in a subsequent paper. It seems worth while at this time, however, to mention that it has long

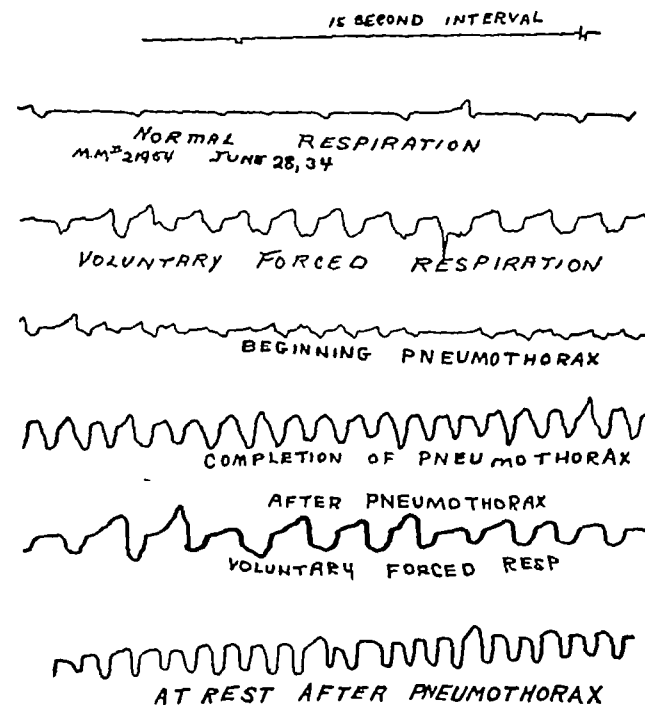


Fig 6—Graph obtained by attaching intercostal drainage tube in the empyema cavity and recording the pressure changes by means of a tambour. After recording changes at rest and following voluntary forced respiratory movements artificial pneumothorax was induced in the opposite pleural cavity. The pressure changes were markedly increased after the pneumothorax.

been known that the induction of an artificial pneumothorax in animals was not followed by any change in the total volume of air breathed.<sup>1</sup> The unaffected side compensates. In our studies of the chest wall movements a similar compensation on the side opposite the pneumothorax is very apparent (fig 6) even though we are dealing with a lung hampered by an empyema.

Examination of the x-ray films before and after pneumothorax reveals a shift of the mediastinum toward the empyema side. This movement may also contribute to the mechanism of acceleration of cavity obliteration.

#### SUMMARY

- 1 In eight cases of unilateral empyema there was a significant reduction in duration of morbidity.
- 2 The cavity was emptied by closed intercostal drainage.
- 3 The drainage and obliteration of the cavity were hastened materially by artificial pneumothorax on the unaffected side.

#### POLLEN STUDIES IN SELECTED AREAS

O. C. DURHAM

NORTH CHICAGO, ILL.

The geographic aspect of fall hay fever in America was noticed long before the role of pollen was established by Blackley<sup>1</sup> in 1873. Daniel Webster, who suffered with ragweed hay fever for twenty years, was symptom free during a season (1839) spent in Scotland. Rev. Henry Ward Beecher found relief in the Catskill Mountains. For more than eighty years, ragweed sensitive persons living in the New England states have fled annually to the White Mountains in New Hampshire. In 1872 Wyman<sup>2</sup> reported favorably on upper Maine, the entire area west of the Mississippi River and most of the area south of Virginia, as being free from fall hay fever. In 1875 Judge Gary commented favorably on Mackinac, Mich., and unfavorably on Marquette, Mich.<sup>3</sup> Local and national organizations have for many years sought by extensive trial and considerable error to list localities favorable for ragweed sensitive persons. Often such places have gained good reputations only to lose them after a few years, as the ragweed followed in the wake of civilization.

The need of statistical studies on ragweed distribution and on pollen contamination of the air in typical areas bordering the ragweed belt has been apparent for many years. Physicians sometimes have occasion to recommend a reliable retreat for the exceptional patient who does not respond favorably to pollen desensitization. No statistics on the subject have been published, and those seeking such information have thus been dependent on tradition or the advertising claims of such localities as have established reputations for themselves as havens for hay fever sufferers.

In order to investigate the merits of the various localities, it has been necessary first to develop or at least to prove a reliable and practicable method of research. The simple "gravity method" of catching and counting pollen suggested by Blackley<sup>1</sup> and widely used by myself and others in the last decade has proved satisfactory for such work. It consists in identifying and counting the pollen granules found on a unit area (18 sq. cm. in these studies) of an oil-coated microscope slide that has been exposed face up for twenty-four hours. During the last six years I have used this method in examining more than 15,000 pollen slides uniformly exposed by observers of the United States, Canadian and Mexican weather bureaus.

In the nation-wide five year pollen survey (1929 to 1933) my principal effort has been to study the dis-

<sup>1</sup> Blackley, C. H. *Experimental Researches on the Cause and Nature of Catarrhus Æstivus* London: Baillière, Tindall & Cox, 1873.

<sup>2</sup> Wyman, M. *Autumnal Catarrh (Hay Fever)* New York: Hurd & Houghton, 1872.

<sup>3</sup> Beard, G. M. *Hay Fever or Summer Catarrh: Its Nature and Treatment* New York, 1876.

<sup>1</sup> Sachur, V. *Zur Lehre von Pneumothorax*, *Ztschr. f. klin. Med.* 29: 25, 1896.  
<sup>2</sup> Harley, V. *The Effect of Compression of One Lung on Respiratory Gas Exchange*, *J. Physiol.* 25: 33, 1899.

tribution and behavior of the various kinds of air-borne pollen in the more densely populated areas.<sup>4</sup> The data from such places are useful to physicians in interpreting skin reactions, selecting suitable pollens for treatment and planning treatment schedules. In the course of this work a number of localities were noted where the atmospheric concentration of ragweed pollen is comparatively low, but no special effort was made to discover other such places.

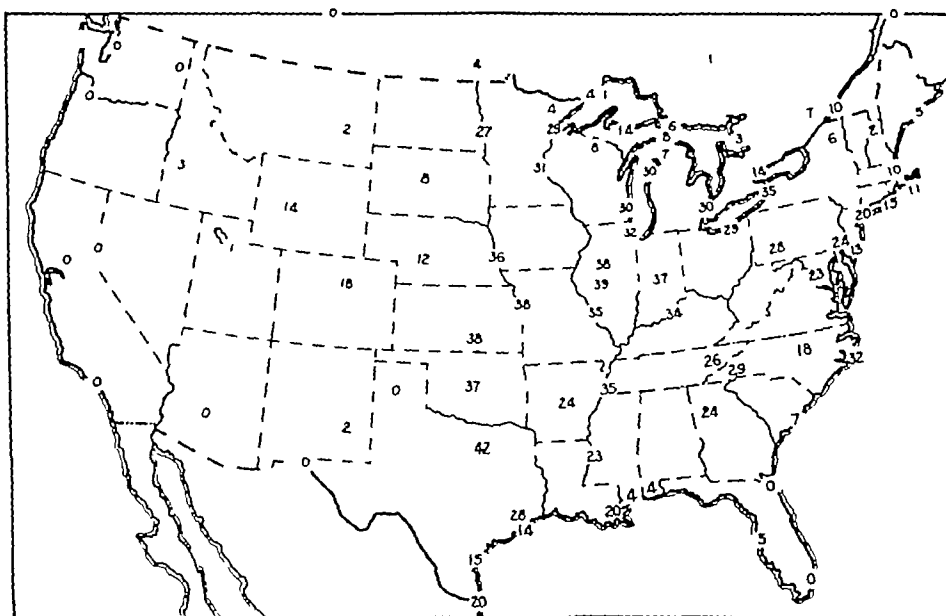
After five years of satisfactory experience with the cooperation of the weather observers in exposing slides, the investigation was extended during the season of 1934 to the mountain, shore and lake areas where little or no ragweed is found or where comparative or complete relief from ragweed hay fever is reported. Only a limited number of typical locations could be included in the study. As far as possible the exposures were made by regular United States and Canadian weather bureau observers. In localities where no regular weather station is maintained the "cooperative" observers have in every instance given their full support to the investigation. In only two places (Isle Royal and Pikes Peak) was it necessary to depend on persons not connected with weather stations to make the exposures. That the work was carried on this season in the same careful and uniform way as heretofore is attested by the results of the examination of the slides. The presence of dust particles, spores and salt crystals showed that the slides had been faithfully exposed whether pollen appeared or not. Parallel daily variations in the pollen count of neighboring localities give further evidence of the honesty of the exposures. In the single instance in which a serious discrepancy appeared, it was found on investigation that the weather bureau instrument box where the slides were exposed was in a patch of ragweed.

As in previously reported pollen investigations, it is here again emphasized that the figures are only approximate. The amount of air-borne pollen in any locality varies from year to year, depending on wind and weather. For some seasons the amount is twice as much as for other seasons, and the exact reasons for such variation are not always apparent. It may be possible that for some locality the figures here given are not typical, but every effort has been made to obtain the facts. However, records covering even a single season when interpreted in the light of previous experience in scores of other places may be of considerable value. This report is concerned solely with ragweed though at every place investigated a careful count was made of all types of pollen.

The accompanying map shows the number of days in each of eighty-five localities when the air carried an

average of twenty-five or more granules of ragweed pollen per cubic yard. Many hay fever sufferers experience symptoms when there is much less pollen than this in the air, but a smaller amount can hardly be regarded as a severe hazard for the average ragweed sensitive person. In evaluating the results of this survey, however, it is necessary to consider other statistics that those shown on the map, such as maximum concentration and the total amount of pollen found during the entire season. Thus, in some places the data shown in tabular form may present the situation more accurately than that shown on the map. The figures given on the map and in the table are in many cases averages for several years.

Of the eighty-seven localities studied in ten years, only the north Pacific coast stations of Portland and Seattle were entirely free from air-borne ragweed pollen. Ragweeds and related hay fever plants do not grow in this region, and the Cascade Mountains are evidently an effective barrier to pollen being blown in



Comparative severity of the ragweed pollen season in various localities. The figures show the number of days each season in each locality when the air carried twenty-five or more granules of ragweed pollen per cubic yard. Further data in regard to these localities will be found in the accompanying table.

from the intermountain region. California and the Southwest are not greatly troubled with ragweed, as the rainfall is low and the irrigated areas are comparatively small, but other persistent hay fever offenders are present and some pollen is found in the air throughout the year. Three cities in Florida have been found to have comparatively little ragweed pollen—Miami almost none. But Florida as well as California and the Southwest lacks the ideal climate required of summer resorts. The best record in Canada has been found at Prince Albert in upper Saskatchewan—the northernmost station included. Its remote location is probably its greatest disadvantage as a hay fever resort. Winnipeg has had only two days of excessive pollen contamination of the air in four years. In the Great Lakes region, only Port Arthur and Sault Ste. Marie have been studied in previous years. The figures as given in the accompanying table for the latter place, although secured five years ago, compare very favorably with this season's records at adjacent stations.

<sup>4</sup> Durham, O. C. The Pollen Content of the Air in North America. *J. Allergy* 6: 128 (Jan.) 1935.

The unfavorable pollen conditions at Denver, Salt Lake City and Lander, Wyo., should not be considered typical for mountain resorts in that area, but in the present inquiry it has been possible to include only a single Rocky Mountain station. Slides were exposed on Pikes Peak, 9,000 feet above the level of Denver. The season's ragweed total was 982 at Denver, whereas only forty granules were found on top of Pikes Peak.

The ragweed pollen season of 1934 in the North Central and Eastern states was marked by the occurrence of five definite successive storm periods, each with characteristic prevailing south, southwest and westerly winds. The effect of these winds in blowing waves of pollen from the agricultural sections into the forested areas was easily traced in the daily records. The following stations on or near the Great Lakes are

## Condensed Data from Selected Areas

Region and Place	Year or Years	Site of Slide Exposures		Ragweeds		Ragweed Pollen Figures		
		Location	Height Above Ground Feet	In Vicinity	Near Slide	Days Above 25	Maximum Count	Total Count for Season
Pacific Northwest								
Portland Ore	1933	Business section	68	None	No	0	0	0
Seattle	1929	Business section	215	None	No	0	0	0
Spokane Wash	1933	Business section	101	Some	No	0	10	8
Boise Idaho	1929-1933	Business section	78	Common	No	3	50	270
Southwest								
Los Angeles	1929-1933	Business section	100	Some	No	0	14	83
Phoenix Ariz.	1933	Business section	10	Some	No	0	17	140
El Paso Texas	1929	Business section	102	Some	No	0	9	110
Great Lakes Area								
Duluth Minn	1934	Residence section	5	Abundant	No	20	250	9728
Tower, Minn	1934	Country	5	Rare	No	4	46	274
Eagle River Wis	1934	Country	3	Rare	No	8	80	608
Plum Island (Door Co.) Wis	1934	Country	3	Common	Yes	?	(data unreliable)	
Milwaukee	1931-1933	Business section	125	Abundant	No	30	1485	6,501
Chicago	1929-1934	Business section	140	Abundant	No	32	1006	5,651
Detroit	1930-1933	Business section	218	Abundant	No	30	1232	4,013
Frankfort Mich	1934	Country	3	Common	100 ft	30	448	3,026
Petoskey Mich	1934	City Park	3	Some	No	7	116	626
St Ignace Mich	1934	Water front	3	Rare	No	8	154	722
Sault Ste Marie Mich	1929	Business section	11	Rare	No	6	92	500
Marquette Mich	1934	Business section	70	Reported absent	No	14	79	771
Isle Royal (Belle Isle) Mich	1934	In woods	7	Reported absent	No	1	48	1331
Port Arthur Ont	1931-1933	?	?	?	?	4	194	312
Cleveland	1929-1934	Business section	200	Abundant	No	29	1,210	5,818
Buffalo	1929-1933	Business section	247	Abundant	No	30	2,000	8,999
Toronto Ont	1930-1933	Business section	3	Common	No	14	231	1,251
Parry Sound Ont	1934	?	?	?	?	3	101	623
Canada (other than foregoing)								
Prince Albert Sask	1930	?	?	?	?	0	5	6
Winnipeg Manlt	1930-1933	?	?	?	?	4	222	374
Cochrane Ont	1934	?	43	?	?	1	27	130
Ottawa Ont	1931-1933	?	?	?	?	7	81	542
Montreal Que	1930-1933	?	?	?	?	10	132	744
Father Point, Que	1934	?	?	?	?	0	15	108
Upper New York and New England								
Lake Placid, N Y	1934	In town	3	?	?	0	59	432
Bethlehem, N H	1934	In village	3	Reported absent	No	2	48	211
Upper Dam (Rangeley Lake) Me	1934	At hotel	8	Rare	No	1	28	114
Eastern Seaboard								
Bar Harbor Me	1934	A clearing 2½ miles from sea	4	Common	50 ft away	5	76	435
Boston	1929-1933	Business section	115	Abundant	No	10	140	790
Nantucket Mass	1934	In town 500 yards from harbor	17	Abundant	25 ft away	11	309	1,100
Block Island R I	1934	In village	10	Abundant	No	15	200	1,330
New York	1929-1934	Central Park	30	Abundant	No	30	254	1,578
Philadelphia	1929-1933	Business section	123	Abundant	No	24	398	2,609
Atlantic City N J	1934	Business section	30	Abundant	No	13	391	1,680
Hatteras N C	1934	Village	9	Abundant	50 ft away	32	650	3,330
Southeastern Seaboard								
Charleston, S C	1931-1933	Business section	11	Common	No	7	107	571
Jacksonville Fla	1930	Business section	209	Some	No	0	20	203
Miami Fla	1929	Business section	71	Rare	No	0	3	8
Southern Appalachians								
Asheville N C	1934	Business section	89	Abundant	No	29	292	3,411
Gulf Coast								
Tampa Fla	1931-1933	Business section	79	Some	No	5	47	563
Mobile Ala	1931-1933	Business section	123	Some	No	4	170	402
Biloxi Miss	1934	On a pier 200 ft out	45	Some	No	4	40	448
New Orleans	1929-1933	Business section	76	Abundant	No	20	285	2,157
Houston Texas	1930-1933	Business section	292	Abundant	No	28	1,025	5,961
Galveston Texas	1934	Business section	105	Abundant	No	14	580	2,289
Corpus Christi Texas	1934	Business section	13	Abundant	No	15	381	2,327
Brownsville Texas	1931-1933	Business section	83	Abundant	No	20	375	1,860
Tampico Mexico	1932	?	?	?	?	2	56	279

\* The slide area counted each day is 1.5 sq cm. The first column under this heading carries the data shown on the accompanying map. The maximum count column records the highest count obtained on any one slide. The last column is the sum of the amounts found on all the slides exposed at a given place throughout its season.

† This figure should be a little larger as the slides were discontinued on September 15. The remaining two weeks would probably have added twenty five or more pollens.

Most of the effort this season was spent on the resort areas of the Great Lakes, New England and adjacent sections. In addition there were three stations on the Gulf of Mexico, one off the North Carolina coast and one in the southern Appalachians. The accompanying table includes data for several cities in the farming region on the south side of the Great Lakes. These are included for purposes of comparison with more favorable places. It may also be noted that such cities as Chicago, Cleveland and Buffalo enjoy only slight advantage over points farther away from the lakes

known to be in localities where ragweed grows sparingly or not at all. Port Arthur, Ont., Isle Royal, St Ignace and Sault Ste Marie, Mich., Tower, Minn., and Eagle River, Wis. In these places and probably in many others similarly located, ragweed pollen is present in the air in appreciable amounts only when blown in by strong winds from weedy areas in the directions of southeast, south or southwest. One observation of considerable interest is the sharp difference in the pollen content of the air at Duluth and at Tower, Minn., which points are only about 75 miles apart.

The pollen found on Duluth slides was evidently local, while that found at Tower was blown in only on winds from the south. The season total at Tower was only one tenth that at Duluth.

Slides were exposed at the coast guard station on Plum Island, at the end of the Door County peninsula of Wisconsin. The island is wooded except in the immediate vicinity of the lighthouse and coast guard station where ragweed is abundant in all disturbed soil. The slides caught enormous amounts of pollen but there was no way of telling how much of it was from the adjacent weeds and how much came from the upper air.

My previous discovery of low pollen records along the Southeastern sea coast (South Carolina to Florida) suggested that this condition might extend northward to the North Carolina coast or possibly to New Jersey. The results of this study along the Eastern coast are not very encouraging. A large amount of ragweed pollen appeared on the slides exposed on Hatteras Island, about 10 miles west of Cape Hatteras. At Atlantic City there was more pollen than at New York City. When the wind blows from the ocean at Atlantic City there is very little pollen in the air, but when it blows from the shore the concentration is high. Both on Block Island and on Nantucket Island, pollen contamination of the air is greater than at Boston.

As would be expected, the Catskill and the White Mountain stations show less pollen than is found in the Great Lakes region. The local weather observer at Bethlehem, N. H., reports that ragweed will grow in that locality but that it is kept in check artificially and is not found within five miles of the place of exposure of the slides. The total at Bethlehem was about one-fourth the amount usually found in Boston. From various sources it is reported that ragweed does not grow along the St. Lawrence River east of the north border of Maine, yet even at Father Point, 75 miles beyond the tip of Maine, a small amount of pollen was found. Probably all of it was blown in from a considerable distance.

The only point in the Appalachian Mountains where studies were carried on this season was at Asheville, N. C. Here the condition is no better than that previously found at Knoxville, Tenn. Possibly better places could be found in the mountains of Virginia or Pennsylvania.

In earlier studies the Gulf Coast from southern Florida to Mobile has been found to produce much less ragweed pollen than the coasts of Louisiana and Texas. In this study the condition at Biloxi was found to be similar to that previously found at Mobile, where only north winds bring appreciable amounts of pollen. Galveston and Corpus Christi have about one-half as much pollen as Houston. In both Galveston and Corpus Christi the air is relatively pollen free when winds blow from the ocean, but north winds bring in large amounts of pollen. The season at Corpus Christi seems to occur at the same time as at Galveston and Houston—September and October. The investigation at Corpus Christi was begun July 14, but very little pollen was found before September 15. Here the season does not resemble that at Brownsville where pollen is found from May until November.

## A TENTATIVE CLASSIFICATION OF ALLERGIC DERMATOSES

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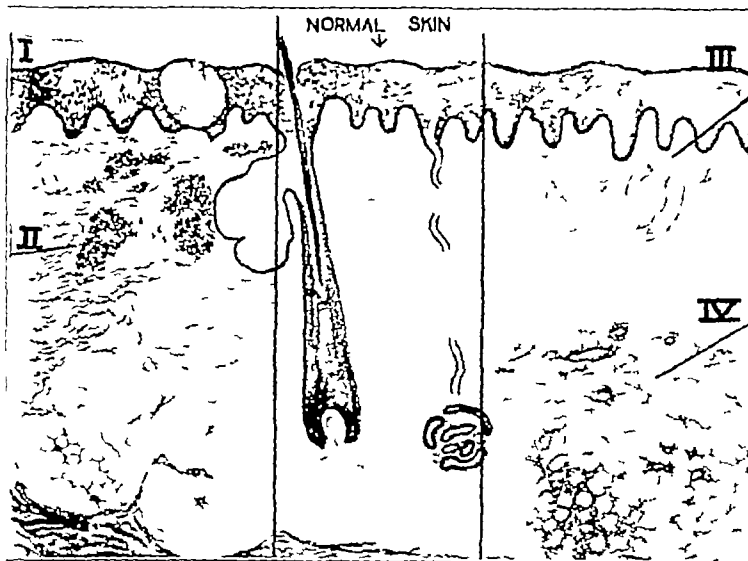
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The accompanying illustration and table give our suggestion for a schematic and tentative classification of the various common allergic dermatoses. The division is based on (a) the site of the shock tissue (epidermis or cutis) and (b) the length of time required for the development of the visible reaction, after the union of allergen and sensitized tissue.

In each of the first three groups the reaction to skin testing is characteristic, this has served as the criterion.



The commoner allergic skin reactions are classified in the table based on histologic localization and on time required for their development. The illustration is made from actual histologic sections of the various reactions. It is schematic only in that it is a composite: the epidermis of a patch test reaction is placed over the cutis of a tuberculin reaction and the superficial changes in the cutis of a wheal reaction are placed over the deeper changes in a case of erythema nodosum.

### Classification of Various Common Allergic Dermatoses

- I Eczematous Reactions
  - 1 Site of shock tissue: epidermis
  - 2 Reaction time: twenty four or more hours
  - 3 Characteristic lesion: spongiosis and intra-epidermal vesicle
  - 4 Causative substances: frequently simple chemicals or products of fungi
  - 5 Type of test: patch test
- II Tuberculin Trichophylin Type Reactions  
(not infrequently combined with eczematous responses)
  - 1 Shock tissue: upper cutis, cutis
  - 2 Reaction time: from twenty four to forty-eight or more hours
  - 3 Characteristic lesion: lymphocyte and later epithelioid cell infiltration
  - 4 Causative substances: usually micro-organisms bacterial or fungous products (allergy of infection)
  - 5 Test: intracutaneous (forty eight hours)
- III Urticarial Reactions
  - 1 Shock tissue: upper cutis (blood vessels)
  - 2 Reaction time: from ten to thirty minutes
  - 3 Characteristic lesion: edema, extravasation of fluid and eosinophils (wheal)
  - 4 Causative substances: foods, inhalants, products of micro-organisms
  - 5 Test: intracutaneous scratch or indirect (immediate wheal and flare)
- IV Miscellaneous Reactions (drug eruptions, rids, etc.)
  - 1 Shock tissue: deep cutis, cutis, epidermis, follicles
  - 2 Time: from minutes to days
  - 3 Lesions: (a) nodules, (b) fixed polychromatic areas, (c) multiform dermatoses and follicular lesions, etc.
  - 4 Substances: drugs, micro-organisms
  - 5 Test: usually inconclusive (Sometimes the patch, Moro or intradermal test is of value)

Based on the Symposium on Cutaneous Allergy in the Scientific Exhibit at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 11-15, 1934.

for classification. Thus the atopic dermatoses, including the clinically apparently eczematoid disseminated neurodermites, are classified under the urticarial group III.

Group IV, on the other hand, has no characteristic reaction to the skin test and should be considered as including the miscellany of sensitization dermatoses such as erythema nodosum, multiform erythemas and drug eruptions of various types (for example, fixed eruptions and follicular acneiform responses).

It will be seen that this group is heterogeneous, with sensitization as the one common factor. This group, therefore, includes the many as yet unclassified sensitization dermatoses.

The classification must be considered a tentative one, because it rests only partially on established facts, the remainder being based on as yet insufficiently confirmed experimental evidence and in some cases, even on hypothesis. As knowledge of these dermatoses increases it will doubtless be necessary to modify and change various points and certainly to subdivide group IV.

With the rapid progress in the study of allergy, the necessity for such changes may soon become apparent. Nevertheless, it seems to us that the table submitted represents a concise and tenable classification of sensitization dermatoses which is not in contradiction to any at present established facts. Such a presentation may prove of aid in the understanding, teaching and further study of these conditions.

Many points that were apparently without even a hypothetic explanation seemed to us to become amenable to working hypotheses when regarded from the point of view established in the table. For example, in the case of the eczematous contact dermatoses, it is logical to suppose that, if the epidermis is the shock tissue, certain substances coming into contact with the skin from without will be more capable than others of reaching the living epidermal cells in sufficient concentration to produce epidermal sensitization. Keratolytics and detergents, which destroy and/or remove the fatty and horny covering, are obviously prone to be epidermal sensitizers and thus common eczematogenous noxae. The plant oils that can become dissolved in the fatty substances of the skin surface are more likely to produce contact dermatitis than the fat-insoluble protein fractions of the plants. The fungi that produce eczematous dermatophytosis and dermatophytids live in the horny layer and, when absorbed, their products must reach first and in highest concentration the living cells of the epidermis. The dyes, such as paraphenylenediamine, with their propensity for fixation to horny substance, will also achieve a prolonged and intimate contact with the epidermis. The solutions of metallic salts, with their rapidly moving ions of small dimension, may be supposed to possess a greater facility for penetrating the protective covering of the epidermis than solutions or colloidal suspensions of larger particles. The local anesthetics such as procaine and butesin, with their affinity for ectodermal structures, may be inclined to adhere most intimately to the epidermis.

It is known that all the substances mentioned frequently cause contact eczema. Thus, the mere recognition of the fact that the epidermis is the shock tissue in contact dermatitis serves to give a hypothetic explanation of the eczematogenous nature of many apparently unrelated substances and serves as a guide in the selection of probable causes in a given case of contact eczema of unknown origin.

Similarly a consideration of the tabular classification in groups II and III will thus indicate the noxae that must be suspected in each group. Furthermore, the table designates what is to our minds of at least equal importance, namely, the specific technic of testing that must be employed in each group.

The various possible combinations of these types of sensitizations may, of course, be found in one and the same individual. Such combinations are perhaps no more frequent than is to be expected from the laws of mathematical probability.<sup>1</sup>

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## PAPILLEDEMA IN UNDULANT FEVER

### REPORT OF CASES

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Papilledema is found as an occasional ocular complication in some diseases in which the symptomatology is so indefinite that a diagnosis can be made only after exhaustive clinical and laboratory studies. Undulant fever is such a disease and it has given rise to choked disk in some cases in which the central nervous system is involved. One such case was found in the domestic literature and four cases in that of foreign countries. Three cases, two of them with necroscopic data, are added in this report. Undulant fever should be considered in the differential diagnosis in cases of obscure etiology in which the optic disks are edematous.

Undulant fever, often called Malta fever, was first accurately described by Marston in 1861 as Mediterranean remittent or gastric remittent fever. The name "undulant fever," proposed by Hughes in 1896 is authorized in the accepted nomenclature of diagnoses. The etiologic agent (*Brucella*) was demonstrated by Bruce in 1887. Recently the name "brucellosis" has been gaining favor in terminology because the designation undulant applies to only one form of the disease. The first report of a case of undulant fever in the United States was made by Musser and Sailer in 1898.

*Brucella abortus* was isolated from infected cows by Bang in 1897, but it was not until 1918 that Evans called attention to the laboratory similarity of that organism and the organism of undulant fever. The first diagnosis of human infection with *Brucella abortus* was made in Johns Hopkins Hospital in 1922, the case was reported by Keefer two years later. Subsequent studies established the liability of man to contract the disease from animals. Undulant fever is a public health problem.

The organisms of undulant fever occur as coccoid, intermediary oval and bacillary forms, they are from 0.3 to 0.5 micron wide by 0.6 to 1.5 microns long, they are nonencapsulated and nonmotile and are decolorized by Gram's method. There are three varieties: (1) *Brucella melitensis* variety *melitensis* (Bruce) affects goats and is called caprine, (2) *Brucella melitensis* variety *abortus* (Bang) affects cattle and is called bovine, and (3) *Brucella melitensis* variety *suis* (Traum) affects swine and is called porcine. There are also equine, avian and other strains.

<sup>1</sup> A more detailed discussion of other points in connection with three common types of sensitization dermatoses will be found elsewhere (Coca A. F. Specific Diagnosis and Treatment of Allergic Diseases of the Skin, J. A. M. A. 103: 1275 [Oct. 27, 1934]).  
From the Department of Ophthalmology, State University of Iowa Hospital and College of Medicine.

Differentiation among the three varieties is made in the laboratory. A medium of fresh beef liver infusion agar is prepared and then adjusted to a  $pH$  of 6.6. The addition of thionin 1:25,000 inhibits the growth of the variety abortus but not that of the variety suis. The addition of basic fuchsin 1:25,000 or of methyl violet 1:100,000, or of pyronin 1:200,000 inhibits the growth of the variety suis but not that of the variety abortus. In these tests the container must be sealed and 10 per cent of the air replaced by carbon dioxide. None of the additions inhibit the growth of the variety melitensis. The variety suis is more virulent for man than is the variety abortus.

The disease occurs in ambulatory, mild, undulatory, intermittent and malignant forms. The average incubation period is from eighteen to twenty-one days. The onset is usually insidious but may be sudden. Prominent symptoms are weakness, sweating, chilliness, anorexia, headache, fever and loss of weight, other symptoms of varying frequency are constipation, nervousness, cough, rigors, insomnia, general pains, localized pains in the back, joints, abdomen and back of the neck, leukopenia, palpable spleen and abdominal tenderness. The course is generally prolonged and marked by intermissions and remissions. The disease is a very deceptive one. Differentiation must be made from Rocky Mountain spotted fever, tularemia, typhoid, paratyphoid fever, malaria, bronchitis, bronchial pneumonia, rheumatic fever, tuberculosis, subacute bacterial endocarditis, pyogenic septicemia, visceral leishmaniasis, tertiary syphilis, neurasthenia, Hodgkin's disease and influenza. Lemaire called attention to the close clinical similarity of tuberculous meningitis and melitensis meningitis.

The diagnosis is difficult. It is not enough to know that a patient has handled animals or their products or has consumed such products and that the agglutination test is positive. Blood from a patient who has undulant fever may contain no serum agglutinins for that disease, and blood from a symptomless individual may contain serum agglutinins for it. However, the agglutination and intradermal tests should be made. Mononuclear pleocytosis is a prominent feature in the cerebrospinal cases. The diagnosis, in such cases, should be based on (1) finding the organism in the spinal fluid, (2) proving the pathogenicity of the organism for guinea-pigs by inoculation of not less than 10 cc of spinal fluid, and (3) differentiating the species of the organism by the dye tests previously mentioned. Spinal fluid and blood should be cultured for thirty days unless positive growth occurs in less time.

The first record of papilledema in undulant fever was made by Lemaire<sup>1</sup> in 1924. The pressure of the cerebrospinal fluid was increased and both optic disks were congested. The duration of the disease was approximately two and one-half months. The fundi were restored to normal.

Cohen Boulakia<sup>2</sup> reported a case in which there was an early appearance of optic neuritis. Eight days later the elevation of the disks was increased and there was generalized retinal edema. Intra-ocular hemorrhages occurred. Postneuritic, almost complete optic atrophies followed. The retinas became very pale and later

almost completely detached. This author referred to a case seen by Levy and Uzan.<sup>3</sup> Their patient had bilateral papilledema. One and one-half months later the margins of the disks were sharp and the retinal vessels were normal. There was no recurrence in two years of observation.

Orloff<sup>4</sup> recorded a case in which there was a neuroretinitis of the left eye. The phenomenon was more developed eight days later and there were also general edema of the retina and punctate hemorrhages. Ten days later the fundus could not be seen because of diffuse hemorrhages. The end results were optic atrophy, glaucoma and blindness of the affected eye.

Godwin<sup>5</sup> reported a case of two and one-half months' duration with papillitis on the right side and a blurred disk on the left side. Transient improvement was followed in three months by a recurrence.

#### REPORT OF CASES

Diagnoses of undulant fever were made in sixty-three patients admitted to the University Hospital from June 1927 to August 1934 inclusive, of these, thirty-eight were men and twenty-five were women. Three of the series, all white men aged from 20 to 27, showed disk changes. The three were admitted within a period of fifteen months.

CASE 1—J N, aged 20, was admitted, June 16, 1931. The fundi showed early bilateral papilledema. Central visual acuity was normal. The right field was contracted nasally and the left concentrically with the greatest contraction temporally, the effect was that of a left homonymous contraction. The blood Wassermann reaction, cephalography and ventriculography were negative. The spinal fluid was under increased pressure and contained 1,240 cells per cubic millimeter, a culture was taken but no growth occurred. A diagnosis of epidemic encephalitis was made. The papilledema had receded somewhat by August 15, there were then 235 cells per cubic millimeter of spinal fluid. The fundi were normal, Jan 2, 1932 and the cell count was 150 per cubic millimeter, 146 being lymphocytes. The fields were normal, February 12. The spinal fluid contained 151 cells per cubic millimeter, July 20. Death occurred suddenly, August 10. Necroscopic diagnoses were (1) melitensis meningo-encephalomyelitis, (2) subacute combined sclerosis (3) mycotic aneurysm of the basilar artery with rupture and (4) subarachnoid hemorrhage. The agglutination test on postmortem blood was positive for undulant fever. The postmortem blood culture was negative.

CASE 2—D Y, aged 24, was admitted Oct 7, 1931. The illness began Dec 24, 1930, with a tingling sensation of the right foot. The sensation spread upward and involved the entire right side of the patient. The attack had a duration of about thirty minutes. A headache along with pain in the neck began about fifteen minutes later. The patient subsequently had similar attacks at intervals of two or three weeks, with indifference as to the side involved. Later on he had attacks of unconsciousness which would last as long as two days. He had a mild elevation of temperature all of this time except for a period of one and one-half months during which he was being given serum intravenously. Sight and hearing were affected when he had headaches. There had been attacks of diplopia when looking toward either side. He had several lumbar punctures, each of which relieved the symptoms temporarily.

Sanders<sup>6</sup> made an early report of this case and set forth several interesting observations. For three months following the first attack there were several similar attacks but none were severe enough to prevent him from working. A lumbar puncture was made, March 20, 1931. The spinal fluid, which

1 Lemaire, G. Méningite à méliotoques. Altérations importantes du liquide céphalo-rachidien hyperglycorachie guérison. Bull et mém Soc. méd. d. hôp de Paris 48:1638-1644 (Nov. 21) 1924.  
2 Cohen Boulakia S. Neuro-retino-choroidite d'origine méliotocérique. Ann. d'ocul. 1926 pp. 702-706.

3 Attempts to locate a report of their case have been unsuccessful.  
4 Orloff K. C. Melitobokkia (Maltafeber) und Auge. Klin Monatsbl f. Augen 81:582-591 (Nov.) 1928.  
5 Godwin D. E. Optic Neuritis in Malta Fever. Am. J. Ophth 12:747 (Sept.) 1929.  
6 Sanders W. E. Undulant Fever Meningitis. J. Iowa State M. Soc. 21:510-511 (Sept.) 1931.



was under increased pressure, was cloudy and contained a few extracellular, gram-negative organisms. The cell count was over 300, about 36 per cent of the cells were lymphocytes. The patient was admitted to the Johns Hopkins Hospital, where a diagnosis of subacute meningitis or encephalitis was made. An organism resembling that of undulant fever was grown from the spinal fluid.

Some months later the patient was admitted to the University Hospital. The nasal margins of both disks were blurred, October 30. A large hemorrhage above the right disk extended down into the disk, numerous preretinal hemorrhages were scattered throughout. Many large hemorrhages were present in the left fundus, one, a large preretinal hemorrhage, spread off in a fan-shaped figure from the macula. Some perivascularitis was observed.

A lumbar puncture was made November 1. The spinal fluid was under increased pressure and was bloody, there were 900,000 red blood cells and 5,000 white blood cells, 90 per cent of the latter were polymorphonuclears. At the same time a blood count showed 4,500,000 red blood cells and 16,000 white blood cells.

The clinical diagnosis of undulant fever was supported by laboratory methods. The patient went into convulsions, October 26, and died November 3. Necroscopic diagnoses were (1) brucella meningo-encephalitis from *Brucella melitensis* variety suis, (2) mycotic aneurysm of the basilar artery, (3) cerebral hemorrhage, (4) internal hydrocephalus, (5) granular ependymitis, (6) chronic suppurative encephalitis and (7) hydrops of the peripheral cranial nerves.

The bacteriologic and pathologic aspects of this case have been reported by Hansmann and Schenken.<sup>7</sup> They state that they were unable to find any other case of *melitensis* meningitis of porcine origin in the literature.

CASE 3—E. C. L., aged 27, was admitted, Sept. 15, 1932. Central visual acuity was normal. The fields were contracted and only the nasal borders of the blind spots were shown by 1/1,200 on the Bjerrum screen. The patient had papilledema of 15 diopters in each eye, the retinal arteries were small. The blood and spinal fluid were negative to the Wassermann reaction. The blood count was a low normal. Roentgen examination was essentially negative. The department of neurology found a localization for tumor or its equivalent in the left frontal lobe. The patient left the hospital three days after being admitted.

The department of neural surgery of the Mayo Clinic kindly furnished notes on the case. Right papilledema was from 2 to 3 diopters and left was from 3 to 4 diopters, September 26. These had subsided by November 28. Right papilledema was 3 diopters and left 2 diopters, December 13. Both were 3 diopters, Jan. 28, 1933. Ventriculographies done Sept. 21 and Dec. 22, 1932, were negative. A parietotemporal exploration was made, Jan. 14, 1933, no pathologic changes were found. The spinal fluid was examined Oct. 5 and Dec. 1, 1932, and Jan. 9, 1933. The number of lymphocytes was 91, 242 and 61, and of polymorphonuclears 19, 8 and 144 for the respective dates. The fluid was under increased pressure at each of ten punctures. The gold curves were normal. The Wassermann reaction was negative. White blood cells numbered 8,000, Sept. 23, and 6,100, Dec. 28, 1932. Agglutination tests for undulant fever were positive. Intradermal tests and cultures made on the spinal fluid were negative.

The final diagnosis was *melitensis* meningo-encephalitis with residual hemiplegia.

#### COMMENT

*Melitensis* infection of the central nervous system occurs occasionally with or without ocular complications. This report is concerned only with those cases in which papilledema was found.

A summary of sixty-three cases of undulant fever shows that in three there were bilateral papilledema, an increase in the spinal fluid pressure, mononuclear pleocytosis and evidence on which to base a diagnosis of infection of the central nervous system by some

variety of the *melitensis* organism. Five cases were found in the literature, the disk changes observed in them can be interpreted as papilledema.

The diagnosis of undulant fever is admittedly difficult. Papilledema is occasionally found in patients in whom the symptomatology is indefinite and leading signs are absent. It is in such cases that undulant fever should be considered in the differential diagnosis.

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#### CIRCUMSCRIBED MYXEDEMA

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AND

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In 1895 Watson-Williams<sup>1</sup> described a case of exophthalmic goiter in which there was a patch of persistent hyperemia on each leg and also referred to a similar case, which had been observed by Hektoen. Morrow<sup>2</sup> observed a patient with generalized myxedema who improved under treatment with thyroid extract but later had exophthalmic goiter and symmetrical areas of solid edema of the legs. Subsequently reports of this comparatively rare condition have appeared from time to time in foreign medical literature.

O'Leary<sup>3</sup> in 1930 made the first comprehensive contribution on this subject in the American medical literature. He described eight cases in which there were plaques of localized myxedema of the skin on the legs. In seven instances the lesions developed following a recurrence of hyperthyroidism and in one case the myxedematous plaques preceded the symptoms of exophthalmic goiter. One year later Pillsbury and Stokes<sup>4</sup> reported three additional cases and gave a tabular summary of twenty-two obtained from a thorough review of the literature. Additional cases have been reported by Ingram,<sup>5</sup> Lord and Morrison<sup>6</sup> and McMenemey.<sup>7</sup> Thomas<sup>8</sup> reported an unusual case of clubbed finger with subperiosteal new bone formation in a Negro following subtotal thyroidectomy for hyperthyroidism. A brown edema of the legs similar to the condition under discussion was associated with the bone changes. At the meeting of the Cleveland Dermatological Society, June 14, 1934, an identical case was presented from the dermatologic service of Lakeside Hospital.

In view of the paucity of reports on this subject, it seems worth while to record the following six cases of circumscribed myxedema of the skin, which have been observed at the Cleveland Clinic.

#### REPORT OF CASES

CASE 1—A married woman, aged 65, admitted to the clinic, Jan. 15, 1925, complained of loss of weight, nervousness, sweat

- From the Cleveland Clinic  
 1 Watson-Williams, P. A Case of Graves Disease with Unilateral Symptoms Treated by Thyroid Feeding. *Clin. J.* 7: 93-98, 1895-1896.  
 2 Morrow, Howard. Symmetrical Areas of Solid Edema Occurring in Graves Disease. *Brit. J. Dermat.* 11: 286-288, 1899.  
 3 O'Leary, P. A. Localized Solid Edema of the Extremities in Association with Exophthalmic Goiter. *Arch. Dermat. & Syph.* 21: 57-70 (Jan.) 1930.  
 4 Pillsbury, D. M. and Stokes, J. H. Circumscribed Myxedema of the Skin. *Arch. Dermat. & Syph.* 24: 255-270 (Aug.) 1931.  
 5 Ingram, J. T. Circumscribed Myxedema Associated with Hyperthyroidism. *Brit. J. Dermat. & Syph.* 45: 19-23 (Jan.) 1933.  
 6 Lord, L. W. and Morrison, S. Circumscribed Cutaneous Myxedema Associated with Possible Endocrine Imbalance. *South. M. J.* 26: 231-237 (March) 1933.  
 7 McMenemey, W. H. Circumscribed Myxedema Associated with Graves Disease. *Brit. J. Dermat. & Syph.* 45: 350-352 (Aug. Sept.) 1933.  
 8 Thomas, H. M. Jr. Acropachy. Secondary Subperiosteal New Bone Formation. *Arch. Int. Med.* 51: 571-588 (April) 1933.

7 Hansmann, G. H. and Schenken, J. R. *Melitensis* Meningo-Encephalitis Mycotic Aneurysm Due to *Brucella Melitensis* Var. Porcine. *Am. J. Path.* 8: 435-444 (July) 1932.

ing, palpitation of the heart, weakness, and an enlargement of the neck. She had been in failing health for five years.

The patient was thin, asthenic and poorly nourished. The thyroid gland was enlarged and nodular. The patient displayed a moist skin, a faint systolic murmur at the base of the heart and a mild but persistent tachycardia. The clinical diagnosis was hyperthyroidism, and thyroidectomy was performed January 22. The pathologic report was hyperplasia of the thyroid.

She was completely relieved of her symptoms for five years and was seen next on Sept. 8, 1931, because of a recurrent nodule in the left side of the neck and vitiligo, which had recently appeared on the hands. Her basal metabolic rate was  $-18$  per cent and she presented no signs of recurrent hyperthyroidism. She was advised to take 1 grain (0.065 Gm.) of thyroid extract (Parke Davis & Co.) daily. She returned in June 1932 and stated that shortly after her last visit to the clinic she had noticed dryness of the skin and brittleness of the nails, that her hair was falling out and that she was slightly drowsy most of the time. At the time of onset of these symptoms she had noted thickening of the skin on the lower surfaces of the legs and about the ankles. She also complained of some burning and itching of the lower portions of the legs.

On the lower third of each leg on the anterior and lateral surfaces there were pink, thickened edematous plaques. The follicles of the skin showed dimpling and produced a pigskin appearance of the surfaces of the lesions. These areas did not pit on pressure. The hair was dry and the nails were brittle. There was no edema of the feet or ankles. There was a subacute erythematous scaly dermatitis around the eyes which had been produced by a cream that she had used to remove wrinkles. At this time the basal metabolic rate was  $+6$  per cent. A diagnosis of circumscribed myxedema of the skin and hypothyroidism was made. She was advised to continue with thyroid extract and to take tartaric acid, di-iodide.

Our next observation was made in November 1932. The patient had become nervous and overactive and had noticed dyspnea on exertion. She presented signs suggestive of a recurrence of hyperthyroidism. Her hair was dry and the nails were still brittle. The myxedematous plaques had enlarged and there was slight edema of the legs.

A biopsy was obtained from the right leg and showed that the histologic changes in the skin were limited to the dermis. The epidermis was normal except for some obliteration or flattening of the interpapillary pegs due to the changes in the corium. In the corium, with the exception of the papillary layer, there was marked separation of the collagenous stroma by a deposit of a mucinous substance. There were several small areas of perivascular lymphocytic infiltration throughout the corium.

Five months later the patient was even more nervous and excitable. The neck and upper portion of the chest were flushed and the skin over the body was moist. Her hands were unsteady but did not display a true hyperthyroid tremor. The patient had slight tachycardia but no exophthalmos. The nodule in the neck had enlarged considerably. The appearance of the patient was more suggestive of recurrent hyperthyroidism than it was at her previous consultation. The basal metabolic rate was  $+14$  per cent. Compound solution of iodine was prescribed, and after she had been taking the iodine preparation for two months her general health had improved and the tachycardia had disappeared. She exhibited none of the signs of hyperthyroidism. However, the plaques on the legs remained unchanged, despite the general benefit derived from iodine therapy.

**CASE 2**—An unmarried woman aged 46, admitted to the clinic, July 22, 1924, stated that in 1917 she had become very nervous, had lost weight, and had suffered from dyspnea and tachycardia. Following a thyroidectomy, she had regained her health and had remained well until September 1923 when she had noticed a swelling in the region of the thyroid gland. She had become nervous, her pulse rate had increased and she had noticed that she tired easily. On admission there was a moderate nodular enlargement of the neck in the midline and in the region of the left lobe of the thyroid. The pulse rate varied from 90 to 120 per minute, and the tachycardia was not relieved with rest in bed. A diagnosis of recurrent adenoma of the thyroid with hyperthyroidism was made. Following the removal

of the recurrent nodule of the thyroid gland there was a complete alleviation of her symptoms. The pathologic report at that time was colloid adenoma of the thyroid.

The patient returned to the clinic in August 1931, complaining of persistent thickening of the skin on the lower portions of each leg. This first had appeared in 1929 as pink, thickened plaques in the pretibial areas. These lesions gradually increased in size until the anterior and lateral surfaces were involved. There was a moderate amount of itching and burning of these plaques and also an increase in the growth of the hair on the legs. Although her ankles and feet did not swell she thought that the legs seemed larger when she was on her feet for a long time. She had taken thyroid extract since the onset of this condition but had noticed no change in the skin on the legs. Her general health was good.

Except for the cutaneous changes, the patient presented no physical abnormalities. The skin over the body was normal. The lower two thirds of each leg was almost completely encircled by a pinkish, brownish yellow edematous skin which

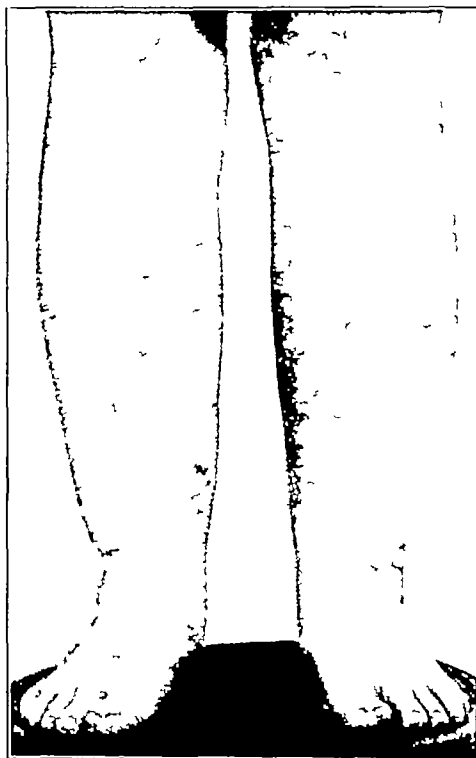


Fig. 1 (case 2).—Diffuse plaque of circumscribed myxedema.

did not pit on pressure. The myxedematous change was most marked on the anterior and lateral surfaces of the legs. The upper margins of these areas were poorly defined, while the margins just above the ankles were raised and sharply demarcated. The skin around the ankles was in folds but did not have the appearance of that on the lower portions of the legs. The skin on the feet was not edematous and was of normal texture. The dimpling at the follicles made the surface of the involved skin look like pigskin. There was an abnormal amount of coarse, black hair on both legs.

A biopsy from this area showed that the epidermis appeared practically normal except for a moderate amount of hyperkeratosis and some obliteration of the interpapillary pegs. There was edema of the papillary and subpapillary layers of the dermis. The collagenous fibers of the corium and subcutaneous tissue were fragmented, poorly stained and widely separated by a mucinous deposit. This change was less marked in the area around the pilosebaceous follicles. Throughout the corium and especially around the follicles there were small areas of perivascular lymphocytic infiltration. The small sheath of fibrous tissue surrounding the pilosebaceous follicles, which was to some degree free of the mucinous infiltration may have been

an important factor in the causation of the dimpling of the follicles in these myxedematous areas

The patient's basal metabolic rate was  $-18$  per cent. Thyroid medication, even in sufficient amounts to produce systemic symptoms, failed to bring about any change in the condition of the skin on the legs.

**CASE 3**—A man, aged 53, admitted to the clinic, Dec. 6, 1927, complained chiefly of nervousness, loss of weight, fatigue and tachycardia, which had persisted for a year. He was thin and poorly nourished. The physical examination revealed that he had an enlarged nodular thyroid gland, a fine tremor of the fingers and a pulse rate of 105 per minute. The skin was flushed and moist.

Following a thyroidectomy his symptoms disappeared. Shortly after this operation he had several attacks of transitory auricular fibrillation. He returned at various times during the next five years for observation. Several determinations of the basal metabolic rate during this time varied between  $+10$  and  $-18$  per cent.

The signs of hypothyroidism were relieved by thyroid extract.

In the spring of 1932 a red area appeared on the lower anterior surface of the left leg. Soon afterward a similar lesion developed on the right leg. These lesions were accompanied by a slight amount of itching. The original lesions had enlarged and appeared as irregular, raised, brownish-pink, edematous plaques with a surface resembling pigskin. They did not pit on pressure.

The patient was next observed in July 1932 at which time he stated that for the past five months he had noticed a return of his former symptoms of fatigue, nervousness, tachycardia, perspiration and loss of weight. The basal metabolic rate at that time was  $+10$  per cent. There was a recurrent nodule in the



Fig. 2 (case 4)—Tawny nodular plaque of localized myxedema

region of the left lobe of the thyroid gland. Dr. Crile was of the opinion that the symptoms were manifestations of an unstable, irritated sympathetic nervous system and that the recurrent hyperthyroidism was in a state of remission. A bilateral adrenal denervation was performed and the recurrent hyperplastic thyroid tissue was removed. Two months later the patient was feeling well, had gained weight and was free from his former symptoms, yet the myxedematous plaques remained unchanged. Six months later the basal metabolic rate was  $-11$  per cent. The skin was dry and there was some edema around the eyes; the patient was advised to take thyroid extract.

**CASE 4**—A man, aged 52, admitted to the clinic Jan. 23, 1929, complained of nervousness, irritability, fatigue and tachycardia. These symptoms had been present for two years and were gradually increasing in severity. In the last year the thyroid had gradually enlarged and had recently produced a choking sensation and a feeling of fullness in the neck.

Physical examination revealed a diffuse enlargement of the thyroid gland, tremor of the fingers and a mild tachycardia. The diagnosis was adenomatous goiter with mild hyperthyroid-

ism. Thyroidectomy was performed, February 12. A section of the thyroid showed diffuse hyperplasia with multiple adenomas.

In October 1931 the patient returned, complaining of drowsiness and of soreness of the muscles. He said that he became tired easily and had noticed that his memory was poor. Six months later he was still complaining that the drowsiness and listlessness were persisting, and he complained also of an eruption, which had appeared on the anterior surfaces of both legs in January 1932 as small, red, slightly itchy areas in the pretibial areas. The lesions had gradually enlarged.

On the anterior surface of the lower third of each leg there was a raised, irregular, palm-sized, brownish red, edematous plaque. The thickness of the lesions varied, giving them a slightly nodular appearance. The surface of the lesions was glossy and when the skin was stretched, dimpling of the follicles occurred. There were several small globular, translucent papules on the surface of each lesion. The involved skin was more erythematous than in other cases in this series. Pitting could not be produced by pressure. A biopsy from one of the lesions showed changes identical with those observed in cases 1 and 2.

There was no edema of the legs or around the eyes. The skin and hair were normal. The basal metabolic rate was  $-12$  per cent. The patient was instructed to take 3 grains (0.2 Gm.) of thyroid extract daily (Armour's). One year later his basal metabolic rate was  $-22$  per cent. He had received no benefit from thyroid medication. The plaques on the legs had not changed. He was advised to take  $\frac{1}{60}$  grain (0.0008 Gm.) of thyroxine daily. He was seen again June 14, 1934. The plaques had materially diminished in size, leaving a slightly pigmented atrophic scarring.

**CASE 5**—A man, aged 45, admitted to the clinic, Feb. 9, 1934, complained of nervousness, weakness, tachycardia, dyspnea, loss of weight and hyperhidrosis of a year's duration. In 1930 he had had a thyroidectomy for hyperthyroidism. He improved but failed to regain his strength. Two weeks following his operation, edematous plaques had developed on the lower portion of each leg. These were not accompanied by any subjective symptoms.

The patient was thin and weak. The skin was flushed and moist and the pulse rate was 130 per minute. Exophthalmos was present and was most marked on the right side. There was a fine digital tremor. In the region of the thyroid to the left of the trachea, underlying the operative scar, there was a firm mass about 3 by 5 cm. The basal metabolic rate was  $+55$  per cent.

On the lateral and anterior surfaces of the lower two thirds of each leg there were large, raised, brownish pink, edematous plaques. The lesions were elastic and did not pit on pressure. The surfaces of the plaques were uneven, producing a nodular appearance. In this respect the lesions were similar to those seen in case 4. Dimpling of the follicles was apparent only when the plaques were stretched. When a biopsy was taken from one of the myxedematous plaques, some difficulty was experienced in closing the incision as the skin was so friable that the stitches would not hold. A great deal of mucinous material exuded from the cut surfaces of the skin. The histologic changes were similar in every detail to those observed in cases 1 and 2, but the deposit of mucin was more marked than in any of the four cases in which we were able to obtain a biopsy.

A second thyroidectomy was performed on this patient, and he was relieved of his symptoms and gained weight rapidly. When he was last seen, June 14, 1934, the myxedematous plaque on the left leg was approximately one-half its original size.

**CASE 6**—A lawyer, aged 27, admitted to the clinic, May 12, 1934, complained of hyperhidrosis, loss of weight, tachycardia, dyspnea and nervousness of about six months' duration. He had had measles, mumps and chickenpox in early childhood. In 1926 diabetes mellitus had appeared, following an attack of influenza, and in January 1933 symptoms of hyperthyroidism were evident. At first roentgen therapy was tried but without relief of his symptoms. Following a thyroidectomy in April 1933 the patient gained weight and remained well until November 1934 when he noticed a return of his former symptoms.

Again roentgen therapy to the thyroid region failed to be beneficial, and some exophthalmos developed.

At the time of the recurrence of the hyperthyroidism in November 1934 he noticed a pink itchy spot on the lower portion of the left leg. In a few days a similar lesion appeared on the right leg. When these areas were scratched they became erythematous. These lesions gradually enlarged until the lower third of the anterior and lateral surfaces of each leg was involved. At times the itching had been troublesome.

The patient was well developed and well nourished. His skin was moist and there was hyperhidrosis of the palms. There was a definite bilateral exophthalmos. The pulse was 104 per minute and irregular. The irregularity was due to premature ventricular systoles with frequent periods of bigeminal rhythm. There was no palpable thyroid tissue. There was no evidence of peripheral edema but there had been some edema of the legs during the patient's original attack of hyperthyroidism. The basal metabolic rate was +22 per cent. The fasting blood sugar was 282 mg per hundred cubic centimeters, urea 51 mg and nonprotein nitrogen 28 mg. The blood proteins were 6.5 mg with albumin 3.2 mg and globulin 3.3 mg. The blood Wassermann and Kahn tests were negative.

On each leg in the pretibial regions there were large poorly defined, brownish yellow to pinkish, edematous nodular plaques which did not pit on pressure. The lesions had a waxy appearance, and dimpling of the follicles made them resemble pigskin. A biopsy from the plaque on the left leg showed histologic changes identical with those observed in the other cases.

#### COMMENT

Pillsbury and Stokes<sup>4</sup> divided the cases of circumscribed myxedema of the skin into two groups: (1) the nodular type with lesions involving the face, arms, back and scrotum; and (2) those with myxedematous plaques limited to the pretibial areas. The latter type is invariably associated with hyperthyroidism. These observers state that the only consistent point of similarity between the two groups is the histologic change.

The cases reported here fall into the second classification. The cutaneous lesions are symmetrical, irregular, raised, slightly erythematous or brownish yellow edematous plaques involving the skin in the pretibial areas. In most instances dimpling of the follicles gives the surface of the lesion an appearance resembling pigskin. In two of our cases small dome-shaped, translucent papules were present on the surfaces of the larger plaques. The myxedematous changes in the skin usually develop after the manifestations of initial or recurrent hyperthyroidism have become apparent, but in one of O'Leary's cases the cutaneous lesions appeared first. Lesions may develop during the active manifestations of thyroid intoxication or at varying periods after the patient has been relieved by thyroidectomy. Following thyroidectomy signs of hypothyroidism or mild generalized myxedema of a more or less transitory nature may precede or accompany the development of the myxedematous plaques on the legs. The administration of thyroid extract in most instances causes an improvement or a complete disappearance of these symptoms without producing any change in the localized lesions.

The skin and hair may be dry and the nails become brittle. However, the hands and feet are not swollen and the edema about the eyes and face and the subcutaneous edema or the cushion-like accumulation of fat in the supraclavicular regions, which develop in a marked case of generalized myxedema, do not form a part of the clinical picture of circumscribed myxedema of the skin. The patient may or may not complain of itching and burning of the involved skin. Five of our six patients complained of these symptoms.

The histologic changes are essentially limited to the corium. The collagenous fibrous tissue is fragmented

and widely separated by a mucinous deposit or degeneration. This change occurs also in the subcutaneous tissue and to a slight extent in the papillary layer. There is a small zone of fibrous tissue around the pilosebaceous follicles that is relatively uninvolved. Because of this the follicles become at least partially fixed, thereby becoming a factor in causing dimpling at their orifices. There is a moderate amount of lymphocytic perivascular infiltration throughout the corium, being especially marked around the pilosebaceous follicles. Several authors have commented on the occurrence of large numbers of stellate cells in the corium. Pillsbury and Stokes speak of them as immature connective tissue cells.

The etiology and mechanism of production of circumscribed myxedema of the skin is unknown. O'Leary, Ingram and others have mentioned the passive edema



Fig. 3 (case 5)—Section showing marked deposition of mucin with fragmentation of fibrinous collagenous tissue. Involvement of the fibrinous tissue immediately adjacent to the follicle is lacking.

of the extremities that occurs in cases of hyperthyroidism with auricular fibrillation and cardiac embarrassment as a probable etiologic factor. A disturbed function of other glands of the endocrine system is frequently observed in cases with thyroid dysfunction and has been observed in reported cases of circumscribed myxedema but conclusions cannot be drawn from these observations. Many cases of hyperthyroidism present edema of the legs as well as evidence of secondary endocrine dysfunction, but in few of them does localized myxedema develop.

In an attempt to explain the constant involvement of the lower legs in the plaque type of circumscribed myxedema, Pillsbury and Stokes have suggested that the circulatory stasis of the legs commonly observed in hyperthyroidism has in some way changed the usually reversible condition of myxedema into an irreversible process. They therefore argue that, in such instances, the administration of thyroid extract aggra-

vates the circulatory embarrassment, which originally was a factor in the production of the lesions. Our greatest barrier to a solution of this problem is our meager knowledge of the physiologic chemistry of normal and myxedematous skin.

In a discussion of the case reported by Lord and Morrison, Stryker suggested that trauma might be a factor in determining the location of the lesions in the pretibial regions. Although the legs are frequently subjected to trauma, there is nothing in the reports that we have seen or in the cases we have observed to support this opinion.

Circumscribed myxedema of the plaque type must be differentiated from lymphedema and scleroderma. There is considerable similarity in the clinical appearance of these three conditions. The history and the progress of each case is of importance, yet it may be necessary to obtain a biopsy before a correct diagnosis can be made. In scleroderma and lymphedema there is more proliferation of the connective tissue and more inflammatory reaction in the corium. In the latter condition the dilated lymph spaces can be made out. The marked mucinous infiltration that occurs in myxedema is an important finding in the differential diagnosis. Mucin has been observed in sections of scleroderma, but in very small amounts. It is possible that leprosy might roughly simulate this type of myxedema, but careful bacteriologic and histologic investigations should serve to establish the diagnosis.

Our present treatment of circumscribed myxedema of the plaque type is unsatisfactory. Thyroid extract, iodine and products of other endocrine glands have not been beneficial. In some cases the condition has cleared up spontaneously. In the first case reported by Pillsbury and Stokes the administration of iodine aggravated the symptoms of hypothyroidism, while a moderately excessive dose of thyroid extract produced toxic symptoms. A somewhat similar response to iodine has been reported by Haines.<sup>9</sup> He described an instance of hyperthyroidism in which hypothyroidism developed following a partial thyroidectomy. Thyroid extract was administered but produced a recurrent hyperthyroidism, which could be controlled by iodine. Iodine alone produced myxedema, while thyroid extract caused a return of the symptoms of hyperthyroidism, however, when iodine and thyroid extract were administered together the patient improved. Haines concluded that in this instance there was not a hypersecretion but an altered secretion of the thyroid hormone. The agent that is probably responsible for the production of hyperthyroidism was being secreted without an excess of normal secretion, which usually occurs in this disease. A similar response to treatment of the general symptoms was obtained in the first case in this series.

#### SUMMARY

The six cases that form the basis of this report are examples of circumscribed myxedema of the plaque type. In all instances the myxedematous plaques developed after the initial attack of hyperthyroidism. In the third, fifth and six cases the lesions appeared simultaneously with recurrent hyperthyroidism, while in the first case the lesions were accompanied by symptoms of transitory hypothyroidism prior to the development of recurrent hyperthyroidism. In the second case the plaques developed six years after a second thyroidec-

tomy, while in the fourth case the plaques of myxedema were associated with definite signs of hypothyroidism, which appeared two years following thyroidectomy. In four cases in which we have been able to make observations for several months, the plaques have remained unchanged in two instances, and in the other two the lesions have gradually become smaller.

Transitory auricular fibrillation developed following thyroidectomy in the third case. The marked edema of the legs such as is frequently observed in hyperthyroidism was not present in any of these cases.

The lesions of circumscribed myxedema of the skin associated with hyperthyroidism may appear as nodules or large plaques. They invariably involve the skin in the pretibial regions. Case 2 is an example of the distribution in large plaques. The lesions in the remaining five cases in this series presented the more common nodules or smaller plaques.

In all probability, circumscribed myxedema of the skin associated with hyperthyroidism is not as uncommon as the reports in the literature would indicate. Since this condition gives very little discomfort, the patient and the physician give very little consideration to these cutaneous lesions. This is especially true if the physician is not particularly interested in dermatology.

Euclid Avenue at Ninety-Third Street

## Clinical Notes, Suggestions and New Instruments

### GAILLARDIA DERMATITIS

A HITHERTO UNREPORTED PLANT CAUSE OF DERMATITIS VENEVATA  
ADOLPH ROSTENBERG JR. M.D. AND CHARLES KENNEDY GOOD M.D.  
NEW YORK

*Gaillardia* is a member (tribe) of the family Compositae. There are at least twenty-eight species occurring in this country; the majority of these occur naturally but many are under cultivation as well. The territorial range in the United States is from the Atlantic to the Pacific and from Canada to Mexico. The members of this tribe flower anywhere from March until the late fall, dependent mainly on the climate of the particular locality. Those growing in this region bloom from June until the first frost.<sup>1</sup> Because of the ubiquity of this plant, because we cannot find any reference in the literature to sensitizations produced by it and because we believe it to be a not uncommon irritant we deem it worth while to draw the attention of the medical profession to this plant as a possible cause of certain cases of dermatitis venenata.<sup>2</sup>

#### REPORT OF CASES

CASE 1<sup>3</sup>—S. B., a white man, aged 32, a florist, first developed a scaling eczema of the hands in May 1929. This became worse during the summer and gradually cleared up after the frost. In 1930, 1931 and 1932 he suffered from a repetition of the same process. He stated, however, that at one time during the height of the eruption when it was so bad that it necessitated the discontinuance of his work, the eruption temporarily cleared up only to relapse on the resumption of his occupation.

From the Dermatologic Service of the New York Post Graduate Medical School and Hospital of Columbia University. Dr. George Miller MacKee, director, service of Dr. Fred Wise.

1 Personal communication to the authors from Dr. E. D. Merrill, director of the New York Botanical Garden.

2 Touton in his exhaustive review on plant dermatitides does not mention *gaillardia* although the plant is cultivated extensively in Germany. Jadassohn, J., *Handbuch der Haut und Geschlechtskrankheiten*, Berlin: Julius Springer, 4 part 1, p. 487, 1932. Weber in his review of cutaneous irritants does not mention it (*Arch. Dermat. & Syph.* 21: 761 [May 1930]). In a circular put out by the Lederle Laboratories, Inc., a case of dermatitis from *gaillardia* is mentioned but this case has not been reported and is included in this report (case 1).

3 A case of Dr. K. L. Druct of Salina, Kan., through whose courtesy we are reporting it.

<sup>9</sup> Haines, S. F. Exophthalmic Goiter and Myxedema. Report of a Case. *Endocrinology* 12: 55-58 (Jan-Feb) 1928.

In 1932 he was seen for the first time by Dr Druet, who applied patch tests with various plants and found him to give a four plus reaction to gaillardia. An oil extract of the plant was made by Dr A F Coca to which the patient was found to be strongly hypersensitive by patch test. He was given six injections of 0.5 cc each of the oil extract intramuscularly with a complete subsidence of symptoms and during 1933 and 1934 he has been able to handle gaillardia without gloves and without symptoms.

CASE 2—R C, a white housewife, aged 38 seen July 10 1934 had moderate swelling and edema of both eyelids. Similar lesions were present over the anterior surfaces of both arms and of both legs. The patient had had a similar eruption for the past three years. It would appear in the spring and gradually disappear in the fall. She definitely stated that country air made her worse that is, she was better when she stayed in the city (she lived in a Long Island suburb) and that when she went for a drive in the country her eyes would begin to smart and to itch. She stated that she did not use any hair lotions or other applications to the head or the face except ordinary soaps and cosmetics. Therefore, because of the localization, because of the seasonal incidence and because of the lack of other probable causes, patch tests were done with twenty-four plants, which she brought in to us. She gave a weakly positive reaction to several of these (unidentified weeds) but she gave a four plus reaction to gaillardia leaf. This reaction consisted of marked vesiculation on an erythematous base and this site remained inflamed for at least twelve days, whereas the other locations could not be recognized after from forty-eight to seventy-two hours. When informed of the result of the patch tests she volunteered the information that three years before, when the eruption began, gaillardia had been planted and that this year the eruption had started after she had picked gaillardia. The tests with gaillardia were repeated several times with the same results. She also gave a four plus reaction to the gaillardia allergenic oil (Lederle). Scratch tests with macerated parts of the gaillardia plant were dubiously positive. Passive transfer experiments according to the method of Prausnitz and Küstner were done with negative results. It was decided to attempt desensitization<sup>4</sup> and accordingly she was given two doses of 0.5 cc each of the gaillardia allergenic oil (Lederle) intramuscularly at an interval of two days. Her skin condition improved and she could go about in her garden without experiencing any untoward symptoms.

CASE 3—This case is reported in less detail as the diagnosis is not clear cut and as the chief interest of the case is the patient's reaction to various plants on the application of these as patch tests. A white man, aged 54, a native of Shrewsbury, Mass., developed itching, burning and swelling of the eyelids in 1930 as well as scaling, itching lichenified lesions on each side of the neck. These lesions had persisted intermittently to date. On the application of various substances as patch tests he gave a four plus reaction to ragweed oil, pyrethrum, gaillardia oil and doubtfully positive reactions to chrysanthemum and dandelion leaves.

#### COMMENT

While gaillardia has an important significance as the etiologic agent in certain cases of dermatitis venenata, we believe that it possibly has a wider role than would at first sight seem apparent. As stated, gaillardia belongs to the large botanic family named Compositae, to which chrysanthemum (from which pyrethrum is obtained), ragweed, Helianthus (sneezeweed), Taraxacum (dandelions), Tanacetum (tansy), Parthenium (Mexican bird seed weed), burweed, marsh elder (*Iva xanthifolia*) and many others belong. Those named have been selected, as they occur plentifully in this country and well substantiated cases of dermatitis venenata have resulted from contact with each of them.<sup>5</sup> The chemical nature of the irritant in certain ones of these is unknown but it is known to be an oil in the cases of ragweed<sup>6</sup> and the

Helianthus<sup>7</sup> and believed to be in the case of chrysanthemum.<sup>8</sup> From the nature of the extract of gaillardia and Tanacetum, it would also appear likely that the specific irritant is an oil. Recently Feinberg<sup>9</sup> has stressed the relationship between ragweed and pyrethrum allergy particularly in respect to the protein fractions, and Brunsting and Anderson<sup>10</sup> have discussed the problem in regard to the dermatitis inducing fraction. We believe it is possible that there is an identical oleoresinous irritant or that there are common oleoresinous irritants in the members of this plant family and that there is a positive correlation between the similarity of the chemical formula of the irritant and the closeness of the botanic kinship and also between the presence of identical chemical compounds and botanic relatedness. In other words, if all the members of the Compositae were arranged in a linear series, the mathematical chances of an individual who is sensitive to one member being sensitive to any other members would vary directly with the respective proximities of these in the series to the original plant to which he was found to be sensitive also the total number of sensitivities that any individual may present on testing with the various members of the Compositae will vary (other factors being equal, i.e., the total number of different tests in particular) with the closeness of the botanic relationships of the plants used as the test substances. There also seems to be evidence for a similar phenomenon within other botanic groups, as Rhus and Primula. This hypothesis, if substantiated, would be of extreme practical importance, as in a sufferer from any given plant dermatitis it would be necessary to be acquainted with the botanic relations of that plant and warn the individual against these. We have had the opportunity to test this hypothesis in only one of our cases and here it seemed to be true (case 3). Much work remains to be done in this field particularly along the lines of isolating the irritant principles of various plants and establishing their chemical identity. On the clinical side, patch tests must be done with the botanic kin of various plants in order to determine whether or not there is a common cutaneous hypersensitivity to the members of any one botanic family, as we believe.

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#### A SUCTION CURET APPARATUS FOR ENDOMETRIAL BIOPSY

EMIL NOVAK, M.D., BALTIMORE

Endometrial biopsy is now widely employed to secure portions of the uterine mucosa for microscopic study without subjecting the patient to anesthesia. For this purpose various instruments have been devised, based on the employment of suction, or suction combined with curettage (Klinger and Burch, Rock). When an anesthetic is necessary, there would be no point to selecting this procedure in preference to the customary dilation and curettage. The latter operation is also to be preferred when very thorough curettage is indicated, as when early adenocarcinoma is suspected. In other cases it is necessary only to secure smaller amounts of endometrium, as in the differentiation of the physiologic responses of the mucosa to one type or another of hormone stimulation. In this respect the endometrium is the registering board of ovarian endocrine activity, and its microscopic study often yields much more useful information than blood or urine hormone studies.

The endometrial suction-curet apparatus herein pictured was devised primarily for the so-called ovulation test, i.e., to determine whether or not a patient is ovulating. Its chief application is in cases of sterility in which no other cause can be determined when for example, the husband is normal, the woman is menstruating more or less regularly, her tubes have been shown to be patent, and no metabolic, constitutional or endocrine abnormality seems to be present. In at least some of these the sterility is due to the fact that ovulation is not

<sup>4</sup> Sulzberger M. B. and Wise, Fred. Ragweed Dermatitis with Sensitization and Desensitization Phenomena. J. A. M. A. 94: 93-95 (Jan. 11) 1930.

<sup>5</sup> A complete bibliography is given by Touton. Greenhouse C. A. and Sulzberger M. B. The Common Weed Tansy (Tanacetum Vulgare) as a Cause of Eczematous Dermatitis. J. Allergy 4: 523 (Sept.) 1933.

<sup>6</sup> Brown, Aaron, Milford E. L. and Coca A. F. Studies in Contact Dermatitis. I. The Nature and Etiology of Pollen Dermatitis. J. Allergy 2: 301-309 (July) 1931.

<sup>7</sup> Balyeat, R. M., Rinkel H. J. and Stemen T. R. Contact Dermatitis (Venenata). Distribution and Importance of the Helianthus 184: 547 (Oct.) 1932.

<sup>8</sup> Touton J. Pyrethrum Sensitization J. A. M. A. 102: 1557 (May 12) 1934.

<sup>10</sup> Brunsting, L. A. and Anderson C. R. Ragweed Dermatitis J. A. M. A. 103: 1285 (Oct. 27) 1934.

occurring, for the occasional occurrence of nonovulatory menstruation has been abundantly demonstrated (Tietze, Anspach and Hoffman, Novak, and others)

To determine this point, it is necessary only to secure a small amount of endometrium just before an expected period. If the woman has ovulated, a corpus luteum has been formed, progesterin has been produced, and the endometrium is seen to show the typical secretory changes that only progesterin can evoke. If these changes are absent, i. e. if the endometrium shows only one type or other of proliferative but nonsecretory

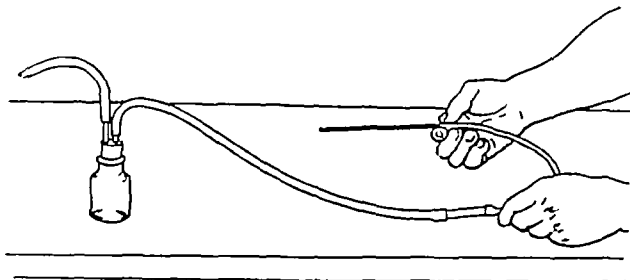


Fig 1—Diagram of cannula and its connection with the bottle that receives the aspirated curettings. The tube at the left is connected with the motor suction pump. The tubing must be rigid as a flaccid tube would be collapsed by the strong negative pressure. As particles of tissue may adhere to the walls of the tubing the latter should be washed by sucking a formaldehyde solution, cold water or citrate solution through the open end of the cannula into the bottle after the operation. The cannulas either straight or curved may be obtained from the Murray Baumgartner Surgical Instrument Company, Baltimore. The curved type is the better for general use.

reaction, it may be safely concluded that ovulation has not occurred.

There is, of course, no claim as to originality in the principle of this apparatus, for the suction idea has been long employed by many gynecologists. I believe, however, that the electric motor suction which I employ is much more likely to yield satisfactory tissue than is suction by syringes. Indeed it is usually possible to curet a uterus very thoroughly by this method, without anesthesia and without noteworthy discomfort to the patient. When the technic fails to yield much tissue, a checkup with curettage under gas anesthesia has given the same result. As the particles of aspirated mucosa may at times adhere to the inner wall of the tubing, it is important to rinse the latter by sucking cold water or a citrate solution through the apparatus at the conclusion of the curettage. Either of these liquids seems preferable to a formaldehyde solution as the latter appears to shrink the particles and cause them to stick more closely to the tubing. The latter should be of a very rigid type, so that it will not collapse when the negative pressure is applied.

The cannula used is about the size of that employed in the Rubin tubal insufflation test. Either a straight or a curved tube can be employed, but the latter is the more generally useful.

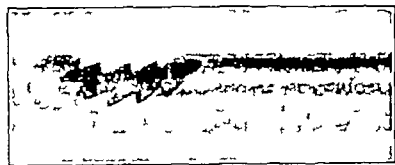


Fig 2—Detail of the serrated fenestrum of the cannula. At the proximal end of the latter is a flattened disk to indicate the direction of the serrated edge.

The upper and lateral margins of the oval fenestrum near the tip are sharply serrated. The small diameter of the cannula permits of its introduction into the cervical canal, without dilation of the latter in the great majority of women, so that the method can be used as an office procedure. It is scarcely necessary, however, to stress the importance of careful aseptic technic. The suction is made by the ordinary electric suction machine found in all operating rooms, the curettings being drawn into a bottle as shown in figure 1. The only publication in which the electric suction technic is recommended for endometrial biopsy is so far as I know, the recent one of Bela Lorincz<sup>1</sup> of Hungary (1934). In

this the entire dependence is on aspiration, the cannula not being designed for simultaneous curettage.

Other uses for this technic will suggest themselves. For example, it is often easy to obtain abundant tissue for confirmation of the diagnosis in cases of adenocarcinoma of the uterus, or of hyperplasia of the endometrium. The method should be of value also in the study of the endometrium in cases of endocrinopathic amenorrhea, for comparatively little is known as yet as to the histologic pictures which may occur and which may aid in interpreting the causative endocrinopathies.

Finally, by the use of this simple technic, it may be possible to obtain fertilized ova in very early stages, even before implantation. By instructing patients as to the performance of coitus on selected dates in relation to the usual ovulation phase, and carrying out suction-curettage at appropriate times thereafter, there is little doubt that some one will sooner or later secure fertilized eggs at much earlier stages than the nine to eleven day old Miller ovum. Such studies presuppose a correlation between the gynecologist and the embryologist, but the method promises a great deal in this direction, in the opinion of Dr. George L. Streeter, the director of the Carnegie Institute of Embryology, whose valuable cooperation I have had. In the development of this useful little apparatus I have been much indebted for helpful suggestions to Drs. A. H. Crowther and R. H. Allison, the former and present residents at Bon Secours Hospital.

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## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE PHYSIOLOGY OF ESTROGENIC PRINCIPLES

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NEW HAVEN, CONN.

NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—Ed.

The term "estrus," as used by Heape, designated the restricted period of mating activity of female mammals.<sup>1</sup> The outstanding criterion of estrus was the female's intense sex urge or drive. Since sexual activity in women and other female primates is not restricted to such brief intense periods, the term has not been used in connection with the menstrual cycle.

Recent experimental work with ovarian hormones has emphasized another aspect of estrus, namely, the rapid growth of the accessory genital organs, which ushers in the estrous period proper. This growth was first induced experimentally by the ovarian follicular hormone. This hormone is therefore primarily a growth hormone, its action affecting especially the female genital tract and mammary glands. The wall of the vagina of rodents, because of its structure and

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The writer wishes to acknowledge the assistance of Dr. William U. Gardner, Dr. Warren O. Nelson, Dr. Jack M. Curtis, Mr. A. W. Diddle, and Mr. T. H. Burford in the preparation of this paper. It is intended to stress some of the more important well established reactions to estrogenic substances rather than to go extensively into detail. For the reader interested in greater detail and extensive citations to the literature, several reviews are cited under reference 3.

<sup>1</sup> Marshall F. H. A. The Physiology of Reproduction. London 1922.

<sup>1</sup> Lorincz, Bela. Die Anwendung des Elektroaspirators in der Frauenheilkunde. München. med. Wchnschr. 81: 215-217 (Feb. 9) 1934.



location, is the best indicator of this experimentally induced growth.<sup>2</sup> Recent reviews may be found in the literature.<sup>3</sup>

With this indicator as a quantitative biologic unit, exploration of possible sources of active material has revealed a wide occurrence not only in various reproductive tissues of animals but also in plants and even in minerals.<sup>4</sup> The collective terms "estrogenic principles or substances," including anything that will induce growth in vaginal epithelium have been adopted. At first these terms were limited to the reaction in ovariectomized animals, and the injected substances were required to replace ovarian endocrine function in this respect. Later they were extended to include pubertal effects in normal immature animals such as those produced by the anterior pituitary gonad stimulating hormone, for the vaginal reaction is similar although the ovaries are apparently necessary intermediaries for anterior pituitary effects. Also when theelin was differentiated from theelin, greater potency was described for it in immature normal animals than in ovariectomized adults.<sup>5</sup> Similarly substances that activate otherwise resting ovaries in animals out of breeding season have also been included.<sup>6</sup> A distinction should be clearly drawn, however, in the use of the term "estrogenic" between substitution effects for ovaries and for anterior pituitary.

Clinical interest in the subject has been intensified by reports that certain substances which produce carcinoma and are somewhat similar chemically to estrogenic hormones may also produce estrous changes.<sup>7</sup> Since both reactions are fundamentally growth phenomena involving epithelial tissues primarily, the logic of the possibilities involved suggests further experimental exploration. The interest of investigators of nutrition has been aroused by reports that large doses of one of the vitamins may have an estrogenic action<sup>8</sup> and that certain forms of inanition, such as diet low in specific proteins, may prevent estrous growth as effectively as does ovariectomy.<sup>9</sup>

In evaluating these reports, emphasis should be placed on the change of meaning the terms "estrus" and "estrogenic principles" now refer more to growth of genital tissues than to sexual receptivity of female mammals. The terms still have little logical application to the menstrual cycle. Further reference is made to this aspect of the question in another section of this series, "Menstruation."

There are other very important aspects of estrus, definite reactions of organs, which should be included

under a broad definition of estrogenic activity and which have not been tested thoroughly in connection with reports of estrogenic properties for some of these substances. These reactions can best be described as induced in ovariectomized animals by injections of the estrogenic hormone theelin.

Certain secondary sex characters in the female depend definitely on the presence of estrogenic substance. Among these may be listed plumage changes in certain birds,<sup>10</sup> the extensive sexual swellings of the chimpanzee and baboon,<sup>11</sup> and the reddening and swelling of the "sexual skin" of some of the monkeys.<sup>12</sup> The feather reactions write a time record of the hormone concentration of the blood during feather growth, these serve as indicators of very small amounts of hormone, represented by color changes in restricted band of individual feathers.<sup>10</sup> The variation of hormone thresholds for various effects has been established.<sup>13</sup> The "sexual skin" changes are due to definite local vascular reactions and transformation of adjacent connective tissue.<sup>14</sup> These reactions have been produced experimentally by replacement of ovarian endocrine function by injections of theelin.<sup>12</sup>

The vaginal growth reaction which has already been described as the most practicable unit for biologic standardization of estrogenic substances, is truly remarkable.<sup>15</sup> In three days or less in either rats or mice a new vaginal epithelium is grown under the action of this hormone. This may mean the growth and differentiation of from twelve to twenty layers of stratified epithelial cells. The extent of this growth can be accurately followed by identification of the types of cells present in smears of vaginal contents. The disappearance of leukocytes that occur in the control smears of the ovariectomized animal and the appearance of cornified epithelial cells establish the completion of the growth phase.

The uterine reaction that parallels the vaginal growth in these rodents is equally striking.<sup>16</sup> Large numbers of mitotic figures are present in the endometrium. Secretion of a serous fluid which is retained in the uterus distends it extremely and renders it translucent.<sup>16a</sup> In addition, both amplitude and rate of uterine contractions are controlled in part by this hormone.<sup>16a</sup> Estrogenic material will not, however, produce the pseudopregnant or progestational characteristics of the uterus. By injections of large doses over long intervals of time, it has been possible to induce certain types of abnormal endometrium.<sup>17</sup>

2 Allen Edgar and Doisy E. A. An Ovarian Hormone A Preliminary Report J. A. M. A. 81: 819 (Sept. 8) 1923

3 (a) Allen Edgar Sex and Internal Secretions Baltimore Williams & Wilkins Company 1932 (b) Estrogenic Substances Theelin Reports of Council on Pharmacy and Chemistry J. A. M. A. 100: 1331 (April 29) 1933 (c) Parkes A. S. Coordination of the Reproductive Processes Lancet 2: 557 (March 17) 1934

(d) Frank R. T. The Role of the Female Sex Hormone J. A. M. A. 97: 1852 (Dec. 19) 1931 (e) Moore C. R. Hormones in Relation to Reproduction Am. J. Obst. & Gynec. 29: 1 (Jan.) 1935

4 Doisy E. A. Biochemistry of the Follicular Hormone Theelin Chapter 1 Sex and Internal Secretions, edited by Allen

5 Curtius J. M. Comparison of Theelin and Theelol with Extracts of Liquor Folliculi J. Biol. Chem. 97: 149 (July) 1932

6 (a) Asdell S. A. and Marshall F. H. A. On the Effect of the Ovarian Hormone in Producing Pro-Oestrous Development in the Dog and Rabbit Proc. Roy. Soc. B. 101: 185 1927 (b) Kunde M. M. D'Amour F. E. Carlson A. J. and Gustavson R. G. Studies on Metabolism VIII. The Effect of Estrin Injections on the Basal Metabolism Uterine Endometrium Lactation Mating and Maternal Instincts in the Adult Dog Am. J. Physiol. 95: 630 (Dec.) 1930

7 Cook J. W. Dodds E. C. and Hewett C. L. Synthetic Estrous-Exciting Compound Nature 131: 56 (Jan. 14) 1933

8 Dodds E. C. Hormones and Their Chemical Relations Goulstonian Lectures Lancet 1: 931 (May 5) 987 (May 12) 1048 (May 19) 1934

9 Guilbert H. R. and Goss H. Some Effects of Restricted Protein Intake on the Estrous Cycle and Gestation in the Rat J. Nutrition 5: 251 (May) 1932

10 (a) Juhn Mary and Gustavson R. G. Effect of the Female Hormone Upon the Sex Type of the Feathers of Brown Leghorns Anat. Rec. 44: 204 1929 (b) Domm L. V. Juhn Mary and Gustavson R. G. Plumage Tests in Birds Chapt. VIII in Allen

11 Zuckerman S. and Parkes A. S. The Oestrous Cycle of the Hamadryas Baboon J. Physiol. 69: xxxi (June 27) 1930

12 Allen Edgar The Menstrual Cycle of the Monkey Macacus rhesus Observations on Normal Animals the Effects of Removal of the Ovaries and the Effects of Injections of Ovarian and Placental Extracts into the Spayed Animals Contrib. Embryol. (No. 98) Carnegie Inst. Washington 19: 1 1927

13 Little F. R. Growth Rate and Hormone Threshold with Reference to Physiology of Development Am. Naturalist 64: 179 1932

14 Collings M. R. A Study of the Cutaneous Reddening and Swelling About the Genitalia of the Monkey Macacus Rhesus Anat. Rec. 33: 271 1926

15 (a) Allen Edgar, and Doisy E. A. The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicular Hormone Am. J. Physiol. 69: 577 (Aug.) 1924 (b) Allen and Doisy (c) Allen

16 Allen and Doisy (footnotes 15a and 2)

16a Brouha L. and Simonnet H. Recherches experimentales sur la regulation hormonale de la contractilite uterine Arch. internat. de physiol. 29: 94 1927 Reynolds S. R. M. Role of the Ovary in Regulating the Motility of the Uterine Fistula Am. J. Physiol. 97: 554 (June) 1931

17 Burch J. C. Williams W. L., and Cunningham R. S. The Etiology of Endometrial Hyperplasia Surg. Gynec. & Obst. 53: 338 (Sept.) 1931

By ocular implants in rabbits it has been shown that follicular hormone has a vasodilator effect on the capillaries of the endometrium.<sup>18</sup> In the ovariectomized animal, vasoconstriction accompanies castrate atrophy. Injections of theelin are followed by vasodilatation. This phase of the subject will be discussed further in the section on menstruation.

There is some evidence that secretion of certain cells in the epithelium of the uterine tubes is dependent on ovarian hormone action,<sup>19</sup> that the contraction of the tubal musculature is regulated in part by it,<sup>20</sup> and that development of ciliated cells depends on this hormone.<sup>21</sup>

Estrogenic substances have no stimulating effects on the ovaries. Long continued injections of large amounts may even retard the development of ovaries of immature animals.<sup>22</sup> This is in accord with the general principle that hormones do not stimulate the specific glands which secrete them.

The growth of the mammary glands is primarily dependent on the estrogenic hormones.<sup>23</sup> The primary ducts of the rudimentary mammary glands of males have been found to respond to both theelin and theelol.<sup>24</sup> At the present time the guinea-pig is the only species extensively investigated in which a complete growth of the mammary glands (both ducts and alveoli) may be induced by theelin. The simultaneous action of theelin and progesterin has been found necessary to produce complete mammary growth in other mammals so far studied.<sup>25</sup> Theelin also repairs the mammary glands of the ovariectomized monkey following castrate atrophy,<sup>12</sup> and induces some mammary growth in ovariectomized immature monkeys<sup>26</sup> and in male monkeys.<sup>27</sup>

In addition to acting as a stimulant of the mammary parenchyma theelin induces growth in the epithelium covering the nipple.<sup>12</sup> The nipple growth of male guinea pigs has long been used as an index of successful ovarian grafts.<sup>28</sup> Theelin has been observed to produce a marked nipple growth in male guinea-pigs.<sup>29</sup> Though theelin may also have a definite reaction on the connective tissue stroma of the mammary glands, these effects have not been adequately studied.

Lacassagne has observed mammary cancer in male mice after their mammary glands had been developed

by treatment with estrogenic substance.<sup>30</sup> A development of small localized lobules of alveoli in addition to the ducts has been observed in the mammary glands of male mice of an inbred strain following injections of theelin over a long period.<sup>31</sup> The latter investigation indicates that localized areas of the experimentally grown mammary ducts may be more sensitive to stimulation with theelin.

The reactions of the uterus and mammary glands so far described are those of the first half of the estrous cycle and the postmenstrual phase of the menstrual cycle. As one of the important actions of estrogenic substance, it should be emphasized that these reactions are necessary before action of the corpus luteum hormones progesterin and relaxin is possible.<sup>32</sup> Mention should be made of the fact the large doses of estrogenic substance may override the effects of progesterin<sup>33</sup> and that progesterin can inhibit the effects of estrogenic substance.<sup>34</sup>

In further comment on the growth reaction of genital tissues to estrogenic substances, it should be noted that these tissues in different animals have greatly different growth rates. For instance, it takes much longer to obtain growth in the vaginal epithelium in the monkey than it does in the rat or mouse.

The sexual drive of mating instincts is at least partly dependent on ovarian follicular hormone.<sup>35</sup> There is considerable experimental evidence to show that this substance is a major factor in determining this aspect of estrus.<sup>36</sup> In addition to the drive of sex urge, there seems to be related to it in some animals a period of increased spontaneous activity.<sup>37</sup> In the female rat this has been measured by voluntary running in a rotary cage. The ovariectomized animal has no such periods of spontaneous activity. These periods can be induced again by ovarian transplants<sup>38</sup> and have recently been demonstrated following injections of estrogenic hormone.<sup>39</sup> Nervous tissues may react to different levels of estrogenic substance. A change in certain reflex actions during periods of rise in hormone level has been reported.<sup>40</sup> When measurable changes can be demonstrated in reflex actions, one is prepared for

18 Markee J E Rhythmic Vascular Uterine Changes Am J Physiol **100** 32 (March) 1932

19 Courrier R Le determinisme de la secretion tubaire Compt rend Soc de biol **93** 672 1925

20 Seckinger D L The Effects of Ovarian Extracts upon the Spontaneous Contractions of the Fallopian Tube of the Domestic Pig with Special Reference to the Oestrous Cycle Am J Physiol **70** 538 1924

21 Allen Edgar Reactions of Immature Monkeys (Macacus Rhesus) to Injections of Ovarian Hormone J Morphol **46** 479 1928

22 Leonard S L Meyer R K and Hisaw F L The Effect of Oestrin on Development of the Ovary in Immature Female Rats Endocrinology **15** 17 1931

23 Turner C W The Mammary Glands Chapter VII Sex and Internal Secretions edited by Allen<sup>1</sup>

24 Turner C W Frank A H Gardner W U Schultz A B and Gomez E T The Effect of Theelin and Theelol on the Growth of the Mammary Gland Anat Rec **63** 227 1932

25 Turner C W and Frank A H The Relation Between the Estrous Producing Hormone and a Corpus Luteum Extract in the Growth of the Mammary Glands Science **72**: 295 1931 Mo Agr Exper Sta Res Bul 174 Turner C W and Schultz A B A Study of the Causes of the Normal Development of the Mammary Glands in the Albino Rat Mo Agr Exper Sta Res Bul 157 1931 Turner C W and Gomez E T The Experimental Development of the Mammary Glands I The Male and Female Albino Mouse Mo Agr Exper Sta Res Bul 206 1934 Turner C W and Gomez E T The Normal and Experimental Development of the Mammary Gland I The Male and Female Domestic Cat Mo Agr Exper Sta Res Bul 207 1934

26 Allen Edgar Reactions of Immature Monkeys (Macacus Rhesus) to Injections of Ovarian Hormones J Morphol **46** 479 1928

27 Turner C W and Allen Edgar The Normal and Experimental Development of the Mammary Gland of the Monkey Anat Rec **65** 80 1933

28 Steinach E Feminisierung von Mannchen und Maskulierung von Weibchen Zentralbl f Physiol **27** 717 1913

29 Smelser G K The Response of the Guinea Pig Mammary Glands to Injected Sex Hormones and Ovarian Grafts and Its Bearing on the Problem of Sex Hormone Antagonism Physiol Zool **6** 396 1933

Turner C W and Gomez E T The Experimental Development of the Mammary Gland II The Male and Female Guinea Pig Missouri Agr Exper Sta Res Bul 206 1934

30 Lacassagne A Apparation de cancers de la mamelle chez la souris males soumis a des injections de folliculine Compt rend Acad sc **195**: 630 1932

31 Gardner W U Diddle A W Allen Edgar and Strong L C The Effect of Theelin on the Mammary Rudiments of Male Mice Differing in Susceptibility to Tumor Development Anat Rec **60**: 457, 1934

32 Hisaw F L Physiology of the Corpus Luteum, Chapt. VI Sex and Internal Secretions, edited by Allen<sup>1</sup> Corner G W The Corpus Luteum Chapt. LXXXI Obstetrics and Gynecology edited by A H Curtis Philadelphia W B Saunders Company 1933

33 Hisaw F L and Leonard S L Relation of the Follicular and Corpus Luteum Hormones in the Production of Progestational Proliferation of the Rabbit's Uterus Am J Physiol **92**: 574 1930

34 Parkes A S and Bellerby C W Studies on the Internal Secretions of the Ovary III The Effects of Injection of Oestrin During Lactation J Physiol **62** 301 1927 Parkes A S Functions of the Corpus Luteum. I The Mechanism of Oestrus Inhibition Proc Roy Soc B, **104** 171 1929 II The Experimental Production of Placental tomatia in the Mouse ibid 1929 p 193 Allen Willard M and Meyer Roland K Physiology of the Corpus Luteum IX The Inhibition of Oestrin by Progesterin Containing Extracts of the Corpus Luteum Anat Rec **64**: 427 1935

35 Allen Edgar Doisy E A Francis B F Gibson H V Robertson L L Colegate C E Kountz W B and Johnston C G The Hormone of the Ovarian Follicle Its Localization and Action in Test Animals and Additional Points Bearing upon the Internal Secretion of the Ovary Am J Anat **34**: 133 1924 Footnote 3a

36 Nissen H W The Effects of Gonadectomy Vasotomy and Injections of Placental and Ovarian Extracts on the Sex Behavior of the White Rat, Comp Psychol Monog **6**: 541 1929 Warner L H A Study of Sex Behavior in the White Rat by Means of the Obstruction Method, Comp Psychol Monog **4** 68 1927

37 Wang G H The Relation Between Spontaneous Activity and Oestrous Cycle in the White Rat Comp Psychol Monog **2** 1 1923

38 Wang G H Richter C P and Guttmacher A F Activity Studies on Male Castrated Rats with Ovarian Transplants and Correlation of the Activity with the Histology of the Grafts Am J Physiol **73** 581 1925

39 Richter C P and Hartman C G The Effect of Injection of Amniotin on the Spontaneous Activity of Gonadectomized Rats Am J Physiol **108** 136 (April) 1934

40 Herren R J and Hasterius H O The Relation of Ovarian Hormones to Electromyographically Determined Achilles Reflex Time Am J Physiol **96** 214 (Jan) 1931

reports that psychic states may be influenced by the blood level of this hormone.<sup>41</sup> There is considerable variation in the threshold of hormone concentration required for reactions in different organs. The estrous reaction in the uterus requires much more hormone than that in the vagina,<sup>42</sup> while mating reactions require still greater amounts.<sup>43</sup>

The possible effect of estrogenic substances on the basal metabolism has been studied by many investigators. No clear cut effect has yet been demonstrated. This phase of the problem is discussed more fully in other papers of this series dealing with the interrelations of pituitary, gonads and thyroid.

Immature female rats and mice, both normal and ovariectomized, can be brought to a sexually mature condition in four or five days by the right concentration of estrogenic substance.<sup>44</sup> From these experiments it is reasonable to suppose that it is the more gradual secretion of this material that normally induces puberty.

In the pocket gopher estrogenic substance definitely causes a resorption of the symphysis pubis, thus enlarging the birth canal. This occurs in the female before the first ovulation and has been shown to be definitely due to theelin.<sup>45</sup> Enlargement of the birth canal of the guinea-pig at parturition is effected by relaxation of the pelvic ligaments under the successive action of theelin and a corpus luteum hormone, relaxin.<sup>46</sup>

It is possible to ovariectomize the pregnant guinea-pig half way through gestation without causing abortion if there are not more than two fetuses in utero.<sup>40</sup> The pelvic ligaments relax at parturition in such animals. This introduces the possibility that both theelin and relaxin may be produced in the pregnant guinea-pig by the placenta. The ovaries can also be removed from the pregnant mare without upsetting the endocrine balance.<sup>4</sup> It has been demonstrated that the ovaries can be removed after the middle of gestation without interfering with growth of the mammary glands and their function after parturition.<sup>40b</sup>

During pregnancy in some mammals estrogenic substances play a very important part which is little understood at present. As pregnancy progresses, large amounts can be demonstrated in the circulating blood<sup>48</sup> and in the urine.<sup>40</sup> The corpus luteum during early pregnancy,<sup>50</sup> the placenta in increasing amounts as it grows with the progress of gestation,<sup>51</sup> the amniotic

fluid,<sup>5</sup> the umbilical cord and the fetal blood from the cut end of the cord<sup>53</sup> all show a high estrogenic content. In some animals (cat and dog) there is not enough present to give positive tests. That the placenta may take over the function of secreting this material during pregnancy in women<sup>54</sup> and in mares<sup>47</sup> is indicated in several cases of ovariectomy during early pregnancy without diminution of hormone excretion.

There have been several studies of possible action of estrogenic material in producing abortion.<sup>55</sup> Injections of massive doses of the impure extracts have terminated pregnancies in rats and mice but these animals can tolerate much more of the purified preparations without terminating pregnancy.<sup>56</sup> It is difficult to credit such a function in the normal animal when the high content of estrogenic substance in the blood during pregnancy in women is so well established.

The urine as a source of estrogenic substances was first established in samples from pregnant women.<sup>49</sup> This provided a plentiful and inexpensive source of supply which greatly accelerated chemical work on purification of extracts. The excretion of estrogenic substance by the normal, menstruating, human female has been recognized since 1925,<sup>57</sup> but only recently have the daily variations of this excretion been studied and their significance appreciated. The curve of the hormone concentration in the urine shows two peaks during the normal menstrual cycle.<sup>58</sup> The first and smaller occurs at about the 10th to 19th day of the cycle and may be correlated with the time of maximum growth of the follicle, ovulation and early corpus luteum formation. A second period of increased excretion occurs about the 21st to 24th day of the cycle. This peak may correspond with some phase of activity of the most recent corpus luteum. Immediately after the peak is passed there is a precipitous drop in the excretion of estrogenic substance followed normally by the onset of menstruation. When the normal cycle is disturbed by pregnancy there is a gradual rise in the level of excretion of estrogenic substances starting the latter half of the second month<sup>59</sup> and continuing throughout the period of gestation. The maximum excretion is in the neighborhood of 3,000 rat units per liter. After parturition the level of excretion falls rapidly to normal in four or five days.

There remains much to be done in the study of estrogenic substances in relation to the maintenance of hormone concentration during replacement therapy. Injections of water soluble preparations made at daily intervals by no means approximate the normal secretion of this material. Considerable evidence exists that an

41 Werner A. A., Johns G. A., Hootner E. F., Ault C. C., Kohler L. H., and Weiss M. W. Involutional Melancholia. Probable Etiology and Treatment. *J. A. M. A.* 103:13 (July 7) 1934. Seevinghaus E. L. The Relief of Menopausal Symptoms by Estrogenic Preparations. *ibid.* 104:624 (Feb. 23) 1935.

42 Marrian G. F. and Parkes A. S. The Relative Amounts of Oestrin Required to Cause the Various Phenomena of Oestrus. *J. Physiol.* 69:372 (May) 1930.

43 Young William C., Dempsey, E. W. and Myers H. I. A Working Hypothesis Concerning the Cause of Oestrus in the Guinea Pig. *Anat. Rec.* 61 (suppl.) 65 1935 (preliminary report).

44 Hisaw F. L. The Influence of the Ovary on the Resorption of the Pubic Bones of the Pocket Gopher *Geomys bursarius*. *J. Exper. Zool.* 42:411 (Oct.) 1925.

45 Hisaw F. L. The Corpus Luteum Hormone. I. Experimental Relaxation of the Pelvic Ligaments of the Guinea Pig. *Physiol. Zool.* 2:59 (Jan.) 1929.

46 (a) Herrick E. H. The Duration of Pregnancy in Guinea Pigs After Removal and Also After Transplantation of the Ovaries. *Anat. Rec.* 39:193 1928. (b) Nelson W. O. Studies on the Physiology of Lactation. III. The Reciprocal Hypophyseal Ovarian Relationship as a Factor in the Control of Lactation. *Endocrinology* 18:33 (Jan. Feb.) 1934.

47 Hart G. H. and Cole H. H. The Source of Oestrin in the Pregnant Mare. *Am. J. Physiol.* 109:320 (Aug.) 1934.

48 Frank, R. T., Frank, Marie Louise, Gustavson R. G. and Weyerts W. W. Demonstration of the Female Sex Hormone in the Circulating Blood. *J. A. M. A.* 85:510 (Aug. 15) 1925.

49 Aschheim Selmar. Weitere Untersuchungen über Hormone und Schwangerschaft. Das Vorkommen der Hormone im Harn der Schwangeren. *Arch. f. Gynak.* 132:179 1927.

50 Allen Edgar, Pratt J. P., Newell, Q. L. and Bland L. J. Hormone Content of Human Ovarian Tissues. *Am. J. Physiol.* 92:127 (Feb.) 1930.

51 Fellner O. O. Experimentell Untersuchungen über die Wirkung von Gewebsextrakten aus der Plazenta und den weiblichen Sexualorganen auf das Centale. *Arch. f. Gynak.* 100:641 1913.

52 Courrier R. Le cycle sexuel chez la femelle des mammifères. Étude de la phase folliculaire. *Arch. de biol.* 34:369 1924. Morrell I. A., Powers H. H. and Varley J. R. A New Source of the Ovarian Follicular Hormone. *Endocrinology* 14:28 (Jan. Feb.) 1930.

53 Allen Edgar. Hormone Content of the Placenta and Chorionic Membranes. *Proc. Soc. Exper. Biol. & Med.* 24:608 1927.

54 Waldstein E. Fruhkstraktion in der Schwangerschaft. Zur Genese Ovarialhormone. *Zentralbl. f. Gynak.* 53:1305 1929.

55 Smith M. C. On the Interruption of Pregnancy in the Rat by the Injection of Ovarian Follicular Extract. *Bull. Johns Hopkins Hosp.* 30:203 (Oct.) 1926.

56 Levin L., Katzman P. A. and Doisy E. A. Effects of Estrogenic Substances and Luteinizing Factor on Pregnancy in Albino Rat. *Endocrinology* 15:207 (May June) 1931.

57 Loewe S. C. Nachweis brunsterzengender Stoffe im weiblichen Blute. *Klin. Wchnschr.* 4:1407 (July 16) 1925.

58 Gustavson R. G. and Green D. F. The Quantitative Determination of the Amount of Estrogenic Substances Excreted Daily in the Urine of the Normal Human Female. *J. Biol. Chem.* 105:xxxiv (May) 1934.

59 Frank, R. T., Goldberger M. A. and Spielman F. Present Endocrine Diagnosis and Therapy. A Critical Analysis Based on Hormone Studies in the Female. *J. A. M. A.* 103:393 (Aug. 11) 1934.

59 Aschheim S. and Zondek B. Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons. *Klin. Wchnschr.* 7:1404 1928.

effective level of hormone concentration can be better maintained by the injection of hormone in oil or some other medium less rapidly absorbed than water<sup>60</sup> The rapid retrogression of hormone effects on cessation of injections and the rapid drop in excretion of estrogenic substances after parturition indicate that there is little or no storage of the hormone in the body<sup>4</sup>

The estrogenic hormones, particularly theelin, have been shown to exert a depressant action on anterior pituitary function This was first demonstrated for the gonad-stimulating activity of the hypophysis<sup>61</sup> This phase of the activity of estrogenic hormones has been incorporated in a hypothesis of the existence of a reciprocal relationship between the anterior pituitary and the gonads<sup>61a</sup> The reaction to castration of the anterior pituitary components related to the gonads has been shown morphologically by the finding of changes in the basophils<sup>62</sup> and physiologically by the increased content of gonad-stimulating hormone<sup>63</sup> Estrogenic substance will prevent these changes in the castrate animal and will suppress the normal activity of the intact animal<sup>64</sup> This action as a factor controlling anterior pituitary activity has been extended to the growth-promoting function<sup>65</sup> the lactogenic function<sup>66b</sup> and the diabetogenic activity<sup>66</sup>

Several investigators have recently shown that growth of certain types of tumors is associated with disturbances in the available supply of estrogenic substance in the body This change may be reflected particularly in abnormal structure and function of the genital organs Instances in which this is an outstanding feature are those of precocious development in young girls and the reestablishment of menses in women past the menopause In the latter cases granulosa cell tumors, which secrete large quantities of estrogenic substance have been found responsible for the sexual disturbances<sup>67</sup> In women, cystic ovaries have been found associated consistently with uterine fibroids and hypertrophied endometria The latter may be due to a hyperovarian condition<sup>68</sup> This seems particularly significant since some of the carcinogenic substances may also have estrogenic activity<sup>8</sup>

Ovarian hormones play such dominant roles in controlling growth and function of genital tissues that many investigators have attempted to produce atypical growths by excessive stimulation with hormones<sup>69</sup> By removal of the ovaries from guinea-pigs and early in life from carefully inbred mice which normally develop a high incidence of spontaneous mammary tumors, the percentage of tumors produced has been markedly reduced<sup>70</sup> Prolonged injections of estrogenic substance have produced atypical growths in the mammary rudiments of male mice from inbred strains which normally show a high incidence of spontaneous mammary tumors in the females but none in the males<sup>1</sup>

With growth of spontaneous mammary tumors in mice the estrous cycles become progressively longer and finally disappear The ovaries in such animals are atrophic Estrous reactions may be produced in the genital tract by injections of estrogenic substance and sometimes by the stimulation of pituitary implants<sup>2</sup> In the former case the action is directly on the genital organs, in the latter, follicular growth is stimulated in the atrophic ovary

Long continued injections of theelin have induced atypical growths of the epithelium of the uterine cervix in monkeys, these growths in some respects approach early cancerous conditions<sup>73</sup> Further work is necessary to clarify the possible relation of ovarian hormones to atypical growths of genital tissues after long periods of dioestrus

#### CONCLUSION

Emphasis should be placed on several fundamental points in the physiology of estrogenic substances

First, as a major objective the fundamental endocrine mechanism of the estrous and menstrual cycles has been demonstrated Active hormones have been isolated and their relation to one another partially worked out

Second, incidental to the first point, the reaction of the rodent's vagina has provided a practicable test for the biologic standardization of therapeutic products, and these have now replaced the inert gland extracts previously in wide clinical use

Third, the extension of the test to carcinogenic substances and to other substances of similar chemical structure from a wide range of sources is extremely important In description of some of the carcinogenic and estrogenic substances, the time interval required may be considerably greater than that required for the growth phase of the estrous reaction to theelin The reasons for variations in the time of reaction are not clear It is not yet known whether some of the related substances included under the term "estrogenic" will produce more than the vaginal growth reaction Few of them have been tested as to value in replacing other phenomena of estrus or menstrual phenomena in primates

60 Marmian G F and Parkes A S The Assay of Oestrin J Physiol **67** 389 (July) 1929

61 (a) Moore C R and Price D Gonad Hormone Functions and the Reciprocal Influence Between Gonads and Hypophysis with Its Bearing on the Problem of Sex Hormone Antagonism Am J Anat **50** 13 1932 (b) Meyer R K Leonard S L Hisaw F L and Martin S J The Influence of Oestrin on the Gonad Stimulating Complex of the Anterior Pituitary of Castrated Male and Female Rats Endocrinology **16** 655 (Nov Dec) 1932

62 Addison W H F The Cell Changes in the Hypophysis of the Albino Rat After Castration J Comp Neur **28** 441 1917

63 Engle E T The Effect of Daily Transplants of the Anterior Lobe from Gonadectomized Rats on Immature Test Animals Am J Physiol **88** 101 1929 Fluhmann C F Anterior Pituitary Hormone in the Blood of Women Endocrinology **15** 177 1931 Emery F E The Anterior Pituitary Sex Hormone in the Blood and Urine of Rats Am J Physiol **101**:246 (July) 1932

64 Nelson W O The Prevention of Castration Changes in the Rat Hypophysis by the Administration of Oestrin and of Testis Hormone Anat Rec **55** 31 1933 Concerning the Anterior Pituitary Gonadal Interrelations Endocrinology (in press) 1935 Footnote 61 b

65 Spencer J Gustavson R G and D'Amour F E Effect of Estrin Injections on Growth Curve of Young Rats Proc Soc Exper Biol & Med **28**:500 1931 Spencer J D'Amour F E and Gustavson R G Effects of Continued Estrin Injections on Young Rats Am J Anat **50** 129 1932 Spencer J D'Amour F E and Gustavson R G Further Studies on the Estrin Hypophyseal Antagonism in the White Rat, Endocrinology **16**:647 1932

66 Barnes B O Regan J F and Nelson, W O Improvement in Experimental Diabetes Following the Administration of Amniotin J A M A **101**:926 1933 Nelson W O and Overholser M D Effect of Oestrin Injections upon Experimental Pancreatic Diabetes in the Monkey Proc Soc Exper Biol & Med **32** 150 1934

67 Noyal, E. and Brawer J N Granulosa Cell Tumors of the Ovary Am J Obst & Gynec **28**:637 (Nov.) 1934

68 Fluhmann C F Hyperplasia of the Endometrium and the Hormones of the Anterior Hypophysis and the Ovaries, Surg Gynec & Obst **52**:1051 1931 Witherspoon J T The Interrelationship Between Ovarian Follicle Cysts Hyperplasia of the Endometrium and Fibromyomata Surg Gynec & Obst **56** 1026 (June) 1933

69 Burrows H and Kennaway N M On Some Effects Produced by Applying Oestrin to the Skin of Mice Am J Cancer **20**:48 1934

70 Loeb Leo Further Investigations on the Origin of Tumors in Mice VI Internal Secretion as a Factor in the Origin of Tumors, J Med Res **40**:477 1919 Murray W S Ovarian Secretion and Tumor Incidence Am J Cancer Res **12**:18 1928

71 Footnotes 30 and 31 For further discussion of this subject the reader is referred to the article in this series by Leo Loeb Estrogenic Hormones and Carcinogenesis —Ed

72 Allen, Edgar Diddle A W Strong L C Burford T H, and Gardner W U The Estrous Cycles of Mice During Growth of Spontaneous Mammary Tumors Am J Cancer to be published

73 Overholser M D and Allen E Atypical Growth Induced in Cervical Epithelium of the Monkey by Prolonged Injections of Ovarian Hormone Combined with Chronic Trauma Surg Gynec & Obst **60**:129 1935 Engle E T and Smith P E Some Uterine Effects Obtained in Female Monkeys During Continued Oestrin Administration with Especial Reference to the Cervix Uteri Anat Rec **61** 471 1935

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS HOWARD A. CARTER, Secretary

### ANNUAL MEETING OF THE COUNCIL ON PHYSICAL THERAPY

The annual meeting of the Council on Physical Therapy was held at the headquarters office of the American Medical Association, Friday and Saturday, January 25 and 26. The Council has been actively engaged in its work for nine years.

Dr. Harry E. Mock, Chicago, was reelected chairman and Dr. Frederick J. Gaenslen, Milwaukee, vice chairman.

Some of the matters that came up for discussion were postgraduate and undergraduate instruction in physical therapy extension courses in physical therapy in the state and county medical societies, consideration of radium and radon compounds and of x-ray equipment, and investigation of orthopedic appliances, belts, shoes and posture appliances. Revision of the Handbook of Physical Therapy was discussed and the Council decided to prepare for distribution a booklet of accepted and nonaccepted devices.

In the matter of education, the Council adopted a revised plan whereby speakers may be made available to state and county medical societies. Details of this plan may be obtained by writing to the secretary of the Council. A group of consultants on education have been appointed by the Council to aid in the promotion of these extension educational courses throughout the country. The Council acknowledged the hearty cooperation of the consultants, namely, Drs. Disraeli Kobak, Chicago, A. J. Kotkis, St. Louis, Richard Kovacs, New York, and Franklin P. Lowry, Newton, Mass. These physicians have worked faithfully in promoting physical therapy within their states and localities.

The Council voted thanks to the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association for its splendid work in connection with the investigation of spectacle lenses and ophthalmologic devices.

In view of the undesirable use to which reprints of Council reports and articles were put, the Council voted that reprints would not be issued to manufacturers.

Careful consideration was given to the subject of short wave diathermy. Since the results of the special investigations under the direction of the Council have not been published, it was felt best to withhold the acceptance of short wave machines until the results were available.

Grants in aid of research have been utilized to the utmost capacity. The Council was pleased to note that most of the recipients of these grants had published the results of their investigations.

### ACCEPTANCE OF SHOES

The Council on Physical Therapy of the American Medical Association has been requested to consider for acceptance or rejection shoes designed to prevent and correct foot disabilities. The Council is prepared to give such consideration because it believes that at the present time unwarranted and misleading therapeutic claims are being made for certain makes of shoes.

Manufacturers of ready-made shoes deserve much credit for the great diversity of shapes and sizes of shoes which they have made available to the public. However, it must be remembered that human feet vary in type with the general body build, and that the highness or lowness of the arch with the foot at rest is an unreliable criterion by which the functional efficiency of a foot may be judged. A flexible, low arched foot may be a much more useful and comfortable foot than a foot with a high arch. It is largely a question of the muscle balance. There are no true bony keystone in either the longitudinal or the transverse arches. The ligaments that maintain the arches will give way unless sufficient and prop-

erly balanced muscular support is provided. The weight bearing lines of the foot in action largely determine whether or not foot strains and symptoms of general tire may be expected to result from long continued standing or walking. An unnecessary support is a source of weakness rather than of strength and should be avoided. It is for physicians to determine whether an artificial foot support is or is not indicated.

For the foregoing reasons the Council on Physical Therapy of the American Medical Association wishes to inform the medical profession and the manufacturers of shoes that it will receive for consideration only those makes of shoes the manufacturers of which agree to make no therapeutic claims for their product in advertising to the public. If the therapeutic claims made in advertising to the medical profession are considered by the Council to be justified, and the standards of manufacture are satisfactory, the product will be eligible to be placed on the accepted list.

The Council has passed the following motion: "The Council will place on the accepted list shoes the manufacturers of which confine their therapeutic claims in advertising to the profession, provided these claims can be justified. Any therapeutic claims made in advertising to the public will disbar the product from Council consideration."

## Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
REPORT PAUL NICHOLAS LEECH, Secretary

### McKESSON'S VITAMIN CONCENTRATE OF COD LIVER OIL OMITTED FROM N N R

The period of acceptance for McKesson's Vitamin Concentrate of Cod Liver Oil expired with the close of 1933. While the Council was considering the eligibility of this product for continued inclusion in New and Nonofficial Remedies, it was brought out that McKesson & Robbins, Inc., in the lay advertising of another product containing vitamin A, was making unacceptable claims for the use of this vitamin.

An advertisement clipped from the Chicago Daily News of Nov. 23, 1934, dealing with 'McKesson's Vitamin Concentrate Tablets' has been received in the Council's office. This advertisement, as well as others of which the Council's office is cognizant, makes direct claims for the "anti-infective" value of vitamin A in connection with "colds." For instance, in the specific advertisement referred to, the heading is "5426 Chicagoans will catch cold tomorrow." In the text of the advertisement occur the following objectionable statements: "Those fortunate people with plenty of vitamin A in their systems are surprisingly free from 'colds'"; "Fight colds the vitamin way." Another advertisement has a heading such as "Vitamin A keeps colds at bay."

The secretary called the firm's attention to this practice and the firm replied as follows:

We wish to acknowledge receipt of your letter of November 20th in which you comment on our advertisements appearing in the newspapers covering McKesson's Cod Liver Oil Concentrate Tablets. McKesson's Cod Liver Oil Concentrate Tablets have not been submitted to the Council and we believe that through some oversight you are confusing them with McKesson's Liquid Concentrate of Cod Liver Oil which is before the Council now for acceptance.

We trust that the above explains the situation fully.

The Council has had under consideration a product submitted as 'McKesson's Cod Liver Oil High Potency', the product 'McKesson's Cod Liver Oil Concentrate Tablets' has not been presented for consideration. In view, however, of the unwarranted claims made for the vitamin A content of the latter, the Council cannot continue the inclusion in New and Nonofficial Remedies of the previously accepted McKesson's Vitamin Concentrate of Cod Liver Oil nor consider further the liquid cod liver oil until the firm's advertising claims for vitamin A are uniformly acceptable. The public cannot be expected to dis-

criminate between claims made for an accepted and an unaccepted product of therapeutically identical composition

When the firm was informed of the Council's reaction, it replied that the lay advertising in question could not be corrected promptly because it was part of a series that had already been arranged for with publications. The firm stated that it would try to modify the advertising after the winter season has passed and to meet certain other requirements that the Council had found necessary to the continued acceptance of McKesson's Vitamin Concentrate of Cod Liver Oil. Since the Council was unwilling to be put in the position of condoning the making of unacceptable claims it voted to omit McKesson's Vitamin Concentrate of Cod Liver Oil from New and Nonofficial Remedies without prejudice to reconsideration when the firm has made its advertising claims for vitamin A acceptable for all products containing that vitamin

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION



RAYMOND HERTWIG Secretary

### WARRANTY SIEVED ASPARAGUS

**Manufacturer**—The Nielsen Corporation, Ltd, Oakland Calif

**Description**—Sieved asparagus prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt

**Manufacture**—The asparagus is harvested when the growth shows good color, succulence and proper degree of maturity and delivered to the plant, where it is prepared and canned the same day by essentially the same procedure as described for Warranty Sieved Spinach (THE JOURNAL, Feb 2, 1935, p 399)

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	91.7
Total solids	8.3
Ash	0.9
Sodium chloride	0.1
Fat (ether extract)	0.1
Protein (N × 6.25)	3.4
Reducing sugars as invert sugar	1.2
Sucrose	0.2
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	3.2

**Calories**—0.3 per gram 9 per ounce

**Vitamins**—The method of preparation and processing insures the retention in high degree of the natural vitamin values

**Claims of Manufacturer**—Specially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving

- (a) "DOROTHY" BRAND STERILIZED EVAPORATED MILK (UNSWEETENED)
- (b) SUN BRAND UNSWEETENED-STERILIZED EVAPORATED MILK

**Manufacturers**—(a) Lang Products Sales Co, Ltd Subsidiary of Nestle's Milk Products (Canada), Ltd., Toronto, Canada. (b) Nestle's Milk Products (Canada), Ltd., Toronto, Canada.

**Description**—Unsweetered, sterilized evaporated milks

**Manufacture**—The same as Alpine Lion and Every Day Brands Sterilized, Unsweetered Evaporated Milk (THE JOURNAL, Jan. 23 1932 page 319)

### KRIM-KO CHOCOLATE FLAVORED DRINK

**Bottlers and Distributors**—

Amsterdam Dairy, Schenectady, N Y  
Anthony Pure Milk Company, Nashville, Tenn.  
Briggs Dairy Co., Inc., Galveston, Texas  
Chippewa Model Dairy, Chippewa Falls, Wis  
Eskay Dairy Company, Fort Wayne, Ind  
Farmers Creamery Co., Fredericksburg, Va.  
Flynn Dairy Company, Des Moines, Iowa  
Forest Hill Dairy, Memphis, Tenn  
Graffenburg Dairy Company, Utica, N Y  
Graham Brothers Dairy, Lincoln, Neb  
Green's Dairy, Greenville, Texas  
Ludwig-Lane Dairy Co., Toledo Ohio  
Mayfield Dairy Products Co., Mayfield, Ky  
Merrill View Dairy, Merrill, Wis  
Mount Vernon Dairy Co., Inc., Irvington, N J  
Quality Dairy, Inc., St Cloud, Minn.  
Queen City Dairy, Inc., Cumberland, Md.  
Quincy Cooperative Milk Producers Association, Quincy, Ill  
Seegert's Dairy, Silver Creek, N Y  
Soldwedel Dairy Company, Pekin, Ill  
Southwest Dairy Products Company, Fort Worth, Texas  
Sunlite Properties Corp., Inc., Eau Claire, Wis  
Superior Dairies, Inc., St. Augustine, Fla.  
White Mountain Creamery Co. Lima, Ohio  
Zapp's Dairy, New Albany, Ind

**Licensor**—Krim-Ko Company, Chicago, manufactures the Krim-Ko Chocolate Flavored Drink Base and licenses its use, the name Krim-Ko, and standard advertising under definite contract conditions

**Description**—Pasteurized chocolate flavored sweetened skim milk, contains skim milk (from 0.5 to 1.5 per cent milk fat), sucrose, chocolate and cocoa, tapioca flour, salt and traces of tartaric acid and agar, flavored with imitation vanilla. See Krim-Ko Chocolate Flavored Drink, THE JOURNAL, June 30 1934, page 2187

### HAWAIIAN FINEST QUALITY PINEAPPLE JUICE (UNSWEETENED)

- (1) COLLEGE TOWN BRAND
- (2) FLAGSTAFF BRAND

**Distributors**—(1) Lefkowitz-Elias Company, New Brunswick, N J (2) Greenspan Brothers Company, Perth Amboy, N J

**Packer**—Hawaiian Pineapple Company Ltd, San Francisco

**Description**—Canned Hawaiian pineapple juice retaining in high degree the natural vitamin content, the same as the accepted Dole Hawaiian Finest Quality Pineapple Juice (Unsweetered) (THE JOURNAL, June 3, 1933, p 1769)

### CELLU JUICE-PAK CRUSHED PINEAPPLE

PACKED IN UNDILUTED JUICE WITHOUT ADDED SUGAR

**Distributor**—The Chicago Dietetic Supply House, Inc., Chicago

**Packer**—Hawaiian Pineapple Co, Ltd, San Francisco

**Description**—Processed peeled and cored crushed pineapple packed in undiluted juice without added sugar

**Manufacture**—The method of manufacture is essentially the same as for Paradise Island Brand Hawaiian Finest Quality Pineapple (Crushed) (Dole 1) (THE JOURNAL, April 8, 1933, p 1106). Unsweetered pineapple juice is used to fill the cans

**Analysis** (submitted by distributor) —

	per cent
Moisture	85.5
Ash	0.5
Fat (ether extract)	0.03
Protein (N × 6.25)	0.5
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	13.1

**Calories**—0.5 per gram 14 per ounce

**Claims of Distributor**—Packed in undiluted pineapple juice without added sugar



# MEDICAL LICENSURE STATISTICS FOR 1934

## ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The report presented herewith for the year 1934 deals with statistics regarding (a) medical licensing boards of the United States, including the District of Columbia and territories and possessions of the United States, (b) boards of examiners in the basic sciences, and (c) the National Board of Medical Examiners.

Official reports have been contributed by the officers of the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands, the homeopathic examining boards of Connecticut, Delaware and Maryland, the eclectic board in Arkansas, the nine basic science boards (Arizona, Arkansas, Connecticut, District of Columbia, Minnesota, Nebraska, Oregon, Washington and Wisconsin), and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana licensed none during the year. Acknowledgment is tendered the officers of the foregoing boards for their ready cooperation and the complete reports they have furnished.

The data supplied were also entered in the biographic file of physicians and others maintained by the American Medical Association, thus serving a dual purpose. We take this opportunity also to thank the officials of the boards for other invaluable assistance rendered the Association throughout the year.

The tables showing medical licensing board results include figures regarding the number of candidates examined for medical licensure in 1934, the number licensed and the number added to the profession.

### LICENTIATES

The first table shown contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 7,703 licenses issued, 5,586 on the basis of examination and 2,117 by endorsement of credentials. In several states (table 6) the internship is a requisite for practice, but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. This is particularly true in Iowa and Michigan. Licenses are also withheld for lack of citizenship or minor technicalities. The figures therefore, for those licensed after examination include many who were examined in 1933 and even a few in previous years. New York issued the largest number of licenses, 1,290, Pennsylvania issued 520, Illinois 458, California 418, Ohio 397, and New Jersey 332. A comparison with similar figures for 1933 indicates that New York issued 236 more licenses in 1934, Pennsylvania 13, California 1, Ohio 28, New Jersey 22, and Illinois 2 less.

Five states issued more than 200 licenses and twelve more than 100. One physician was licensed after examination in New Mexico and Wyoming. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. The total number licensed, 7,703, was 554 more than in 1933. This figure, however, does not represent 7,703 individuals, since several have been licensed in more than one state during the

year. Nor does it represent additions to the medical profession at large, since the 2,117 licensed by endorsement, with the exception of several licensed in New York on the basis of foreign credentials, have migrated from another state. Table 4 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TABLE 1—Licentiates—1934

	Licensed on Basis of		Total
	Examination	Reciprocity and Endorsement	
Alabama	20	30	50
Arizona	7	12	19
Arkansas	54	14	68
California	300	118	418
Colorado	60	30	90
Connecticut	61	48	109
Delaware	14	3	17
District of Columbia	50	21	71
Florida	100	0	105
Georgia	80	19	99
Idaho	12	21	33
Illinois	360	89	448
Indiana	140	32	172
Iowa	112	35	147
Kansas	98	20	118
Kentucky	81	32	113
Louisiana	127	9	136
Maine	35	16	51
Maryland	202	43	245
Massachusetts	236	43	279
Michigan	214	51	265
Minnesota	150	13	172
Mississippi	28	22	50
Missouri	180	53	230
Montana	9	25	34
Nebraska	86	12	98
Nevada	5	12	17
New Hampshire	6	17	23
New Jersey	175	157	332
New Mexico	1	20	21
New York	834	456	1,290
North Carolina	78	60	138
North Dakota	12	7	19
Ohio	272	125	397
Oklahoma	63	27	90
Oregon	28	11	39
Pennsylvania	466	54	520
Rhode Island	33	8	41
South Carolina	40	11	51
South Dakota	10	8	18
Tennessee	162	29	191
Texas	165	106	271
Utah	20	12	32
Vermont	15	11	26
Virginia	130	30	160
Washington	48	38	86
West Virginia	20	31	51
Wisconsin	118	36	154
Wyoming	1	18	19
U S Terr. & Possessions*	28	10	44
Totals	5,586	2,117	7,703

\* Alaska, Canal Zone, Hawaii, Puerto Rico and Virgin Islands.

### TOTAL EXAMINED

In table 2 will be found figures for individual states, indicating the number who passed and failed in medical licensing examinations throughout the year. There were 6,130 examined, of whom 5,613 passed and 517 failed. There were represented graduates from sixty-seven approved medical schools in the United States and nine in Canada, sixty-six medical schools of other countries, twenty-one medical schools now extinct, eight unapproved institutions and several osteopathic colleges. These statistics contain figures regarding only those osteopaths granted the privilege to practice medicine surgery or both by the medical board. Four under-

(CONTINUED ON PAGE 1508)



Marginal Number

SCHOOL

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
1 University of Arkansas School of Medicine			45	0	1	0			0	1												
CALIFORNIA																						
2 College of Medical Evangelists		0	1	59	0	2	0	1	0		2	0			2	0			3	0		
3 Stanford University School of Medicine				30	0																	
4 University of California Medical School				51	0						1	0			1	0						
5 University of Southern California School of Med				25	0																	
COLORADO																						
6 University of Colorado School of Medicine				2	0	42	0								1	0			1	0		
CONNECTICUT																						
7 Yale University School of Medicine						7	0		1	0										3	0	1
DISTRICT OF COLUMBIA																						
8 George Washington University School of Med		1	1	6	0	2	0	117	0	0	1				1	0			8	0	1	
9 Georgetown University School of Medicine				1	1	7	3	8	1	1	0							3	0	37	5	9
10 Howard University College of Medicine				1	0	1	0	5	0	0	1		1	0		4	0	1	0	6	0	
GEORGIA																						
11 Emory University School of Medicine	1	0						1	0	10	1	41	0					1	0			1
12 University of Georgia School of Medicine								8	0	37	0									1	0	
ILLINOIS																						
13 Loyola University School of Medicine				2	0		1	0		1	1			47	1	5	0	1	0	2	0	1
14 Northwestern University Medical School		1	0	11	0	1	0		1	0		1		59	0	2	0	3	0	3	0	
15 University of Chicago Rush Medical College	2	0	1	0	1	0	1	0		4	2			59	0	5	1	1	0	2	0	
16 University of Chicago The School of Medicine of the Division of the Biological Sciences														10	0			1	0			
17 University of Illinois College of Medicine		1	0	8	1				0	2				124	1	3	1					
INDIANA																						
18 Indiana University School of Medicine				2	0			1	0	1	0			1	0	114	2	1	0		1	0
IOWA																						
19 State University of Iowa College of Medicine				3	0	1	0		1	0		1	0			72	0	1	0		0	1
KANSAS																						
20 University of Kansas School of Medicine		1	0	1	0		1	0		1	0				1	0	61	0				
KENTUCKY																						
21 University of Louisville School of Medicine	1	0							4	1				3	0		72	0	1	0		
LOUISIANA																						
22 Louisiana State University Medical Center	1	0															20	0				
23 Tulane University of Louisiana School of Med	9	0		3	0			1	0	7	0		1	0			83	0		1	0	2
MARYLAND																						
24 Johns Hopkins University School of Medicine				2	0		1	1	2	0	5	0	2	1						4	0	4
25 University of Maryland School of Medicine and College of Physicians and Surgeons							4	0	1	0										65	0	1
MASSACHUSETTS																						
26 Boston University School of Medicine							2	1												7	0	
27 Harvard University Medical School	1	0		2	0		3	0		2	0	1	0		3	0		1	0	6	0	1
28 Tufts College Medical School							13	1		1	0			1	0			1	0	7	0	
MICHIGAN																						
29 University of Michigan Medical School		1	0		5	0		1	0	1	1									1	0	2
30 Wayne University College of Medicine																				68	0	2
MINNESOTA																				91	0	
31 University of Minnesota Medical School	1	0		2	0				2	0				1	0		5	0	2	0		2
MISSOURI																						
32 St. Louis University School of Medicine				2	0									2	0		1	0	1	0	2	0
33 Washington University School of Medicine				5	0	1	0		0	1				1	0		2	0		1	0	1
NEBRASKA																						
34 Creighton University School of Medicine				12	1	1	0	1	1								7	0	4	0		
35 University of Nebraska College of Medicine				3	0	3	0				1	0		1	0	2	0		2	0	2	0
NEW YORK																						
36 Albany Medical College																				1	0	
37 Columbia University Coll. of Phys and Surgs				2	0		4	0	0	1											1	0
38 Cornell University Medical College				3	0		1	0						1	0							
39 Long Island College of Medicine							3	0												1	0	1
40 New York Homeo Med Coll and Flower Hosp							1	0													4	0
41 New York University College of Medicine							3	0		1	0										1	0
42 Syracuse University College of Medicine				1	0		1	0													1	0
43 University of Buffalo School of Medicine																						
44 University of Rochester School of Medicine				1	0																1	0
NORTH CAROLINA																						
45 Duke University School of Medicine					1	0				1	0									2	0	
OHIO																						
46 Ohio State University College of Medicine				1	0					0	1										1	0
47 University of Cincinnati College of Medicine				2	0					4	0						1	0				
48 Western Reserve University School of Medicine										1	0										1	0
OKLAHOMA																						
49 University of Oklahoma School of Medicine				1	1					0	1					1	0					
OREGON																						
50 University of Oregon Medical School				8	0																	
PENNSYLVANIA																						
51 Hahnemann Medical College and Hosp. of Phila				0	1			8	0		1	0		2	0	1	0			1	0	6
52 Jefferson Medical College of Philadelphia			1	0	2		1	0	3	1	1	0	1	1						2	0	1
53 Temple University School of Medicine				1	0		1	0	1	0												
54 University of Pennsylvania School of Medicine				3	0			2	2	1	0	8	0		2	0				1	0	2
55 University of Pittsburgh School of Medicine																						
56 Woman's Medical College of Pennsylvania				3	0																1	0
SOUTH CAROLINA																						
57 Medical College of the State of South Carolina	1	0		1	0					1	0											
TENNESSEE																						
58 Meharry Medical College				1	0					2	1			0	1	1	0		2	0		
59 University of Tennessee College of Medicine	1	0		2	0		1	0		7	0						3	1		1	0	
60 Vanderbilt University School of Medicine	1	0								4	1										2	1

P = Passed F = Failed

[illegible]

P = Passed F = Failed

\* Alaska Hawaii Puerto Rico and Virgin Islands

TABLE 2—CANDIDATES EXAMINED BY

Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Marginal Number
SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Missouri
61 Baylor University College of Medicine	P	F	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
62 University of Texas School of Medicine		1	0												1	0	1	0					
63 University of Vermont College of Medicine							2	0		1	1									3	0		
64 Medical College of Virginia																							
65 University of Virginia Department of Medicine	1	0		1	0				1	0	4	0					1	0		0	1	1	0
66 Marquette University School of Medicine				1	0	1	0					2	0					1	0		0	0	0
67 University of Wisconsin Medical School				2	0							3	0	1	0		1	0		1	0	0	0
68 Dalhousie University Faculty of Medicine																				0	1	0	0
69 Laval University Faculty of Medicine																				0	1	0	0
70 McGill University Faculty of Medicine				5	0	1	0	1	0											0	1	0	0
71 Queen's University Faculty of Medicine																				0	1	0	0
72 University of Alberta Faculty of Medicine																				0	1	0	0
73 University of Manitoba Faculty of Medicine																				0	1	0	0
74 University of Montreal Faculty of Medicine																				0	1	0	0
75 University of Toronto Faculty of Medicine					2	0	1	0				1	0							2	0	1	0
76 University of Western Ontario Medical School												1	0		1	0					2	0	0
77 Foreign Medical Faculties				6	10	1	0	2	0			10	4		1	0				11	0	0	0
78 Extinct Medical Schools				1	2										3	0	1	0	0	1	1	0	1
79 Unapproved Schools and Undergraduates			1	0	1	0	10	2	1	3		2	0	3	0		1	0	1	0			
80 Totals	20	0	53	310	07	82	21	51	132	80	12	331	143	100	98	82	122	35	221	406	227	129	50
81 Totals—Examined—Passed	20	7	53	302	05	70	14	50	105	80	12	363	139	100	98	80	122	35	204	236	225	129	51
82 Totals—Examined—Failed	0	2	0	17	2	12	7	1	27	0	0	13	4	0	0	2	0	0	17	10	2	0	0
83 Percentage Failed	0.0	22.2	0.0	5.3	3.0	14.6	33.3	2.0	20.6	0.0	0.0	3.4	2.8	0.0	0.0	2.4	0.0	0.0	7.7	41.9	0.9	0.0	0.0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	

P = Passed F = Failed

(CONTINUED FROM PAGE 1505)

graduates also were examined. There were 5,413 graduates of approved medical schools in the United States examined, of whom 4 per cent failed, 114 Canadian graduates, 16.7 per cent of whom failed, 286 foreign graduates with 40.6 per cent failures, 27 who graduated from schools now extinct, with 40.7 per cent of failures, and 290 from unapproved and osteopathic schools, of whom 54.1 per cent failed. Of these 290, 82 were graduates of osteopathic schools, of whom 50 per cent failed, 204 were graduates of unapproved schools, of whom 89 passed and 115, 56.4 per cent, failed, and 4 undergraduates were examined of whom 3 passed and 1 failed. Graduates of osteopathic schools were examined in Colorado, Connecticut, Massachusetts, Texas, Wisconsin and Wyoming, while graduates of unapproved schools were examined in Arkansas (eclectic board), California, Illinois, Massachusetts and Hawaii. Massachusetts registered fifty-four and Illinois thirty-three of these practitioners.

The largest number of graduates of any one school represented was from the University of Illinois College of Medicine, 167, who were examined in fourteen states. Georgetown University School of Medicine had 164 graduates before licensing boards, of whom 15.2 per cent failed. They were examined in twenty states. The next highest number of graduates from any one school was Jefferson Medical College, which had 163 graduates examined in twenty-two states, of whom eight failed. Graduates of Northwestern University Medical School and Rush Medical College were examined in twenty-nine states. Harvard graduates were examined in twenty-eight states and the University of Pennsylvania in twenty-five. From these statistics one might infer that these schools educate more non-residents than do other schools. All the graduates of the University of Southern California School of Medi-

cine represented, twenty-five, were examined in California. None failed. Graduates of Wayne University, Albany Medical College, University of Texas and Dalhousie were examined in three states. Two graduates of the University of Alberta were examined in two states. The one eclectic board in existence, in Arkansas, examined and licensed one candidate. Canadian physicians took the test in twenty-three states and one territory.

The 6,130 candidates examined do not represent individuals, since a candidate might possibly take the examination in more than one state and would be counted in each state. The same is true of the failures, but if a physician fails more than once in a given state within the year he is counted in that state only once.

The United States Postal authorities are at present conducting an investigation into widespread circulation of alleged fake medical and chiropractic diplomas and licenses. The spurious papers were found in several states, principally Arkansas. As a result, the following have been indicted, according to newspaper reports:

A. E. Wrebs, former St. Louis chiropractor, George M. Lindsay of Kansas City, his stepson, G. Martin Lindsay Jr., Dr. Date R. Alexander, former head of the Kansas City College of Medicine and Surgery, the charter of which was revoked in 1926 on the charge of its being a diploma mill, Dr. Claude E. Laws, former secretary of the Arkansas Eclectic State Medical Board, Mrs. Myrtle Long, former secretary of the Iowa Board of Chiropractic Examiners, William T. Gallagher of Kansas City, and John E. Hamilton of Fort Worth, Texas. Wrebs pleaded guilty, according to the report but sentence was deferred. The charge, it is said, is punishable on conviction by a maximum penalty of five years' imprisonment or a \$5,000 fine or both. A number of licenses have already been revoked in Arkansas.

Marginal Number	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Totals	Examined—Passed	Examined—Failed	Percentage Failed	No Boards Examined by	Marginal Number	
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U S Territories and Possessions							
61	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	60	66	0	0	0	61	
62													10		20					620	710							63	74	0	0	0	62		
63									30													280						33	32	1	30	6	63		
64							20		10	110					10		30						631	50	50			20	96	94	2	21	18	64	
65																											10	96	96	0	0	9	65		
66		20													20											430		56	56	0	0	0	8	66	
67																								340			47	47	0	0	0	9	67		
68									12																			5	2	8	600	3	68		
69									10																			4	2	500	4	69			
70						200	1		14	1	10		10	20	10							10						47	45	2	43	17	70		
71									0	3					10													17	18	4	235	4	71		
72	10																										2	2	0	0	0	2	72		
73									10																			9	8	1	111	6	73		
74									0	1						21						10					7	4	2	429	5	74			
75	10					20			0	3		0	1	1	10												17	13	4	235	11	75			
76									20																			6	6	0	0	4	76		
77		82					170	10	8768			72			100	1				40		10			10	12	20	286	170	116	406	21	77		
78															0	1							11				20	20	27	16	11	407	12	78	
79	11					10														72							200	133	157	54	1	13	79		
80	29	185	9	50	5	6	185	1	1077	73	13	267	73	28	476	37	46	10	173	167	20	30	184	45	25	122	2	33	6130					80	
81	28	149	9	54	5	6	171	1	834	73	12	261	73	28	466	34	46	10	173	165	20	30	130	45	25	118	1	29	5618					81	
82	1	2	0	0	0	0	10	0	195	0	1	6	0	0	10	3	0	0	0	2	0	0	0	4	0	0	4	1	4		517				82
83	34	1.1	0.0	0.0	0.0	0.0	5.4	0.0	18.8	0.0	7.7	2.2	0.0	0.0	2.1	8.1	0.0	0.0	0.0	1.2	0.0	0.0	3.0	0.0	0.0	3.3	50.0	12.1			84			83	
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50							

P = Passed F = Failed

\* Alaska Hawaii Puerto Rico and Virgin Islands

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined ten candidates, all of whom passed.

In 1933, 5,664 were examined, of whom 5,235 passed and 76 per cent failed, as compared with 6,130 examined in 1934, of whom 5,613 passed and 84 per cent failed. There were 466 more examined than in 1933, of whom 378 passed and 88 failed.

#### REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The number of physicians granted licenses to practice medicine and surgery without examination are given in table 3. There were 2,096 so registered who presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services or other credentials.

In an increasing number of states the boards now accept a physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. The following twenty-nine states and the District of Columbia generally will register without examination, licensees who present satisfactory evidence of good moral character and practice record, and, in addition, credentials which correspond to those required by their respective states at the time such licenses were issued.

Alabama	Maryland	North Carolina
Arizona	Michigan	Oklahoma
California	Minnesota	Oregon
Colorado	Missouri	Pennsylvania
Connecticut	Nebraska	South Carolina
Delaware	Nevada	South Dakota
District of Columbia	New Hampshire	Texas
Georgia	New Jersey	Utah
Idaho	New Mexico	Vermont
Maine	New York	Wisconsin

California (when ten or more years has intervened) Connecticut Illinois, Minnesota Nevada North Carolina and South Dakota require a practical or oral

examination of reciprocity candidates before a license is granted by this means. Applicants in Idaho are required to pass either a written or an oral examination in medical jurisprudence as pertaining to practice in that state.

Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state.

New York granted the greatest number of licenses by endorsement of credentials in 1934 (456). New Jersey was second with 157, Ohio third with 125, California fourth with 118, and Texas and Illinois fifth with 89. The largest group presenting the same type of credentials were the 389 diplomates of the National Board of Medical Examiners, the next greatest number (114) came from Maryland, Illinois was third with 111, and Tennessee fourth with 109. Only 105 New York licenses were endorsed during the year, while New York State licensed 456. Of this total, 130 were registered on the basis of foreign licenses or diplomas giving the right to practice in the country in which issued.

Nine physicians were licensed on the basis of Canadian credentials (New Mexico one and New York eight) and 122 were registered by endorsement of European credentials from Austria six, Czechoslovakia one, France two, Germany 105, Hungary two, Italy two, Rumania one, Switzerland two and the Union of Socialist Soviet Republics one. Two physicians were registered by endorsement of licenses issued in Puerto Rico.

One candidate each was licensed by the homeopathic boards of Delaware and Maryland. In addition, twenty-one osteopaths were granted licenses to practice without examination. Seventeen so registered in Texas were granted privileges as physicians and surgeons, while three in Wisconsin and one in Wyoming were licensed to practice osteopathy and surgery.



The four in the column headed "Miscellaneous" represent one each licensed in New York and Vermont on the basis of their medical diploma and two registered in the Canal Zone on the basis of their medical credentials in general. Diplomates of the National Board were registered without written examination in thirty-five states, Hawaii and Puerto Rico. Illinois licentiates were registered in thirty-one states also while the state that had the highest number of its licenses endorsed, Maryland, had its 114 licentiates registered in twenty states, forty-four went to New York State. New York had the greatest number of its licentiates registered

TABLE 4—*Licentiates Representing Additions to the Medical Profession—1934*

	Examination	Endorsement	Total
Alabama	20	0	20
Arizona	2	0	2
Arkansas	53	0	53
California	270	6	276
Colorado	62	2	64
Connecticut	47	1	48
Delaware	5	0	5
District of Columbia	23	0	23
Florida	24	0	24
Georgia	74	2	76
Idaho	0	0	0
Illinois	355	12	367
Indiana	134	0	134
Iowa	103	3	106
Kansas	89	1	90
Kentucky	81	2	83
Louisiana	110	0	110
Maine	27	0	27
Maryland	102	0	102
Massachusetts	189	33	222
Michigan	202	0	202
Minnesota	127	8	135
Mississippi	24	0	24
Missouri	177	8	185
Montana	6	2	8
Nebraska	85	3	88
Nevada	2	0	2
New Hampshire	6	2	8
New Jersey	167	9	176
New Mexico	1	0	1
New York	792	233	1,025
North Carolina	73	1	74
North Dakota	5	1	6
Ohio	204	6	210
Oklahoma	58	1	59
Oregon	21	3	24
Pennsylvania	427	12	439
Rhode Island	28	7	35
South Carolina	34	0	34
South Dakota	2	1	3
Tennessee	161	2	163
Texas	161	9	170
Utah	10	0	10
Vermont	14	0	14
Virginia	128	1	129
Washington	38	5	43
West Virginia	17	1	18
Wisconsin	108	0	108
Wyoming	1	0	1
U S Terr & Possessions*	17	3	20
Totals	5,021	414	5,435
Totals for 1933	4,651	320	4,971

\* Alaska Canal Zone Hawaii and Puerto Rico

in any one state, fifty-six, who were given the right to practice in New Jersey. Arizona, Connecticut, Delaware, Florida, Idaho, Maine, Montana, Nevada, New Mexico, North Dakota, Rhode Island, South Carolina, South Dakota, Utah and Wyoming had less than ten of their licentiates endorsed to other states and New Hampshire had none.

#### CANDIDATES ADDED TO THE PROFESSION

In table 4 are recorded the number of candidates added to the profession during 1934. The number represents candidates examined in 1934 and licensed also those examined in previous years whose licenses were withheld and issued in 1934 those certified on the basis of the certificate of the National Board of Medi-

cal Examiners, government services, Canadian and foreign credentials, and miscellaneous. In the main they represent recent graduates. Altogether, 5,435 were added to the profession as contrasted with approximately 3,400, the number removed by death in 1934. These figures indicate that at least 1,800 have been added to the already overcrowded medical profession. It is assumed that by far the great majority of those licensed are in practice. It is interesting to

TABLE 5—*State Requirements of Premedical Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Rhode Island
Arkansas	Michigan	South Carolina
Colorado	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	Pennsylvania
High School Graduation or Its Equivalent		
Delaware	Missouri	Ohio
Massachusetts	Nebraska	

note that, of 7,703 licenses issued throughout the year 5,435, 70.6 per cent, are actual additions to the medical profession. The ratio is about twice as great as it is in England, France or Germany. The proper adjustment of the ratio of physicians to population is a matter of vital public concern. Figures compiled in 1934 indicated that the ratio was one to 814. It is to be hoped that this ratio will remain constant or be gradually decreased.

The largest number added to the profession was in New York, 1,025. Pennsylvania added 439 and Illinois 367, New Mexico and Wyoming added one and Arizona and Nevada added two.

TABLE 6—*Internship Required by Medical Licensing Boards*

Alaska	1917	Pennsylvania	1914
Delaware	1924	Rhode Island	1917
District of Columbia	1930	South Dakota	1925
Illinois	1923	Utah	1920
Iowa	1924	Vermont	1934
Michigan	1922	Washington	1919
New Jersey	1916	West Virginia	1932
North Dakota	1918	Wisconsin	1927
Oklahoma	1933	Wyoming	1931
Oregon	1933		

#### STATE REQUIREMENTS OF PRELIMINARY EDUCATION

Although, for seventeen years, two years of pre-medical college training has been required by every class A medical school there are still eight states which have failed to adopt this standard. Statutory requirements are shown in table 5.

In table 6 will be found the states that require the internship as a prerequisite for medical licensing boards. Seventeen states, Alaska and the District of Columbia exact this requirement.

## COMPARISON WITH OTHER YEARS

In table 7 are listed the numbers of candidates examined in the various states, territories and possessions in the past five years, showing those who passed and failed. In this period New York examined 4,718 candidates, Pennsylvania 2,265, Illinois 1,967, Massachusetts 1,739, California 1,571, Ohio 1,337 and Michigan 1,202. All others examined less than 1,000. The smallest number (five) were examined in New Mexico. The percentage of candidates who failed in

TABLE 7—Candidates Examined—1930-1934, Inclusive

	1930		1931		1932		1933		1934		Totals for 5 Years		
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Percentage Failed
Alabama	27	1	29	0	14	0	11	0	20	0	101	1	1.0
Arizona	19	0	20	1	14	2	0	1	7	2	69	6	8.6
Arkansas	25	0	20	0	43	0	44	1	53	0	104	1	0.5
California	2,12	30	374	14	290	11	204	13	302	17	1,482	80	5.7
Colorado	55	0	48	2	50	3	60	0	65	2	287	7	2.4
Connecticut	51	10	66	4	68	12	63	10	70	12	318	53	14.3
Delaware	7	1	12	0	6	0	18	1	14	7	57	0	13.6
Dist. of Columbia	34	0	27	0	43	1	39	1	50	1	193	3	1.5
Florida	71	8	55	5	66	6	80	3	101	27	377	40	11.5
Georgia	72	0	77	0	100	0	88	1	80	0	417	1	0.2
Idaho	7	0	5	0	5	0	5	0	12	0	34	0	0.0
Illinois	388	38	305	24	260	28	269	14	348	11	1,500	117	6.0
Indiana	110	0	124	0	110	1	114	0	139	4	603	11	1.8
Iowa	112	0	109	1	110	0	110	1	100	0	546	2	0.4
Kansas	70	0	74	0	76	0	80	0	98	0	403	0	0.0
Kentucky	76	3	64	1	68	0	69	0	80	2	357	6	1.7
Louisiana	90	1	102	1	111	3	119	0	122	0	553	5	0.9
Maine	22	1	30	0	30	0	31	0	31	0	162	1	0.7
Maryland	180	1	153	3	176	0	165	2	204	17	818	28	3.3
Massachusetts	232	78	213	104	208	132	189	177	236	170	1,078	601	58.0
Michigan	302	0	260	0	219	0	194	0	225	2	1,200	2	0.2
Minnesota	176	0	150	0	142	0	126	1	159	0	753	1	0.1
Mississippi	31	2	35	0	27	0	24	0	28	1	145	3	2.0
Missouri	140	0	167	0	156	0	215	0	180	2	893	2	0.2
Montana	13	0	7	0	8	0	8	0	9	0	45	0	0.0
Nebraska	65	0	57	0	67	0	66	0	86	0	341	0	0.0
Nevada	2	0	2	0	4	1	1	1	5	0	14	2	12.5
New Hampshire	1	0	6	0	9	0	10	0	6	0	32	0	0.0
New Jersey	82	3	91	0	113	7	163	9	175	10	614	34	5.3
New Mexico	0	0	0	0	4	0	0	0	1	0	5	0	0.0
New York	810	108	838	146	717	170	747	146	834	193	3,940	772	16.4
North Carolina	85	5	74	0	87	1	61	0	73	0	384	6	1.5
North Dakota	10	2	16	1	21	0	14	2	12	1	70	6	7.1
Ohio	231	1	269	7	240	10	285	7	261	6	1,306	31	2.3
Oklahoma	52	0	51	0	60	0	60	0	73	0	302	0	0.0
Oregon	32	1	40	1	31	1	30	0	28	0	170	7	1.7
Pennsylvania	421	0	419	6	468	8	446	12	460	10	2,220	40	2.0
Rhode Island	73	2	36	0	40	1	38	3	34	3	221	0	3.0
South Carolina	37	0	47	0	40	0	38	0	40	0	208	0	0.0
South Dakota	17	0	16	0	12	0	14	0	10	0	69	0	0.0
Tennessee	165	0	188	3	190	1	141	0	173	0	857	4	0.5
Texas	147	0	164	2	147	0	166	0	165	2	779	4	0.5
Utah	10	0	10	0	24	0	9	0	20	0	73	0	0.0
Vermont	10	0	20	0	23	0	27	0	30	0	119	0	0.0
Virginia	122	5	101	2	115	3	146	1	130	4	614	17	2.4
Washington	47	2	33	0	42	0	41	0	45	0	208	2	1.0
West Virginia	41	0	36	2	27	1	30	2	25	0	159	3	3.1
Wisconsin	99	0	98	11	110	3	111	1	118	4	546	23	4.0
Wyoming	4	0	5	0	2	0	2	0	1	1	14	1	6.7
U. S. Terr. & Possessions	128	4	118	2	104	4	38	4	20	4	417	18	4.1
Totals	5,563		5,608		5,665		5,664		6,130		28,630		
Totals—Examined	5,247		5,260		5,237		5,235		5,613		26,592		
Passed	316		348		428		420		517		2,038		
Failed	57		62		76		76		84		7.1		

the examinations in the past five years is given in the last column. The proportion of failures in all the states has increased from 5.7 per cent in 1930 to 8.4 per cent in 1934. In the five year period, 38 per cent of the applicants failed in Massachusetts, followed by New York with 16.4 per cent, Connecticut 14.3 per cent, Delaware 13.6 per cent, Nevada 12.5 per cent and Florida 11.5 per cent. The high percentage in Massachusetts is due to the fact that by law they are required to admit to their examination the graduates of unapproved medical schools, many of whom repeatedly fail though they eventually become licensed. On the other hand, Idaho, Kansas, Montana, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South

Dakota, Utah and Vermont reported no failures, while Arkansas, Georgia, Iowa, Louisiana, Maine, Michigan, Minnesota, Missouri, Tennessee and Texas had less than 1 per cent of failures. A total of 28,630 candidates were examined in the five years from 1930 to 1934 inclusive, of whom 26,592 passed and 2,038 failed. These figures represent examinations given and not individuals. A candidate who fails more than once in

TABLE 8—Registration—1904-1934

Year	Candidates Examined		Registered Without Written Examination	Total Registered
	Passed	Percentage Failed		
1904	5,070	10.4	990	6,075
1905	5,692	20.7	394	6,086
1906	6,368	20.7	1,499	7,867
1907	5,730	21.3	1,427	7,157
1908	6,087	21.7	1,580	7,667
1909	5,861	19.6	1,374	7,235
1910	5,713	18.4	1,640	7,353
1911	5,582	19.8	1,243	6,825
1912	5,466	20.5	1,371	6,837
1913	5,250	18.6	1,291	6,541
1914	4,377	21.5	1,437	5,814
1915	4,505	15.5	1,393	5,898
1916	4,144	14.9	1,351	5,495
1917	4,082	14.1	1,300	5,412
1918	3,180	13.2	1,040	4,226
1919	4,074	14.2	2,543	6,617
1920	4,060	15.3	2,554	6,614
1921	4,222	12.4	2,180	6,402
1922	3,530	12.2	2,060	5,590
1923	4,020	14.8	2,398	6,418
1924	4,752	11.8	1,910	6,662
1925	5,442	9.2	1,845	7,287
1926	5,307	7.9	1,934	7,241
1927	4,893	7.2	2,169	7,162
1928	5,084	6.7	2,224	7,308
1929	5,277	6.2	2,414	7,691
1930	5,247	5.7	2,382	7,629
1931	5,260	6.2	2,306	7,488
1932	5,237	7.6	1,875	7,112
1933	5,235	7.0	1,964	7,199
1934	5,613	8.4	2,117	7,730

a given year has not been counted twice, but should he fail in one of the succeeding years he is counted in that year also. Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as passed and failed. With a total of 2,038 failures for the five year period, it seems likely that there were approximately 25,000 individuals examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state. This

TABLE 9—Source of Physicians Registered—1922-1934

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922	4,510	80.7	1,080	19.3	5,590
1923	5,163	80.9	1,225	19.1	6,418
1924	5,670	85.2	983	14.8	6,662
1925	6,299	86.4	988	13.6	7,287
1926	6,422	88.7	810	11.3	7,241
1927	6,406	89.4	758	10.6	7,162
1928	6,584	90.1	724	9.9	7,308
1929	6,997	91.0	694	9.0	7,691
1930	7,007	92.1	602	7.9	7,609
1931	6,927	92.8	541	7.2	7,468
1932	6,668	93.7	446	6.3	7,112
1933	6,745	93.7	454	6.3	7,199
1934	7,119	92.1	611	7.9	7,730

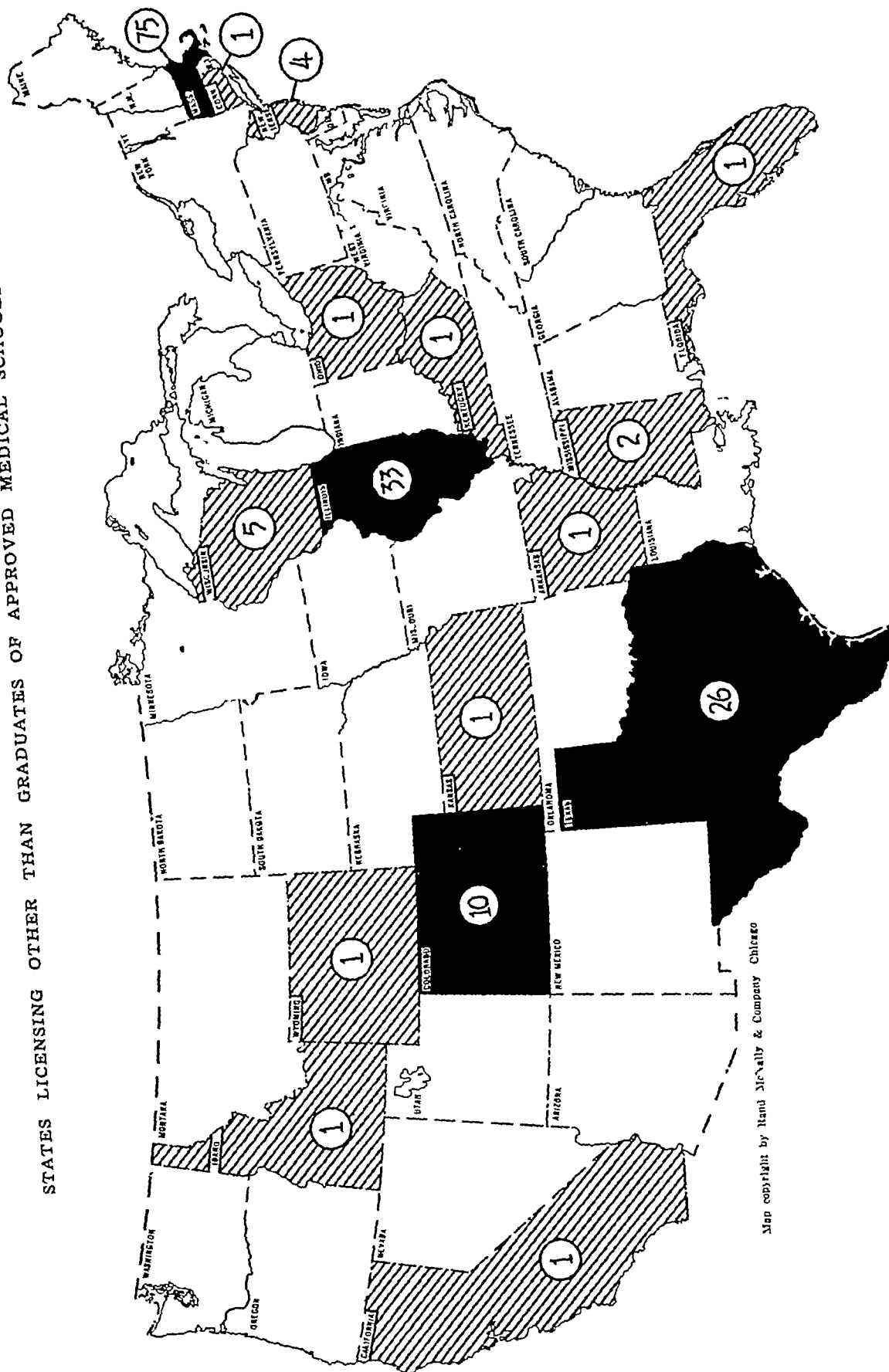
figure, therefore indicates a fair estimate of the number of physicians added to the profession each year. Table 4 gives exact totals on this point for the years 1933 and 1934.

## REGISTRATION 1904-1934

A study of totals and percentages (table 8) for each year beginning with 1904 is of interest. The number (5,613) who passed in 1934 was 378 more than the number who passed in 1933 and only sixty-three less



STATES LICENSING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1934



Map copyright by Rand McNally & Company Chicago

The states in black licensed more than 5 such candidates, those shaded, 5 or less The figures indicate the number licensed

than in 1904. The number licensed without examination, 2,117, was 153 more than in 1933. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By all methods, 7,730 were registered, 531 more than in 1933.

Of those examined, 76 per cent failed in 1933, while 84 per cent failed in 1934. While these figures represent those registered in the years given, they do not in all states represent the number licensed. Licenses are withheld in many states, as indicated in the text describing table 1.

It will be seen that there has been no constant increase or decrease in the total number of candidates registered from 1904 to 1933, although since 1906 the number licensed without examination has been increasing and those examined has diminished, owing to the universal system of endorsement. The decrease in the number registered in 1918 was, of course, due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There was, however, a substantial increase in the number registered in 1934, the majority having been by examination. This is probably accounted for by the fact that medical schools are graduating larger classes, 5,038 in 1934. The Council is concerned over this problem and, after it was found that many schools are accepting students in excess of the number for which satisfactory facilities are provided, at its February meeting requested the secretary to call to the attention of the deans of medical schools the following paragraph from its Essentials of an Acceptable Medical School:

The number of students to whom an adequate medical education can be given by a college is related approximately to the laboratory and hospital facilities available and to the size and qualifications of the teaching staff. A close personal contact between students and members of the teaching staff results in an efficiency which is not possible in an institution where the number of students is excessive.

#### SOURCE OF PHYSICIANS REGISTERED

The educational fitness of the persons registered in the last thirteen years is shown in table 9. Of the 7,730 registered by all methods in 1934, 7,119, or 92.1 per cent, graduated from approved medical schools and there were 611, 7.9 per cent, other practitioners registered. For purposes of these statistics all schools rated as class A and B since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign medical faculties, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.

#### GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS REGISTERED

In table 10 will be noted the total number of graduates of osteopathic colleges and those institutions which have been classified as unapproved, who were registered with or without examination in two years. In 1934, twelve states and Alaska registered 103 graduates of unapproved medical schools and six states registered sixty-two osteopaths. Of those examined, ninety-four were graduates of unapproved medical schools and forty-one were osteopaths. Twenty-one osteopaths and nine graduates of unapproved medical schools were registered by endorsement. Three nongraduates were registered. As will be noted, the sixty-two osteopaths

were registered in Colorado, Connecticut, Massachusetts, Texas, Wisconsin and Wyoming. In this connection the following facts are of interest.

In Colorado, osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine or surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine but does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any

TABLE 10—*Graduates of Other Than Approved Medical Schools Registered—1933-1934*

	Examination				Reciprocity and Endorsement				Totals
	Osteo- paths		Graduates of Unapproved Schools and Under- graduates		Osteo- paths		Graduates of Unapproved Schools and Under- graduates		
	1933	1934	1933	1934	1933	1934	1933	1934	
Alabama	0	0	0	0	0	0	1	0	1
Arkansas	0	0	1	1	0	0	1	0	3
California	0	0	0	1	0	0	0	0	1
Colorado	8	10	0	0	0	0	0	0	18
Connecticut	2	1	0	0	0	0	0	0	3
Dist. of Columbia	0	0	0	0	1	0	0	0	1
Florida	0	0	0	1	0	0	0	0	1
Idaho	0	0	0	0	0	0	0	1	1
Illinois	0	0	38	33	0	0	0	0	71
Kansas	0	0	0	1	0	0	0	0	1
Kentucky	0	0	1	1	0	0	0	0	2
Massachusetts	15	21	38	54	0	0	0	0	128
Michigan	0	0	0	0	0	0	1	0	1
Mississippi	0	0	0	1	0	0	0	1	2
Missouri	0	0	1	0	0	0	0	0	1
New Jersey	0	0	0	0	0	0	1	4	5
New Mexico	0	0	0	0	0	0	1	0	1
Ohio	0	0	0	0	0	0	0	1	1
Tennessee	0	0	1	0	0	0	1	0	2
Texas	4	7	0	0	13	17	0	2	43
Washington	0	0	1	0	0	0	0	0	1
Wisconsin	6	2	0	0	9	3	0	0	20
Wyoming	0	0	0	0	0	1	0	0	1
Alaska	0	0	1	1	0	0	0	0	2
Totals	30	41	82	94	23	21	6	9	311

applicant for a license to practice medicine must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four-year course of instruction of not less than thirty-two weeks in each year.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice. The medical practice act requires that the applicant be a graduate of a reputable school whose entrance requirements and course of instruction are as high as those adopted by the better class of medical schools and whose course of instruction embraces not less than four terms of eight months each.

In Wisconsin there is one licensing board. A license issued to osteopathic candidates authorizes them to practice osteopathy and surgery.

In Wyoming, osteopaths are granted the right to practice surgery.

The 103 graduates of unapproved schools were licensed in twelve states and Alaska, namely, Arkansas,

TABLE 11—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1929-1934, Inclusive*

	1929-1933 Inclusive		1934			1929-1933 Inclusive		1934	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed		Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA									
University of Adelaide	2	0 0	1	0 0	Regia Università di Milano	1	0 0		
University of Melbourne	1	0 0			Regia Università di Modena	5	80 0		
University of Sydney					Regia Università di Napoli	117	65.8	25	100 0
AUSTRIA									
Karl Franzens Universität, Graz	10	56.3	3	33.3	Regia Università di Padova	8	62.5	4	50 0
Leopold Franzens Universität, Innsbruck	4	25 0			Regia Università di Palermo	30	66.7	4	100 0
Universität Wien	63	23 0	10	30.8	Regia Università di Pavia	4	50 0		
BELGIUM									
Université Catholique de Louvain	9	40 0	1	100 0	Regia Università di Pisa	2	0 0		
Université de Liège	1	0 0	1	100 0	Regia Università di Roma	50	52.0	12	50 0
Université Libre de Bruxelles			1	0 0	Regia Università di Siena	1	0 0	12	50 0
CHINA									
Pennsylvania Medical School Shanghai	2	0 0			Regia Università di Torino	1	100 0		
CHIOSEN									
Sverance Union Medical College Kefjo			1	100 0	JAPAN				
COLOMBIA									
Universidad de Cartagena	1	0 0			Kelō Gijuku University Tokyo	1	0 0		
CUBA									
Universidad de la Habana	13	27.8	5	60 0	Nagasaki Medical College	1	100 0		
CZECHOSLOVAKIA									
Deutsche Universität Prag	17	64.7	4	0 0	Tohoku Imperial University Sendai	1	100 0		
Masarykova Universita Brno	3	100 0	1	100 0	Tokyo Charity Association Medical College	3	33.3		
Universita Karlova Praha	11	27.3	1	0 0	MANCHUKUO				
Univerzita Komenského Bratislava	1	100 0	2	50 0	Mukden Medical College	1	100 0		
DFNMARK									
Københavns Universitet	2	50 0			MEXICO				
DOMINICAN REPUBLIC									
Universidad de Santo Domingo	4	25 0			Escuela de Medicina de Nuevo León Monterrey	1	0 0		
ENGLAND									
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	18	5 6	0	0 0	Escuela Libre de Homeopatía México D F	2	0 0		
University of Liverpool	1	0 0			Escuela Libre de Homeopatía del Estado de Puebla	1	100 0		
University of London	1	0 0	2	0 0	Escuela Médico Militar México D F	1	0 0		
University of Oxford	1	0 0			Universidad de Guadalajara	12	41.7		
University of Sheffield	1	100 0	1	0 0	Universidad Nacional México D F	20	5 0		
ESTONIA									
Universitè de Tartu	1	0 0			NETHERLANDS				
FRANCE									
Universitè de Bordeaux	5	80 0			Rijks Universiteit te Liden			1	0 0
Universitè de Lyon	2	0 0			Universiteit van Amsterdam	2	50 0		
Universitè de Montpellier	1	100 0	1	0 0	NEW ZEALAND				
Universitè de Paris	27	25.9	3	66.7	University of New Zealand	1	0 0		
Universitè de Strasbourg			2	50 0	NORWAY				
Universitè de Toulouse	1	0 0			Kongelige Frederiks Universitet Oslo	3	0 0		
GERMANY									
Albert Ludwigs Universität Freiburg	11	36.4	3	33.3	PERSIA				
Albertus-Universität Königsberg	3	33.3	1	100 0	Government Medical School Teheran			1	100.0
Christian Albrechts-Universität, Kiel	3	33.3			POLAND				
Eberhard Karls Universität, Tübingen	2	50 0			Uniwersytet Jana Kazimierza Lwów	4	25 0	2	50 0
Friedrich Alexanders Universität Erlangen	3	66.7	2	50 0	Uniwersytet Stefana Batorego Wilno	1	0 0		
Friedrich Wilhelms-Universität, Berlin	20	41.4	20	55 0	PORTUGAL				
Georg August Universität Göttingen	1	0 0			Universidade de Coimbra	2	0 0		
Hamburgische Universität	2	0 0	3	33.3	Universidade de Lisboa	4	0 0	2	100 0
Heersche Ludwigs Universität Gießen	1	0 0			Universidade do Porto	7	57.1		
Johann Wolfgang Goethe-Universität Frankfurt am Main	2	50 0	5	40 0	RUMANIA				
Julius Maximilians Universität Würzburg	6	83.3	6	33.3	Universitatea din Bucuresti	2	50 0		
Ludwig Maximilians Universität München	8	12.5	12	16.7	Universitatea Regele Ferdinand I din Cluj	6	83.3	2	50 0
Rheinische Friedrich Wilhelms Universität Bonn	3	33.3			SCOTLAND				
Schlesische Friedrich Wilhelms Universität, Breslau	4	75 0	12	41.7	Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh			3	0 0
Thüringische Landesuniversität Jena	6	33.3			Licentiate of the Royal College of Physicians of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons Glasgow	14	50 0	6	16.7
Universität Greifswald	1	0 0	2	50 0	School of Medicine of the Royal Colleges Edinburgh	1	0 0	2	0 0
Universität Heidelberg	2	50 0	8	25 0	University of Aberdeen	5	40 0	5	0 0
Universität Köln	3	33.3	3	66.7	University of Edinburgh	50	7.1	5	20 0
Universität Leipzig	3	33.3	0	66.7	University of Glasgow	6	16.7	3	0 0
Westfälische Wilhelms Universität Münster			1	100 0	University of St Andrews	27	18.5	25	12 0
GREECE									
National University of Athens	22	77.3	1	100 0	SPAIN				
HUNGARY									
Magyar Királyi Erzsébet Tudományegyetem Pecs	10	50 0			Universidad Central de España Madrid	7	23.6	1	0 0
Magyar Királyi Ferenc József Tudományegyetem Szeged	1	100 0			Universidad de Barcelona	2	0 0		
Magyar Királyi Pázmány Petrus Tudományegyetem Budapest	24	20.8	5	60 0	Universidad de Sevilla	1	0 0		
IRELAND									
Licentiate of the Royal College of Physicians of Ireland Licentiate of the Royal College of Surgeons in Ireland	2	0 0			SWEDEN				
National University of Ireland	14	14.3			Kungl Universitetet i Uppsala	1	0 0		
Queen's University Belfast	5	20 0			SWITZERLAND				
University of Dublin	2	50 0			Universität Basel	1	0 0		
ITALY									
Regia Università di Benito Mussolini Bari	1	100 0			Universität Bern	0	55.6	0	66.7
Regia Università di Bologna	12	41.7	5	80 0	Universität Zürich	6	50 0	1	0 0
Regia Università di Catania	4	50 0			Université de Genève	9	33.3	8	37.5
Regia Università di Firenze	7	42.9	2	50 0	Université de Lausanne	1	0 0		
Regia Università di Genova	5	80 0	2	50 0	SYRIA				
Regia Università di Messina	1	0 0			American University of Beirut	3	0 0	2	0 0
ITALY—Continued									
Regia Università di Napoli	117	65.8	25	100 0	Université de St Joseph Beyrouth	3	0 0	1	100.0
Regia Università di Padova	8	62.5	4	50 0	TURKEY				
Regia Università di Palermo	30	66.7	4	100 0	University of Istanbul	3	66.7		
Regia Università di Pavia	4	50 0			UNION OF SOCIALIST SOVIET REPUBLICS				
Regia Università di Pisa	2	0 0			Dnepropetrovsk Medical Institute	2	100 0		
Regia Università di Roma	50	52.0	12	50 0	First Leningrad Medical Institute	4	7.0		
Regia Università di Siena	1	0 0	12	50 0	First Moscow Medical Institute	7	71.4	1	100 0
Regia Università di Torino	1	100 0	2	0 0	Irkutsk Medical Institute	1	0 0		
JAPAN									
Kelō Gijuku University Tokyo	1	0 0			Kharkov Medical Institute	11	54.5		
Nagasaki Medical College	1	100 0			Kiev Medical Institute	8	50 0	1	0 0
Tohoku Imperial University Sendai	1	100 0			Odesa Medical Institute	4	50 0		
Tokyo Charity Association Medical College	3	33.3			Psycho Neurological Institute Petrograd	2	100 0		
MANCHUKUO									
Mukden Medical College	1	100 0			Saratov Medical Institute	5	80 0	1	100 0
MEXICO									
Escuela de Medicina de Nuevo León Monterrey	1	0 0			Sverdlovsk Medical Institute Rostov on the Don	3	0 0		
Escuela Libre de Homeopatía México D F	2	0 0			Tomsk Medical Institute	0	50 0		
Escuela Libre de Homeopatía del Estado de Puebla	1	100 0			Voronezh Medical Institute	2	0 0		
Escuela Médico Militar México D F	1	0 0			YUGOSLAVIA				
Universidad de Guadalajara	12	41.7			Beograd kog Univerziteta			2	50 0
Universidad Nacional México D F	20	5 0			Zagreb kog Univerziteta	1	0 0		

TABLE 12—*Graduates of Medical Faculties in Countries Other than the United States and Canada Examined — 1934*

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
40 Universitatea Regala Ferdinand I in din Cluj		0 1																			
41 Liceul de Medicina si Farmacie din Cluj																					
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California, Florida, Idaho, Illinois, Massachusetts, Mississippi, New Jersey, Ohio and Texas Arkansas, California, Florida, Idaho, Mississippi, Ohio and Alaska each licensed one In most of these states there was a specific reason for registration Texas registered two and New Jersey four Three nongraduates were registered in Kansas, Kentucky (limited license) and Mississippi (by special act of the legislature) Illinois recognizes a medical school that is not in good standing with other state boards The Massachusetts law has already been described These data for 1934 are illustrated also by a chart

It is to be regretted that some states, even in small numbers, grant licenses to individuals unacceptable to the medical profession The medical profession should be ever watchful and untiring in its efforts to prevent osteopaths from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate

The figures showing the states that licensed other than graduates of approved medical schools in 1933 are also shown For the two year period, twenty-two states, the District of Columbia and Alaska admitted 311 such individuals to the practice of medicine 120 osteopaths and 191 graduates of unapproved medical schools Four more osteopaths were registered in 1934 than 1933 and fifteen graduates of schools not recognized

The Council on Medical Education and Hospitals is now engaged in a resurvey of all medical schools All schools of medicine in the United States and Canada will be visited This survey conducted under the auspices of the Council on Medical Education and Hospitals by Dr H G Weiskotten of Syracuse is a very comprehensive one, three and four days being required to complete a school Assisting in the inspections are the Association of American Medical Colleges and the Federation of State Medical Boards of the United States By the end of the college session, forty-five medical schools will have been visited The findings of the Council should be of assistance to licensing boards

#### GRADUATES OF FACULTIES OF MEDICINE ABROAD

Graduates of faculties of medicine in countries other than the United States and Canada, examined for licensure in 1934, are presented in table 12 Sixty-six medical schools of eighteen European, two Latin American and three countries in Asia were represented There were 285 examined, of whom 170 passed and 402 per cent failed Not included in this table is one graduate of the University of Santo Tomas College of Medicine and Surgery, who failed in California This was an increase of eighty-five over 1933, when 200 were examined, 129 passed and 35.5 per cent failed

Data secured during the last several years indicate that there are approximately 2,000 American students studying abroad who apparently plan to return to the United States to practice In view of the problem created by this migration, the Federation of State Medical Boards in February 1933 adopted a resolution to the effect that no student matriculating in a European medical school subsequent to the academic year of 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and

Hospitals, and graduation from a European medical school after four academic years of attendance, and further submits evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located

This policy of the Federation has been made effective by individual action on the part of the state licensing bodies and the National Board of Medical Examiners and will have its desired effect in the future

TABLE 13—Premedical Education of Foreign Licentates

(Number of graduates of medical faculties abroad constituting additions to the medical profession in 1934 indicating where premedical education was obtained)

	United States	Elsewhere	Records Incomplete	Totals
Arkansas			1	1
California		6		6
Colorado		1		1
Connecticut	1	1		2
Illinois		10		10
Iowa		1		1
Maryland	7	2		11
Massachusetts	2	1	3	6
Minnesota		1		1
Missouri	3	4	1	8
New Jersey	8	5	2	15
New Mexico		1		1
New York	43	118	40	210
Ohio		5		5
Pennsylvania	1	2		3
Texas		3	1	4
Vermont		2		2
West Virginia			1	1
Totals	60	163	60	283

For the purpose of keeping closely in touch with developments in other countries a joint committee was appointed representing the Council on Medical Education and Hospitals, the Federation of State Medical Boards of the United States the New York Board of Regents, the National Board of Medical Examiners, and the Association of American Medical Colleges This committee has functioned and, it is believed, has been of some assistance

Further, in 1934 the Federation of State Medical Boards passed a resolution to the effect that the Federation recommend to its constituent state boards and to the National Board of Medical Examiners that, until adequate information is available, these boards deny graduates of foreign medical schools admission to the various medical licensure examinations

These various endeavors should tend to stop the flow of American students to European countries, since, it has been pointed out, schools in this country are producing more physicians than the country needs and there are more physicians in the United States than are needed to provide adequate medical service

This exodus of American students to Europe began in 1929 The time seemed opportune to analyze those graduates of foreign faculties applying for registration While it is not possible to ascertain with absolute accuracy the American born graduates, a table is presented (table 13) which shows the number of graduates of medical faculties abroad licensed in 1934 who represented additions to the profession They are classified according to premedical training Those who obtained this training in the United States are in all probability citizens of the United States There were sixty-five such individuals registered and 163 with foreign credentials who are probably foreign born The great majority of the latter group were licensed in

New York and were graduates of German faculties The Federation's rulings do not apply to native born Europeans

In table 11 are assembled figures showing the standing during the five year period 1929-1933 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country A similar tabulation is presented for the year 1934 One hundred and twenty-seven schools are included and nine of the licensing corporations of Great Britain During the five year period 916 were examined and 285 in 1934 The largest number examined represented the Regia Universita di Napoli, 117, of whom 65.8 per cent failed, the Universitat Wien in the five year period was second (sixty-three) and the University of Edinburgh was third (fifty-six), while there were fifty in the Regia Universita di Roma A study of the percentage failed is of interest

Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various years he is recorded as such for a given year

NATURALIZATION A REQUISITE FOR LICENSURE

In twenty-nine states there is a requirement that the applicant must either be a naturalized citizen, have taken out first papers or declared intention of becoming a citizen, before a license to practice medicine will be granted The states of Arkansas, Georgia, Kansas, Kentucky, Nebraska, Oklahoma, South Dakota, Tennessee and Wyoming require naturalization Thirteen states require that first papers shall have been taken out, namely, Alabama, Florida, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, New Hampshire, North Dakota, Oregon, Virginia and Wisconsin In Idaho, Indiana (reciprocal applicants must be citizens) Nevada, New Jersey, New York, Ohio and Rhode Island the applicant must have declared his intention of becoming a citizen before being eligible for registration

BASIC SCIENCE BOARDS

Boards for the examination in the basic sciences of all those desiring to secure ultimately the right to practice the healing art functioned in eight states and the

TABLE 1—Subjects of Examinations

	Examinations Required in						
	Anatomy	Bacteriology	Chemistry	Diagnostics	Hygiene	Pathology	Physiology
Arizona	+	+	+		+	+	+
Arkansas	+	+	+		+	+	+
Connecticut	+	+	+	+	+	+	+
District of Columbia	+	+	+		+	+	+
Minnesota	+	+	+		+	+	+
Nebraska	+	+	+		+	+	+
Oregon	+	+	+		+	+	+
Washington	+	+	+		+	+	+
Wisconsin	+			+		+	

District of Columbia in 1934, namely, Arizona, Arkansas, Connecticut, Minnesota, Nebraska, Oregon, Washington and Wisconsin A basic science law has recently been enacted in Iowa Statistics based on the number of candidates certified in 1934, and those who failed to secure this certification, together with totals for other years, are included in the accompanying tabulations

The subjects in which examinations were conducted are listed in table 1

As indicated in table 2, 866 candidates were examined by the nine boards in operation Of this number 815

were doctors of medicine and medical students (referred to hereafter as physicians), thirty osteopaths and thirteen chiropractors, for eight it was not possible to determine what profession they represented. Of the physicians examined, 11 per cent failed, 36.7 per cent of the osteopaths failed and 69.2 per cent of the chiropractors, and of those unclassified 62.5 per cent. There were 725 physicians who passed, nineteen osteopaths, four chiropractors and three unclassified

TABLE 2—Applicants Examined—1934

	Year Enacted	Physi- cians or Medical Students				Chiro- prac- tors				Unclassi- fied		Total Ex- amined	Passed	Failed	Percentage Failed
		P	F	P	F	P	F	P	F						
Arizona	1933	25	10	0	0	0	0	0	0	0	35	25	10	28.6	
Arkansas	1929	66	10	2	0	0	0	0	1	70	68	11	13.9		
Connecticut	1925	101	1	5	2	0	0	0	0	1	110	106	4	3.6	
District of Columbia	1920	39	0	0	0	0	1	0	0	0	49	39	10	20.4	
Minnesota	1927	114	33	5	6	3	3	1	2	167	123	44	26.3		
Nebraska	1927	97	18	0	1	0	0	1	1	118	98	20	16.9		
Oregon	1933*	63	8	0	1	0	0	1	0	73	64	0	12.3		
Washington	1927	87	1	1	0	1	5	0	0	95	89	6	6.3		
Wisconsin	1925	133	0	0	1	0	0	0	0	140	139	1	0.7		
Totals—Examined		815		30		13		8		860					
Totals—Passed		725		19		4		3			751				
Totals—Failed		90		11		9		5				115			
Percentage—Failed		11.0		36.7		69.2		62.5						13.3	

\* Effective January 1 1934

Minnesota examined the largest number, 167, of whom 26.3 per cent failed, while Wisconsin examined 140 and had only 0.7 per cent failures. Arizona, on the other hand, examined only thirty-five, of whom 28.6 per cent failed. Of osteopaths, Minnesota examined the highest number, eleven and Wisconsin examined seven. Minnesota and Washington each examined six chiropractors. Of the total number of applicants examined, 13.3 per cent failed.

TABLE 3—Certificates Issued by Examination, Reciprocity and Endorsement—1934

	Examination					Reciprocity and Endorsement					Registered
	Physicians or Med Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	
Arizona	25	0	0	0	25	0	0	0	0	0	25
Arkansas	66	2	0	0	68	0	0	0	0	0	77
Connecticut..	101	5	0	0	106	0	0	0	0	0	106
District of Columbia	39	0	0	0	39	0	0	0	0	0	39
Minnesota	114	5	1	1	123	65	0	0	0	65	188
Nebraska	97	0	0	1	98	10	2	0	2	14	112
Oregon	63	0	0	1	64	3	0	0	0	3	67
Washington	87	1	1	0	89	0	0	0	0	0	89
Wisconsin	133	0	0	0	139	34	7	0	0	41	180
Totals	725	19	4	3	751	121	9	0	2	132	883

The number of certificates granted by examination, reciprocity and endorsement are listed in table 3. A total of 751 certificates were granted after examination, of whom 725 were physicians, nineteen osteopaths, four chiropractors and three who were unclassified. There were 132 candidates certified without examination, by reciprocity or endorsement, consisting of 121 physicians, nine osteopaths and two unclassified. Minnesota accepted the greatest number without examination, sixty-five, all of whom were physicians, while Wisconsin registered thirty-four physicians.

Table 4 shows the number of candidates examined and certified from 1927 to 1934 inclusive. In 1934, 11 per cent of physicians failed, as compared with 49 per cent of nonmedical practitioners. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed and fifty-nine nonmedical practitioners, of whom twenty-eight, 47.5 per cent, failed. In 1934, 846 physicians and thirty-seven other practitioners were certified. During the eight year period a total of 5,057 physicians were examined, of whom 10.8 per cent failed and 521 other practitioners, of whom 51.1 per cent failed. During this period, 690 physicians were certified without examination, while only thirty-eight other practitioners were so registered.

Altogether, 5,199 physicians and 293 others have been certified in the nine states. From the high percentage of failures in the nonmedical group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of nonmedical practitioners appear-

TABLE 4—Total Candidates—1927-1934

Year	Number of Boards	Physicians or Medical Students					Other Practitioners				
		Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed
1927	5	305	279	26	8.5	26	305	22	15	7	31.8
1928	5	646	580	66	9.3	19	605	59	31	28	47.5
1929	7	668	610	58	8.7	75	685	66	31	35	53.0
1930	7	685	606	79	11.5	104	710	78	30	48	61.5
1931	7	660	586	74	11.2	130	716	107	48	59	55.1
1932	7	667	590	77	11.4	98	688	78	44	34	43.0
1933	8	601	527	74	12.3	117	644	60	30	30	50.0
1934	9	815	725	90	11.0	121	846	51	26	25	49.0
Totals		5,057	4,503	554	10.8	690	5,199	521	255	266	51.1

ing for examination and licensure was very considerable and was growing.

The basic science board seems desirable in states having a multiplicity of examining and licensing boards. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art. Basic science boards are being advocated in several states and bills are pending in the legislature.

### NATIONAL BOARD OF MEDICAL EXAMINERS

Statistics are herewith presented regarding the examinations and the issuance of certificates by the National Board of Medical Examiners. Similar material has been presented consecutively for seventeen years. The National Board was organized in 1915 and since 1922 has conducted its examinations in three parts: parts I and II being written examinations and part III a practical and clinical examination.

Four examinations were held in parts I and II during 1934, at which 1,241 and 633, respectively, were examined. In part I, 809 passed and 85, or 9.5 per cent, failed, and in part II, 583 passed and 50, or 7.9 per cent failed. Since 1922 a total of 11,679 examinations



have been given in part I and 5,945 in part II and up to Dec 31, 1934, 7,517 individuals have been successful in passing part I and 5,295 in passing part II. The figure 11,679 includes over the thirteen year period 2,883 who took incomplete examinations in part I and of the 5,945 who were examined in part II, 33 were incomplete. An incomplete examination is arranged for candidates taking part I at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. The subjects thus postponed may be taken at any

TABLE 1—Examinations in Part III

Examinations of	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	28	23	0	0	0.0
1923	70	75	0	1	1.3
1924	120	114	0	6	5.0
1925	217	206	0	11	5.1
1926	255	243	0	12	4.7
1927	294	272	0	22	7.5
1928	322	306	0	16	5.0
1929	352	336	1	15	4.3
1930	419	400	0	19	4.5
1931	457	419	0	18	4.1
1932	540	521	0	28	5.1
1933	552	527	0	25	4.5
1934	581	548	0	33	5.7
Totals	4,202	3,990	1	206	4.9

examination period after the candidate has completed them in his medical school. Also listed under this heading are those who wish to spend some additional time on one or two subjects. Incomplete examinations were not included when computing percentages, since they represent neither a candidate eligible for certification nor a failure.

The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. There-

TABLE 2—Parts I, II and III, Excluding Duplications

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	16.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,341	1,849	350	187	9.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,802	329	130	6.7
Totals	20,148	15,540	2,729	1,879	10.8

fore they represent examinations conducted rather than individuals examined.

In the thirteen year period there were 1,279 failures in part I, 14.5 per cent, and 617 in part II, 10.4 per cent. The results of the examinations in part III since 1922 are presented in table 1. In 1934, 581 were examined, as compared with 552 in 1933. Of those examined, 5.7 per cent failed, while 4.5 per cent failed in 1933. During 1934, 548 were granted certificates. In 1922, twenty-eight were examined, all of whom were granted certificates. During the thirteen year period 4,202 were examined, of whom 3,995 were granted certificates and 206, or 4.9 per cent failed. Here again

a candidate having failed may subsequently receive a certificate. Since the National Board has functioned, 4,262 certificates have been granted.

The figures in table 2 represent the number of individuals examined during any one year. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1934 a student passed part I but later failed part II, he is listed as having failed. Taking this into consideration there were 2,261 who took the examinations of the National Board during 1934, as compared with 2,277 in 1933. Only 525 were examined in 1922. A total of 15,540 individuals passed one or more of the examinations in the thirteen year period shown and 1,879, or 10.8 per cent, failed. Incomplete examinations have been taken by 2,729 individuals, many of whom have since received certificates.

Diplomates licensed on the basis of their credentials in the United States increased from two in 1917 to 389 in 1934, 2,579 having been so licensed since the National Board was created. A total of 4,262, however, have received the certificate of the National Board. In 1934, diplomates were registered as follows:

State	Number Registered
Arizona	1
California	11
Colorado	2
Connecticut	19
Georgia	4
Idaho	3
Illinois	20
Iowa	4
Kansas	2
Kentucky	2
Maine	6
Maryland	14
Massachusetts	43
Minnesota	5
Mississippi	1
Missouri	9
Montana	5
Nebraska	5
New Hampshire	4
New Jersey	21
New Mexico	3
New York	124
North Carolina	7
North Dakota	4
Ohio	8
Oklahoma	3
Oregon	5
Pennsylvania	17
Rhode Island	8
South Dakota	1
Tennessee	4
Vermont	5
Virginia	1
Washington	7
West Virginia	2
Hawaii and Puerto Rico	9
Total	389

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of the following forty-three states and three territories:

Alabama	Indiana	Nebraska	Pennsylvania
Arizona	Iowa	Nevada	Puerto Rico
Arkansas	Kansas	New Hampshire	Rhode Island
California	Kentucky	New Jersey	South Carolina
Canal Zone	Maine	New Mexico	South Dakota
Colorado	Maryland	New York	Tennessee
Connecticut	Massachusetts	North Carolina	Utah
Delaware	Minnesota	North Dakota	Vermont
Georgia	Mississippi	Ohio	Virginia
Hawaii	Missouri	Oklahoma	Washington
Idaho	Montana	Oregon	West Virginia
Illinois			Wyoming

Some of these states, however, have additional requirements.

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SATURDAY, APRIL 27, 1935

## AMERICAN MEDICAL STUDENTS ABROAD

Recently there has been much discussion of the eventual fate in medical practice of a considerable number of young Americans who, finding themselves unable to obtain admittance to American medical institutions, have gone abroad and enrolled themselves in various foreign medical colleges. It seems reasonable to believe that students who follow the regular curriculum in any of the well established foreign universities and medical schools may eventually find a practical outlet for their knowledge. In other words, they may sooner or later appear before the state medical boards in some of our states and obtain licenses to practice medicine. However, this comment concerns seventy-nine Americans who are now in attendance at the Anderson College of Medicine, a so-called extramural school in Glasgow, Scotland.

The files of the Association of American Medical Colleges contain nearly 100,000 records of applications made during the years 1932, 1933 and 1934. At the request of the Council on Medical Education and Hospitals of the American Medical Association, the college association has made a study of the previous records of the seventy-nine Americans already referred to. Applications were not found for thirty-seven of the seventy-nine students. Either these students did not apply to any American institution or perhaps they applied during the years 1930 and 1931, when the study of applicants was temporarily discontinued. The remaining forty-two students had made one or more applications to an American school during the three years under consideration. Only two however, were accepted in recognized American schools, and four others were accepted in unapproved medical schools. The forty-two applicants made, in all, 651 applications, or nearly fifteen applications each. One applicant had made seventy applications during the three years concerned. This individual applied for registration with the General Medical Council in Great Britain and his credentials were forwarded to the Association of American Medical Colleges for evaluation. When

the report was sent to the General Medical Council registration was refused, but the student nevertheless enrolled in Anderson College.

What will become of these students when they complete the work in Anderson College and attempt to return to the United States to practice? Two years ago the Federation of State Medical Boards of the United States, the New York Board of Regents and the National Board of Medical Examiners adopted resolutions in accordance with which American students who graduate from European medical schools will be admitted to licensing examinations in this country only when the premedical record of the candidate has been approved in advance by one of the licensing boards and only when it has received the endorsement of either the Council on Medical Education and Hospitals of the American Medical Association or the Association of American Medical Colleges. Wide publicity was given to these resolutions in many medical publications. Moreover, the resolutions were forwarded to the General Medical Council of Great Britain. However, the extramural schools of Scotland continue to accept such students in spite of the fact that the General Medical Council of Great Britain has refused to register those who have not complied with the requirements of educational and licensing bodies in this country. Certainly it is unfair for these schools to matriculate students who they know will ultimately be ineligible for license either in Great Britain or in the United States. However, the students themselves are not exempt from responsibility.

Sooner or later most of these students will return to the United States. When they find it impossible to obtain licenses to practice, some probably will set up practice without licenses, creating for the administrative officials in the state concerned a serious problem and demanding the expenditure of considerable money in order to keep them under control. Unless state boards are watchful and adhere faithfully to the policy recommended by their own federation, some of these undesirable applicants may filter into practice in this country.

Every one knows that medical schools are being deluged with the applications of young men who wish to enter the study of medicine. The Commission on Medical Education indicated that there are already some 25 per cent too many men engaged in medical work. The colleges endeavor to select from among the numerous applications that come to them young men who will, they believe, be able to complete the medical curriculum. Nevertheless it is already a well established fact that from 10 to 15 per cent of those who enter medical college fail during their first year. The medical curriculum during the first year is probably the most difficult of that of any branch of study. Physicians, therefore, owe it as a duty to young men who seek their advice to inform them of the difficulties of gaining admission to medical schools, of the difficulties

involved in satisfactorily completing the course, of the fact that failure in one institution means almost certainly an inability to obtain entrance elsewhere, and that study abroad in unacceptable and unrecognized medical schools constitutes a waste of time, effort and money

### DIAGNOSIS OF LEAD ABSORPTION

Some method of determining lead absorption in persons exposed to lead before the onset of clinical poisoning has long been desired. McCord and his co-workers<sup>1</sup> suggested such a method more than ten years ago, but because of technical difficulties the method has not yet been widely employed. The test is based on a search for basophilic erythrocytes, which are believed to be more numerous in the blood of those absorbing lead than in normal persons.

The technic is important. The one now employed<sup>2</sup> has overcome, they believe, the main difficulties. Thin, even blood smears are made on slides and allowed to dry. The proper drying is important since, if excessive, some of the basophil containing cells will not lend themselves to aggregation of their basophilic material. Ordinarily the optimal drying time lies between one and three hours. After drying one half of the slide is overlaid by a strip of filter paper. The filter paper is cautiously moistened with methyl alcohol until it clings to the slide. The paper is allowed to dry until it becomes loose. The slide is then submerged in a Coplin staining jar containing the stain. For the stain, a mixture of borax, boiling distilled water and methylene blue freshly prepared at least every two weeks has been found the most satisfactory. By means of an oil immersion objective and a 10 × ocular fitted with a Whipple grid, counting of the fixed and unfixed portions of the slide is easily accomplished. By choosing a corresponding number of fields the percentage of basophilic aggregations can be determined.

More than 1,600 persons were examined by this technic in 1934. Seven industries using lead and controls chosen largely from office workers were studied. In persons exposed to lead otherwise in normal health the detection of basophil containing red cells in excess of 15 or particularly 2 per cent suggests lead absorption and the possibility of approaching clinical lead poisoning. In persons exposed both to lead and to other substances such as benzene or toluene, abnormal percentages of basophil containing erythrocytes might be produced by the latter or by their combination with lead. In prolonged chronic lead poisoning the test described appears to be of restricted value. The recession of the number of basophilic aggregations is definite even in the presence of frank manifestations

of chronic plumbism. Under certain circumstances, two weeks of lead exposure is ample time to induce increased numbers of basophil containing cells. It is also possible, in the authors' opinion, to rate different departments as to the efficacy of protective devices by means of mass basophilic aggregation tests. Such tests also serve as a means of identification of those workers for whom remedial medical measures are necessary.

It is concluded, then, that the chief value of the test is as a mark of lead absorption and early lead poisoning. As lead poisoning progresses to extended chronicity, the worth of the procedure diminishes.

### THE CONTROL OF PEPTIC ULCER

Probably no disease of widespread occurrence has aroused more extensive and more diverse opinions regarding its nature and treatment than has peptic ulcer. Despite an enormous amount of investigation, the cause of this condition is still unknown. The principal theories of its origin, namely, the vascular, mechanical, constitutional, infectious and neurogenic, have been discussed in a recent review.<sup>1</sup> It appears certain that more is involved than the local lesion in the mucous membrane, which heals spontaneously or under treatment but may later reappear. Although the course of the disease may be altered by complications, in the average case it usually does not become more severe as time goes on but tends to persist throughout life. The disease is rarely fatal and does not generally shorten life.

The methods now used in the control of peptic ulcer may be considered as medical and surgical. In a recent study<sup>2</sup> based on experience with 1,435 cases, the conclusion is drawn "that none of the present methods of treatment do more than assist in the induction of remissions, no matter how strict the medical schedule or how radical the operation." Apparently, surgical methods may produce longer periods of freedom from symptoms than medical treatment, but the former carry a definite threat to life and often produce mechanical situations that make subsequent attacks difficult to control. In the opinion of these investigators, surgical intervention should be used only to accomplish definite purposes, such as to close a perforation, to remove a permanent obstruction, to combat a hemorrhagic tendency or to treat cases in which there is a reasonable indication of cancer or malignant degeneration. Their procedure of choice is first to prevent or to minimize factors that may cause a relapse, as fatigue, worry, emotional disturbances and infection, and second to place the patient on a suitable type of medical treatment. It is wise at the outset to inform the patient frankly of the nature of his disease, that it does not seriously threaten his life and usually does not tend to progress in severity.

<sup>1</sup> McCord C. P., Minster Dorothy K. and Rehm Mathilde. The Basophilic Aggregation Test in Lead Poisoning. *J. A. M. A.* 82: 1759 (May 31) 1924.

<sup>2</sup> McCord C. P., Holden F. R. and Johnston Jan. The Basophilic Aggregation Test for Lead Absorption and Lead Poisoning. Industrial Health Conservancy Laboratories Cincinnati 1935.

<sup>1</sup> Rivers A. B. Clinical Consideration of the Etiology of Peptic Ulcer. *Arch. Int. Med.* 53: 97 (Jan.) 1934.

<sup>2</sup> Emery E. S. and Monroe R. T. Peptic Ulcer. Nature and Treatment Based on a Study of 1,435 Cases. *Arch. Int. Med.* 55: 271 (Feb.) 1935.

although it may limit his activity and perhaps cause some discomfort at times, and that although there is no certain means of permanently curing the disease there are measures that will make him more comfortable and efficient at his work. An adequate amount of rest is essential.

The diet in peptic ulcer must fulfil several requirements. It must contain all the dietary constituents recognized as essential by modern authorities on nutrition, it should consist of foods that are not too coarse, and it should contain only sparing amounts of the condiments. A comparison of certain of the medical treatments with surgical procedures<sup>2</sup> has shown that better results are obtained medically. Treatment by the "complete Sippy regimen" yielded satisfactory results in 90 per cent of the cases, the "partial Sippy" in 87 per cent, and the "five meal plus alkali schedule" in 82 per cent. Surgical treatment, on the other hand yielded satisfactory results in from only 53 to 70 per cent of the 480 cases observed. A lack of improvement in cases treated by the three foregoing medical procedures and the surgical method was found in 51, 78, 133 and 186 to 413 per cent respectively. Extensive data furnish a convincing demonstration of the efficacy of proper medical treatment, particularly the complete Sippy regimen, in the control of peptic ulcer and its general superiority to the surgical procedure.

The value of gastric mucin in the treatment of peptic ulcer has been the subject of a number of recent investigations. Apparently, the justification for its trial as a therapeutic agent is based on the fact that mucin exerts a protective effect on the membranes with which it comes in contact by virtue of its viscous nature and perhaps because of its buffer action. Clinical use of the material has yielded beneficial results in some instances. A recent report<sup>3</sup> based on the information derived from questionnaires concerning 494 patients with peptic ulcer treated by clinicians throughout the United States indicates that mucin therapy successfully controlled the symptoms in a large majority of the cases and failed in 7 per cent. The favorable results were striking in cases of intractable ulcers in which accepted orthodox measures including operation, had failed. Complete relief was obtained in 63 per cent of these cases, whereas 75 per cent were not benefited. However, other reports are not so favorable.<sup>4</sup> One of the objections to mucin therapy appears to be that gastric mucin is extremely unpalatable,<sup>2</sup> an objection that has been exaggerated, according to some investigators<sup>3</sup> by the failure of patients to prepare the substance in suitable mixtures so as to disguise as much as possible the distasteful qualities.

The value of certain therapeutic agents, such as gastric mucin, is yet to be adequately determined.

## Current Comment

### BASIC SCIENCE BOARDS

As is indicated elsewhere in this issue (page 1518) there are now nine states which have basic science boards, and a basic science law has recently been enacted in Iowa. Moreover, such laws are pending in a number of other states. The figures as to the operations of the boards are significant. Of the physicians examined by such boards last year, 11 per cent failed, of the osteopaths, 36.7 per cent failed, of the chiropractors, 69.2 per cent failed, and of those unclassified, 62.5 per cent failed. Figures of this kind should indicate more definitely than any argument the importance of establishing minimum standards of education for all who propose to heal the sick. The data indicate equally the fact that this minimum of education is not available to the vast majority of osteopaths, chiropractors and other cultists who wish to practice the healing art. The records for the period 1927 to 1934 are even more convincing. From the percentage of failures in the non-medical group, it is clear that the basic science boards render a most valuable service to the people of the states which have established such restrictions on those in the practice of medicine. The basic science board is particularly desirable in those sections which have a multiplicity of examining boards, giving the people the security that comes with the knowledge that those who practice any form of healing have at least a certain minimum qualification in the way of general education.

### "A MIND THAT FOUND ITSELF"

Twenty-five years ago Clifford W. Beers<sup>1</sup> wrote a book called "A Mind That Found Itself." The National Committee on Mental Hygiene came into existence largely as a result of the publication of this book, which has been described by Booth Tarkington as a "unique human record of inner experience." It is the autobiographical account of a young man whose brother died of epilepsy. The young man gradually developed a fear that he might become stricken with the same disease. For five years he led the life of a neurasthenic. He finally broke down and was placed in a sanatorium. He gives a description of his life in the institution and the gradual recovery. In connection with the celebration of the twenty-fifth anniversary, the publishers have issued a new edition of the book. The new edition is supplemented with a series of letters from important people who took part in the mental hygiene movement. Associated with the publication of the new edition is another book (issued in a limited number of copies and consisting of tributes to the book) by Wilbur L. Cross and many others and also a description of the National Committee on Mental Hygiene and its activities. Today the movement is well established and gaining impetus, no doubt because the activities of this organization fill a real need.

<sup>3</sup> Fogelson, S. J. Gastric Mucin Treatment for Peptic Ulcer. A Report Based on Questionnaires. *Arch. Int. Med.* 55: 7 (Jan.) 1935.  
<sup>4</sup> Gastric Mucin. Preliminary Report of the Council on Pharmacy and Chemistry. *J. A. M. A.* 102: 767 (March 10) 1934.

<sup>1</sup> Beers, C. W. *A Mind That Found Itself*. New York: Doubleday, Doran & Co., 1935.

## Association News

### THE ATLANTIC CITY SESSION

#### University of Pennsylvania Medical Alumni Smoker

During the coming annual session of the American Medical Association in Atlantic City, the Medical Alumni of the University of Pennsylvania will hold a reunion and smoker on the evening of Wednesday, June 12, at the Hotel Claridge.

Early registration of those expecting to attend is requested. Communications may be addressed to Robert A. Kilduffe, M.D., Atlantic City Hospital, Atlantic City, N. J.

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 p.m. central standard time). The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

May 2 Being Your Age  
May 9 Saving Our Mothers  
May 16 Children's Eyes

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

April 30 Child Health W. W. Bauer, M.D.  
May 7 Mothers of America W. W. Bauer, M.D.  
May 14 Training Good Doctors W. D. Cutter, M.D.

### ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty First Annual Meeting held in Chicago Feb. 18 and 19, 1935

(Continued from page 1450)

#### The Hospital Administrator

DR. A. C. BACHMEYER, Chicago. Much of the work in x-ray and laboratory procedures can be performed by well trained, skilful technicians working under competent supervision. The final interpretation of the x-ray film, the performance of fluoroscopic examinations and the personal supervision of roentgen therapy should always be the direct responsibility of the roentgenologist, who, in addition to his basic medical training, has had further instruction, training and experience in this special field. The roentgenologist who returns his report after study of the films alone and who does not acquaint himself also with the clinical observations or personally examine the patient in many instances is not giving adequate service. Neither is the service satisfactory if the films are made by a technician and interpreted by a physician or surgeon who has not had special training in radiology.

Similar principles apply to the work of the pathologist. Much of the work can be performed by skilled technicians, but here also the final results should be checked and interpreted to the clinician by the pathologist, who has had special training beyond that given in the basic medical course. Laboratory tests and analyses made by unsupervised technicians or interns frequently are wrong. Postmortem examinations should never be made by any one except a competent pathologist. In the case of biopsy examinations it is essential that a proficient pathologist supervise or perform the technical work and personally make the examination and report. Frequently the reports emanating from the clinical or pathologic laboratory may leave the physician or surgeon in doubt or tend to confuse him. In such instances consultation with a well qualified pathologist is of great value. As in the case of the roentgenologist so here the hospital staff should number among its members a well qualified

and competent pathologist, who should be held responsible for all clinical and pathologic laboratory work performed in the institution.

The situation with reference to general anesthesia is somewhat different. The most satisfactory solution of this problem is encountered in those institutions in which a well trained physician anesthetist is selected by the surgeon but directly paid by the patient. The number of such anesthetists does not as yet suffice to meet the needs for this service. When one considers the large number of major surgical procedures performed each day in thousands of hospitals and the comparatively small number of competent physician anesthetists, it is apparent that this ideal is not everywhere obtainable at present. In the many instances, however, in which such proficient service is not obtainable, the interests of the patient demand that the services of the best trained anesthetist available be utilized. Emphasis should be placed not on the fact that the anesthetist is or is not a physician but on the training and competence of the individual. The undergraduate course in medicine in most colleges contains but meager instruction in anesthesia, and such a course alone does not provide the training and experience requisite to produce a competent anesthetist. Neither is such training obtained in the course of the usual internship. The idea that any practicing physician can satisfactorily and efficiently administer a general anesthetic is erroneous. While it may be true that the proficient physician anesthetist can relieve the surgeon of some of his anxiety concerning this phase of his responsibilities, he or she cannot relieve him of all responsibility for the anesthetic. The surgeon must be in control of the entire surgical team, and the decisions incident to all procedures during the course of the operation must emanate from him.

There is a place for the nonprofessional but well trained, skilful anesthetist in institutions at present and there will be until there are a sufficient number of physicians with special training for this service.

I have not dwelt on the economic factors that enter into this problem. Theoretically, the cost of service should be of secondary consideration. All are aware, however, of the fact that costs loom large in one's considerations at all times. I would hold to the principle that the professional man should receive adequate compensation for his services whether that compensation be derived from individual fees paid by the patient or paid in some other way. I have indicated that the former procedure has worked with most satisfaction in the case of the physician anesthetist and know that in some instances it likewise is used in the case of the roentgenologist. In the instance of the pathologist, particularly the clinical pathologist, there are many complications and except for individual laboratories apart from hospitals it does not appear to be very practical.

It appears that from the point of view of a hospital administrator that:

1. The x-ray work in a hospital should be under the control of and supervised by a competent roentgenologist.

2. Likewise the clinical and pathologic laboratory service should be under the control and supervision of a well qualified pathologist.

3. The anesthesia service should, when possible, be performed by qualified physician anesthetists, but the services of well trained, skilful technician anesthetists are preferable to those of the untrained physician.

#### Administrative Aspects

DR. A. T. McCORMACK, Louisville, Ky. I believe that physicians should do everything that has to do with the diagnosis and treatment of disease. I think this principle is basic. Unfortunately it has been departed from to such an extent that the facts must be looked squarely in the face.

The general practitioner must under all the laws be allowed to do anything that he is capable of doing for his patients. I have found that he does everything rather better than most specialists do anything. In 80 per cent of the ills of humanity the general practitioner is far the safest adviser. I believe that one of the most unfortunate practices that have sprung up is that of people going to eminent specialists for examination without first having had the services of the general practitioner.

The discussion presents administrators of state laws with this practical difficulty. If there were enough capable pathologists, roentgenologists and anesthetists to do the job, nobody else would be called on by the doctor at any time. However, there are not enough. Owing to the small numbers in the several specialties, a large number of technicians have been employed. They have too frequently been permitted to do most of the work, and they have too frequently been given too little supervision both in and out of the hospital. This is a situation in which physicians must clean house before they can ask that they shall be given the responsibility and compensation for their work as long as a great deal of it is being done by others.

As between the three specialties, I feel that it is far more important for the anesthetist to be a physician. The highest court decided that a surgeon performing an operation was responsible for every act of his assistants unless they were regularly registered physicians, that he could use unqualified anesthetists at his peril and that in case an accident occurred and he was sued for malpractice he would be liable *per se*.

An amendment was passed to our law providing for the examination and registration of nurse anesthetists. There have been fewer nurse anesthetists each year since that law was passed.

In the matter of laboratory technicians, an equal difficulty was encountered. It was found that in most of the great laboratories pathologists, bacteriologists and chemists were training young men and women to prepare their specimens and carry through their technical operations. It was found that many of these laboratory technicians were connecting themselves with commercial laboratories or were opening laboratories. The law was amended to provide for the examination and registration of laboratory technicians. It is provided that in their certificates they can practice only under the supervision and direction of a registered and legally qualified physician.

In Kentucky, technicians are not pathologists are not bacteriologists, are not roentgenologists. They are technically trained assistants for these specialists. The standards of entrance to training schools for technicians have been raised so that they are required to be college graduates. The final examination and diagnosis whether of a specimen or of a roentgenogram should be made by the physician. In Kentucky, when qualified laboratory technicians in both x-ray and pathologic laboratories have passed the examination, they are certified and can act as assistants to regularly licensed physicians or dentists and nobody else. They cannot open independent laboratories and they have no right to administer treatment, they remain technicians. Our plan is working to the satisfaction of our physicians. I insist that as physicians we shall take the responsibility for all medical service. I am convinced that anatomists, physiologists, chemists and all others teaching the fundamental sciences to undergraduate medical students should themselves be registered, qualified physicians. I am sure that much of the evil that has grown up around the giving of medical service by those who have not had medical training has come since the development of the nonmedical full time professor in medical schools.

#### The Licensing Board

DR. WALTER L. BIERRING, Des Moines, Iowa. The qualifications for a physician specializing in roentgenology or radiology to be approved by the Council on Medical Education and Hospitals of the American Medical Association must include graduation from an approved medical school and license to practice medicine in the state in which his department is located. He shall also have special training such as is approved by the Council, in radiology, roentgenology or radium therapy at an acceptable school—preceptorship hospital or clinic, department of radiology, roentgenology or radium therapy—for a period of at least three years or, in lieu of such training shall have had a minimum of five years' experience in the exclusive practice of radiology, roentgenology or radium therapy. To that has recently been added certification after satisfying a qualifying examination by a special examining board in roentgenology.

An effort has been made in certain metropolitan hospitals to distinguish between x-ray operators or technicians and licensed physicians or certified roentgenologists or radiologists the latter

acting as a consultant for the diagnosis and proper interpretation of prepared x-ray films. On the other hand, radiology may be regarded as a type of general practice conducted by a specially trained physician.

The production of roentgenograms to fulfil their full service to the patient should be prepared by a roentgenologist.

Fluoroscopic examinations and roentgen diagnosis can be assumed without argument to be medical procedures.

Roentgenology is now generally recognized as a form of specialized medical practice and comes properly within the sphere of licensure requirements.

The clinical pathologist does not imply the direct contact between patient and physician that prevails in radiology, yet the fundamental training for this service is equivalent to that required for the practice of medicine.

A service to the patient that includes diagnosis fundamental for proper treatment and prognosis is distinctly a medical procedure and should be rendered only by a licensed physician.

The administration of anesthetics, while primarily a physician's responsibility, has been delegated in many instances to specially trained nurses, assistants and other nonmedical anesthetists.

The primary consideration always is the safety of the patient, and, while experience has amply demonstrated that nurses, when properly selected and trained, can administer certain types of anesthetics as safely and satisfactorily as can physicians, they are obviously limited to the administration of ether and certain forms of gas anesthesia.

With the remarkable advancement in the knowledge of anesthetics and their dangers, particularly the introduction of different forms of local anesthesia—intravenous, rectal and intraspinal administrations—anesthesia has definitely invaded the field of medical practice.

Modern surgery owes its existence to the science of anesthesiology. Neither can exist without the other, and anesthesiology therefore is gradually being regarded as a medical specialty. The fatalities that occasionally occur in connection with ether and other forms of inhalation anesthesia incident to primary respiratory failure or sudden cardiac standstill as well as the hazards attending spinal or caudal administration brings the service of anesthesia definitely within the province of the physician.

The proper appreciation of the patient's physical condition and prompt recognition of danger signals constantly emphasizes the need of medical training.

In Iowa and a number of other states, anesthesia is regarded as a prerogative of the physician and cannot be delegated to a lay person without violation of medical laws.

The gradual acceptance of the anesthetist as a medical specialist must eventually place the responsibility of administering anesthetics of all types within the function of the licensed physician. Nurse anesthetists may be continued, for certain practical reasons into the future to carry on anesthesia under the direction of a physician. It is however to be remembered that any act which requires medical supervision is *per se* a professional act.

The certification or licensing of qualified technical assistants in any profession or medical activity is being recognized as a necessary essential in rendering proper medical service. It seems particularly applicable in connection with the technical operation of roentgenology and clinical pathology. It can perhaps also be applied to the practice of anesthesia but to a much less degree.

Each of the practices of radiology, clinical pathology and anesthesia are assuming more and more the function of professional service and as such will eventually be governed by licensure requirements.

#### DISCUSSION

DR. ALBERT SOILAND, Los Angeles. Not only should the radiologist be licensed to practice medicine but clinical radiology should be one of the major subjects in every medical college that claims class A rating. Radiology is being exploited not only by the hospital, as Dr. Kirklin so well paraphrased, but by altogether too many members of the medical profession. It has always appeared uncomprehensible to me that radiology has been compelled to beg for recognition and fight for its existence as a medical specialty. From every conceivable point of view it has been an inseparable part of clinical medicine and

surgery since Roentgen announced his x-rays in 1895 and Pierre and Marie Curie produced radium in 1898. Since that time the art and science of radiology has penetrated into and become a permanently integral part of every branch or division of the healing art. Who can picture the next forty years progress in radiant energy? Radiologists are now using short wave x-ray energy at 1,000,000 volts potential. Just five years ago the highest obtainable under actual clinical conditions was a little less than 200,000 volts. With such outstanding American physicists as Coolidge, Millikan, Lauritsen, Compton and Tuve cooperating, radiology will eventually yield its ultimate secrets so that all mankind may benefit thereby. The United States has four national radiologic bodies besides hundreds of local organizations. The minimum requirements for membership in any of these radiologic organizations are that the applicant must be a graduate from a recognized college of medicine and surgery and must have a license to practice medicine and be certified of his standing as an upright, moral American citizen by authorities in his own community. As Dr Kirklín points out, radiology in the early days drew into its appealing fold much bad blood, and its illegitimate offspring are apparent everywhere. Recognizing this, the medical radiologist is doing everything possible to set his own house in order, hence the American College of Radiology organized twelve years ago with one thought and purpose, to found an institution which would represent professional standards that every medical radiologist should strive to achieve. Those standards are now being furthered by the work of Dr Kirklín and his fellow members on the recently constituted American Board of Radiology. The one cloud on the horizon is that group of hospitals using laymen technicians or radiologists of questionable status who are in full control. I agree with Dr Kirklín's outline of the Cleveland Hospital plan. There can be no separation into minor or major radiology. The simplest radiologic problem, whether diagnostic or therapeutic, is inseparably major. It is hoped that this symposium will develop a satisfactory plan whereby all hospitals may get a clean bill of health for their radiologic departments.

DR. J. J. MOORE, Chicago. I was taught that pathology was the foundation on which the superstructure of medicine was constructed, that symptoms and signs were the results of pathologic processes and that therapy was instituted to prevent, alleviate or cure pathologic changes. If a license is required for those who diagnose and treat, why should not the same be necessary for those who find the cause for diagnosis and treatment? The first group of specialists to be approved as specialists by the American Medical Association and not self-selected as in all other specialties but the radiologists were the pathologists, and this association requires them to have three years of special training after graduation and to be licensed. In addition, the American Medical Association requires that all hospitals approved for interns have autopsies performed on at least 15 per cent of those who die and that these autopsies whenever possible be performed by approved pathologists. In Chicago 500 or 600 licensed physicians gather weekly to see the material displayed by and listen to the comments on medicine of one pathologist. Would it seem right that the students should be licensed and the teacher unlicensed? The active pathologist consults daily with many physicians, he examines and diagnoses cases, he suggests methods of therapy and he frequently administers therapeutic agents. He is constantly practicing medicine and would be legally endangered if he did not have a license. Furthermore, he testifies both as a witness to fact and as an expert in medicolegal cases. For the protection of patients I believe that a law should be passed permitting only licensed pathologists to direct clinical laboratories.

DR. WILLIAM R. DAVIDSON, Evansville, Ind. The problem of technicians has been before the Indiana board for the past two or three years and the following instances have come up. An organization of nurses wrote a letter announcing that it proposed to open in Indiana laboratories for clinical diagnoses and would be prepared to examine all pathologic material including serologic specimens. An x-ray technician without any medical training whatever had worked in an x-ray laboratory long enough to distinguish between a Coolidge tube and a switch and then decided he would open a diagnostic laboratory. An

injured child was taken to a very capable surgeon, who found no evidence of fracture but made a diagnosis of a strain on the annular ligament of the wrist. He had no roentgenogram made and all the neighborhood busybodies persuaded the family to take the child to this technician, who, not knowing anything about epiphyses, made a diagnosis of fracture and then there was commotion. Only by taking the child to a competent x-ray man and making a picture of both wrists on the same plate were the parents persuaded that there was no fracture. The chemist of a proprietary medical company had some difficulty with the owners and withdrew, setting up a chemical laboratory for diagnosis, and offered his services to the physicians of the city. He soon was called "doctor" and was making diagnoses of various kinds. A doctor in a nearby state recently wrote a letter to the board, stating that he proposed to install in Indiana an electrocardiograph laboratory, with a trained technician in charge, who was prepared to make diagnosis of heart conditions. In all these cases the board was asked what would be its attitude and the executive officer promptly informed each one that swift prosecution would follow. These are only recent instances of the method by which such inroads have been made. The problem of the nurses in anesthesia has been before the Indiana board for the past year. It began when an anesthetist, a very capable doctor, complained because of the inroads into his practice on the part of a nurse who was paid by the hospital about \$75 per month and maintenance. The charges were made according to the accustomed rate and the hospital kept the remainder. An investigation of the law followed, and the attorney general of Indiana pointed out that a nurse in administering anesthesia was in fact practicing medicine. There has been a tendency in the past year or two for the courts to hold that a surgeon in his work must confine his efforts to that alone, that he cannot be responsible for the condition of the patient. He must have an anesthetist who is responsible for the administration of the anesthetic and the condition of the patient. Each has his proper field. This is a desirable state of affairs. Is the medical profession to abandon, step by step, various phases of its work and allow technicians and nurses to take over that work? The adversity of the last few years has no doubt played a part in this, as nurses and hospitals having decreased incomes see the opportunity to make a partial recompense. On the other hand, the physicians who have also had their adversities and have objected to this. The decisions in California and West Virginia in the past year or so have been of far reaching influence, and I believe that other states should follow along this line.

DR. T. J. CROVE, Dallas, Texas. In Texas there are a number of unlicensed persons practicing medicine who take advantage of the situation to employ an old doctor who is unable to make a living in the practice of medicine. They pay him a salary to act as a foil for the outlaw, who surrounds himself by technicians, anesthetists, pathologists and radiologists. I had a man tell me that he walked into the office of one of them and found sixteen patients waiting to be treated. I believe that every man who has anything to do with the practice of medicine either as an anesthetist or a technician or a radiologist or what-not should be licensed and responsible for the work he does. I have now an attempt on hand to get rid of one such person as I have been talking about. We recently convicted one at Fort Worth, a man who had used the radio and was surrounded, as I have said, by technicians and by an old, discarded practitioner who got a license years ago and was a foil for this outlaw and protected him. If the technician, the anesthetist, the pathologist and the radiologist should be required to be licensed, it might be possible to enforce the medical practice act a little more effectively than it is being enforced now.

DR. AUSTIN A. HAYDEN, Chicago. I am in accord with what Dr McCormack and Dr Crowe have said about the restoration of every medical procedure to licentiates of medical state boards and graduates of medicine, so far as that is possible and so far as the laws of the state will permit. Beyond those limitations, I think that the road for any sort of restoration to licensed physicians must be carefully laid out and carefully followed. My own experience comes from my observation of work in three different kinds of hospitals. The first is a fifteen-bed rural hospital, the second is a fifty-bed college infirmary,



and the third is a 200 bed hospital in Chicago. Speaking from this experience on some of the things that Dr McMechan said, let me say that when I was an intern in a hospital of that sort all the anesthetics were given by doctors, but that system was found to be unsatisfactory. I have no doubt that there were errors in the method according to which the anesthetic service was set up which could be corrected, and perhaps a satisfactory system of anesthesia could be evolved. The physicians that attend the average 200 bed hospital in Chicago number about 100 and we have found it satisfactory to have a nurse that is on call continuously and well trained to do that work. I didn't know there was so much trouble about laboratories as seems to be apparent, and I didn't know there was a great deal of trouble about x rays. I believe that these men should be the highest type of medical practitioner, but I also believe that they cannot do everything themselves, that they have to have technician assistants, and I believe it is proper for them to have them. It might be well for those technicians to be state licensed as they apparently are in Kentucky but so far as I have observed in the operation of laboratories that is not essential.

DR I D METZGER, Pittsburgh. From a legal standpoint it must be assumed that any one who has to do with the welfare of the patient thereby assumes the responsibility and should be licensed to practice medicine. That pertains particularly to the roentgenologist and to the pathologist. In Pennsylvania a record must be made by the consultant in all cases in hospitals, by which that person is placed on the spot with respect to the opinion given in a certain case. Because of that fact the record becomes a legal document which may be used in the courts. An unlicensed person, therefore would have no standing in the courts in such a case. Roentgenologists and pathologists are highly trained technical persons. The science of medicine enters into their work more than it does into the anesthetist's work. Anesthesia however, concerns the art of medicine, not so much the science of it. A clever artist in anesthesia is much to be preferred to one who has a very thorough knowledge of the science of medicine and has little training in the art of practicing that particular form of medicine. I agree with Dr McCormack that the situation must be met as it is. In Pennsylvania there are some 400 hospitals. It became necessary in 1916 to take a definite stand in respect to the administration of anesthesia in our hospitals. Up until that time the cases referred to the surgeon were generally followed by the person that referred them who wanted to have a part in the operation by giving the anesthetic, and the direful effects were so great that it became necessary for the board to step in and endorse some plan by which that could be corrected. Anesthesia is a specialty in medicine. No person has a right to give an anesthetic who has not been especially trained for it. Rather than having an untrained city doctor give an anesthetic just for the sake of securing part of the fees, it is much better to have some one set aside to do that sort of thing in the hospital. The surgeons welcome this particular regime, which was established in Pennsylvania. Therefore it can be readily understood that we are almost led to the employment of persons who make that their own job and do that alone. Theoretically, I agree that the physician is the one who should give the anesthetic, provided he is a specialist in that line. Those specialists are not to be found outside the large cities and specialists cannot be developed to cover the entire state. The small fee that the anesthetists receive does not lead to the development of special anesthetists and in the smaller communities such special anesthetists might have difficulty in getting the cooperation of all the physicians of the district.

DR WILLIAM C WOODWARD, Chicago. I have listened with great interest to what has been said by those who are in intimate touch with the practice of roentgenology pathology and the administration of anesthesia. One thing stands out and that is this. We have here a small body of highly trained specialists who seem to agree that there should be some limitation on the practice of their respective callings. On the other hand, scattered over the country are 150,000 physicians most of whom frequently employ unlicensed practitioners to perform these duties. Obviously there is something wrong with this group or there is something wrong with the other group. The

most important reason for regulating the practice of medicine is the fact that the patient himself is not capable of exercising sound judgment in the making of a choice. On the other hand when he employs a physician he has employed some one who is supposed to be capable of making a choice as to his needs. Therefore the judgment of these physicians who employ unlicensed practitioners to do roentgenologic work or pathology and to administer anesthesia must be bad, or there is something at fault with the judgment of some of the speakers here. I am much disappointed in what has been said with respect to the dangers of the unregulated practice of roentgenology, pathology and anesthesiology, because only one instance has been cited in all the discussion in which anybody was harmed. No one will get anywhere before a legislative body without evidence of facts. It is all right for specialists to give opinion evidence, but certainly if there is any great danger in the unregulated practice of the arts and sciences there must be evidence of that fact. The medical profession should be able to assemble the facts in such a way as to show the extent to which the danger arises from a poorly equipped medical profession and the extent to which it comes from the existence of unlicensed practitioners. In 1930 in the United States there were 702 deaths recorded from anesthetics. These figures are taken from the official records of the United States Census Bureau and refer only to cases in which death was recorded as due to anesthesia. Of those deaths five were attributed to tribrom ethanol, nineteen to chloroform three to cocaine 277 to ether, nine to ether and gas, sixteen to gas fourteen to gas and oxygen five to gas oxygen and ether, twenty-one to the administration of nitrous oxide, five to the administration of nitrous oxide and ether nineteen to procaine and sixty to spinal anesthesia. How many deaths occurred in the practice of licensed physicians and how many occurred in the practice of unlicensed anesthetists? The evidence must be factual evidence. The profession has a long road to travel before it is going to adjust this matter either by creating a sentiment among physicians for the employment exclusively of licensed physicians or procuring the enactment of laws that will accomplish the same result and what is needed in the case is factual evidence rather than opinion.

DR A T MCCORMACK, Louisville, Ky. We realize in Kentucky that our law was defective but it accomplishes the purpose. The surgeon, when he employs a physician anesthetist is not responsible for anesthesia. When he employs a nurse anesthetist, unless she is licensed, he is. In that way we have accomplished our purpose.

DR B R KIRKLIN, Rochester, Minn. There is one thing that hasn't been mentioned and that is this proposed division of radiology into two parts, the technical and the professional, and allowing the hospital to employ the help and provide the service for technical work in radiology. That plan, it seems to me is a bad move so far as radiology is concerned. Another idea in that plan is to allow any one to interpret certain types of radiologic observations, which is bad. It must be remembered that this plan was conceived to enable hospitals to sell group hospitalization insurance. In other words, it is purely commercial. It is a question of who is going to make the money out of radiology.

DR J P SIMONDS, Chicago. I am not surprised that Dr Woodward is disappointed in the outcome of this discussion because I think that in all probability, from his point of view, most of the discussers missed the point. So far as my own presentation was concerned it had nothing to do with the requirement by state law of licensure of pathologists. I was taking it for granted that the pathologist would see that it was to his advantage to possess a license to practice medicine without being required to get one by law. Dr McCormack, I believe mentioned the fact that there were not enough pathologists to go around. There are several reasons for this. There have been so many inroads into the practice of pathology by state boards of health or by various other lay or academic activities that there is not enough material left for any great number of pathologists to make a decent living. The inroads have not been made into the province of roentgenology and anesthetics by the same agencies to anything like the extent

that the inroads have been made into the field of pathology I know of one hospital which in one year, that was before 1929, made \$35,000 out of its laboratory. It paid its pathologist at that time \$2,000. It had enough technicians to make up another \$3,600. The materials used were economically bought and utilized, so that this particular hospital had a profit of somewhere in the neighborhood of \$20,000 from its laboratory. Whether you want to call that exploitation of pathologists and laboratory is a matter, I presume, of opinion.

DR F H McMECHAN, Rocky River, Ohio. Dr Woodward wants some figures. There are figures available that are striking. For instance the only time that the surgical patient is profitable to a hospital is the first week of that patient's stay in the hospital. If a hospital is operating on an overhead of less than \$3 and preferably \$2.50 a day, it may break even the second week of the patient's stay in the hospital, but after that the surgical patient is a dead loss to the institution. The consequence is that the surgical patient must receive services which accomplish a turnover within a period of two weeks unless the hospital is simply to go out of the community for its overhead and its deficits. Where does anesthesia come in in that economic situation? Let me quote figures from the goiter department of the University of California Hospital. The average turnover is six days. It is only the most complicated substernal types of goiter that remain until the seventh, eighth or ninth day and seldom does any patient in that department remain over nine days. At the Lahey Clinic in Boston, using exclusively medical anesthetists, and the Crotti Clinic at Columbus, Ohio, using exclusively medical anesthetists, 17,000 goiters and some 9,000 goiters, respectively, have been operated on with a death rate of a fraction of 1 per cent. Dr Chambers of Doncaster, England, works at the Brampton Hospital. Before Dr Chambers came to the United States and got our latest methods in gas anesthesia, the anesthetics were given by highly qualified medical anesthetists, but when Dr Chambers returned to Brampton Hospital and instituted gas oxygen almost exclusively he took a gross surgical death rate that had been standing in that hospital over a period of years between 4 and 5 per cent and in a four-year period reduced the gross surgical mortality to a fraction over 1 per cent, and the only change that had been made in the surgical service of the hospital was the introduction of Dr Chambers' services as an expert anesthetist and his introduction of gas oxygen anesthesia. Similarly at the North Middlesex Hospital in London, DeCaux, by expert anesthesia and our modern methods of anesthetics, reduced the turnover of patients in the institution from thirty days per patient to eighteen days. Now imagine the saving.

(To be continued)

**The Dancing Manias**—In searching the literature for ancestral forms of infectious diseases of the nervous system, one cannot overlook a curious chapter of human affliction—namely, that dealing with the dancing manias spoken of in medieval accounts variously as "St John's dance," "St Vitus's dance" and "Tarantism." These strange seizures, though not unheard of in earlier times, became common during and immediately after the dreadful miseries of the Black Death. For the most part, the dancing manias present none of the characteristics which we associate with epidemic infectious diseases of the nervous system. They seem, rather, like mass hysterics, brought on by terror and despair, in populations oppressed, famished and wretched to a degree almost unimaginable today. To the miseries of constant war, political and social disintegration there was added the dreadful affliction of inescapable, mysterious and deadly disease. Mankind stood helpless as though trapped in a world of terror and peril against which there was no defense. God and the devil were living conceptions to the men of those days, who covered under afflictions which they believed imposed by supernatural forces. For those who broke down under the strain there was no road of escape except to the inward refuge of mental derangement which under the circumstances of the times took the direction of religious fanaticism—Zinsser, Hans. Rats, Lice and History. Boston, Little Brown & Co. 1935.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ARKANSAS

**Personal**—Dr Doyle W. Fulmer, Little Rock, has been appointed director of the Saline County Health Unit, succeeding Dr Cad A. Henry, resigned.—Dr Howard A. Dishong has been named deputy coroner for Pulaski County.

**Pediatric Society Organized**—The Arkansas State Pediatric Association was organized at a meeting in Little Rock, March 6. In addition to pediatricians, physicians especially interested in the care of the child may enjoy the clinical privileges of the society through associate membership. The first annual meeting of the society was held April 15, during the meeting of the state medical society. Officers are Drs Morgan Smith, chairman, and Madeline A. M. Melson, Little Rock, secretary.

**District Meetings**—At a meeting of the Third Council District Medical Society in De Valls Bluff, April 5, speakers were Drs Russell A. Hennessey, Memphis, Tenn., on "Diagnosis and Treatment of Gonorrhea and Its Complications," Francis W. Carruthers, Little Rock, "Points in Treatment of Fractures of Interest to the General Practitioner," Dewell Gann Jr., Little Rock, "The Cancer Problem," Eugene M. Holder, Memphis, Tenn., "Signs and Symptoms of Acute Surgical Conditions in the Abdomen Usually First Seen by the General Practitioner," and Oliver C. Melson, Little Rock, "Considering the Possibilities in Diagnosis."—The Fifth Council District Medical Society was addressed at a meeting in Magnolia, April 9, by Drs Francis W. Carruthers on the fracture problem, George F. Jackson, cancer of the skin, and Royal J. Calcote, corneal ulcer, all speakers are from Little Rock.—Speakers at a joint meeting of the Sixth Council District Medical Society and the Tri County Clinical Society (Clark, Nevada and Hempstead) in Prescott, March 12, among others, were Drs Guy A. Caldwell, Shreveport, La., on "Errors in Treatment of Fractures of the Long Bones," Merlin J. Kilbury, Little Rock, "Streptococcal Infection and Septicemia," and Herman W. Hundling, Little Rock, "Cancer of the Large Bowel."

### DISTRICT OF COLUMBIA

**The Kober Lecture**—Dr Laurence S. Otell, associate professor of radiology, Georgetown University School of Medicine, Washington, gave the Kober Lecture, March 28. His subject was "Thorium as a Diagnostic Agent." This lecture is given under the auspices of the Kober Foundation of the university.

**Medical Bills in Congress**—S. 2153, to provide for the prevention of blindness in infants in the District of Columbia, has passed the Senate. An amendment proposed by Senator Copeland, New York, was adopted which exempts from the operation of the act "persons treating human ailments by prayer or spiritual means as an exercise or enjoyment of religious freedom."

**Society News**—Dr Fred W. Rankin, Lexington, Ky., addressed the Washington Chapter of the Pan American Medical Association, February 10, on "Early Diagnosis and Treatment of Cancer of the Colon." A meeting was held, March 10, in honor of the late Col. Bailey K. Ashford.—Dr Thomas Milton Rivers of the Rockefeller Institute for Medical Research, New York, discussed filtrable viruses and virus diseases before a meeting of officers of the U. S. Navy Medical Department, March 3.

### FLORIDA

**Bills Introduced**—S. 63 proposes to limit the sale and other distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases, to persons licensed by the state board of health to distribute them. S. 190 proposes to authorize the sexual sterilization of idiot, imbecile, feeble-minded or epileptic inmates of state institutions. S. 255, to amend the law requiring physicians to register annually with the state board of health and to pay a fee of \$1, proposes that after a physician has once registered with the board and paid a fee of \$2 he need not reregister until such time as he changes his residence or the place in which he intends to carry on the practice of medicine. S. 331 proposes to authorize the board of county commissioners

of Columbia County to levy annually a tax not to exceed five mills on each dollar of taxable property, to defray the expense of medical and hospital treatment for indigent residents of the county

## GEORGIA

**State Medical Meeting at Atlanta**—The Medical Association of Georgia will hold its annual meeting in Atlanta, May 7-10, under the presidency of Dr Clarence L Ayers, Toccoa. The scientific program will be presented by the following physicians

Michael J Egan Savannah Ox Fascia Repair in the Cure of Hernia  
Frank H Boland, Atlanta Carcinoma of the Colon  
Allen R Rozar Macon Pneumoperitoncum Following Operation for Hernia  
Charles E Rushin Atlanta Treatment of Varicose Veins and Ulcers  
Thomas P Goodwyn and Henry Walker Jernigan Atlanta The Fifth Lumbar Vertebra as a Cause of Low Back Pain  
Lawson Thornton and James Calvin Sandison Atlanta Treatment of Fractures of the Ilium (Neck of Femur) with Internal Fixation and Immediate Motion of the Joint  
John W Brittingham, Augusta, Hypothyroid Heart Disease  
Thomas F Sellers Atlanta Laboratory Aids in the Diagnosis of Typhoid Fever  
Roy R Kracke and Francis P Parker Emory University Relation ship of Drugs to the Leukopenic State  
Carl C Aven and Albert Worth Hobby Jr Atlanta Treatment of Acute Lobar Pneumonia  
Russell H Oppenheimer Atlanta The Trend of Medical Education  
Zachariah W Jackson Atlanta The Responsibility of the General Practitioner in Diseases of the Eye  
Louis C Roughlin Atlanta Laryngeal Tuberculosis  
David Henry Poer Atlanta Treatment of Thyroid Disorders  
Daniel C Elkin Atlanta Appendicitis Factors Influencing the Mortality  
Sam Brock Augusta Carotid Body Tumor  
Ralph H Chaney Augusta Benign Fibroma of the Small Bowel  
Job C Patterson Cuthbert Acute Ruptured Peptic Ulcer  
Evans B Wood Atlanta Treatment of Syphilis in Pregnancy with the Report of Three Cases of Arsenical Encephalitis Complicating Such Treatment  
Robert C Pendergrass Americus The Chronic Cough  
Charles E. Hall Jr Atlanta Scientific Management of Anal Fissure  
Olin S Cofer Atlanta Treatment of Complete Prolapse of Uterus by the Vaginal Route  
William Perrin Nicolson Jr Atlanta Irradiation Versus Surgery in Breast Malignancies  
James A Fountain, Macon Carcinoma of the Cervix

There will also be a symposium on pediatrics, presented by Georgia physicians. Dr Lewellys F Barker, professor emeritus of medicine, Johns Hopkins University School of Medicine, Baltimore, will deliver the Abner Wellborn Calhoun Lecture on "Treatment by the General Practitioner of the More Common Diseases of the Nervous System," and Reuben L Kahn, Sc D, director of laboratories University of Michigan Medical School, Ann Arbor, Mich., will speak on "Newer Concepts of Immunity and Allergy." On this occasion Dr Austin A Hayden, Chicago, will show a motion picture of the activities at the headquarters of the American Medical Association.

## ILLINOIS

**Bills Introduced**—H 779 proposes to accord to physicians hospitals and nurses treating persons injured through the fault of others liens on all rights of action claims judgments, compromises or settlements accruing to the injured persons by reason of their injuries. H 780 proposes to enact a separate chiropractic practice act. The bill proposes to define chiropractic as the science of palpating and adjusting the articulation of the human spinal column by hand only. H 781 proposes to enact a new chiropody practice act which, apparently, would enlarge the scope of a license to practice chiropody. "A person," the bill states "practices chiropody within the meaning of this act who offers or undertakes, by any means or method, to diagnose, recommend or prescribe for any ailment or supposed ailment of the human foot of another or who offers or undertakes the local, medical, mechanical or surgical treatment of any ailment or supposed ailment of the human foot of another including general manipulative massage, whether manual, mechanical or electrical, except amputation of the foot or toes or the use of anesthetics other than local, or the use of drugs or medicines other than local anesthetics." H 814 proposes to authorize the formation of corporations to operate nonprofit hospital services plan whereby hospital service may be provided by the said corporation or hospital with which it has a contract for such care to those persons who become subscribers to said plan under a contract which entitles each subscriber to certain hospital care. H 818 proposes to make it unlawful to engage in the business of manufacturing cosmetics medicines or drugs without first obtaining a license from the department of agriculture and paying a fee of \$2500. The department is to investigate the contents and ingredients of the cosmetics, drugs or medicines manufactured by the person applying for a license and, if it finds that the articles are adulterated or that any state-

ment in the application is false or misleading or that the brand, name or any label or advertisement of the product gives a false indication of origin, character, composition or place of manufacture, it may refuse to license the applicant

## Chicago

**Society News**—Drs Claude F Dixon, Rochester, Minn, and Fuller Albright, Boston, addressed the Chicago Medical Society at its final meeting for this season, April 24, on "Rectal Cancer Management and Prognosis" and "Hyperparathyroidism," respectively—Speakers at a meeting of the Chicago Society of Internal Medicine April 22, were Drs Margaret M H Kunde, on "Blood Studies on Acetone, Glucose and Glutathione" William A Brams and Otto Saphir, "Adequate Myocardial Nutrition in Occlusion of Both Coronary Arteries" and Nathan S Davis III, "The Incidence of Diseases of the Blood Vessels"—Drs Herbert E Landes and Patrick H McNulty, among others, addressed the Chicago Urological Society, April 25, on "Malignant Tumors of the Testis" and "Carbuncle of the Kidney," respectively

## IOWA

**Uniform Plan of Medical Relief**—The organization of the Iowa State Medical Society will be used in a new uniform plan for medical relief to be launched in Iowa, it is announced. It is proposed to use the eleven districts of the state medical association, which are composed of nine counties each, to coordinate the work. The aim is to eliminate the necessity for small county groups to negotiate with local officials for irregular and frequently unsatisfactory arrangements to care for the poor. Investigation of cases will be made by social workers, who will decide whether a physician is necessary. The family physician will receive an order for medical care and will be paid according to a fee schedule drawn up by the state medical society. Since the plan is designed for counties receiving federal aid it is pointed out that it need not be adopted by those capable of handling their own medical relief situations. Dr Thomas C Denny, recently appointed medical referee in handling emergency relief in Iowa, is chairman of the state organization. There is an advisory group of physicians, and consultants for hospitals and pharmacists. The councilors of the district medical societies will have regional supervision. The county organizations will include the medical relief committee, consisting of the county deputy councilor as chairman, the president and secretary of the county medical society, or, when these titles overlap, a third to be selected by the other two. The committee will act in close cooperation with the county director of relief, who is to authorize all relief service. Heretofore Iowa relief has been administered under five widely different methods with as many minor variations as there are counties.

## MARYLAND

**Conference on Vitamins**—The department of chemistry of Johns Hopkins University Baltimore, announces that its fifth research conference will be held at Gibson Island, June 24-July 12 under the general title of organic chemistry. One week will be given over to a discussion of vitamins by the following speakers: Elmer V McCollum, Sc D Baltimore, Robert R Williams, Roselle N J Charles G King, Ph D Pittsburgh Charles E Bills, Ph D, Evansville, Ind, and Henry C Sherman, Sc D New York. Further information may be secured from Neil E Gordon, Ph D, Department of Chemistry, Johns Hopkins University.

## MASSACHUSETTS

**Public Health Council Created**—Springfield's health department will now be supervised by a public health council instead of the former board of health, newspapers reported February 8. Announcement was also made of the appointment of Dr Lawrence Jackson Smith, Apponaug, R I as health officer. Under the new arrangement, all health work in Springfield will be coordinated under the public health council of which Dr Frank H Baehr is chairman. Other members of the council include A C Rock, DDS, and Dr Eoline B C Dubois.

**Society News**—The New England Health Education Association will hold its tenth annual conference, May 31-June 1, at the Massachusetts Institute of Technology, Cambridge, speakers will include Dr Harold C Stuart, Boston, on nutrition—Dr Philip Solomon, among others, addressed a recent meeting of the Boston Society of Psychiatry and Neurology on "The Psychogalvanic Reflex—Application in Psychiatry and Neurology."—Dr Merrill Moore discussed syphilis of the nervous system before the Boston Medical History Club, April 15.

## MICHIGAN

**Nutrition Project.**—The state emergency welfare relief commission, the Children's Fund of Michigan and the state department of health are cooperating in a program to prevent an increase in scurvy and other dietary deficiency diseases among infants and young children and to assist in making necessary medical care available for needy prospective mothers. The Michigan branch of the American Academy of Pediatrics is acting in an advisory capacity. Members serve as consultants to work with the county medical societies and nurses in their respective districts. The project will continue over a period of six months. According to the state medical journal, the work is based on home calls to families on relief or near the borderline in which there are prospective mothers or young children. The expectant mother receives suggestions and, in families with infants, special attention is paid to dietary supervision to guard against scurvy and rickets. The project was begun at the suggestion of Dr Thomas B Cooley, Detroit, president of the American Academy of Pediatrics.

**Ballin Memorial Lectures.**—The second series of the Dr Max Ballin Memorial Lectures opened April 11, at the North End Community Clinic Detroit with a discussion by Dr Solomon Strouse Chicago on 'Obesity and Malnutrition, Their Causes and Management.' Drs Plinn F Morse and Harold C Mack spoke April 25 on 'Parathyroid and Adrenal Disturbances' and 'Gonadal Disturbances in the Female.' Other speakers in the series will be:

Dr Russell L Haden Cleveland Arthritis in Relation to Endocrinology and Metabolism May 2

Dr Robert C Moehlig Pituitary Disturbances May 9

Dr Israel J Zimmerman Endocrine Studies in Female Sterility May 9

Drs Hugo A Freund and Harry C Saltzstein Thyroid Disturbances May 16

Icie Macy director research laboratory Children's Fund of Michigan Mineral Metabolism and Its Practical Applications May 23

Oliver Kamm, Ph.D. scientific director research laboratory Parke Davis & Co Water Metabolism and Its Practical Application May 23

Dr Israel M Rabinowitch Montreal Que Newer Views in the Diagnosis and Treatment of Diabetes Mellitus June 6

## MINNESOTA

**Bill Enacted.**—H 212 has been enacted as chap 165, Laws 1935, requiring every physician or the governing authorities of every hospital, on treating persons suffering from gunshot or knife wounds, to report the facts immediately to the proper police officials.

**Society News.**—Speakers before the Minnesota Academy of Ophthalmology and Otolaryngology in Minneapolis, February 8, included Drs James F Brusegard Red Wing, on 'Ocular Complications of Rosacea', Alvin Glenwood Athens, Duluth 'A Method and Instrument for Localization of Retinal and Choroidal Lesions' and Henry L Williams Jr, Rochester, 'End Results in 200 Cases of Chronic Maxillary Sinusitis Operation by the Intranasal Route with the Application of the Surgical Principles of Kuster.' Dr Charles N Spratt, Minneapolis, reported a case of retinal detachment.—Dr Herman L Kretschmer, Chicago discussed 'Diagnostic Problems in Urology' before the Hennepin County Medical Society in Minneapolis, recently.

## MISSOURI

**Committee to Study Smoke Problem.**—A subcommittee of the committee on health and public instruction of the St Louis Medical Society has been authorized to make a study of the smoke problem in the city. A similar study will be carried out by a committee appointed by the mayor, it was reported.

**Health Commissioner of Kansas City Appointed.**—Dr Edwin Henry Schorer Kansas City, has been selected as health commissioner of Kansas City, succeeding the late Dr Jabez N Jackson. Dr Schorer graduated from Johns Hopkins University School of Medicine in 1906 and received the degree of doctor of public health from Harvard University in 1912. He served as a fellow at the Rockefeller Institute for Medical Research, New York and was associate professor of parasitology and hygiene at the University of Missouri School of Medicine and later associate professor of pathology and bacteriology at the University of Kansas School of Medicine. During the World War he was chief of the laboratory division of the base hospital at Fort Riley and director of the laboratory division and officer in charge of the laboratory at the Port of Embarkation at Hoboken, N J.

**Personal.**—Dr David P Barr Busch professor of medicine, Washington University School of Medicine, St Louis recently returned from Australia where he lectured at the invitation

of the Melbourne Postgraduate Association. According to *Science*, this association conducts for the physicians of the state of Victoria graduate instruction. During the past decade, it has been the custom to invite each second year a physician from England or the United States to give a series of stated lectures.—Dr Edwin L Sheahan Clayton, has been appointed health commissioner of St Louis County to succeed Dr Louis C Obrock. Dr Sheahan will continue as superintendent of the county hospital in Clayton, a position to which he was appointed January 1.—Dr Arthur E Hertzler was made the first honorary member of the Kansas City Obstetrical and Gynecological Society, March 28. He addressed the society that evening on 'Lesions of the Uterus.'

## NEBRASKA

**Bill Passed.**—H 587 has passed the house, proposing to prohibit the retail distribution or sale of barbitol or other hypnotic or somnifacient drugs, except on the prescription of a licensed physician, dentist or veterinarian.

## NEW HAMPSHIRE

**State Medical Meeting at Manchester.**—The one hundred and forty-fourth annual meeting of the New Hampshire Medical Society will be held in Manchester, with headquarters at the Hotel Carpenter May 7-8. A symposium on obstetrics will be presented by the following Boston physicians: Drs Marion F Cades Frederick C Irving Foster S Kellogg and Richard S Eustis. Other guest speakers will be:

Dr James S McEster Birmingham Ala President Elect of the American Medical Association Nutritive Failures as a Clinical Problem

Dr Crover C Penberthy Detroit Treatment of Burns

Dr Nathan B Van Eetten New York Medical Economics of 1935

Dr Harold E McMahon Boston Bright's Disease

Dr Harry E Mock Chicago Treatment of Skull Fractures

New Hampshire physicians on the program will be:

Dr Chester F McGill Portsmouth Congenital Pyloric Obstruction.

Dr Fred E Clow Wobboro Constipation

Frank H Connell Ph.D Hanover Amebiasis in a Rural Community

Drs John A Coyle and Leslie K Sycamore Hanover Bronchoscopy

A gold medal will be presented to Dr Edward H French, Quincy, Mass., and Potter Place, in recognition of his fifty years of membership in the society. The following physicians who have practiced medicine fifty years will be introduced: Drs Louis W Flanders, Dover Frank E Kittredge Nashua Frank S Lovering Moultonboro William S Manuel Portsmouth Edward E Twombly, Colebrook, and Ellen A Wallace, Manchester. Dr Frederic P Lord, Hanover, is president.

## NEW JERSEY

**State Medical Meeting at Atlantic City.**—The one hundred and sixty-ninth annual meeting of the Medical Society of New Jersey will be held in Atlantic City, April 30 May 2. The house of delegates will meet April 30 general scientific meetings will be held May 1, and sectional meetings May 2. Speakers at the general meetings will be:

Dr Homer I Silvers Atlantic City Lymphogranuloma Inguinale as a Causative Factor in Rectal Strictures

Dr George W Crile Cleveland Polyglandular Disease

Dr David D Berlin Boston Treatment of Chronic Heart Disease by

Total Thyroidectomy

Dr Benjamin Franklin Buzby Camden Acute Osteomyelitis

Dr Paul Dudley White Boston Coronary Disease in Young People

Dr Robert A Mackenzie Asbury Park Causes and Management of

Premature Labor

Dr Earl LeRoy Wood Newark Functional Rest of the Nose in the

Treatment of Upper Respiratory Infections

Dr James B Herrick Chicago Coronary Disease.

Features of the sectional meetings will include a symposium on acute poliomyelitis by Drs John A Kolmer, Philadelphia and William H Park and Maurice Brodie, New York. Other speakers from outside the state include:

Dr Sylvan E Moolten New York Histologic and Pathologic Diagnosis of Primary Carcinoma of the Lung (symposium)

Dr Frederic Maurice McPhedran Philadelphia Roentgen Diagnosis of Childhood Tuberculosis (symposium)

Dr Emanuel Libman New York Diagnostic Studies in Pain with

Reference to Abdominal Disorders

Dr Samuel J Kopetzky New York Influence of Bone Structure on

the Purulent Lesions of the Temporal Bone

Dr Algernon B Reese New York Operative Treatment of Squint

The president's banquet and ball will be held at Chalifont Haddon Hall, Wednesday evening when Dr Lancelot Ely Somerville, will give his presidential address and Dr Marcus W Newcomb, Browns Mills, president-elect, his inaugural address. The woman's auxiliary will also meet during the three days under the presidency of Mrs Arthur J Casselman Camden. The auxiliary will have charge of the annual art and hobby exhibit showing the leisure time accomplishments of members and their families.

## NEW MEXICO

**Appointments to Medical Board**—Gov Clyde Tingley has appointed the following physicians to the state board of medical examiners for four year terms Drs James M Doughty, Tucumcari, Frank H Johnson, Carrizozo, and Tobias Espinosa, Espanola They succeed Drs Robert E McBride, Las Cruces, Percy G Cornish Jr, Albuquerque, and Robert L Bradley, Roswell Dr Frederick F Doepf, Carlsbad is president, Dr Johnson, vice president, and Dr Earle L Ward, Santa Fe, secretary

**Society News**—The New Mexico Public Health Association will meet in Santa Fe, April 30-May 1 in conjunction with the southwestern division of the American Association for the Advancement of Science —Dr Esmond R Long, Philadelphia conducted a clinic on the use of tuberculin at the U S Indian School, Santa Fe, March 3—Dr Arthur J Wheeler, Albuquerque, conducted a discussion of Compression Therapy of Pulmonary Tuberculosis at a recent meeting of the Southwest Indian Service Medical Society in Albuquerque, among other speakers Wives of the members of the society recently formed an auxiliary to meet at the same time as the medical society—Dr Walter A Gekler addressed the Bernalillo County Medical Society, Albuquerque March 6, on The Economic Situation of the Physician and Dr Charles Howe Eller, then county health officer, methods of controlling epidemic meningitis Dr Walter I Werner addressed the society recently on childhood tuberculosis

**Health in New Mexico**—A report of the Bureau of Public Health of New Mexico for the two years 1933-1934 discusses the health problems that face the state During the biennium a state wide health survey was made by Carl Buck, Dr PH of the staff of the American Public Health Association, with funds supplied by the New Mexico Tuberculosis Association and the State Health Protection Fund The report of this survey showed that there are 10,000 cases of tuberculosis in the state and an auxiliary study by the American Social Hygiene Association listed 21,000 cases of syphilis Of the latter, it is said that only 1,000 are under a physician's care Typhoid is a serious problem, 355 cases having been reported in 1933 and 358 in the first eleven months of 1934 In 1934, 218 cases of malaria were reported several drainage control projects for control of malaria are now in progress Diphtheria was found to be decreasing as a result of immunization campaigns and public education Six counties have full time health officers, and the remaining twenty-five have part time officers All but two counties had public health nurses at the time of the report The public health laboratory examined 80,116 specimens during the two years, as compared with 49,052 in the preceding biennium Much of the increase was in connection with the health survey and the Civilian Conservation Corps camps A summary of vital statistics shows that the death rate has decreased from 16 per thousand of population in 1930 to 13.2 in 1933 The infant death rate in 1933 was 133.4, an increase over that of the preceding year, but less than the rates for 1929 and 1930 The birth rate also decreased from 30.2 in 1930 to 28.2 in 1933

## NEW YORK

**New Health District**—A new health district has been established in Tompkins County, with headquarters at Ithaca, as a cooperative project of the U S Public Health Service the state department of health and the Tompkins County Development Association Dr Vivian A Van Volkenburgh, formerly associate in epidemiology at Johns Hopkins University School of Hygiene and Public Health Baltimore is head of the staff, which includes a sanitary engineer a supervising nurse and four public health nurses Local boards of health and local health officers will continue their present activities, according to *Health News* The new district is the first to be developed under the plan for federal aid to rural areas for health work The Tompkins County Medical Society gave its approval at a meeting January 23 at which Dr Thomas Parran Jr, state health officer, explained the proposed plan

## New York City

**Salmon Memorial Lectures**—Dr William Alanson White professor of nervous and mental diseases at George Washington University School of Medicine and superintendent of St Elizabeth's Hospital, Washington, D C delivered the first of the third series of Thomas William Salmon Memorial Lectures at the New York Academy of Medicine, April 12 on "Psychiatry as a Medical Specialty", the second April 19, on "Social Significance of Psychiatry" and the third April 26, on "General Implications of Psychiatric Thought"

**Cornell Alumni Meeting**—The annual "Spring Day" of the Cornell University Medical College Alumni will be held May 2 Lectures, clinics and demonstrations will be held during the day, with all departments of the college and of New York Hospital taking part Alumni will be guests of the governors of New York Hospital at luncheon In the evening there will be a dinner at the Hotel Biltmore, at which the speakers will be Dr Livingston Farrand, president of Cornell Dr James Ewing professor of oncology in the medical college, and Judge William F Bleakley, president of the Cornell University Law Association

**Mayor Presents Certificates for Public Service**—More than 1,600 persons recently attended a dinner at the Waldorf-Astoria in honor of twelve physicians who had served on the staff of the Jewish Hospital of Brooklyn for twenty-five years or more The guests of honor were Drs Simon R Blatteris, Adolph Bonner, Isaac D Kruskal, Max Lederer, John Linder, William Linder, Joshua Ronsheim, Simon Rothenberg, Leo S Schwartz, Herman Shann, Milton G Wasch and Benjamin E Wolfort Among others present was Mayor La Guardia who in expressing his desire to recognize officially "real public service," in contradistinction to "occasional or accidental public service" stated that in the near future he would present to these twelve physicians "certificates for distinguished and exceptional public service" The mayor came to the hospital February 26 and presented to the twelve physicians certificates which he had signed He thus inaugurated in New York City the certificate for public service Other speakers at the ceremony were Borough President Raymond V Ingersoll of Brooklyn, Joseph Baker and Justice Harry E Lewis president and vice president of the hospital, respectively, and Justice Mitchell May, president of the Brooklyn Federation of Jewish Charities Brooklyn The Jewish Hospital is the largest nonsectarian hospital in Brooklyn and, since opening in 1906, has admitted about 175,000 patients

## NORTH CAROLINA

**Bill Introduced**—H 1133 proposes to exempt from taxation all general hospitals which conduct a training school for nurses or which furnish the use of their facilities to indigent patients

**Society Disapproves of Socialized Medicine**—At a meeting in Greenville, March 14, the Second District Medical Society unanimously endorsed the action of the House of Delegates of the American Medical Association at its special meeting in Chicago, February 15-16 and condemned all forms of socialized medicine Speakers at the meeting were Drs Paul P McCain Sanatorium, president of the Medical Society of North Carolina, on "Problems of the Physician" Louis B McBrayer, Southern Pines, secretary of the state society, "Medical Economics", Benjamin J Lawrence, Raleigh, "Traumatic Surgery," and Charles H Ashford, New Bern, "Trigeminal Neuralgia"

## OHIO

**Seventy-Five Years of Practice**—Dr William Eberle Thompson, Bethel, celebrated the completion of seventy-five years of medical practice, newspapers reported recently He was graduated from the Cincinnati College of Medicine, since amalgamated with other schools to form the University of Cincinnati College of Medicine, in 1860 He will celebrate his one hundredth birthday July 6 Dr Thompson has spent his entire life in Bethel

**Concert by Physicians' Orchestra**—The Doctors Symphony Orchestra of Akron gave its fifty-third concert, April 11, at the People's Hospital The orchestra, founded in 1926 is under the direction of Dr Alexander S McCormick It has thirty-seven members, of whom fourteen are physicians Among the musicians are former members of the symphony orchestras of Chicago, Toronto, Cleveland and London, as well as of Sousa's Band and various military bands of the United States and Canada

**Northern Tri-State Meeting**—The annual meeting of the Northern Tri-State Medical Association (Ohio, Indiana and Michigan) was held in Lima April 9 Among speakers were

- Dr John Walker Moore, Louisville Ky Studies on the Circulation in Cases of Hypertension
- Dr Willard Bartlett St Louis Lessons Derived from a Five Year Mortality Study
- Dr Alan G Brown Toronto Ont Errors in Diagnosis and Therapy in Pediatrics
- Dr Ralph A Kinsella St Louis Chronic Arthritis

At the banquet in the evening at the Barr Hotel speakers were Drs Max Cutler, Chicago, on "The Present Position of Radiation in the Treatment of Cancer," and Emil Novak, Baltimore Recent Advances in Gynecologic Endocrinology Dr

Edward P. Gillette, Toledo, was elected president. Dr. Glenn E. Jones, Lima, vice president, and Dr. Jon N. Kelly, Laporte, Ind., secretary.

### OKLAHOMA

**Bills Introduced**—S 281 proposes to authorize the court to require a plaintiff in an action for damages for personal injuries to submit to physical examination, provided the defendant pays the examining physicians' fees and the necessary laboratory and x-ray charges, and other expenses in connection with such examination. H 478 proposes to require the county excise board of each county to levy a tax of not to exceed one-eighth mill of each dollar of assessed value of property subject to taxation to create a hospitalization fund out of which the county is to supply necessary antepartum and postpartum care for indigent women.

### PENNSYLVANIA

**Bills Introduced**—S 848 proposes to authorize the sexual sterilization of inmates of institutions for the mentally defective. H 2065 proposes to accord to every charitable hospital treating persons injured through the fault of others, liens on all rights of action, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries. The proposed lien, however, cannot exceed 50 per cent of any recovery had by the patient.

#### Philadelphia

**Death of Professor Duane**—William Duane, Ph.D., emeritus professor of biophysics, Harvard University, and a pioneer in the development of the fundamental principles in the use of x-rays and radium, died March 7 at his home, aged 63. Professor Duane, a native of Philadelphia and a descendant of Benjamin Franklin, was graduated in 1892 from the University of Pennsylvania and in 1893 from Harvard, taking the degree of doctor of philosophy at the University of Berlin in 1897. At the invitation of the late Pierre and Marie Curie, Dr. Duane went to Paris in 1907 and spent five years collaborating with them in their research on radium. In 1913 he returned to become assistant professor of physics at Harvard, and in 1917 the chair of biophysics was created for him. He divided his time between the physics laboratory at Harvard and Collis P. Huntington Memorial Hospital, carrying out research under direction of the cancer commission of the university until his retirement in 1934 because of declining health. Dr. Duane is credited with the following achievements of medical importance: design and construction of an automatic apparatus for drawing off radon gas from radium into "seeds" for therapeutic use; design and early use of constant potential high voltage x-ray power plant utilizing high frequency generators; pioneer work on the roentgen, the unit by which x-ray dosage is measured; and development of therapeutic use of thorium and uranium target x-ray tubes. Among other organizations, Dr. Duane was a member of the American Roentgen Ray Society, a fellow of the American College of Radiology and honorary member of the Radiological Society of North America, and at one time served as president of the American Society for Cancer Research. Among many honors he received were honorary degrees from the Universities of Pennsylvania and Colorado, the John Scott Medal of the Franklin Institute of Philadelphia, the Comstock Prize of the National Academy of Sciences, and the first Leonard Medal of the American Roentgen Ray Society.

#### Pittsburgh

**Society News**—A symposium on pneumoconiosis was presented before the Allegheny County Medical Society, April 16, by Drs. Lucy Schnurer, Wesley L. Allison, Charles M. Boucek, and Samuel R. Haythorn. In addition Dr. Howard A. Power spoke on 'Trial Labor', Ernest W. Willetts, 'Heredity of Blood Groups' and John A. Hagemann, 'Political Paternalism—A Menace to Medicine'. The public relations auxiliary committee on dispensary practices and policies has recently placed in all dispensaries in the county placards informing patients that the physicians' time and service are given gratuitously.

### RHODE ISLAND

**Committee on Economics Appointed**—The president of the Rhode Island Medical Society, Dr. Albert H. Miller, Providence, recently appointed a committee on economics to consider problems of medical economics as they affect the society to cooperate with similar committees of other state societies and to act as an interim committee on legislation. Members are Drs. James A. McCann, Providence, temporary chairman; Norman S. Garrison, Woonsocket; John Helfrich, Westerly,

Charles L. Farrell and Charles H. Holt, Pawtucket; William A. Mahoney, Anthony Corvese, Herbert E. Harris and Charles F. Gormly, Providence.

### SOUTH CAROLINA

**Tribute to Dr. McLeod**—More than 100 friends of Dr. Frank H. McLeod, Florence, entertained him at dinner, February 26, in honor of his sixty-seventh birthday. The late Dr. William Eggleston, Hartsville, president of the South Carolina Medical Association, was toastmaster, and speakers included Drs. James W. Jervy, Greenville, Robert Wilson, Charleston, Charles R. May, Bennettsville, Charles F. Williams, Columbia, and Marion R. Mobley, Florence. A gold watch was presented to Dr. McLeod by physicians of the Pee Dee section and a silver pitcher by friends of the Columbia Medical Society. Dr. McLeod was president of the state medical association in 1917 and was at one time editor of the *Journal of the Medical Association of South Carolina*.

### TENNESSEE

**Bills Introduced**—S 964, to amend the medical practice act, proposes (1) to eliminate the provision in the present law requiring that the board of medical examiners consist of "four representatives from the regular school, one from the eclectic and one from the homeopathic school of medicine", (2) to require members of the board to have "graduated from an acceptable or class A medical school classified as such by the Council on Medical Education and Hospitals," and (3) to require the governor to appoint the members of the board from a list of names submitted by the Tennessee State Medical Association. H 1339 proposes to prohibit the sale or distribution, except by licensed druggists or by licensed physicians of any 'appliance, drug or medicinal preparation intended or having special utility for the prevention of conception, and/or of venereal diseases'.

### TEXAS

**Bill Introduced**—H 786 proposes to authorize the establishment of a state tuberculosis sanatorium for Negroes.

**The Largest Mottled Enamel Area**—A survey recently completed by the U. S. Public Health Service and the Texas State Department of Health offers evidence that the Panhandle-West Texas district is the largest mottled enamel area in the United States. A less exhaustive study in the east central part of the state revealed another endemic area, the extent of which was not determined. Fifty-three communities in thirty-seven counties in the western area were surveyed by examination of the teeth of school children, usually of the fourth, fifth and sixth grades. A history of the water supply used was taken and the degree of severity of the condition noted in accordance with a classification previously worked out, varying from 'questionable' to 'severe'. Communities were classified according to the percentage of each degree of severity. Only children who had been born in the community and had always used the municipal water supply were counted in the determination of the community's mottled enamel index. Samples of the water supply were taken and were being examined for fluorides in the laboratories of the state health department at the time of the report (*Public Health Reports*, March 29, p. 424). Of the fifty-three towns surveyed in West Texas, only six could be classified as "borderline" or "negative." In Lubbock a town of 20,000, the teeth of all the children examined (176) showed mottled enamel, in Plainview seventy-six out of seventy-eight showed it in some degree in Amarillo, the largest city of the area, only five out of 168 children had normal teeth. The fact that the water supplies of such large towns contain the causative factor in sufficient concentration to produce such a high incidence of mottled enamel has developed an acute public health problem, the investigators concluded. In the east central area only thirteen communities were surveyed, but of these two were classified as "borderline" and none as "negative."

### VERMONT

**Bill Enacted**—S 61 has become a law, prohibiting the sale, distribution or possession of cigarettes, cigars or tobacco, or other commodities intended for smoking, containing cannabis indica.

### HAWAII

**Personal**—A luncheon was given recently by the Honolulu County Medical Society in honor of Drs. John Fraser, Edinburgh, Scotland; Melvin S. Henderson and Donald C. Balfour, Rochester, Minn., and Dean D. Lewis, Baltimore.



## GENERAL

**Society News**—The International Hospital Congress, originally scheduled to be held in Rome, May 5-12, has been postponed to May 19-26.—The Association for the Study of Allergy will hold its annual meeting at the Hotel Traymore, Atlantic City, June 10-11.

**Change in Plans of Pan American Cruise**—Dates for the cruise of the Pan American Medical Association to Brazil have been changed from July 18-August 28 to June 29-August 1, because of the fact that the S S *Columbia* originally chartered for the trip, has been withdrawn from cruise service. Arrangements have been made to charter the *Queen of Bermuda*.

**American Students in Scottish Schools**—A report from the secretary of the Association of American Medical Colleges shows that in the School of Medicine of the Royal Colleges Edinburgh, Scotland, there are twenty-six American students in the first year class during the current session. Of these twenty-six there are only three who had not made application to some school in the United States or Canada during the years 1932-1933 and 1934. Twenty-three made a total of 412 such applications, no one of which was accepted by any recognized school of medicine. One applicant was accepted by the Eclectic Medical College of Cincinnati.

**Changes in Status of Licensure**—The Oklahoma State Board of Medical Examiners reports the following action:

Dr. William Flournoy Griffin, Watonga, license restored after a year's suspension.

The New Jersey State Board of Medical Examiners reports the following revocations:

Malcolm Cameron Rose, formerly of New York, license revoked for violation of the narcotic laws Dec. 19, 1934. His New York license was also revoked in 1934.

Sam Roos Lustberg, formerly of Passaic, license revoked Dec. 19, 1934 for conviction of the crime of conspiracy.

Harry F. W. Petters, whose last known address was Englewood, license revoked February 27 because he failed to submit evidence of having become a citizen within the time specified in the New Jersey statute.

Thomas S. Sheppard, Millville, license revoked March 27 for the practice of criminal abortion.

**Secretary Kingsbury Resigns from Milbank Fund**—John A. Kingsbury, secretary of the Milbank Memorial Fund, New York, since 1922, has resigned because of "differences of opinion as to policy," according to an announcement made by the board of directors after their annual meeting, April 19. According to the *New York Times* April 20, it was said at the offices of the Milbank fund that nothing would be added to the formal announcement. Mr. Kingsbury's secretary reported that he was away for the week-end. The statement made after the annual meeting of the board of directors follows: "Following the meeting Mr. Milbank announced that John A. Kingsbury, secretary of the fund since 1922, had severed his connection with the fund owing to differences of opinion as to policy. At Mr. Kingsbury's request, his name was not presented for reelection as director or as secretary."

**Artificial Fever Conference at Dayton, May 2**—The Fifth Annual Fever Conference for physicians and others interested in the production of fever by physical methods and its use in the treatment of disease will be held in Dayton, Ohio, May 2-3, at the Engineers' Club. Hotel headquarters will be the Hotel Van Cleve. About forty papers are listed on the preliminary program. Among them are the following:

Dr. George R. Duncan, Oak Terrace, Minn., Report on Hyperpyrexia in Tuberculosis as Carried Out at Glen Lake Sanatorium.

Drs. Stafford L. Warren and Charles M. Carpenter and Ruth A. Boak, Ph.D., Rochester, N. Y., Basic Principles for the Cure of Gonococcal Infections by a Single Fever Treatment.

Dr. Philip S. Hench, Rochester, Minn., Results of Fever Therapy for Gonorrheal Arthritis, Chronic Infectious (Atrophic) Arthritis and Other Forms of Rheumatism.

Drs. William Bierman and Harry Vesell, New York, Electrocardiographic Studies During Hyperpyrexia.

Dr. Howard P. Doubt, Detroit, A Case of Osteogenic Sarcoma Treated with Fever Therapy and X-Ray Therapy.

Dr. Carl P. Huber, Ann Arbor, Mich., Results of Fever Therapy in Pelvic Inflammatory Disease.

Dr. Ralph H. Kuhns, Chicago, Present Status of Fever Therapy for Dementia Paralytica in the State Hospitals of Illinois.

Dr. Frank H. Krusen, Philadelphia, Studies of Blood Picture Before and After Fever Therapy.

Dr. Walter M. Simpson, Dayton, Report of Fever Therapy Research at Miami Valley Hospital.

**Medical Bills in Congress—Bills Introduced** S. J. Res. 101, introduced by Senator Smith, South Carolina, proposes to amend the Emergency Relief Appropriation Act of 1935 to authorize grants to community hospitals. S. 2598, introduced by Senator Johnson, California, and H. R. 7635 introduced by Delegate Dimond, Alaska, propose to extend the benefits of the United States Public Health Service to certain fishermen. S. 2584, introduced by Senator Lewis, Illinois, proposes to amend the act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated

with him in the discovery of the cause and means of transmission of yellow fever" by including therein the name of Gustaf E. Lambert. S. 2625, introduced by Senator Schwellenbach, Washington, proposes to extend the facilities of the Public Health Service to seamen on government vessels not in the military or naval establishments. H. J. Res. 245, introduced by Representative Greenway, Arizona, proposes to erect additions to the existing Veterans' Administration facilities at Tucson and Whipple, Ariz. H. R. 7320, introduced by Representative Johnson, West Virginia, proposes to erect an addition to the Veterans' Administration facility at Huntington, W. Va. H. R. 7326, introduced by Representative Granfield, Massachusetts, proposes to erect an addition to the existing Veterans' Administration facility at Northampton, Mass. H. R. 7377, introduced by Representative Lloyd, Washington, proposes to erect an addition to the existing Veterans' Administration facility at American Lake, Wash. H. R. 7502, introduced by Representative Eaton, New Jersey, proposes to erect an addition to the existing Veterans' Administration facility at Lyons, N. J. H. R. 7507, introduced by Representative Hill, Alabama, proposes to extend the benefits of existing veterans' laws and regulations to officers and enlisted men of the Army, Navy, Marine Corps and Coast Guard who suffer injury, disease or death while on authorized leave of absence or furlough, and to the dependents of such officers and enlisted men. H. R. 7508, introduced by Representative Citron, Connecticut, provides that all laws in effect on March 19, 1933, granting pensions to veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, their widows and dependents be reenacted. H. R. 7522, introduced (by request) by Representative Darden, Virginia, proposes to erect a veterans' hospital in Virginia for Negro veterans. H. R. 7565, introduced by Representative Knutson, Minnesota, proposes to erect an addition to the existing Veterans' Administration facility at St. Cloud, Minn. H. R. 7618, introduced by Representative McGroarty, California, proposes to erect an addition to the existing Veterans' Administration facility at San Fernando, Calif. H. R. 7628, introduced by Representative Short, Missouri, proposes to erect a veterans' hospital in Missouri. H. R. 7630, introduced by Representative Ludlow, Indiana, proposes to erect an addition to the existing Veterans' Administration facility at Indianapolis. H. R. 7631, introduced by Representative Jones, Texas, proposes to authorize the erection of a veterans' hospital in the Panhandle section of Texas. **Change in Status** H. R. 7260, the Doughton social security bill, has passed the House.

## CANADA

**University News**—Dr. Claud R. G. Forrester, Chicago, addressed students of the University of Western Ontario, London, April 11, on "Reduction of Fractures under Local Anesthesia with Ambulatory Treatment."

**Society News**—Dr. Edward Murray Blair addressed the Vancouver Medical Association, Vancouver, February 5, on "Physiologic Observations in Obstetrics."—Dr. Walter T. Connell, Kingston, Ont., addressed the Academy of Medicine of Toronto, March 5, on "Clinical Experience with Acute Encephalitis and Its After-Effects."

**Balfour Lecture**—Dr. Ewart A. Graham, Bixby professor of surgery, Washington University School of Medicine, St. Louis, delivered the eighth annual lecture under the Donald C. Balfour Lectureship at the University of Toronto Faculty of Medicine, April 5, the one hundred and eighth anniversary of the birth of Lord Lister. His subject was "Primary Carcinoma of the Lung or Bronchus."

**Professor Appointed**—Dr. Andrew Hunter of the University of Glasgow, Scotland, has been appointed professor of pathologic chemistry at the University of Toronto, succeeding the late Prof. Victor J. Harding, D.Sc. Dr. Hunter was at one time assistant professor of biochemistry at Cornell University and later biochemist of the U. S. Public Health Service. In 1915 he was made professor of pathologic chemistry at Toronto and in 1919 professor of biochemistry, leaving in 1928 to become Gardiner professor of physiological chemistry at the University of Glasgow. The appointment is effective next July.

**Personal**—Dr. Geoffrey N. Paterson-Smith, Montreal, has been appointed chief neurologist to the Women's General Hospital, Westmount, Que.—Dr. Louis Arthur Lessard, superintendent of l'Hôpital Notre-Dame, Montreal, has been appointed inspector general of all institutions in Quebec that come under the Public Charities' Act, a new position created with a view to limiting the stay of patients in these institutions as much as possible.—Dr. Albert Grant Fleming, Montreal, has been appointed secretary to the health insurance



committee of the British Columbia College of Physicians and Surgeons—Earl J. King, Ph.D., assistant professor of medical research, University of Toronto Faculty of Medicine, has been appointed reader in pathologic chemistry at the British Post-Graduate Medical School—Dr. Frederick E. Lawlor, medical superintendent of Nova Scotia Hospital, Halifax, will shortly retire after thirty-five years' association with the institution, it is announced—Dr. Arthur F. Miller, superintendent of the Nova Scotia Sanatorium, Kentville, was guest of honor at a banquet, January 3, in celebration of his completion of twenty-five years of service.

### LATIN AMERICA

**New Director of Oswaldo Cruz Institute**—Dr. Antonio Cardoso Fontes has been appointed by the Brazilian government director of the Oswaldo Cruz Institute, Rio de Janeiro, to succeed the late Dr. Carlos Chagas.

## Government Services

### Annual Report of the U. S. Navy

Aeronautic accidents were the leading cause of death in the U. S. Navy for 1933, displacing motor vehicle accidents, which had been in first place for the three preceding years. The major disasters included the destruction of the *Akron*, resulting in seventy-two deaths, and the crash of the *J-3* which resulted in two deaths. The lowest general admission rate ever recorded (477.03 per thousand persons in the navy) was reached in 1933. This improvement is attributed to a decreased incidence of acute catarrhal fever, influenza, for which the greatest reduction is noted, and the venereal diseases. There was no outbreak of epidemic proportions reported during the year. There were 51,606 admissions and 442 deaths from all causes in 1933. The admission rate for communicable diseases transmissible by oral and nasal discharges was 109.05 per thousand for 1933, the lowest incidence since 1923. Twenty-seven deaths were attributable to this class of diseases. Influenza caused 394 admissions and two deaths as compared with 1,637 admissions and six deaths in 1932. The admission rate for wounds and injuries in 1933 was 63.21 per thousand as compared with 60.04 for 1932. The number of injuries sustained by naval personnel when absent from their commands continues to increase 31.31 per cent of all admissions for injuries and poisonings in 1933 having been incurred while on leave or liberty. Motor vehicles were responsible for seventy-six deaths. There were 1,438 admissions and ten deaths chargeable to athletics and recreative sports during the year. There were thirty-one deaths from drowning. Venereal diseases occupied second place according to number of admissions (102.45 per thousand) and first for number of sick days (178,523). There were 7,106 admissions for acute catarrhal fever in 1933. The lowest admission rate since 1924 (468 per hundred thousand) was reached for Vincent's angina. There were 363 admissions for mumps, 141 for measles and fifty for scarlet fever. There were nine sporadic cases of diphtheria. No case of smallpox was reported. Four cases of acute anterior poliomyelitis were admitted in 1933. Twenty-one deaths from tuberculosis were reported. The disease (all forms) was responsible for 44,103 sick days. There were 392 original admissions from malaria, in twelve cases the disease was reported as existing prior to enlistment. No cases of Asiatic cholera were reported. Six original admissions were for typhoid with two deaths and three for paratyphoid with no deaths. Suicide was responsible for forty-two fatalities. There were 1,318 persons invalided from the service in 1933. A total of 1,516,658 treatment days in naval hospitals for all classes of patients was recorded, this includes 828,909 treatment days of navy personnel, 588,881 of Veterans' Administration patients, and 98,868 treatment days of all other supernumeraries. The total, however, does not include 52,828 treatment days on the hospital ship *U. S. S. Relief*, 4,280 treatment days for tuberculous patients at the naval unit, *U. S. Army Fitzsimons General Hospital*, Denver, and 9,061 treatment days for insane patients at *St. Elizabeth's Hospital*, Washington, D. C. For the year ended June 30, 1934, there were 855 commissioned medical officers in the navy, of this number 108 were on duty with the Civilian Conservation Corps in camps throughout the United States. Thirty-one medical officers were separated from the service fifteen by resignation, fifteen by retirement and one by death. Research carried on related to problems of the submarine service, deep sea diving, chemical warfare and the insecticidal fumigation of ships. There were forty-seven flight surgeons at the close of the fiscal year, thirty-four attached to aviation units.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

March 30, 1935

### The Struggle of the Osteopaths for Registration

At the sixth sitting of the house of lords select committee on the registration of osteopaths bill, Dr. J. M. Littlejohn, who described himself as dean of the British School of Osteopathy, gave evidence. He said that he was educated at Glasgow University, where he graduated M.A. He also held the degree of D.M. of the Dunham and Hering medical colleges of Chicago and D.O. of the Kirksville School of Osteopathy. He had been professor of physiology and dean at Kirksville and professor of physiology at the National Medical School, Chicago. He established the British School of Osteopathy in 1917. The students were required to attend some school recognized by the medical profession for premedical work. He was cross-examined by Sir William Jowitt, the lawyer who appeared for the British Medical Association. Asked about his degree of LL.D., Texas, he said that this was an honorary degree conferred "for public work—in political philosophy, for example." Did he know a Mr. Looker, who had to leave America rather hurriedly and established here "the Looker College of Osteopathy and Chiropractic"? He did. Looker used to give people M.D., which meant "master diagnostician," and "F.C.B.S.," which meant "Fellow of the British Chiropractors Society." He left England and Dr. Littlejohn took over some of his students, crediting them with three years' work on the basis of test papers, which they took home to answer. Sir William Jowitt said: "I could go home and get a medical dictionary and make a good job of it." The cross-examination revealed that a student transferred from the "Looker College" received a certificate of four years' attendance at the British School of Osteopathy although he had attended only one year. This practice led to a severe attack by Sir William Jowitt on the character of Dr. Littlejohn.

### THE CASE AGAINST THE BILL

A statement signed by 800 persons engaged as university professors and lecturers in research and teaching in the fields of biologic and medical science was read. Many of them are not engaged in medical practice and a number do not hold medical qualification. Among them are twenty-three fellows of the Royal Society, forty doctors of philosophy, seventy-five doctors of science and 100 masters and bachelors of science. The passage of the bill into law would not affect any of them personally. Their objections to it are based on its menace to the interests of the public and to the prestige of scientific medicine. The tenure of their posts commits them to no particular scientific theories. They state that the theory of osteopathy with its conception of "the osteopathic lesion" as the primary cause of disease is unsupported by scientific evidence. No biologist, anatomist, physiologist or pathologist of a British university has observed "the osteopathic lesion," and no evidence susceptible of verification has been brought forward. If this lesion exists, it is unbelievable that it has escaped the observation of the workers in these sciences and that evidence of scientific value can be brought forward in support of it. Biologic and medical sciences progress steadily as the result of research. Their fundamentals are based on carefully controlled observations which have stood the test of time, and it is these fundamentals that osteopathy controverts. There can be no compromise, medical science and osteopathy are contradictory. The signatories deputed five eminent teachers to give evidence on their behalf.

## SIR FARQUHAR BUZZARD'S EVIDENCE

Sir Farquhar Buzzard, regius professor of medicine at Oxford said that the bill was designed to establish a system of healing the basic principle of which must be accepted by its students before they had any scientific or medical training. No medical student was asked to do this. He was put through a course of training far more thorough than that contemplated in the bill but was free to form his own opinion as to the most important single factor, if he cared to make such a generalization. From time immemorial there had been cults proclaiming a newly discovered single factor. One who had traveled in the Americas, as he has done, would be convinced that osteopathy was dying in the country of its birth. From 80 to 90 per cent of patients got well under any treatment or none, but when one of the patients of these cults got well it was invariably attributed to the treatment. Any cult at any age could produce a number of grateful patients. The testimony of the skill of osteopathic witnesses had the savor of advertisements of quack medicines. Referring to the proposal to add to the board to be set up under the bill one registered physician, Sir Farquhar Buzzard considered that this added enormously to the danger. The public would conclude not only that there was state recognition of osteopathy but also recognition by the medical profession. He criticized a book, 'The Principles of Osteopathy,' by Y. Castlio, professor of Kansas City College, which is widely quoted in the *British Osteopathic Review* as an authority. He had studied it with some care, especially the part on the nervous system, and was amazed at the ignorance displayed in regard to the anatomy, physiology and pathology of the spinal cord. It would be almost criminal to put it into the hands of a medical student. One figure 'illustrative of the effects of the osteopathic lesion on the spinal medulla' was described as showing an area of degeneration near the tip of the posterior horn. But it was not a photograph of the posterior horn at all but of the base of the anterior horn. Of the degeneration of cells there was no evidence, the pericellular spaces were not pathologic at all and there were no swollen axis cylinders. The whole thing coming from the A. T. Still 'research institute' exemplified gross ignorance of the anatomy and physiology of the spinal cord.

## Thomas Malthus

The centenary of the death of Thomas Malthus was celebrated at Cambridge, where he was educated and held a fellowship at Jesus College in 1793. His famous *Essay on Population* was published anonymously in 1798. Three addresses were delivered. Dr. Bonar said that Malthus was the first to make the study of population worthy of discussion. Above all things he desired an economy of human lives by a lower death rate and lower infant mortality and a higher standard of living. The impulse that he gave to the study of these problems was even more important than his own contributions to the doctrine. Mr. Fay said that Malthus's distinctive contribution lay in the field of social economy. Presuming to dispense misery and vice with the certainty of a Benthamite in holy orders he raised angry protests. On the other hand his doctrine was germinal to the researches of Darwin and the theory of evolution. Mr. Keynes showed how to the poets Shelley and Coleridge Malthus appeared as a symbol of the sophisms of the economists, who could prove by means of truisms that all attempts to mitigate poverty and misery were destined to increase it. Such a charge directed against the economists of the nineteenth century was not wholly false.

## Malaria in Ceylon

The latest official statistics of malaria in Ceylon show that more than 38,000 persons have died of malaria and allied causes during the three months of the epidemic. Comparison of the

mortality from all causes shows that the deaths in the period November 1934 to January 1935 totaled 68,193, while those in the corresponding period of a year ago were only 30,037. The council has voted \$366,500 for the relief of malaria victims.

## An Anthropometric Survey of Great Britain

Britain has lagged behind many other countries in organized research into the racial history and present physical constitution of its people, though individual efforts of some magnitude, particularly the work of Beddoe on 'The Races of Britain,' have covered parts of the country. The Royal Anthropological Society wishes to set on foot a comprehensive survey of the past and present population of Great Britain. This will involve the arduous collection, reduction, mapping and interpretation from more than one point of view of a mass of data by a number of trained workers who can be found if the funds are available. Money will be required (1) to give grants to workers who would take exact measurements of groups of living people and of skeletal remains preserved in museums or elsewhere, (2) to pay for the necessary instruments, (3) to pay the traveling expenses of the workers, and (4) to help in the publishing of scientific reports and popular summaries of the results obtained. The society holds that such a survey would lead to conclusions of both scientific and national importance, which would throw light not only on our history but also on sociological and medical questions. It therefore asks for donations in aid of the projected anthropometric survey of Great Britain, to be sent to the Hon. Treasurer, Royal Anthropological Institute, 52 Upper Bedford Place, London, W. C. 1.

## PARIS

(From Our Regular Correspondent)

March 8, 1935

## The Noise of Motorcycles

The authorities of Paris have finally decided to control the noise made by the exhausts on motorcycles. Any one who has attempted to sleep while motorcyclists were allowed to make night hideous, while proceeding at full speed with open exhausts on residence streets, will welcome this attempt to control a noise nuisance far worse than that of the automobile siren, already suppressed in Paris at 11 p. m.

The police department is testing all kinds of devices, in spite of protests on the part of motorcyclists that such suppression will interfere with the utility of the machine. The same sort of opposition was encountered a number of years ago, when automobilists maintained that suppression of the escape of smoke from the exhaust pipes would prevent the further use of automobiles.

## Information Bureau for Foreign Physicians

In 1920 an office was opened in the buildings of the Paris Faculté de médecine in order to aid visiting physicians and students regarding courses of study in the school. Since then the bureau has been directed by Prof. Henri Hartmann, aided by Miss Alice Huré, both of whom speak English. The annual report submitted by the director, February 23, contains some interesting information. Before the crisis the number of foreign physicians and students who applied for information rose as high as 1,200 per annum. During the last four years this figure has been as low as 1,080. The world crisis, however, is not the only cause of the diminution. A few years ago many students from the United States and Canada matriculated in French medical schools receiving a so-called honorary degree, which did not entitle them to practice in France but permitted them to do so in the United States and Canada, after simply passing a state board examination. Since not only the state boards of these countries but also those of some European

countries no longer accept such honorary *degrés* as the equivalent of graduation from their own school, few students of this category now come to France. As a result of the recent riots against foreign medical students, the number of the latter will be greatly diminished. In the provincial hospitals there is no competitive examination for internships and many such positions have been filled by foreigners, to the detriment of French students. The authorities in the country districts have also permitted foreign students to act as temporary substitutes for practitioners, which is a violation of the law. The number of state diplomas that entitle the holder to practice medicine has increased from forty-nine in 1930 to ninety-seven in 1934. Rumanian students have taken advantage of an old treaty that dispensed with the bachelor of arts degree otherwise required for matriculation in the medical schools. This advantage is practically a dead letter at present, since the enforcement of the *Armbruster* law referred to in previous letters.

Professor Hartmann is of the opinion that all foreign students who do not propose to remain in France should be welcomed as in the past, in order that they may carry home with them the French methods of teaching medicine and other sciences. The small number of foreigners who have been given internships should not give the native students any cause to maintain that French interns are being crowded out by foreigners. In 1930 the latter constituted only 7.6 per cent of the interns in the Paris hospitals and in 1934 only 4.7 per cent.

#### Opposition to Foreign Physicians

At a meeting of a committee representing all the medical societies of Paris, February 12, the following resolutions were passed:

1 Foreigners who wish to obtain a state license to practice in France or its colonies must comply with the usual requirements as to preliminary education (French bachelor of arts degree) before being admitted to a medical school.

2 No foreigner shall be permitted to change his honorary diploma, called "*diplôme universitaire*," which does not carry with it the privilege to practice, into a state diploma, which does bestow such a right to practice.

3 No foreigner above the age of 30 will be allowed to become a French citizen unless he shall, before such age, have been in the military service for the length of time required of every native-born French citizen.

4 No foreigner shall be permitted to practice medicine unless he or she has been naturalized at least ten years before beginning to practice.

5 All public hospitals are requested to discharge alien physicians and students now in their employ and to replace them by French citizens. Any foreigner now practicing without a French state license shall be prosecuted.

#### Social Insurance for Illness

French social insurance permits payment of benefits for the same illness during a period not longer than six months. The *Concours* medical discusses this rather arbitrary feature of the law and asks how frequently a physician is called on to treat an ailment such as syphilis, tuberculosis and cancer, the duration of which extends far beyond the period of six months during which payments are allowed. It seems unjust to refuse further financial aid to such individuals. There has been some relief in the fact that the same paragraph of the law states that every relapse occurring during any two months of the disease is considered as a continuation of the original illness, so that the benefits in the form of payments ought not to cease. Another portion of the law stated that every relapse which took place more than two months after apparent cure of the original ailment must be considered as a new ailment and entitled again to a new payment period of six months.

The result of these conflicting paragraphs of the law was that the assured automatically had the right to receive payment for illness during any number of six months periods interrupted by two months periods when nothing was paid. According to a recent decision by the courts, the two months period during which nothing was paid has been suppressed, thus assuring continuous benefits for chronic ailments of more than six months' duration.

These conflicts show the necessity of constant changes in any social insurance law.

#### Can Exposure to the Sun Produce Cancer?

So much publicity followed the report of experiments on mice by Professor Roffo of Buenos Aires that a committee composed of Roussy, Hartmann and Beclere was appointed by the Academy of Medicine of Paris to verify those observations. The original paper appeared in the December 1934 bulletin of the Association for the Study of Cancer, and the report of the committee was made Dec. 26, 1934. Two previous communications have been published, one by Findlay and the other by Putscher and Holtz, both in 1930. In the former, twenty mice were exposed to the action of ultraviolet rays over areas where the hair had been removed by sodium sulphide. Typical epitheliomas were found. In the experiments of Putscher and Holtz the results were the same, after exposure of the ears without depilation.

Roffo employed the entire solar rays and was successful with mice in obtaining typical carcinomas and a fusocellular type of sarcoma after from seven to ten months of exposure. Two types of lesions have been noted: first, an epithelioma of the ear, which begins as a hyperkeratosis and develops into a typical cancer at the end of from seven to eight months; second, a sarcoma, which may develop without preceding keratosis. The animals usually die between the tenth and twelfth months of cachexia and metastases in the cervical lymph nodes. As a rule the tumors develop in areas where there are no hairs, such as the ears in 140, the eyes in fifty-eight and the paws in fifteen cases. Histologically the eye tumors have the appearance of spindle cell sarcoma, while those of the ears, that of either an epithelioma or sarcoma. The committee of the Academy of Medicine was able to verify the observations of Professor Roffo in slides submitted by him for examination. In some experiments the tumor presented the structure of both an epithelioma and a spindle cell sarcoma. Roffo believes that some biochemical change in the form of a local hypercholesteremia takes place as the result of the exposure to the ultraviolet rays of the sun. The result is the transformation of the normal into a neoplastic cell. Although rats and mice are especially sensitive to ultraviolet rays, the committee concluded by directing the attention of individuals who abuse sun baths to the potential danger of such exposures.

#### Americans Decorated

Two members of the American medical colony of Paris were recently honored by the French government. In recognition of their services in the fields of research and of general surgery respectively, Drs. Harry Plotz of the Pasteur Institute and Charles Bove of the American Hospital were made chevaliers of the Legion of Honor, an order founded by Napoleon I as a national recognition of important achievements by both men and women in the sciences, literature, art and music. Dr. Plotz is doing some remarkable work at the Pasteur Institute on the etiology of various infectious diseases. Dr. Bove is associate surgeon at the American Hospital here.

#### Dr. Zinsser in Paris

Dr. Hans Zinsser of Boston, exchange professor from Harvard to the University of Paris, is engaged in continuing his typhus studies at the Pasteur Institute. He is working in a

laboratory placed at his disposal by Professor Nicolle and is also giving lectures assigned to him by Professor Debre in the courses in bacteriology at the Faculté de médecine

#### Professor Guérin Elected Fellow of the Academy

In recognition of his distinguished service, Professor Guérin of the Pasteur Institute has just been elected a fellow of the Academy of Medicine of France one of the highest honors that can be bestowed on a member of the profession. Professor Guérin is at present director of the antituberculosis vaccination service of the Pasteur Institute of Paris. In association with the late Professor Crimette, he discovered the vaccine known as the B C G vaccine.

#### BERLIN

(From Our Regular Correspondent)

Feb 18, 1935

#### Vaccinal Encephalitis

The end of 1934, the sixtieth anniversary of the federal vaccination law to combat smallpox was celebrated in Germany. In this connection Professor Catel, pediatrician, of Leipzig, gave a detailed discussion of vaccinal encephalitis. The increasing number of cases of encephalitis occurring in recent years following vaccination against smallpox caused anxiety among the public and raised the question of changes in the vaccination law for the prevention of smallpox. (THE JOURNAL, June 23, 1934, p 2126) Sporadic cases of vaccinal encephalitis were reported a number of years ago, but an increased incidence was announced first in England in 1922, in the Netherlands in 1923, and in Germany, Austria and Czechoslovakia since 1924. From the epidemiologic point of view the manifestations of encephalitis are not fully understood. For example, in one district of England there were several cases, while in another district, in spite of the fact that the percentage of vaccinations was equally high, there was not a single case. In the Netherlands the incidence is highest in the smaller rural communes, while in Germany there are more cases in the larger cities. No connection between vaccinal encephalitis, on the one hand, and the quality of the lymph employed or the potency of the local vaccinal reaction has been demonstrated with certainty. The technic used in the application of the vaccine has no significance (THE JOURNAL, February 23, p 666). Encephalitis occurs also following intracutaneous vaccination. Persons vaccinated for the first time develop encephalitis much more frequently than revaccinated persons. There appears to be a connection between the frequency of vaccinal encephalitis on the one hand, and the extent to which vaccination is applied (maximum in May and June) and the increased incidence of other, para-infectious encephalitides (but not Economo's epidemic encephalitis). Neither sex is more affected than the other, nor is any particular age group especially predisposed. The observation that in Germany children between the ages of 1 and 2 are most affected is explained by the fact that most children receive their first vaccination during that period. The mortality is high in England from 58 to 65 per cent in Germany 34 per cent, and in the Netherlands 30.9 per cent. The incubation period ranges from two to thirty-four days, with an average of from eleven to fourteen days. From the anatomopathologic point of view the white substance of the brain is more frequently involved, but the gray substance may be affected. In contrast with epidemic encephalitis (in which foci are found only in the midbrain and the substantia nigra), in vaccinal encephalitis there are disseminated foci in the brain and in the spinal cord (meningo-encephalomyelitis). Taken histologically, there are perivascular, small-cell (lymphocytic) infiltrations, glia proliferations and degeneration of medullary

sheath and axis cylinder. The most obscure feature is the etiology. On the basis of the available researches, which have extended to the demonstration of the presence of the vaccine virus in the brain of persons who have died of vaccinal encephalitis, and also to investigations on experimental animals, the possibility of direct connections between the artificial infection brought about by the vaccine lymph and the appearance of the encephalitis cannot be denied. There is, however, another possibility to be considered, namely, a lowering of the immunity of the organism as a result of the vaccination, whereby previously latent and harmless agents acquire pathogenic importance. Recurrences have been observed even after twelve months. This is important for the differential diagnosis as against poliomyelitis, which almost without exception presents no recurrence. The original assumption that vaccinal encephalitis ends either in death or in complete recovery has been found to be erroneous. Permanent injuries have been found: mental disturbances, hemiplegia spastica infantilis, paresis, contractures and disturbances of the gait. With regard to the therapy, the observations on the effects of injections of serum of vaccinated children are not extensive as yet. Possibly a trial of mother's blood should be made. What conclusions may be drawn from the appearance of vaccinal encephalitis? In Germany, 1,500,000 persons are vaccinated annually for the first time, and about the same number are revaccinated. The largest number of disorders of the central nervous system were reported in 1928 (twenty-eight cases), whereas in that year in England, where vaccination is not compulsory but is a matter of conscience, 12,400 persons developed smallpox, as against two persons in Germany. Hence the cases of vaccinal encephalitis though regrettable, do not justify any weakening of the law providing for compulsory vaccination.

#### Hereditary and Environmental Influences in Twin Births

Professor Lenz, occupant of the chair of eugenics addressed the Berlin Medical Society on the subject of "Hereditary Influence and Environmental Influence in Twin Births." Research on twins is regarded as an important field of investigation and is being carried on in a number of institutes in Germany (THE JOURNAL, Nov 1, 1934, p 1721). Whereas in dizygotic twins both hereditary and environmental influences are observable, enzygotic twins, being the expression of the same hereditary mass, are to be regarded as subject only to environmental influences. Differences due to hereditary and environmental influences are not to be conceived of in the manner that Lenz himself formerly considered possible, namely, that they need be only added together in making serial comparisons. He has found, on further investigation, that a different formula must be set up after this type. The average differentiation increases with the square root of the hereditary units involved. This principle applies equally to the hereditary mass and to the environmental influences. Further computations dealing with the determination of the minimum of hereditary influence have brought out the following important fact. The hereditary influences predominate considerably over the environmental influences, they are not equal, as was formerly believed.

In all methods of hereditary research it must be considered that nearly all determinations are affected by a strong element of error. For example, momentary fluctuations in comparative blood sugar determinations, on which many conclusions are now based, have not always been taken into account, or unlike measuring factors such as intelligence and character have been compared. Such instances have been frequent in hereditary research in the past and have been great sources of error.

It must not be forgotten that it would be an error to expect to obtain any exact figures on the relation of environmental and hereditary factors. The figures secured must be considered only as relatively true. Recognition of this fact does not, however, make out hereditary research to be worthless, as Lenz emphasized. One thing, to be sure, can already be foreseen: all future experiments, which will always be laborious, will show, on the average, less difference in physiologic researches on enzygotic than on dizygotic twins. Through hereditary research no further fundamental principles will be discovered, the limitations of hereditary research on twins have already been reached. It has shown that the basis of all human aptitudes and talents is hereditary. The results of general hereditary research would not, however, always be identical, since they will depend on the nature of the population from which they are derived. The purer the antecedents of a race are, the greater importance will attach to the environment. Important for future investigations are clearness, exact definition of the term *erblichkeit*, or hereditability, and fruitful collaboration between the clinical specialist and the biologist trained in matters of heredity. Only through such collaboration can a useful pathology of heredity be produced.

### The Spread of Trachoma in Germany

In taking the census of infirm persons in Germany in 1926, it was found that 1.05 per cent of this group had become blind as a result of trachoma. According to the statistics of the period 1924-1930, an average of 1,949 cases of trachoma annually were notified. The incidence of the disease is greater in some sections than in others. Investigation has revealed that intrafamilial infection plays a predominant part in the transmission of trachoma, as against the possibility of infection outside the family. The cases of trachoma occurring among the population of the German reich may be divided into three groups: (1) cases that are brought in from so-called trachoma regions, mostly by migratory laborers from the countries along the eastern frontier, or from East Prussia and Silesia (the two Prussian provinces in which trachoma is highly prevalent), (2) sporadic cases occurring in regions commonly free from the disease, and (3) cases occurring in certain regions of Germany, which are known to be endemic foci. The countries chiefly involved in the dissemination of trachoma across the border are Poland and Russia. Since at least half of the cases of trachoma occurring in the regions of Germany in which trachoma is little known have been brought in from outside, a more strict examination of immigrants by ophthalmologists is needed, which should include not only foreigners but also nationals from regions in which trachoma is widely prevalent. In addition, greater attention should be given to intrafamilial infection.

### Aniline Poisoning Due to Shoe Dyes

It is a matter of common knowledge that even small quantities of aniline or nitrobenzene lead to the formation of methemoglobin and may prove fatal. But it is not yet sufficiently known that these substances are used in the manufacture of shoe dyes. Some time ago the federal bureau of health called attention to the disturbances of health traceable to these substances and prohibited their use as well as that of orthotoluidine. Recently it became known that, in spite of such prohibition, some firms are again adding aniline or orthotoluidine in considerable quantities to their shoe dyes. Investigations by the bureau of health and by other scientific bodies revealed that no definite percentage of these substances can be assigned that on the one hand, excludes injuries to health, and on the other hand, meets the technical requirements. Hence the demand has been renewed that these substances be not used for anything worn on the body. In this connection

it may be mentioned that in infants cyanosis has been observed that was caused by the ink used to mark undergarments. Regulations governing such matters will soon be issued.

### The German Roentgen Society

Until recently, Germany had a considerable number of roentgenologic societies, some of which had scientific and some economic aims. It has now been ordered that the "Deutsche Röntgen-Gesellschaft" shall be the only roentgenologic society in Germany. All other societies in this field have been dissolved.

### Danzig's New Academy of Practical Medicine

The senate of the Free State Danzig has decided to establish a "Staatliche Akademie für praktische Medizin," which will offer educational facilities for older students and for continuation courses for physicians. The methods of instruction will be distinctly different from those in use in Germany, for example, the clinical lectures will be regarded as of less importance than the drill and laboratory courses. The clinical instruction will accordingly be given chiefly at the bedside instead of in the auditorium. Hence the propedeutic clinical lectures will be omitted from the curriculum. The University of Danzig is accredited in Germany, and graduates are admitted to the "state examination" held in the reich.

## JAPAN

(From Our Regular Correspondent)

Feb 25, 1935

### Campaign Against Leprosy

The number of lepers in Japan, which was 15,000 in 1930, has since then been on the increase. Gravely concerned over the situation, the home office has found it necessary to carry out its plans on a large scale. The budget for the next year that has passed the lower house includes 480,000 yen for the operation of the existing state leprosariums, 360,000 yen to subsidize the private hospitals and 30,000 yen to cover general expenses incidental to the antileprosy campaign. A census will be taken on March 31 of the lepers throughout the country in order that a definite plan may be mapped out within the bounds of the budget.

### Student Association for the Prevention of Tuberculosis

The increase of tuberculosis among the students of all kinds of schools has so strongly impressed the medical students in the Tokyo and the Kyoto imperial universities that they have decided to establish an association for the purpose of combating tuberculosis in students. They are going to work with their professors as advisers, but the work and administration are to be done by themselves. The first task will be the thorough physical examination of all the students in their own university and then the opening of the consultation office and the building of sanatoriums. With aid and encouragement by the members of the faculty, this work is expected to get under way before long, to the great pleasure of all of the students.

### Opium in Chosen

It was officially revealed, February 16, that a new law imposing far heavier punishment on persons engaged in the illicit traffic in opium than is provided for in the present law will be enforced throughout Chosen, May 1. The Chosen government and the home and the overseas affairs offices of Japan proper have approved the measure in order to check the growing number of opium addicts in the peninsula. The number of opium eaters there is roughly estimated to be 10,000. It is next to impossible to prevent illicit traffic in this dangerous drug under the present law, which provides maximum prison terms of three months or fines under 100 yen for its violation. The new law as enforced in Japan proper at present, will provide

the maximum jail terms up to five years and fines up to 5 000 yen. The new law will conform with the spirit of the international opium convention of 1931, to which, of course, Japan is a party.

#### Division of Medical Service

For many years there has been a controversy between physicians and pharmacists on the division of medical service, that is that physicians shall prescribe medicine and pharmacists prepare and sell it. For the last few years it has seemed that pharmacists have been at a disadvantage in the matter, but late this month it was revealed that a bill might be presented to the diet on the division of medicine. With a view to checking the passing of the bill, a mass meeting was held in Tokyo, 4 000 medical practitioners attending from all over the land, and their movement to oppose the bill was successful. The Japan Pharmacist Association also held a meeting. The diet was in favor of passing the bill but through the efforts of the Japanese Medical Association the situation has undergone so much change that the bill has almost no hope now. Medical men have great political influence. Physicians are generally men of importance in the country and the legislators can hardly oppose their power and influence. The medical association has issued a statement showing that if this bill passes it will be to the great inconvenience of patients in that they must then pay both a medical fee to the doctor and a preparation fee and the cost of medicine to the pharmacist, and of course they must then go to the trouble of visiting the two offices. The relation between physicians and patients will become mercantile and less humane. From the social standpoint a tendency would develop to go to the pharmacist without consulting the doctor. Early discovery of an infectious disease would be delayed. The prescriptions made known to others than the patients would disclose secrets that have heretofore been kept by the doctor. At present patients have free choice of physicians and pharmacists. The number of pharmacists is almost 30 000 with 2 000 graduates every year from various schools of pharmacy. The controversy will go on.

#### BUDAPEST

(From Our Regular Correspondent)

March 23 1935

#### The Campaign Against Cancer

When Prof Ferdinand Blumenthal founder of the Berlin Cancer Research Institute, had to leave his position in 1933 at the time of the transformation in Germany he was invited by the faculty of medicine of Belgrade University to establish the Yugoslavian cancer research institute. Professor Blumenthal accepted the invitation and while en route to Belgrade to occupy this position stopped some days in Budapest to lecture about the present campaign against cancer. He said that when he was the assistant of Professor Leyden in Berlin from 1913 on he established the fact that a successful campaign against cancer necessitates having a special institute. He prepared plans, which the authorities accepted and in 1917 the institute began its activity. The pathologist Orth was in charge of research and Blumenthal headed the clinical service. After Professor Orth's death he became the only head of the institute which then consisted of two wards and one laboratory. When he surrendered it two years ago it was an institute of vast extension with a separate radiologic section with a polyclinic and an experimental section. The polyclinic recorded more than 100 patients a day. There was only one similar institute in Germany, and that was at Heidelberg University.

Professor Blumenthal said. When my institute in Berlin was started it was the first place where systematic x-ray and radium treatment was given. Up to then medical science had only one weapon against cancer and that was the operating

knife. We had to make a great fight for the recognition of radiotherapy. Today ray treatment is not only a competitor to surgery but in inoperable cancers of the tongue and intestine it is a proved, competent method. The ray treatment has its limitations, because it is only the local treatment of cancer, and in those cases in which cancer is already general in the organism, ray treatment is of no avail.

'In recent years various scientific institutes have initiated extensive researches to find methods outside the territory of surgical and ray treatment to conquer cancer. They have succeeded in finding serums and chemical compounds which in certain instances have proved efficacious against cancer. Another great achievement was that they succeeded in establishing the effect of dietetic regimens on cancer. It is chiefly the vitamins which as a means for promoting growth administered in the cancer diet, seem to offer encouraging ground for experiments. When blood tests are further developed, it will be possible to establish early exact diagnoses in doubtful cases and then cancer will lose its importance as an incurable disease. Even at present it is possible to cure a cancer patient who presents himself at an early date before the generalization of the process and entrusts himself to the hands of a competent physician instead of running himself by the concoctions of quacks.'

#### A New Journal of Cancer

*Acta cancerologica* is the title of a new publication dealing with all aspects of cancer. It is published in Budapest and is edited by Dr Gereb, assisted by Professor Blumenthal, now director of the cancer institute in Belgrade. Papers will be published in German, French and English. The first issue, which appeared recently contained ten communications. If the editors can maintain the high level of the first number, the journal should be successful.

#### The Tenth Tuberculosis Dispensary in Budapest

The city of Budapest is endeavoring to build tuberculosis dispensaries at the rate of at least one to each 100,000 of population. The tenth dispensary has just been opened, its building and equipment costing 300 000 pengos (about \$90,000). The ten dispensaries are under the control of Dr Joseph Parassin, lecturer to the University of Budapest, and a staff of twenty-nine physicians forty nurses and twenty-two health officers. The maintenance of the ten dispensaries costs 562,000 pengos (\$154 000) annually. The number of consultations rendered last year was 236 000 and the number of new patients was 17 674.

## Marriages

DONALD F. RIKKERS Milwaukee to Miss Rosella S. Torgerson of Augusta, Wis. in Madison March 2

LYLE CLARK EALY Barnesboro Pa. to Miss Kathleen S. Bryant of Wilmington N. C. Oct. 8 1934

WILLIAM V. GOODER, Marengo Ill., to Miss M. Lucile Bantham of La Fontaine, Ind., recently

RALPH WALDE KNEWITZ, East St. Louis, Ill., to Miss Jane Byrne of Roodhouse February 28

BRUCE K. OZANNE Neenah, Wis., to Miss Dorothy Janet Martin at Denver March 23

EDMUND A. BRZEZINSKI to Miss Faith M. Downey, both of Milwaukee February 21

ROBERT M. CHAPMAN to Miss Irene Klinger, both of Cedar Rapids Iowa March 2

ALBERT W. LEWIS JR. to Miss Constance Adams both of Atlanta Ga., March 13

PHILIP S. JOSEPH to Miss Gayle Moore, both of Alice, Tex., February 2

REXALD P. CHING Peiping, China to Miss Louise Chou January 19

## Deaths

**Fielding Hudson Garrison** ♂ Colonel, U S Army, retired, Baltimore, most eminent American medical historian, died, April 18, at the Johns Hopkins Hospital, aged 64. Dr Garrison was born in Washington, D C, Nov 5, 1870. He received the bachelor of arts degree at Johns Hopkins University in 1890, and his medical degree from Georgetown University School of Medicine, Washington, D C, in 1893. During a thirty-three year period from 1889 to 1922 he was assistant librarian at the Army Medical Library in Washington. At the entrance of the United States in the World War in 1917 he was ordered to active duty as a major in the medical reserve corps and later was promoted to the rank of lieutenant colonel. He was commissioned lieutenant colonel in the regular army in 1920 and in 1930 was retired as a colonel for disability in line of duty. During the war Colonel Garrison remained on duty at the Surgeon General's Library and also served in various training camps in the South and West during which service he assisted in compiling data for the history of the medical department in the World War. He served in the Philippines from 1922 to 1924, and in 1925 he was appointed consulting librarian to the New York Academy of Medicine. In 1930 he was appointed librarian of the Welch Medical Library at Johns Hopkins University School of Medicine and also resident lecturer in the history of medicine.

Colonel Garrison was the co-editor of the *Index Medicus* at the Surgeon General's Library from 1903 to 1912 and editor of the *Index Medicus* from 1912 to 1927, when that famous publication became affiliated with the *Quarterly Cumulative Index* which had been published by the American Medical Association for some years. He was an Affiliate Fellow of the American Medical Association, a past president of the American Association for the History of Medicine, member of the Medical Society of the District of Columbia, fellow of the American College of Surgeons, and a member of the history section of the Royal Society of Medicine of London and of medical societies in Germany and France. His book "An Outline of Medical History" is recognized as a classic throughout the civilized world. He was the author also of numerous monographs and was frequently invited to deliver lectures before special groups on medical history a subject to which his life was fully and masterfully devoted.

Colonel Garrison was a prodigious worker, frequently spending eighteen hours daily in developing the early issues of the *Index Medicus*. His memory was amazing. His friends knew him as a scholar, a lover of music and all of the arts, a genial companion, a gracious friend.

**John Smyth**, New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1900 member of the Louisiana State Medical Society, the Southern Surgical Association and the American Association for Thoracic Surgery, fellow of the American College of Surgeons, formerly professor of clinical surgery at his alma mater, member of the surgical staffs of the Hotel Dieu and Southern Baptist hospitals and consulting surgeon to the Charity Hospital, aged 65, died, February 25.

**Eugene L'Hommedieu Swift** ♂ Major, U S Army, retired Berkeley, Calif., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1884, entered the Army as assistant surgeon in 1887 and was promoted through the various grades to that of major in 1901 in which year he retired, veteran of the Spanish-American War returned to active duty during the World War, aged 71, died, March 16, of carcinomatosis.

**Edmond John Labbe** ♂ Portland, Ore., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895, emeritus professor of obstetrics, University of Oregon Medical School, served during the World War, member of the North Pacific Surgical Association, on the staff of the Doernbecher Memorial Hospital for Children, aged 62, died, February 20, of cerebral hemorrhage.

**Herman Frederick William Flock** ♂ Williamsport, Pa., Jefferson Medical College of Philadelphia, 1920 member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, on the staff of the Williamsport Hospital, aged 39, died, March 6, in the Temple University Hospital, Philadelphia, of streptococcal cellulitis.

**Adolph Monaelesser** ♂ New York, Eclectic Medical College of the City of New York, 1882, University of the City of New York Medical Department, 1886, member of the American Urological Association, veteran of the Spanish-American War, for many years on the staff of St Elizabeth's Hospital, aged 79, died, March 27, of chronic leukemia.

**William Watson Laing**, Brooklyn, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894, member of the Medical Society of the State of New York, served during the World War, on the staffs of the Brooklyn State Hospital and the Wyckoff Heights Hospital, aged 63, died, April 4, of pneumonia.

**Walter Bright Rile**, Sunmount, N Y, Hahnemann Medical College and Hospital of Philadelphia, 1902, Jefferson Medical College of Philadelphia, 1921, fellow of the American College of Surgeons, served during the World War, aged 59, on the staff of the Veterans Administration Facility, where he died, February 27, of cerebral hemorrhage.

**William Wickham Mills**, Chappaqua, N Y, Bellevue Hospital Medical College, New York, 1897, member of the Medical Society of the State of New York, formerly county coroner and deputy health commissioner, aged 64, on the staff of the Northern Westchester Hospital, Mount Kisco, where he died, March 31, of peritonitis.

**Roland Gordon Holt** ♂ Schenectady, N Y, Columbia University College of Physicians and Surgeons, New York, 1907, formerly instructor in obstetrics, Albany Medical College, served during the World War, aged 53, on the staff of the Ellis Hospital, where he died, March 29, of acute cholangitis.

**John Mitchell Rogers**, Barnesville, Ga., Atlanta College of Physicians and Surgeons, 1900, member of the Medical Association of Georgia, secretary and past president of the Lamar County Medical Society, formerly chairman of the county board of health, aged 59, died, February 28, of bronchopneumonia.

**William Sessions Hannah** ♂ Montgomery, Ala., Johns Hopkins University School of Medicine, Baltimore, 1924, past president of the Montgomery County Medical Society, aged 34, died, March 22, in the Buffalo (N Y) General Hospital, of streptococcal septicemia.

**George Washington Martin**, Portsmouth, Ohio, Eclectic Medical Institute, Cincinnati, 1908, member of the Ohio State Medical Association, aged 51, on the staff of the Portsmouth General Hospital, where he died, April 2, of bronchopneumonia and cerebral hemorrhage.

**Lewis Henry Lamkin**, Natchez, Miss., University of Louisiana Medical Department, New Orleans, 1881, member of the Mississippi State Medical Association, past president of the Homochitto Valley Medical Society, aged 75, died, February 19, in New Orleans.

**Allen Mason Thomas**, New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1880, member of the Medical Society of the State of New York, aged 79, died, March 18, of chronic pulmonary emphysema.

**William Henser Acton**, Alabama City, Ala., Vanderbilt University School of Medicine, Nashville, Tenn., 1888, member of the Medical Association of the State of Alabama, aged 73, died, March 18, in Gadsden, of bilateral hydronephrosis and prostatitis.

**James Hunt Royster** ♂ Richmond, Va., Jefferson Medical College of Philadelphia, 1917, served during the World War, fellow of the American College of Physicians, on the staff of the Westbrook Sanatorium, aged 42, died, March 22, of heart disease.

**Alan Fleming McLaughlin**, Richmond, Ill., University of Illinois College of Medicine, Chicago, 1930, member of the Illinois State Medical Society, aged 29, on the staff of the Sherman Hospital, Elgin, where he died, March 17, of pneumonia.

**James Robert Bone** ♂ Lebanon, Tenn., University of Nashville Medical Department, 1908, secretary of the Wilson County Medical Society, formerly on the staff of the Martha Gaston Hospital, aged 57, died, March 28, of lobar pneumonia.

**Thomas Breckenridge Semans** ♂ Uniontown, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1920, fellow of the American College of Surgeons, on the staff of the Uniontown Hospital, aged 40, died, February 26.

**Frank Hayward Collins**, Goldendale, Wash., St. Louis University School of Medicine, 1903, member of the Washington State Medical Association, served during the World War, aged 63, died, March 18, of coronary thrombosis.

**Frederick Rudolph Larson**, Omaha, Northwestern University Medical School, Chicago, 1930, member of the Illinois State Medical Society, aged 43, died, January 1, in the Veterans' Administration Facility, New York.

**Clyde Alexander Finley**, Galesburg, Ill., University and Bellevue Hospital Medical College, New York, 1903, aged 57, on the staff of St. Mary's Hospital, where he died, March 12, of chronic myocarditis and chronic nephritis.



**Willie Hamilton O'Banion**, Lockhart, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1894, member of the State Medical Association of Texas, aged 65, died, February 11, of cardiovascular renal disease

**Gilbert A Kelley** ♂ Bridgeport, Calif, College of Physicians and Surgeons, medical department of the University of Southern California, Los Angeles, 1913, aged 45, died, January 27, in Reno, Nev, of cerebral hemorrhage

**Jacob Franklin Meyers**, Elliott, Iowa, State University of Iowa College of Medicine, Iowa City, 1903, past president of the Montgomery County Medical Society, aged 56, died, February 23, of carcinoma of the colon

**James Sime Wardlaw**, Galt, Ont, Canada, Trinity Medical College Toronto 1888, Queens University Faculty of Medicine, Kingston, 1888, University of Toronto Faculty of Medicine, 1890, aged 83, died, February 22

**Albert A J Lang**, Jamestown, N D, McGill University Faculty of Medicine, Montreal, Que, Canada 1898, member of the North Dakota State Medical Association, aged 69, died suddenly, March 18, of heart disease

**Courtland F Quinby**, West Grove Pa, Hahnemann Medical College of Philadelphia 1877, aged 78, died, January 11, in the Homeopathic Hospital, Wilmington, Del, of chronic nephritis and tonsillitis

**Ira Price Burdine** ♂ Amory, Miss, Tulane University of Louisiana Medical Department New Orleans 1892, on the staff of the Gilmore Sanitarium, aged 69, died, February 13, of chronic nephritis and uremia

**Arthur Johnson**, Clanton, Ala, Vanderbilt University School of Medicine, Nashville, Tenn, 1909, member of the Medical Association of the State of Alabama, aged 47, died, March 21, of lobar pneumonia

**George Harry Ferguson**, Saginaw, Mich, Saginaw Valley Medical College, 1901, member of the Michigan State Medical Society, on the staff of St Luke's Hospital, aged 57, died, March 1, of heart disease

**John Wesley Tildon Sr**, East Orange, N J, Illinois Medical College, Chicago, 1907, member of the Medical Society of New Jersey, aged 72, died, February 1, of pulmonary embolism and arteriosclerosis

**John Hiram Beane**, Burlington, Vt, University of Vermont College of Medicine Burlington, 1896, member of the Vermont State Medical Society, aged 66, died, March 25, of gangrenous appendicitis

**James M Mershimer**, Chicago, Baltimore University School of Medicine, 1899, aged 73, died, April 8, of chronic cholecystitis, following an operation for relief of obstruction of the common duct

**Jacob Lewengood**, New York, Bellevue Hospital Medical College, New York, 1882, for many years attending physician to the Hebrew Orphan Asylum, aged 73, died, March 26, of cerebral thrombosis

**Charles F W Eberlein**, Gauting, Germany, Rush Medical College, Chicago, 1879, formerly senior physician at the Chicago State Hospital, Dunning, Ill, aged 80, died, February 25, of chronic myocarditis

**Cornelius Van Dyck Basten**, Kearney, Neb, State University of Iowa College of Homeopathic Medicine, Iowa City 1883, aged 75, died, February 28, of carcinoma of the stomach with metastasis

**Robert Means Lawrence**, Boston, Harvard University Medical School, Boston, 1873, member of the Massachusetts Medical Society, aged 87, died, March 7, of myocarditis and hypertension

**Henry J Swedlaw**, Birmingham Ala, Birmingham Medical College, 1907, member of the Medical Association of the State of Alabama, aged 52, died, March 20, of coronary thrombosis

**John H Martin**, Greenville Pa, Chicago Homeopathic Medical College, 1885, member of the Medical Society of the State of Pennsylvania, aged 78, died, March 2, of lobar pneumonia

**John James McNulty**, New York, College of Physicians and Surgeons Medical Department of Columbia College, New York, 1877, aged 78, died, February 11, of chronic myocarditis

**William Alexander McRobert**, Joliet Ill, Chicago Homeopathic Medical College, 1902, served during the World War, aged 67, died, January 20, of myocarditis and nephritis

**James I Richard**, New Orleans, Tulane University of Louisiana Medical Department, New Orleans 1892, aged 65, died, March 17, in the Touro Infirmary, of cerebral hemorrhage

**John Fisher**, Chicago, College of Physicians and Surgeons of Chicago 1887, member of the Illinois State Medical Society, aged 84, died, March 27, of cerebromalacia and arteriosclerosis

**Asa Wolverton Mair**, Detroit, McGill University Faculty of Medicine, Montreal, Que, Canada, 1892, aged 73, died, March 13, of mesenteric thrombosis and chronic myocarditis

**John Edd Furry**, Springfield, Ohio, Medical College of Ohio, Cincinnati, 1899, formerly mayor of Springfield, aged 65, died, March 13, of diabetes mellitus and arteriosclerosis

**Frank Waring Lewis**, Richmond, Va, Medical College of Virginia, Richmond, 1913, member of the Medical Society of Virginia, aged 46, died, March 2, of pancreatic necrosis

**William Hubert Austin**, Griffin, Ga, Atlanta School of Medicine, 1910, member of the Medical Association of Georgia, aged 59, died, March 15, of carcinoma of the prostate

**John C Schutzbach** ♂ Strasburg, Ohio, Columbus Medical College, 1891, for many years member of the board of education, aged 65, died, March 14, of coronary thrombosis

**Anthony Joseph Roderick**, New Bedford, Mass, Tufts College Medical School, Boston, 1915, served during the World War, aged 43, died, February 21, of lymphatic leukemia

**James Albert Dickson**, Hamilton, Ont, Canada, McGill University Faculty of Medicine, Montreal, Que, 1887, L R C P, F R C S, Edinburgh, 1887, aged 75, died, March 21

**Samuel Zussman**, San Francisco, Universite de Strasbourg faculte de medecine 1888, member of the California Medical Association, aged 70, was found dead, February 3

**John Joseph Hanavan**, East Aurora, N Y, University of Buffalo School of Medicine 1906, served during the World War, aged 50, died, March 25, of heart disease

**Hubbard C Raynor**, Grand Rapids, Mich, Michigan College of Medicine and Surgery, Detroit, 1897, aged 64, died, March 25, in a local hospital, of gastric ulcer

**Louis William Perman**, Brooklyn, University of Illinois College of Medicine, Chicago, 1925, aged 39, died, February 24, in the Jewish Hospital, of lobar pneumonia

**Stuart Wakeman Sherwood**, Norwalk, Conn, University of Pennsylvania Department of Medicine, Philadelphia, 1902, aged 61, died, March 13, of heart disease

**Alfred S Lockhart**, Toronto, Ont, Canada, Queen's University Faculty of Medicine, Kingston, 1892, M R C S, England, 1892, aged 68, died, February 10

**William R Roberts**, Palestine, Texas, Meharry Medical Department of Central Tennessee College, Nashville, 1892, aged 68, died, February 25, of heart disease

**Charles Bruehmann**, St Louis, Washington University School of Medicine, St Louis, 1896, aged 62, died, March 15, in the City Hospital, of heart disease

**William C Miller**, Labadie, Mo, Beaumont Hospital Medical College, St. Louis, 1899, formerly county coroner, aged 60, died, March 12, of uremia

**Richard Welch Lang** ♂ Mount Lebanon, Pa, University of Pittsburgh School of Medicine, 1921, aged 40, was found dead, March 19, of heart disease

**George Lee Major**, Fulton Ky, Vanderbilt University School of Medicine, Nashville, Tenn, 1886, aged 79, died, March 9, of cerebral hemorrhage

**Ephraim Derbyshire**, Kissimmee Fla, Medical College of Indiana Indianapolis, 1881, aged 89, died, March 10, of aneurysm of the abdominal aorta

**Newton Rector**, Hennessey, Okla, University of Nashville (Tenn) Medical Department, 1874, Civil War veteran, aged 96, died, March 16, of pneumonia

**Paul W Brossman**, Womelsdorf, Pa, Temple University School of Medicine Philadelphia 1924, aged 36, died, March 10, of a self-inflicted bullet wound

**Anson Scott Donaldson**, Vancouver B C, Canada, McGill University Faculty of Medicine Montreal, Que, 1901, aged 58, died, March 17, of pneumonia

**William Wallace Shriner**, Cincinnati (licensed in Ohio in 1896), aged 88, died, March 22, of arteriosclerosis, angina pectoris and cerebral embolus

**Ezra Warren Homiston**, New York, Bellevue Hospital Medical College, New York, 1883, aged 75, died, March 15, of carcinoma of the prostate

**Fred L Potts**, Vanceboro N C, Medico Chirurgical College of Philadelphia 1899, aged 61, died, March 23, of a self-inflicted bullet wound

**George Forster Ralston**, Somers Point N. J., Jefferson Medical College of Philadelphia, 1886, aged 72, died, February 3, of chronic myocarditis

**John Sangster MacCallum**, Smiths Falls, Ont., Canada, Victoria University Medical Department, Coburg, 1872, aged 87, died, February 12

**Lyman Craig Lauchland**, Dundas, Ont., Canada McGill University Faculty of Medicine, Montreal, Que., 1904, aged 56, died, February 9

**Emile Victor Desy**, Ste Rose de Lima Que., Canada, School of Medicine and Surgery of Montreal, 1896, aged 63, died, Dec. 6, 1934

**George J. Hearne** ♂ Buffalo University of Buffalo School of Medicine, 1892, aged 65, died March 23 in Miami, Fla., of diabetes mellitus

**Albert Pollard Chown**, Oakville Ont. Canada Queen's University Faculty of Medicine, Kingston, 1890, died, March 6, of heart disease

**Philip Mueller**, Minneapolis University of the City of New York Medical Department 1888, aged 73, died January 28 at Bayport

**James Howard Harris** ♂ Springfield, Ohio Starling Medical College Columbus 1895, aged 62, died, March 2, of angina pectoris

**William Gordon McCormack**, Toronto Ont. Canada University of Toronto Faculty of Medicine 1920, aged 42, died, February 16

**O. Everett W. Le Fever**, Cisco Texas Medical College of Ohio Cincinnati, 1896, aged 62, died April 2 of coronary thrombosis

**Roderick A. McDonald**, St. Laurent Manit., Canada, McGill University Faculty of Medicine Montreal, 1874, died in February

**Walter William Boyce**, Belleville Ont. Canada Trinity Medical College Toronto Ont. Canada 1880, aged 77, died, March 19

**Hugh Sinclair McDonald**, Dresden Ont. Canada Queen's University Faculty of Medicine Kingston 1895, aged 65, died, March 1

**Harris R. Simmons**, Jersey City N. J. New York Homeopathic Medical College 1877, aged 84, died March 1 of angina pectoris

**Lewis Edmund Shepherd**, Apsley Ont. Canada Victoria University Medical Department, Coburg 1880, died Dec. 18, 1934

**John Henry Price**, Horseheads N. Y. College of Physicians and Surgeons, Baltimore 1878, aged 80, died, January 23

**James Becket**, Toronto, Ont. Canada University of Toronto Faculty of Medicine 1894, aged 62, died February 10

**Edwin D. Ault**, Lakeview, Ont. Canada McGill University Faculty of Medicine Montreal, Que., 1868, died February 12

**William Morrison**, Toronto, Ont., Canada Queen's University Faculty of Medicine, Kingston, 1908, died February 23

**George Rufus Norman**, Luther Okla. St. Louis College of Physicians and Surgeons, 1893, aged 73, died February 26

**Albert William Montague**, Victoria, B. C. Canada Manitoba Medical College, Winnipeg 1906, aged 53, died March 3

**Louis Spingarn** ♂ New York New York University Medical College, 1896, aged 69, died March 15 of renal insufficiency

**Thomas David Meikle**, Mount Forest Ont., Canada, Trinity Medical College, Toronto 1883, aged 77, died, March 15

**Frederick David Canfield**, Ingersoll Ont., Canada Trinity Medical College Toronto 1884, aged 77, died, January 29

**Samuel Henry Quance**, Hagersville Ont. Canada Trinity Medical College Toronto 1887, aged 71, died March 12

**Alexander Wylie Crichton**, Castleton, Ont. Canada (licensed in Ontario in 1892), aged 72, died, February 2

**Edwin Stanton Russell**, Alliance Ohio Cleveland Medical College 1873, aged 85, died March 28, of pyonephrosis

**Francis M. Stearns**, Hudson Mich. Eclectic Medical Institute, Cincinnati, 1879, aged 80, died February 9

**John J. Bleecker**, Pasadena Calif. Chicago Homeopathic Medical College 1885, aged 82, died January 6

**T. Innes Bowie**, Streetsville Ont. Canada Trinity Medical College, Toronto 1893, died February 7

**John Byron Moran**, Trenton, Ont., Canada Trinity Medical College Toronto 1872, died January 19

**William Trent Yeo**, Toronto Ont. Canada Trinity Medical College, Toronto 1897, aged 76, died March 6

## Correspondence

### CHRONIC VAGINITIS AND ACNE

*To the Editor*—In regard to the communication of Dr. Arthur G. Schoch in *THE JOURNAL*, March 9, page 852, concerning the "specious conclusion" that the acne was connected with the chronic vaginitis in my report of a case of chronic vaginitis treated with phenylmercuric nitrate (*THE JOURNAL*, January 19, p. 212), much could be said. When the acne first appeared, the patient was told that it might be connected with the vaginitis, and that it might clear up if the vaginitis could be cured. That the two were connected I have no doubt from what actually happened, as recorded. The possibility of the acne being caused by the local applications of iodine was not even considered for the very good reason that it was present before the iodine applications were made. Moreover, at no time did the patient take iodine in any form (including iodized salt) by mouth. Again, at her age, the long lasting acne of adolescence did not have to be considered.

As in the case referred to by Dr. Schoch, I have never seen acne due to iodine fail to clear up shortly after removal of the cause. I have had quite a number of cases, especially of chronic appendicitis, in which associated acne resisted treatment for a long time until sources of chronic infection were removed. Notwithstanding other opinions that differ from my own, I regard acne as being a manifestation of some systemic condition until the contrary is proved.

As I reported a case of vaginitis not of acne, it was not stated in the article that, aside from the use of the autogenous vaccine, the treatment of the vaginitis was paralleled by treatment directed at bettering the condition of the patient's skin, but it was stopped at least two years before the case came to a climax because as was expected in the presence of the vaginitis, it proved to be useless. Even phenylmercuric nitrate, the most potent and generally satisfactory antiseptic I have ever used, failed in a 1:1,500 ointment. Roentgen treatments were purposely not used for reasons that need not be stated here. The vaccine injections did give temporary relief, but the acne did not show continued and increasing improvement until after the vaginitis had stopped. At the present writing, all I claim is that the vaginitis is cured, and the acne is still arrested to a point at which at least the patient considers it to be cured.

FREDERIC WADE HITCHINGS, M.D., Cleveland.

### IODIZED POPPY-SEED OIL IN VENOUS SYSTEM

*To the Editor*—The instructive and interesting case report by Dr. Geza Weitzner (*THE JOURNAL*, February 16, p. 545), wherein is described accidental escape of iodized poppy seed oil into the venous system of the uterus during the course of an intra-uterine injection, suggests the following comments.

In an attempt to explain the etiology of such accidental venous roentgenograms, Dr. Weitzner rejects the possibilities of 'excessive pressure during the injection' and 'pathologic permeability of the uterine vessels' in favor of the theory that supposes the presence of 'injury to the uterine wall' with probable invasion of the venous sinuses. The latter mechanism is substantiated, in the case of Dr. Weitzner's patient, by the report of vaginal bleeding during four days immediately following the uterine manipulation. More direct evidence for such an explanation was given by Dr. John A. Sampson before the forty-third annual meeting of the American Gynecological Association on May 16, 1918, in Philadelphia (*Am. J. Obst.* 78:161 [Aug.] 1918). In a series of experimental roentgenograms of uteri that had been removed at operation and injected

with bismuth solutions, Dr Simpson described his surprise at the occurrence of complete visualization of the uterine venous system in an injected, myomiotous uterus removed during an episode of active metrorrhagia. This led him to experimental roentgenograms with uteri that were curetted, and in every such instance he obtained pictures of the uterine venous circulation.

In the discussion that followed Dr Sampson's presentation, Dr J Wesley Boice stated that he had discarded intra uterine injections of iodine after finding the injected solution in the venous channels of two uteri removed at operation.

This seems to lend weight to the opinion of Dr Weitzner

S LEON ISRAEL, M D, Philadelphia

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### DETECTION OF ALBUMINURIA

To the Editor—Please tell me the best and most sensitive qualitative test for albuminuria and the second best test with procedure for making tests and strength of solutions used. Will pus in an otherwise normal urine give a positive test for albumin and in what quantity before it will show? Please omit name.

M D Alabama

ANSWER.—Normal urine contains a trace of albumin too slight to be detected by the simple tests in general use. All tests for albumin in urine depend on its precipitation by chemical reagents or coagulation by heat. These agents precipitate both serum albumin and serum globulin. Mucin or other constituents such as pus cells may give a reaction with some reagents. Pus cells in moderate numbers always give a faint positive reaction. Hence the urine tested should be clear and should be filtered if necessary. Many bacteria, especially when dissolved in an alkaline urine, may yield faint traces of albumin.

Usually simple filtration through a double layer of filter paper is sufficient. The bacteria may be removed by centrifugation or by the addition of a small amount of animal charcoal and shaking and filtering.

There are a dozen or more tests for albumin in the urine. These will be found in most books on laboratory technique or urinalysis. Three of the most reliable and simple tests are Exton's test, Purdy's test and Robert's test.

Exton's test 1 Filter the urine or remove the upper portion after centrifugating. 2 Mix equal volumes of urine and reagent in a test tube. The ingredients of the reagent are sodium sulphate, 200 Gm; sulphosalicylic acid, 50 Gm; water to make, 1,000 cc. Dissolve the sulphate in 700 cc of water with heat, allow to cool, then dissolve the acid without heat and dilute to 1,000 cc. 3 If cloudiness does not develop albumin is absent. 4 Should cloudiness develop warm slightly over a flame. Do not boil. Any cloudiness that persists is due to albumin. 5 If the urine is slightly cloudy and cannot be cleared, the reaction should be compared with a tube containing water and urine. A distinct difference will be seen if albumin is present.

Purdy's test 1 Fill a test tube half full with urine. 2 Add about one-sixth its volume of saturated water solution of sodium chloride and from 5 to 10 drops of 50 per cent acetic acid. 3 Mix and boil the upper portion over a burner. Rotate while heating. 4 A cloud denotes albumin. This is a useful test, as the addition of the sodium chloride raises the specific gravity and prevents the precipitation of mucin. Bence-Jones protein may produce a cloud, which disappears on cooling.

3 Robert's test Place a few cubic centimeters of the reagent in a small test tube. Tilt and run clear urine from a pipet or dropper down the side to give a sharp line of contact. The reagent consists of saturated aqueous solution of magnesium sulphate 5 parts and concentrated nitric acid 1 part. If albumin is present, a white ring appears at the line of contact. This test is much more desirable than the Heller ring test using nitric acid. It is sensitive and eliminates the secondary colored rings due to indican, bile pigments, and the like.

### DESCENT OF TESTIS

To the Editor—I have in my care a boy aged 10 years whose testicles have never descended. I can find no trace of them in the inguinal region or at the root of the penis. He is otherwise quite normal, bright and well nourished the sixth in a family of eight. All the children are healthy. The father is an ordinary farmer. The patient is of a rather nervous disposition. He does well in school but is a little hard to manage at home. My object in writing to you is to be advised as to what if any measures are advisable in the case. I think he shows some indications though not definite of chorea. If nothing can be done will he be likely to go bad at puberty?

A C McGEE M D McNabb Ill

ANSWER.—It is generally stated that sexual development in boys is slow between the ages of 9 and 12 and rapid between the ages of 13 and 15, slowing up again after the fifteenth year of age. The age of the onset of puberty varies with the various races. Testicular descent often occurs spontaneously during the period of most rapid sexual development in boys in whom a degree of cryptorchidism has been present.

From recent reports, the administration of the anterior pituitary-like gonadotropic stimulating substance from the urine of pregnancy has been advocated for the descent of the testes. When purely mechanical causes are obstructing the descent of the testes, this substance can have no effect. The age of the patient and his individual organ reactivity to the substance are variables to be considered in the treatment of any given case. If the treatment is given between the ages of 12 and 14, the result will probably be attained more effectively and more quickly than if treatment should be started at a young age period. The ages between 12 and 14 years may be considered the optimal period for successful treatment, because the normal developmental process at this time would cause a greater reactivity of the substance on the testis.

Besides the age of the patient, the dosage and the duration of treatment with the pregnancy urine extracts will be dependent on the degree of underdevelopment. The most favorable clinical responses have been noted at the age of early puberty.

Even though the boy is untreated, the testes may descend during puberty. If the testes fail altogether in descent and development, the patient will not "go bad," though he will suffer from sterility and a feminine habitus and mannerism.

### PNEUMOCONIOSIS IN MOLDERS

To the Editor—I am gradually gathering a small series of cases of pneumoconiosis in molders who work in brass factories. There are six of them who within the past four years have worked in the foundry division. I would be interested to know if you have any information on the etiologic factor. I am informed that the molds are made of a special form of sand presumably silicon dioxide. The patients all lay their difficulty to the fumes that arise when the molten metal is poured into the sand molds. This is the only time to my knowledge when there is any large amount of foreign material in the atmosphere of the foundry. Please omit my name.

M D Michigan

ANSWER.—Pneumoconiosis is a characteristic occupational disease of foundry workers. Sand blasting operations, shake-out work and sand conditioning, among other foundry activities, contribute dustiness to the atmosphere breathed by workers. Mold materials are high in silica ( $\text{SiO}_2$ ) but some combined silicon may be present as silicates. Crypto-crystalline silica (tripoli) may be present in mold facing materials. Although free silica, this tripoli form is regarded as less harmful than ordinary silica, possibly because of its electrostatic properties, which hamper general atmospheric dustiness from this source. The x-ray picture of typical silicosis is characteristic in the presence of history of exposure. Other forms of pneumoconiosis are less characteristic but are suggestive. Roentgen examinations of the chest are desirable for dust exposed workers in the plant described also dust counts. If proof of true dust lung disorders is established from roentgen examinations and if dust counts yield results indicative of concentrations of siliceous dusts in amounts above tolerable limits, unfailingly steps toward the elimination of dust hazards will be in order. During the last three years an extensive mass of technical information on dust hazards in foundries, silicosis in foundries, and protection against dust hazards in foundries has been published. Some such information appears in various issues of the Foundry, a trade publication edited in Cleveland, in the publications of the National Safety Council, Chicago, and in a booklet entitled "Silicosis in the Foundry," prepared by Dr Carey P. McCord for the National Founders Association (29 South LaSalle Street, Chicago) and published by that organization.

The patients' association of their difficulties with the immediate time of pouring metal probably has nothing to do with the pneumoconiosis. At that time, however, zinc and copper

fumes are given off, which may cause another characteristic occupational disease of the brass founders trade, namely, "brass chills," "zinc chills," "brass founder's ague" or "metal fume fever." The second type of occupational disease is much less significant than the first but much more obvious. The patient after exposure quickly may develop a mild respiratory tract inflammation, severe chilling, insatiable thirst, malaise and temporary depletion. It seems definite that little or no direct connection exists between the two conditions discussed.

#### SNAPPING OR TRIGGER FINGER

*To the Editor*—A woman aged 55 in good health has for the last ten years been affected by a condition of spastic flexion of the right ring finger. The condition follows hand work such as washing clothes and is becoming worse so that on the last occasion she could not extend the flexed finger with the other hand and there was excruciating pain in the palmar surface just anterior to the metacarpophalangeal joint where the flexor tendon was very tender and held in rigid spasm unlocking after several hours of hot soaking manipulation morphine and atropine. What is the likely diagnosis and treatment? Please omit name.

M D Massachusetts

*ANSWER*—The patient probably has a so-called snapping finger, or trigger finger. The condition results from either a bulbous thickening of the flexor tendons just distal to the proximal end of the digital sheath or a narrowing and constriction of the proximal end of the sheath itself opposite the metacarpophalangeal joint. The result of either of these conditions is obstruction to the free gliding movement of the flexor tendons. When the patient attempts to flex the affected finger it remains in extension until sufficient force is applied to draw the enlarged tendon through the narrowed sheath. This movement is often accompanied with a jerk or snap. When the patient subsequently attempts to extend the finger, this action becomes difficult because the bulbous enlargement interferes with the downward (distad) movement of the affected portion of the tendon, in other words, the same events take place in a reversed order.

The condition results from a sudden trauma or strain with partial rupture of the tendons, from inflammatory disease, which causes localized enlargement and thickening of the tendons, and from a number of other less common causes. It can usually be completely relieved by opening the narrowed sheath opposite the metacarpophalangeal joint and excising sufficient of the ringlike constriction to permit the tendon to glide freely back and forth.

#### PURPURA HAEMORRHAGICA

*To the Editor*—Recently I have seen a case of purpura haemorrhagica in a child aged 4 years. The previous health was good. There was no familial history of any blood dyscrasia. The child recovered within two weeks and has had no recurrence in a period of almost two months. The child had been given Dr. Jaynes Vermifuge combined with castoria a short time before the onset of the disease. I believe this case to be one of the secondary purpuras and wish information concerning the possibility of this vermifuge acting as an etiologic factor.

M D Arizona

*ANSWER*—Purpuric manifestations with thrombocytopenia have been noted following the ingestion of drugs to which the patient has an idiosyncrasy. The drugs present in this vermifuge have not been reported as producing such an effect but it would be instructive to investigate the possibility in this patient. The investigation could be carried out by doing a patch test or injecting a minute amount intradermally in dilute solution. One must bear in mind, however, that true essential thrombocytopenic purpura may appear suddenly and be effectively treated by blood transfusions. In such cases the patient may be free from symptoms for months or years, during which time there is no objective evidence of the disorder. In the absence of a demonstrable drug idiosyncrasy this case should be carefully followed as a potential case of Werlhof's disease.

#### TREATMENT OF GUMMA

*To the Editor*—Which of the two act more rapidly on a gumma the iodides or the arsenicals? Is the Herxheimer reaction the result of rapid and incomplete reaction? Please omit name.

M D Louisiana.

*ANSWER*—In treating a tertiary syphilis one finds that the action of the arsenical is more rapid than that of the iodides. The Herxheimer reaction is explained as follows. When a patient with syphilis, either in the early stage or with a gumma has had no treatment for the disease and gets his first injection of an arsenical there is a resultant edema of the localized lesion. The lesion becomes much more prominent, in the case

of early syphilis it will take on a bright red coloration but, naturally, with a tertiary lesion this will not be the case, and then the lesion begins to shrink in size rapidly. It is explained on the theory that the arsphenamine comes in contact with the spirochetes, causing their disintegration, that toxins, if there are any, are released from the broken down organisms, and that these cause an increased flow of blood to the part, causing the brightened color and localized edema. As a result of these toxins being released into the blood stream, often within the first hour or so after the arsenical injection the patient will have a high temperature. As a rule the Herxheimer reaction is seen only after the first injection of an arsenical. Of course, this reaction had been previously noted when mercury preparations were employed but of course the action was not of the sudden type seen after the arsenical therapy. One also may see a Herxheimer reaction after the first injection of a bismuth compound, provided no other previous antisyphilitic treatment has been given.

#### MENISCUS SIGN OF CARMAN IN GASTRIC CARCINOMA

*To the Editor*—What is the meniscus sign of Carman in regard to ulcerating carcinoma of the stomach?

L A CROWELL JR M D Lincoln N. C.

*ANSWER*—Carman, in urging the value of palpatory approximation of the gastric walls during fluoroscopic examination, laid stress on this technic as a means of showing abnormalities of the anterior and posterior walls. Compression of the walls with thinning of the layer of opaque ingesta can be accomplished most conveniently by slow stroking movements of the fingers downward over the stomach during the process of filling. It is important to do this before the stomach is fully distended, especially is this true in stout persons with excessively thick abdominal walls. During this manipulation, tumors on the posterior wall appear on the screen as translucent areas within the gastric silhouette, corresponding in size and shape to the growth. The crater of an ulcer appears as a dense, more or less circular spot, if it is possible to turn the patient so as to obtain an oblique or transverse view, a projecting niche may be noted. In the anteroposterior projection, when the walls are approximated as described an ulcerating cancer usually shows a central opacity representing the ulcer crater filled with barium within an encircling translucence, which corresponds to the surrounding infiltrated margin, and outside of this the diffuse density of barium in the stomach. As a rule, according to Carman, the concavity of an ulcerating cancer does not extend into or beyond the gastric wall, so there is no projecting niche at any angle of view. Absence of a niche and the presence of the three shadow zones are valuable signs of malignant ulceration in the stomach.

#### SOLUTIONS FOR USE IN EYE

*To the Editor*—When using hypotonic solutions for eye treatments (for example 0.125 per cent pilocarpine) patients will complain of disagreeable stinging sensations which are eliminated by adding 1.5 per cent boric acid. Is there a marked advantage in the hypotonic solution because of more rapid and more complete absorption? Must the hydrogen ion concentration be considered in routine eye solutions? Should eye solutions be considered as two groups—those with conjunctival effects and those with intrabulbar effects? Where can I find detailed information about these questions? Please omit name.

M D Pennsylvania.

*ANSWER*—There is in general no advantage in using hypotonic solutions of the alkaloids in distilled water. The addition of boric acid does not lessen their effect. It does give them an acid reaction, however, and an even less irritating form in which to dispense some of the common alkaloids is in a buffer solution of pH 7.6. Physostigmine in such a solution turns pink, but its absorption and effectiveness have been found in no way diminished. Such a buffer solution was described by S. R. Gifford and R. D. Smith in the *Archives of Ophthalmology* (9 227 [Feb.] 1933) and another article on the same subject will appear in the *Archives* shortly.

A buffer solution of reaction approximately pH 7.6 may be made of anhydrous boric acid 6.2 Gm., potassium chloride 7.4 Gm. and distilled water 1,000 cc. To 50 cc of this solution, which has a reaction of pH 5.5, is added 1 cc of a solution of sodium carbonate, 21.2 Gm. to 1,000 cc. of distilled water. This is suitable for atropine, homatropine, physostigmine and pilocarpine. The use of other buffers for other alkaloids is described in the articles referred to.

In A Handbook of Ocular Therapeutics by Gifford, published by Lea & Febiger, will be found a discussion of various drugs used for effect on the conjunctiva and those depending on absorption into the eye.

## ALLERGIC REACTION AFFECTING EARS

*To the Editor*—A boy baby aged 18 months not irritable perfectly well prior to the onset of the present illness has had marked swelling of both ears of two days duration. Both ears stick out from the side of the head the same as in acute mastoiditis. There is an effusion of blood beneath the skin along the outer border of the auricle of both ears. They are very tender to touch and they feel warm. On the buttocks are several large reddish raised areas from 1 to 2 cm in diameter. One similar area appears on the inner aspect of one knee and the dorsum of the foot. What I should like to know is How could the two ears be affected at the same time? There is no history of a blow or external violence. The weather has been warm it being summer. The ears remind me of cauliflower ears of boxers. I would appreciate suggestions as to etiology. Please omit name. M D New York

**ANSWER**—There are several conditions that must be considered in the diagnosis of the ear lesions. Associated with the lesions on the buttocks, knee and foot, one might consider an urticaria, insect bites, dermatitis venenata or a purpura, in the winter, frost bite. The history states that external violence or injury can be excluded. Herpes zoster oticus of the external ears has been described, though the description of the lesion does not fit this condition.

Perhaps careful inquiry would aid in determining any dietary cause for an urticarial etiology of the condition or whether the child had been in contact with any plant that could possibly produce a dermatitis venenata. In case of insect bite one might be able to see a minute central puncture point. The external ear reacts to slight injury by swelling and redness often out of proportion to the exciting cause.

## KELOIDS

*To the Editor*—A white woman aged 52 wishes the removal of a sebaceous cyst of the scalp region. The cyst is almost in the midline about  $1\frac{1}{4}$  inches anterior to theinion and about the size of a hickory nut. It is not very conspicuous and can be fairly well covered by the hair but at times causes itching and when the patient combs her hair it becomes irritated. I have advised excision but hesitate somewhat because of the susceptibility of the patient to keloid formation. Do you know of any means of preventing keloid or successful treatment after its formation? Please omit name. M D Wisconsin

**ANSWER**—The most satisfactory preventive of keloid formation in such a case is the exposure to x-rays before surgical removal and again afterward over a period of some weeks or, perhaps, months if evidence of keloid develops.

The results of treatment after a keloid has developed vary. Excision combined with roentgen therapy before and after may be necessary, but complete success should not always be expected.

The method and amount of roentgen therapy should be left to some one of experience and responsibility.

## TUBERCULOUS ADENITIS

*To the Editor*—Will you be so kind as to send me the technic for roentgen therapy of tuberculous adenitis (cervical) in an infant. I wish especially to know the number of roentgens with an effective wavelength of from 0.210 to 0.218 angstrom unit to give in these cases.

JAMES P. McGUIRE, M.D. Chicago

**ANSWER**—An effective wavelength of approximately 0.210 angstrom unit is furnished by 140 kilovolts, pulsating current, with a filter of 0.25 mm of copper and 1 mm of aluminum. In the case of an infant with tuberculous cervical adenitis the dosage should be about 75 roentgens once in three weeks over a period of three or four months. There is no danger to epiphyseal centers or to any of the normal glandular structures from such a dosage. It has been found efficient.

## INJECTION OF CYST FOR ROENTGENOGRAPHY

*To the Editor*—I have a patient with what seems to be a branching enous cyst in the right side of the neck on a level with the vocal cords. The cyst contains sterile clear serum. I wish to inject a fluid that mixes well with serum and then make a roentgenogram to determine the extent of the cyst. Would tincture of iodine diluted be suitable? If so what strength? Would 10 per cent sodium iodide be concentrated enough to cast a good shadow and if not could tincture of iodine be added to the sodium iodide? What other solutions and strengths would you suggest? Please omit name and address. M D Pennsylvania

**ANSWER**—Tincture of iodine should not be used for injecting such cysts, as it may prove quite irritating or even toxic. Sodium iodide in 15 per cent solution gives a good shadow, but occasionally may prove slightly irritating and should be aspirated after its use. Sodium bromide in 25 per cent solution gives a good shadow with little reaction but may be a little concentrated to inject through a fine needle. Iodized poppy-

seed oil is one of the least irritating of the contrast mediums but is quite viscous. Several similar and satisfactory proprietary preparations may be obtained. Neo-iopax or any of the contrast mediums used intravenously for urograms may be used for this purpose. This will give a good shadow in a dilution of 1:3 with sterile distilled water. The sodium iodide and bromide solutions may be easily made up and sterilized, while the others or satisfactory substitutes may be obtained from any of the medical supply or pharmaceutical houses.

## ADIPOSIS DOLOROSA

*To the Editor*—A woman aged 39 complained of pain in the outer aspect of both thighs and considerable enlargement of both legs from the ankles to the hips which condition developed five years ago during her last pregnancy which was normal. Physical examination revealed a marked nonedematous enlargement of both legs with no abnormal increase in size above the hips. Both knee jerks were hypotonic. The blood pressure was 142 systolic 80 diastolic. Hemoglobin was 88, the red cell count was 4,600,000 and white cell count 7,800 with a normal differential. The basal metabolic rate was -2. A gain in weight from 140 to 216 pounds (63.5 to 98 kg) was reported. A diagnosis of Dercum's disease or adiposis dolorosa was made. The patient had been treated with pituitary 1 grain (0.065 Gm) daily for eleven months and this was followed by thyroid 2 grains (0.13 Gm) daily for the past five months. There has been no loss of weight and the condition has remained the same. Is there any accepted treatment for adiposis dolorosa? I would appreciate any suggestions regarding this case.

H. H. BURROUGHS, M.D. LeMars, Iowa

**ANSWER**—There is no effective treatment for adiposis dolorosa. If the fatty masses are painful, salicylates or other analgesics may be given. If the fatty masses are not tender, massage may be tried. Continuous warm baths and a restricted diet may have some effect. Thyroid is worthy of a trial. From the description of the case it is difficult to tell whether it is one of adiposis dolorosa or whether one is dealing with pituitary basophilism, trophedema or progressive lipodystrophy.

## NODULATION OF EPIDIDYMS

*To the Editor*—Is there any method of removing nodulations of the epididymis that followed an epididymitis i.e. without surgery or is there any harm in leaving these nodules untreated? Kindly omit name. M D Illinois

**ANSWER**—As a rule, nodules in the epididymis disappear in due course of time. As an aid to clearing up these nodules the use of heat in the form of hot wet dressings twice a day is valuable and the internal administration of potassium iodide with sodium salicylate is advisable. If the nodules do not completely disappear and they produce no symptoms, there is no harm in letting them alone.

However it is important to rule out the possibility that the nodules are due to tuberculosis, and a careful examination of the prostate, seminal vesicles and vas deferens is in order to rule out this possibility. With this out of the picture, the foregoing line of treatment may be followed.

## BLEACHING OF PIGMENTED SKIN

*To the Editor*—Is there a formula you can suggest for the removal of a darkened portion of the skin i.e. of the neck? Please omit name. M D New York

**ANSWER**—The patient should be studied for possible endocrine disturbance. Cases of hyperpigmented skin have been found due to insufficiency of the ovaries, thyroid or pituitary and have been relieved by treatment with extracts. If no such condition can be demonstrated, local treatment may be tried by combining perhydrol 1 part, a 30 per cent solution of hydrogen dioxide anhydrous wool fat 6 parts and petrolatum sufficient to make 10 parts. This should be applied to a small area once a day. If irritation results, one should cease the application and wait for the reaction to subside. If no result is obtained the strength of the perhydrol can be cautiously increased. After a small area is bleached somewhat the next area may be treated until a satisfactory result is obtained.

## TABETIC PAINS

*To the Editor*—In reading Queries and Minor Notes in THE JOURNAL, March 30 page 1188 I was interested in your reply to M.D. New York, concerning the treatment of tabetic pains. Your answer contains no reference to any form of intradural therapy. In my own experience since the publication of my article in 1914 I have repeatedly found that the subdural administration of mercurialized serum (one-fiftieth grain or 0.0013 Gm of corrosive mercuric chloride) is particularly efficacious in relieving the tabetic pains. I rarely find it necessary to give more than four treatments and often two are sufficient.

C. M. BYRNES, M.D. Baltimore

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** *Written (Group B candidates)* The examination will be held in various cities throughout the country April 29 *Oral (Group A and Group B candidates)* New York, June 10 Sec Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** *Final oral and clinical examination (Group A and Group B candidates)* Atlantic City N J June 10 11 *Application lists close May 1* Sec, Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** Philadelphia June 8 and New York June 10 Sec, Dr William H Wilder 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** New York, June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N J June 10, and St Louis Nov 19 Sec Dr C A Aldrich, 723 Elm St, Winnetka Ill

**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** Philadelphia June 7 8 Sec, Dr Walter Freeman 1726 Eye St N W, Washington D C

**AMERICAN BOARD OF RADIOLOGY** San Francisco May 10-12 and Atlantic City N J June 8 10 Sec Dr Bysl R Kirklin Mayo Clinic Rochester Minn

**ARKANSAS** *Basic Science* Little Rock May 6 Sec Mr Louis E Gebauer 701 Main St Little Rock *Regular* Little Rock May 14 Sec Dr A S Buchanan Prescott *Eclectic* Little Rock, May 14 Sec Dr L L Marshall 820 W 14th St Little Rock

**CALIFORNIA** *Reciprocity* San Francisco May 15 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**DELAWARE** June 11 13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover

**GEORGIA** Atlanta and Augusta June 11 12 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**IOWA** Iowa City June 4 6 Dir Division of Licensure and Registration Mr H W Greife Capitol Bldg Des Moines

**KENTUCKY** Louisville June 5 7 Sec State Board of Health Dr A T McCormack 532 W Main St Louisville

**MARYLAND** *Regular* Baltimore June 18 21 Sec Dr John T O Mara 1211 Cathedral St Baltimore *Homoeopathic* Baltimore June 11 12 Sec Dr John A Evans 612 W 40th St Baltimore

**MICHIGAN** Ann Arbor June 11 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 3-4 Hollister Bldg Lansing

**MISSOURI** St Louis June 12 14 State Health Commissioner Dr E T McGaugh State Capitol Bldg Jefferson City

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16 18 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** *Basic Science* Omaha May 7 8 *Medical* Omaha June 11 12 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEVADA** Carson City May 6 Sec Dr Edward E. Hamer Carson City

**NORTH CAROLINA** Raleigh June 10 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh

**OHIO** Columbus June 4 7 Sec State Medical Board Dr H M Platter 21 W Broad St Columbus

**OKLAHOMA** Oklahoma City June 5 6 Sec Dr J M Byrum Mammoth Bldg Shawnee

**OREGON** *Basic Science* Portland May 18 Sec Mr Charles D Byrne University of Oregon Eugene

**WISCONSIN** *Basic Science* Milwaukee June 1 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee

**WYOMING** Cheyenne June 3 Sec Dr W H Hassel Capitol Bldg Cheyenne

### Louisiana December Report

Dr Roy B Harrison, secretary Louisiana State Board of Medical Examiners, reports the written and practical examination held in New Orleans, Dec 6 8, 1934 The examination covered 12 subjects and included 100 questions An average of 75 per cent was required to pass Nineteen candidates were examined all of whom passed Four physicians were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
Howard University College of Medicine		(1934)	86 7
Rush Medical College		(1922)	87 3
University of Louisville School of Medicine		(1934)	87 3
Tulane University of Louisiana School of Medicine		(1933)	83 9
(1934) 84 7, 84 7 82 2			
University of Minnesota Medical School (1933)	83 5 *	(1934)	86 5 *
University of Nebraska College of Medicine		(1934)	85 2
Dartmouth Medical School		(1901)	82 6
Western Reserve University School of Medicine		(1934)	84 6
University of Pennsylvania School of Medicine		(1913)	84 8
Meharry Medical College		(1934)	88 7
University of Tennessee College of Medicine		(1934)	78
Vanderbilt University School of Medicine		(1930)	87 9
Baylor University College of Medicine		(1934)	77 3
University of Wisconsin Medical School		(1934)	86 3

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Tulane University of Louisiana School of Medicine		(1929)	Mississippi
(1933) Tennessee			
University of Tennessee College of Medicine		(1933 2)	Tennessee

\* This applicant has received his M B degree and will receive his M D degree on completion of internship License has not been issued

### Kansas December Report

Dr C H Ewing, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held in Topeka, Dec 11-12, 1934 The examination covered 10 subjects and included 100 questions An average of 75 per cent was required to pass Eleven candidates were examined, all of whom passed Six physicians were licensed by reciprocity and 2 physicians were licensed by endorsement. The following schools were represented

School	PASSED	Year Grad	Per Cent
University of California Medical School		(1934)	85 1
Howard University College of Medicine		(1934)	81 6 89 4
Rush Medical College		(1934)	83 7
State University of Iowa College of Medicine		(1933)	83 9
Harvard University Medical School		(1931)	81 6
Washington University School of Medicine		(1934)	82 5
John A Creighton Medical College		(1899)	87 2
Meharry Medical College		(1934)	80 6 81 8
University of Western Ontario Medical School		(1934)	89 1

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
State University of Iowa College of Medicine		(1932)	Iowa
University of Louisville School of Medicine		(1930)	Kentucky
St Louis University School of Medicine		(1933)	Missouri
Washington University School of Medicine		(1931)	Missouri
University of Texas School of Medicine		(1929)	Texas
University of Wisconsin Medical School		(1927)	Michigan

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad.	of
Rush Medical College		(1934)	N D M Ex.
University of Kansas School of Medicine		(1932)	N B M Ex.

## Book Notices

**The Brain as an Organ Its Postmortem Study and Interpretation** By Frederic Wertham M D Assistant Professor of Psychiatry New York University Bellevue Hospital Medical College and Florence Wertham With an Introduction by Adolf Meyer M D Psychiatrist in Chief Johns Hopkins Hospital Baltimore Cloth Price \$7 50 Pp 538 with 166 Illustrations New York Macmillan Company 1934

It is probably more unusual for a neurologic monograph to inspire enthusiasm than for any other type of book, yet the present work is distinctly one of the most stimulating of its kind to have appeared during the last few years Two years ago, with the exception of a small British monograph, no good systematized volume on neuropathology was available in English During the spring of 1933 this condition was rectified by the publication of three excellent volumes on neuropathology, but they were textbooks, systemic presentations describing in particular the microscopic appearances of the structures attacked by disease processes abusing the central nervous system. But the Werthams have produced something more than this They have produced a thick volume which synthesizes the known facts concerning nervous system pathology so that the whole mass of seemingly uninteresting and inconclusive facts treating of the subject is logically rearranged to have meaning Isolated chapters are impressive in their completeness for instance, that dealing with technical methods is entirely satisfactory One who wishes to use this book as a reference for all neuro pathology, to look up, for instance, "disseminated sclerosis" will be disappointed, for although this disease is mentioned innumerable times a simple description cannot be found, possibly because the authors presume considerable background on the part of the reader Of psychiatric entities the situation is different, alcoholism, dementia paralytica and senile changes are all covered sensibly and comprehensibly In other words "How does it look?" is neglected for "What is it all about?" Two criticisms can be deduced First, although many researches are referred to during the various discussions, just where reports of these studies can be found is seldom noted, and the bibliography is weak because of its generality For the casual reader and the well equipped researcher, this consideration is not serious, but beginning specialists in the field will want to turn to this volume early and will miss careful annotation. The care with which the book is written and the style, superior to that of many technical works, will be the reasons for the beginner's interest The second criticism to be made is the authors' failure to admit of a chemical pathology (in schizophrenia particularly) undemonstrable as yet anatomically The last chapter treating of forensic histopathology, is a contribution in itself, revealing medicolegal uses undreamed of by those



who have not yet had to face these special problems but which should be known to all psychiatrists. About a fourth of the book is made up of histologic drawings excellently reproduced by the aquatone process, all of which are original and are contributions of no mean order to the text. The book is highly technical.

**Alcohol and Anaesthesia.** By W. Burridge D.M. M.A. Professor of Physiology, Lucknow University. Cloth. Price 2/6. 1 p. 63 with 1 illustration. London: Williams & Norgate Ltd. 1934.

In this booklet the author advances an explanation of the effect of ethyl alcohol on a heart perfused with Ringer's solution, with and without the admixture of the alcohol. He shows that the functional capacity of the heart can be both depressed and stimulated by the alcohol and also both stimulated and depressed by removal of the alcohol. He suggests that the energy content of a muscle available in adsorption phenomena be called 'kinesiphore A,' and that the energy available in the colloidal aggregation state be called 'kinesiphore B.' He maintains that alcohol decreases the muscular or nervous excitation energy derivable from kinesiphore A and increases that which is derivable from kinesiphore B. He philosophizes concerning the mind and how it functions normally, abnormally and under the effect of alcohol. He discusses chronic alcoholism and suggests that the abuse of alcohol for a long period artificially supports the individual, permitting some of his glands of internal secretion to undergo some degree of atrophy from disuse. He mentions some other drugs the action of which seems to have become controversial, and he finally discusses anesthesia from the standpoint of the manner in which anesthetics may affect the individual, utilizing the theories that he has developed from his notion of how alcohol affects an individual. He suggests that the central neurons of the nervous system are ever in rhythmic activity and that this rhythm is disturbed by the anesthetic, and he goes on to explain as many of the phenomena of anesthesia as are usually explained by the theories, or more of them than are so explained, for example, the effect of local and general anesthetics, ether convulsions, postanesthetic psychosis, sudden death in the course of anesthesia and absence of relaxation. The text is well written, fifteen references are given and an index is supplied. The essay will interest all who use alcohol or anesthetics.

**Health Education in Senior High Schools. A Study of the Qualifications, Status, Affiliations and Functions of Persons Responsible for Health Education in Senior High Schools with Special Reference to New Jersey.** By Dorothy Ruef Ph.D. Teachers College, Columbia University. Contributions to Education No. 636. Published with the approval of Professor Jesse F. Williams, Sponsor. Cloth. Price \$1.50. Pp. 108. New York: Bureau of Publications, Teachers College, Columbia University. 1934.

This monograph is a factual study of health education in senior high schools in New Jersey. It deals with organization and personnel, health education activities, faculty relationships, external relationships of the school and personnel, and professional history of teachers in health education. The state of New Jersey has a law requiring the teaching of health education, and the New Jersey State Department of Public Instruction is in charge of such teaching. It might therefore be supposed that health education in New Jersey high schools would be in a reasonably advanced state. The study shows that conditions in New Jersey, which are probably typical of conditions in other states, leave much to be desired. There is no uniformity of plans or of organization and there is a great variety of personnel. For example, physicians, dentists, registered nurses, physical education teachers, health education teachers, home economics teachers and general science teachers not only participate in health education activities but head the departments. The lack of coordination and uniformity revealed by this report is no surprise to those who are familiar with the new art, for it is not yet a science of health education. The necessity for teaching health has been recognized rather universally, but it has not yet been possible to devise and procure adoption or even trial on any large scale of acceptable plans and programs for meeting the necessity. Even more important, it has not yet been possible to furnish trained personnel for the teaching of health. It is a difficult decision under such circumstances whether it is better not to attempt health teaching at all or to attempt it under unfavorable circumstances with unprepared though sincere personnel. There is grave liability

that harm may be done by the untrained. There are plenty of teachers capable of teaching who have not the necessary factual material for health teaching, and there are plenty of doctors untrained in pedagogy who do have the factual material. The problem is how to combine the necessary educational qualifications with the requisite scientific information. This report, bringing out the facts in a definite and organized manner, should be of considerable help in throwing light on the problem in New Jersey and secondarily in other states with which the New Jersey situation may be compared.

**Handbuch der experimentellen Pharmakologie.** Herausgegeben von A. Hoffer. Fortgeführt von W. Heubner, Professor der Pharmakologie an der Universität Berlin. Band III, Teil 3. Chrom-Metalle der Erdsäuren (Vanadium-Niobium-Tantal)—Titanium—Zirkonium—Zinn—Blei—Cadmium—Zink—Kupfer—Silber—Gold—Platin und die Metalle der Platingruppe (Palladium—Iridium—Rhodium—Osmium—Ruthenium)—Thallium—Indium—Gallium. Paper. Price 78 marks. Pp. 1503, 2188 with 87 illustrations. Berlin: Julius Springer. 1934.

This part of the third volume deals with the metals chromium, vanadium, zirconium, tin, lead, cadmium, zinc, copper, silver, gold, platinum, palladium, iridium, rhodium, osmium, ruthenium, thallium, indium and gallium. Aside from the intrinsic interest in a discussion of the action as far as it is known, of so many of the rarer metals, regarding which it is difficult to secure information anywhere else, the chief emphasis of this volume is on lead and most especially its toxicology. It is pointed out in this chapter that, in spite of the 'optimistic' report regarding the harmlessness of the traffic in ethyl gasoline of the American and the British commission, it is advisable to reserve final judgment, most especially in view of progressively increasing employment of this product. One of the first symptoms of poisoning by it is insomnia. The ubiquitous use of lead in modern industry renders lead a disease of civilization. It is not quantity but constancy of ingestion that leads to damage, just as it is 'constant dropping that wears away the stone'. Lead like syphilis may affect any and all the organs of the body of any one with known or unknown exposure. Hence a suspicion of the possibility of plumbism should accompany the traditional suspicion of the presence of syphilis in every patient presenting himself for treatment. There is need therefore, of a test for plumbism quite as specific as the Wassermann test is for syphilis. This is found in the increased amount of lead in the blood and the excretions, tests for which are given in detail. The treatment is discussed from the experimental and clinical standpoint with the conclusion that the rational therapy of plumbism is still at the beginning of its development. One cannot help hoping and wishing for the speedy issuance of the final sections of the handbook and the publication of the index to act as the 'open sesame' to this vast treasury of information on pharmacology.

**Tuberculosis. A Book for the Patient.** By Fred C. Holmes M.D., Director of the National Tuberculosis Association. Cloth. Price \$2. Pp. 312. New York & London: D. Appleton-Century Company, Inc. 1935.

Every one who has had a tuberculous patient knows the innumerable questions they ask concerning their own cases and the disease in general. Dr. Holmes's new book comes at a time when there is a dearth of suitable material with which to supplement one's advice and answers. Its principal value lies in the second half which is devoted largely to special methods of treatment such as artificial pneumothorax, operations on the phrenic nerve and thoracoplasty. He gives the patient a clear conception of each of these procedures and treats them fairly with regard to advantages and disadvantages. He calls attention to the importance of careful and complete examination and the significance of definite diagnosis by modern methods. The general treatment consisting of cooperation of the family, rest and diet, are discussed in detail. The physician should read the book himself before recommending it to his patients, both for the information it may add to his own store of knowledge and so that he can call attention to some questionable statements. In view of the fact that so much has recently been written in the American literature concerning the decrease in the incidence of positive tuberculin reactors, a question doubtless will arise in the minds of many readers concerning the statement that every one becomes infected with tubercle bacilli and therefore reacts positively to the tuberculin test. To be sure, the number of persons reacting positively to the



tuberculin test varies in different parts of the country and even in different parts of the same city. Dr Holmes's statements in this respect may be based on observations in his own community. Another statement is made to the effect that the mortality from tuberculosis has definitely decreased but that there has been little or no decrease in morbidity. This statement also may be based on local observations, yet in many parts of the country definitely reduced morbidity has been reported, notably Detroit. Many physicians will doubtless take issue with the statement that more than half of the infants infected during the first year of life and about one fourth in the second year of life develop fatal tuberculosis, since recent actual observations show that relatively few infected infants die of the disease while in infancy and childhood. Aside from a few statements of this kind, which after all are not serious, the book contains much valuable material that will be of definite assistance to the tuberculous patient and his friends, and even to the physician himself.

**Die Haut und Geschlechtskrankheiten. Eine zusammenfassende Darstellung für die Praxis.** Herausgegeben von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Lieferung 18/19. Band I. Haut und innere Sekretion. Von Prof. Dr. Julius K. Mayr. Haut und Stoffwechsel einschließlich der Ernährungstherapie. Von Priv. Doz. Dr. Erich Urbach. Vererbung und Hautkrankheiten. Von San. Rat. Dr. Leonhard Leven. Allgemeine Dermatologie. Von Prof. Dr. Leopold Arzt. Allgemeine Grundsätze und allgemeine Verfahren bei der Behandlung von Hautkrankheiten. Von Dr. Conrad Siebert. Physikalische Behandlung der Hautkrankheiten. Von Primarius Dr. Josef Kowarschik. Lichttherapie. Röntgen (Anhang). Bucky Grenzstrahlen. Von Prof. Dr. Herbert Fuhs und Josef Konrad. Radium. Von Prof. Dr. Herbert Fuhs. Paper. Price 21.40 marks. Pp. 331. 684 with 228 illustrations. Berlin & Vienna. Urban & Schwarzenberg. 1934.

**Die Haut und Geschlechtskrankheiten. Eine zusammenfassende Darstellung für die Praxis.** Herausgegeben von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Lieferung 20. Band II. Kreislaufstörungen und Hämorrhagien der Haut. Von Prof. Dr. Heinrich Gottron. Mechanische, chemische, thermische und aktinische Schädigungen der Haut. Von Prof. Dr. Leo Kumer. Paper. Price 12.60 marks. Pp. 1. 234 with 99 illustrations. Berlin & Vienna. Urban & Schwarzenberg. 1934.

These two volumes contain some interesting chapters not usually found in works on dermatology. Among the contributions are those of Mayr on the skin and internal secretions, Urbach on metabolic disorders, Leven on hereditary skin diseases, Arzt on general dermatologic morphology, Siebert on the general principles of therapy and their application, Kowarschik on physical therapy, and Fuhs and Konrad on phototherapy and on roentgen and radium treatment. In the second volume Gottron takes up the circulatory disturbances and hemorrhages of the skin and Kumer the mechanical, chemical, thermal and actinic injuries. The articles are concise, well written, authoritative and accompanied by numerous excellent illustrations. They can be read with profit by all who are interested in clinical dermatology.

**The Case for Sterilization.** By Leon F. Whitney. Cloth. Price \$2.50. Pp. 309 with 1 illustration. New York. Frederick A. Stokes Company. 1934.

In this book the author, who is an ardent advocate of human sterilization as a means of controlling many of the social ills of our day, presents the history of this movement up to fairly recent times. He discusses the new German laws and describes the application of the law in those states of our own country which already have such legislation. His book fails, however, to recognize adequately many of the best arguments opposed to human sterilization. The book will serve, however, as a useful work for those who wish to make a beginning in their study of this problem.

**A Psychiatric Word Book. A Lexicon of Terms Employed in Psychiatry and Psychoanalysis Designed for Students of Medicine and Nursing and Psychiatric Social Workers.** By Richard H. Hutchings. M.D. Superintendent. Utica State Hospital. Fourth edition. Fabrikoid. Price \$1. Pp. 212. Utica N. Y. State Hospitals Press. 1933.

The development of a new nomenclature in the field of neurology and psychiatry particularly by the advances in the field of psychoanalysis, has made necessary repeated editions of this collection of the significant words that have come into that literature. In fact neurology and psychiatry are noted for their highly special diction. A word book of this type is useful to those constantly employed in this field. Most of the words are, however, available in the better medical dictionaries.

**The Science and Practice of Surgery.** By W. H. C. Romanis. M.A. M.B. M.Ch. Surgeon and Lecturer on Surgery. St. Thomas's Hospital, and Philip H. Mitchell. M.D. M.S. F.R.C.S. Hon. Surgeon to H. M. The King. Volume I. General Surgery. Volume II. Regional Surgery. Fifth edition. Cloth. Price \$13 per set. Pp. 789. 962 with illustrations. Philadelphia. Lea & Febiger. 1934.

In the present edition of this extensive work, several chapters have been rewritten and the text in general reworded so as to bring it in line with more recent advances. Each chapter is preceded by a brief discussion of the anatomy and physiology of the region, which is adequate for the needs of the student. The authors attempted properly to lay the greatest emphasis on the surgical pathology. Operative procedures and technique are assigned a subordinate place. On the other hand, the after-treatment receives the attention it merits. The text is authoritative throughout, and the purely literary quality of its English adds not inconsiderably to its intrinsic value as a textbook. The weakest point of the work is to be seen in the illustrations, many of which represent not only far advanced but rather unusual pathologic conditions seen but rarely in the practice of the present age. Such illustrations are of no value in teaching surgical diagnosis.

**French Medicine.** By M. Laignel-Lavastine. Professor in the Medical Faculty in Paris and M. Raymond Mollnery. Gold Medalist of the Academy of Medicine. Translated by E. B. Krumbhaar. M.D. Professor of Pathology. University of Pennsylvania. Clio Medica. A Series of Primers on the History of Medicine. V. Edited by E. B. Krumbhaar. M.D. Cloth. Price \$2.50. Pp. 187 with 14 illustrations. New York. Paul B. Hoeber Inc. 1934.

The great names of French medicine should of course be known to physicians everywhere. The contributions of Pare, Laënnec, Claude Bernard, Pasteur, Vidal and Charcot rank with the greatest in all medical history. The present book is so concentrated as to give hardly adequate consideration to the work of any of these famous contributors. It does provide, however, references to a great number of lesser lights who also have aided in building the great medical structure. A section of special interest is the concluding chapter dealing with military, naval and colonial medicine, the author fails unfortunately to refer adequately to the excellent work of Nicolle.

**A Textbook of Surgery.** By John Homans. M.D. Clinical Professor of Surgery. Compiled from Lectures and Other Writings of Members of the Surgical Department of the Harvard Medical School. With a Special Bibliographical Index and with illustrations by Willard C. Shepard. Third edition. Cloth. Price \$8. Pp. 1231 with 517 illustrations. Springfield III & Baltimore. Charles C. Thomas. 1933.

This volume represents the lectures given in the department of surgery at the Harvard Medical School. The third revision includes a considerable number of changes but without any necessity for change in pagination, because some of the material already in the book has been removed in each instance to make place for the new that is added. The volume is supplemented by an excellent bibliographic index, which includes references to original articles describing the surgical procedures. A statement on the jacket of this work indicates the principal subjects that have undergone correction, among others such topics as water balance and dehydration in surgery, the interpretation of abdominal pain, congenital obstruction, thoracoplasty, and tests of the peripheral circulation. This book is excellently written and most comprehensive. Its earlier editions met unanimous favor. The illustrations are unique for their clarity and uniformity.

**English German and German English Medical Dictionary.** By Joseph R. Waller. M.D., and Moritz Kaatz. M.D. Part I. English German. English-Deutsches medizinisches Wörterbuch. Von Dr. Moritz Kaatz. Fourth edition. Edited by Dr. Adalbert Springer. Cloth. Price 6 marks. Pp. 201. Leipzig & Vienna. Franz Deuticke. 1934.

This is now in its fourth edition. While not a large medical dictionary, it provides an excellent selection of the words most used. It is in every sense of the word a dictionary compend rather than a contribution to medical etymology.

**Nature's Way. The Fertile and Sterile Periods of Marriage.** By Victor C. Pedersen. A.M. M.D. F.A.C.S. Cloth. Price \$1. Pp. 81. New York. G. P. Putnam's Sons. 1931.

This little volume is planned to supply the public's desire for an outline of the so-called fertile and sterile periods of marriage. Dr. Pedersen discusses the Ogino-Knaus researches and indicates their practical application.

## Miscellany

### OSTEOPATHY AND LICENSURE

FREDERICK ETHERINGTON, M.D.  
KINGSTON, ONT

Talking of celebrated and successful irregular practitioners in Physick he said "Taylor was the most ignorant man I ever knew. Taylor was an instance how far impudence could carry ignorance"

—Samuel Johnson, 1779

I fear it may be thought a presumptuous procedure of 'carrying coals to Newcastle' for me to come from Canada to present a paper on the subject of 'Osteopathy and Licensure', for osteopathy is the ill formed child of lowly parentage—your child, not ours—which first saw the light of day sixty years since at Kirksville in the state of Missouri. With the passage of the intervening years, its unwished progeny have drifted across the international border to harass and annoy those of us concerned with medical registration.

As a member of the College of Physicians and Surgeons of Ontario, the sole body in the province empowered to license to practice medicine, my interest in this question was awakened when representatives of the cult put forward claims for further recognition, for according to our Drugless Practitioners' Act osteopaths, enrolled under their own board of regents, must confine their practice to manipulation and are not permitted to employ the designation "Doctor." Now they wished

- 1 To be empowered to sign birth and death certificates
- 2 The right to use the title 'Doctor'
- 3 The privilege of writing prescriptions
- 4 The right of entry to public hospitals
- 5 To have their services accepted by the Workmen's Compensation Board
- 6 The right to make use of public health laboratories

In pressing these large claims which to all intents and purposes constitute a demand to be admitted to medical licensure, these gentlemen repeatedly avowed that their schools of instruction in this country (there being none in Canada) maintained standards of admission and training equal to those of our regular schools of medicine. To examine the accuracy of this statement Dr Ryerson and I were delegated to visit some of your leading osteopathic schools and to report our observations.

While it is not possible in the allotted time to attempt a detailed examination of the so called theory on which the system is based, it is necessary for the present purpose to state in a general way the fundamental tenets of this cult, as gleaned from their authorities. They may be thus put down

- 1 The body is able to produce within itself all substances and materials necessary for the maintenance of health and for the prevention and cure of disease
- 2 Disordered circulation is the result of bony maladjustments, chiefly in connection with the spinal articulations. These maladjustments, or 'lesions,' by pressure on nerves, cause dysfunction in arterial supply and resultant disease
- 3 The chief, if not the only necessity in the cure of disease is the readjustment by manipulation of spinal luxations and impactions and, associated with this, the relief of muscular contractures

I have thought it wise to state the principles on which the system is based, for I feel they are not generally known to, or fully understood by, medical men. It is necessary in discussions of this kind to drag these grotesque beliefs from their

obscure lurking places and to expose them for a brief moment to the light of reason. For the majority of physicians on hearing these principles enunciated immediately lose patience with their palpable absurdity and refuse them further consideration. This reaction is understandable enough but I fear it is a mistake in tactics. Only by repeated exposures of the vacuous and absurd fallacy of the theory will the public mind become sufficiently informed to insist on legislation consonant with reality and truth.

It may be worth noting in passing that this entire and wonderful system is based on an experience of A. T. Still. Suffering one evening from headache, he left his house and went to sleep outside. Suspending a rope between two trees, he lay on the ground, rested his head on the rope and dropped off to sleep. When he awoke, marvelous to relate, his headache had departed! As if he were the first man to go to sleep with a headache and awake without one! In any event he attributed the result to relief of pressure on the upper cervical nerves. From this incident was osteopathy begot. Surely what purports to be a scientific system of healing was never before or since evolved from a hypothesis so slight, so feeble and so slender!

In submitting the portion of my paper about to follow, it is scarcely necessary to premise that I am not suggesting that the pressure of bone on nerve does not at times cause dysfunction, for neuritis and muscle atrophy so caused are not uncommon. On the other hand it is of interest to recall how frequently even excessive deformity of the spine occurs without producing accompanying disorder. To maintain by logic the thesis of the general causation of disease by mechanical agencies would appear to be a task of sufficient magnitude to dishearten the subtlest dialectician among the ranks of Still's disciples. Of supporting scientific evidence I have not been able to discover a trace.

To shoot holes in this flimsy construction were child's play indeed. At the Chicago school I asked the dean if he could produce a specimen to prove the 'back-bone' theory of disease causation. The reply was frank enough. He had none and he knew of none. The proof of the theory, he said, was based entirely on clinical results following osteopathic treatment.

Deferring for the present any reference to the conflict between the 'back-bone' theory of disease causation with the vast array of facts indisputably established by bacteriologists, let us glance at one or two hiatuses in the osteopathic concept where it presumes to account for the general occurrence of disease, as it must needs do if it is to warrant serious consideration. If pathologic states are the result of pressure by bony irregularities on spinal nerves, how does the osteopath account for disease in the central nervous system, as for example cerebral new growths and whence arise those many lesions found in the field of distribution of the cranial nerves? Obviously they cannot be caused by vertebral displacements. Again, if there be a constant cause at work, i. e. pressure the same type of disease should always be found in the distribution of a given nerve trunk. This does not occur, a fact that could be easily proved by the veriest tyro in pathology. If this practice has any foundation in fact, may I ask in the name of mercy, if not of utility, why faithful domestic animals on whose usefulness our comfort and indeed our very lives depend have not received during the past half century the benefits of its ministrations? Has any one ever heard of an osteopathic veterinarian? A dog in its illness is not subjected to futile and harmful manipulations, but if our legal safeguards are not kept intact a sick child may be submitted to treatment resulting in delayed recovery, deformity or death.

From a broader angle, how does the "back-bone theory" account for the innumerable diseases affecting that large division of the animal kingdom known as the invertebrates, and what of the diseases of plants? But why continue? Clearly this

empty theory is empiricism in its rankest form. It does not possess a single scientific prop to lean on, much less a leg to stand on.

If, however, osteopaths were to adhere to their tenets and were to practice their art according to their professed principles, there would be little ground for dispute or dissension. But when one visits their schools and finds them endeavoring to give more or less comprehensive courses in bacteriology, one is constrained to ask them: What have you to do with pathogenic bacteria? How do they fit into your scheme? Indeed, on two occasions I could not refrain from asking this very question, once of a teacher in his laboratory, once of the dean of the largest school. The former quickly gave his case away when he avowed his belief in the efficacy of diphtheria antitoxin. "It would be criminal," he said, "not to use it," while the latter explained that bacteriology was taught chiefly to enable students to pass state board examinations. A professor at a leading school acknowledged to my colleague that osteopaths accepted all proved theories of present-day bacteriology and used Zinsser's textbook. He said they advocated the use of antitoxin and serums for diphtheria, tetanus and rabies, and depended on the Dick and Schuck tests. Asked to fit this in with the osteopathic belief as to causation of disease, he held that a person would be rendered less susceptible to infection by the use of osteopathic methods which, I submit, is mere quibbling and shallow subterfuge.

In a hearing before our provincial legislative committee the chairman, a lawyer more than friendly to the cult, asked one of its proponents "If you were treating a case of pernicious anemia would you administer liver?" "Certainly," came the immediate reply thus jettisoning in a single word this whole unsupported and unsupportable theory. The simple and obvious fact is that these irregulars aim not to practice osteopathy but to diverge from their limited and restricted field to embrace as far as their knowledge and training will permit the whole domain of medicine. As a recent editorial in the *London Lancet* observed, "It is in the fact that osteopaths have largely if not overtly receded from the doctrine enunciated by their founder, and have laid down a curriculum for their students including at least a smattering of most of the subjects taught to doctors, that the danger lies for the osteopath clearly wishes to induce the public to regard him as a healer equipped with adequate medical training." I take it for granted that no one here will deny there are a number of pathologic conditions, relatively few to be sure which yield to and call for, manipulative treatment.

The point I wish to make is this. While it may be granted for purposes of argument that these men may be skilled in certain remedial manipulative measures, of limited application, their knowledge of and training in the fundamental subjects, which must form the basis of any general system of healing, are superficial and grossly inadequate. And further the systems of osteopathy and medicine are so utterly at variance that every means should be employed to keep them separate and distinct.

For the purpose of appraising the character, quality and value of the work done in schools of osteopathy, Dr. E. Stanley Rverson and I visited four of the leading centers.

Our conclusions were as follows:

1 The buildings, plant and equipment of the four colleges visited do not provide the facilities necessary for the training of students destined to practice any general system of the healing art.

2 Hospital and clinical facilities are entirely inadequate.

3 Requirements for admission and length of courses fall far below the standards maintained by the faculties of medicine of Ontario.

4 The curriculums and courses of study are so different from our own in their quality and fundamental principles of instruction that they could not in any sense be recognized as equivalent.

5 The scientific training and clinical experience of the teaching staffs are not of a quality or character to warrant their courses being accepted as fulfilling the requirements of the College of Physicians and Surgeons of Ontario.

6 As a result of our visit and after an inspection of their buildings, plants and equipment, their hospital and clinical facilities, their requirements for admission and their curriculums after attending some of their lectures, laboratory classes and clinics, and bearing in mind the lack throughout the course of any adequate bedside teaching, we are firmly convinced that it would be against public interest and welfare to admit the graduates of these schools, past or present to the Ontario licensure examinations.

If time permitted, I could marshal any number of observed and indisputable facts to substantiate these general conclusions but as time does not so permit I shall endeavor briefly to make some remarks on (1) anatomy, (2) pathology and (3) clinical training.

#### ANATOMY

With reference to the position of anatomy, I shall sketch what was seen in the best and in the worst of the four dissecting rooms the other two ranking midway between those here referred to.

In Philadelphia eighty students under four or five demonstrators, in a room measuring 68 by 32 feet were dissecting the dorsal region. We were shown a nerve with accompanying vessels emerging from a muscle. Names were not given nor connections referred to, for the teacher seemed chiefly interested in pointing out how engorgement of the vessels might well cause nerve irritation. Again, a dissection of the posterior abdominal wall in the lumbar region was used to show the possibility of nerve irritation by reason of psoas contraction. There were exhibited also several sacro iliac joints and the professor rather proudly demonstrated that the joint was lined with synovial membrane, a phenomenon he claimed to have observed on several occasions. And much more along the same lines.

One could not escape the conclusion that the purpose of the study was rather to bolster up the derelict theory of mechanical causation of disease than to attempt a serious consideration of the subject. With regard to the length of the course, we were told eight hours a week from December to June was required of first year students, with similar periods from September to December for the second year. Final examinations were not required from those whose term work was satisfactory, and of last year's class of eighty only five failed thus to qualify.

The annual announcement states "A notable collection of specimens and models is on display and arranged for study." These we asked for but failed to find, the sole specimen shown being a vertical section of a child's body. There was all but complete absence of the equipment usually a part of an anatomic laboratory.

The impressions carried away were that while the room was clean and orderly it was too small for the number of students; the dissections were poorly done technically and were lacking in thoroughness and detail, the director, keen enough on his work, gave no evidence of a scientific point of view or comprehensive knowledge of his subject. Clearly the quality of the work was in no degree comparable to that required from our students of medicine.

Referring now to the other dissecting room I shall simply quote a note made at the time of the visit. "The culmination of our inspection was reached when we were escorted to the dissecting room. Situated in the back part of the basement was a dingy cellar-like room into which a little daylight filtered through small, dirty windows. There were six rusty iron tables, four standing, two thrown into a corner along with some stools.

These constituted the complete equipment. Adjoining this room was a smaller one (10 by 16 feet) where there stood an uncovered vat filled with dark foul-looking fluid, said to cover four bodies. On a table was a body of a colored man, which appeared to have undergone partial decomposition. Altogether the place might aptly be described as a chamber of horrors. It seemed to brand not only the department of anatomy, if such a term could be employed, but the whole institution with an indelible mark of inefficiency and dirt. Des Moines is a clean-looking city. It must be that the municipal health officials are unaware of this nuisance."

#### PATHOLOGY

In this audience it will be taken for granted that there can be no scientific system of healing which is not broadly and soundly based on an extensive and accurate knowledge of pathology. So far as we could determine by observation and enquiry, pathology is "the forgotten man" of the osteopathic system. Indeed there is good reason why this should be for the whole problem is so delightfully simple. Disease is caused by spinal luxations. Thus pressure is exerted on nerve trunks and dysfunction follows. As the cause is simple and constant, the remedy is obvious. Therefore why worry about the resultant cellular manifestations those obscure and complex changes taking place in the tissues? This would seem to be the reasoning, and confirming this opinion we were not able to discover in any of the schools that the subject of pathology received study worthy of the name. Of the almost complete neglect of gross pathology there was ample evidence. The museums were primitive and from a teaching point of view all but valueless. A note made at the largest school read "on a table along one wall were some sixty glass jars of various shapes and sizes, containing specimens. As the jars were begrimed with dust, identification of the contents was difficult. Some labels read Aneurysm, Cancer of the Breast, Intussusception. There were a number of fetuses of different ages, among them being a monstrosity of a pig. In disorderly arrangement, the specimens preserved in formaldehyde were not mounted to show to advantage the pathologic condition. From the accumulated dust it was evident that they had not been used recently for teaching purposes. At Des Moines on shelves at one end of a room designated Physiology Laboratory there were seven or eight bottles containing fetuses of various ages. This was the only collection. At Philadelphia were four or five dozen bottles bearing specimens, chiefly gynecologic or obstetric."

Of the dearth of postmortems there was abundant evidence. At Kirksville the practical course in pathology consisted of a study of microscopic sections, some prepared locally, others purchased. To a question regarding autopsies, the dean made reply "You know how opposed to postmortems are people in a country district. We probably have ten a year but in any case they are pitifully few. At Des Moines they laid claim to one a year, this being done at an undertaker's establishment."

Enough has been said on this point to prove beyond peradventure that the study of pathology is conspicuous by its absence, more honored in the breach than the observance. Comparison with the course given in our medical schools cannot be made. All is contrast. Any one who holds otherwise either does not understand what is involved or seeks to convey a false impression.

#### CLINICAL TEACHING

What clinical training is given to the thousand or two young men and women in these schools endeavoring to qualify to treat disease? To answer this permit me to transcribe a note made at the Kirksville school. Let us examine conditions as seen at the first-formed and now the largest osteopathic center which boasts of an attendance of 627 students of whom fifty-eight are women. At the outset this fact must be emphasized for it can-

not be given too great prominence. Kirksville is an isolated country town whose population is said to be about 8,000. That is to say, there is here an enrolment about equal in number to the attendance at Toronto. To any one who has an appreciation of the magnitude of the task of providing adequate laboratory and hospital facilities needed for 600 students there would come an immediate thought that under the most favorable conditions (such as large endowments, association with a strong university, organization along the lines of the one at Iowa City) which do not exist, the thing could not be done at Kirksville. And I say, without hesitation, it is not done, it is not even seriously attempted.

"The building devoted to hospital service is old, dirty and in a state of disrepair. Whole areas of plaster fallen from the ceiling had not been replaced. With a total bed capacity given as fifty-five, we estimated the number of patients at fifteen. On the first floor was an antiquated amphitheater seating about 100. The seats and facings were of tongue-and-groove lumber the paint chipped and stained. Here, we were informed, students observed women in labor. Modern midwifery could have no place in these surroundings, and this plan of attempting to teach obstetrics must, we think, represent the absolute minimum—and less. It is scarcely necessary to say that the hospital arrangements were grossly even lamentably, inadequate. The step between this inadequacy and total absence is indeed short.

(An adjacent private hospital was not used for teaching purposes and is therefore not here considered.)"

At Des Moines "From the school building originally an insurance office, we were driven some three miles across the city to visit the hospital affording clinical facilities for the students. We found a converted private house with a capacity of thirty-five, averaging twenty patients. Students had the privilege of visiting this institution on Saturdays. Comment is withheld because none is needed."

The inevitable conclusion from these facts is that not only is competent clinical training not given, it is not seriously undertaken.

In the place and stead of clinical training by which I mean bedside observation on the nature and course of disease its examination and recognition, its treatment and cure, there is substituted in these schools an extensive course in osteopathic manipulations. Conspicuous in each of them is a section containing a number of bare cubicles furnished with only a couch, where the distinguishing rites and ceremonies of the cult are performed. To this undiscovered country, from whose bourn we were duly to return, we now directed our eager steps. At last the great mystery was to be solved, the veil torn from the sacred altar and the holy ceremonial exposed to mundane and heretical eyes. But I am obliged to dash your hopes raised so high, by telling you in simple language what we saw.

1 In the first of the thirty-seven cubicles was a girl in her teens. She complained of pain in the neck. A student was holding her head in his hands and aimlessly moving it about in various directions.

2 In the second were two students, one being the patient. Complaint: pain in the back. He lay prone on the couch while his fellow pushed and shoved his shoulders and back.

3 Next a man of 50 said he had been attending this clinic for eight years. Suffering from syphilis and locomotor ataxia he had received arsenic and bismuth. As he lay on his belly a student was elevating his legs and hyperextending his back.

4 An adipose middle-aged woman lay on her back. Complaint: painful feet. She was fully clothed except that her shoes had been removed showing flat feet and bunions. Her toes and feet were being bent in all directions.

5 A woman of 25 lay face down fully clothed. Recorded diagnosis: bilateral brachial neuritis. Her history read: pain

and stiffness in the shoulders, along the base of the neck and in the arms, also headaches." Manipulation of the dorsal and lumbosacral regions, described as relaxation and correction treatment, was being done

In the couple of hours spent in this clinic, we saw nothing more informing than these reported cases. Neither nurses nor instructors were present. No patient had the clothes removed for examination. An occasional patient was sent on to another department, as eye and ear. When our guide, in charge of the clinic, was asked the meaning of certain signs and abbreviations on the osteogram charts, he was unable to recall their meaning but presently found a senior student who supplied the information.

In the Chicago school a student is required to give a minimum of 600 osteopathic treatments. In the Philadelphia clinic 14,601 patients were treated in six months, 11,293 of whom had paid the full fee of \$2.

The impression carried away was that this department of manipulation, termed the General Clinic, formed by far the most important part of the setup. Whatever a school might lack in equipment, in hospital facilities and all that goes with them, however superficial the consideration given to the fundamental sciences, however gross the absence of a scientific point of view, there were always present rows of cubicles with their couches in which patients had their several parts pushed and drawn about in all directions. In this connection I may express my disappointment and surprise in failing to observe manipulations worthy to be described as skilful, dexterous and purposeful.

#### COMMENT

But I may now be asked "What has all this to do with the question of licensure?" The connection is clear, the answer not far to seek. Over a long period of years there has been evolved in every civilized country a standard of preliminary and professional education which in the interest of the people is justly required of those who are to be entrusted with the heavy responsibility of caring for life and limb, of guarding the public health, of the protection of women in labor and of the prevention and cure of disease. From time to time there press forward blatant, self-seeking groups, demanding in the name of the law rights and privileges to which their knowledge and training do not give them title. Any thoughtful man must shudder to envisage the result to women in childbirth if their care should be placed in the hands of those who do not believe in, and have not been thoroughly trained in, the bacterial cause of infection. And what dire calamities would immediately and inevitably befall our great centers of population, if their supplies of food and water and their sewerage systems should be controlled not by men who have devoted long and arduous years to the medical sciences but by those uninstructed and misinformed individuals who believe disease (e. g., typhoid and diphtheria) to result from the pressure of bony irregularities on nerve?

Such, I submit, are reasonable questions and demand frank answers from politicians who would barter the people's health for the votes of a clamorous minority. If the osteopath protests on the ground that I am misrepresenting him and that he also 'accepts the proved theories of present-day bacteriology and uses Zinsser's textbook' I reply: 'You are neither an osteopath nor a regular but for your own purposes practice a hypocritical and bastard system. You are beyond the pale and deserve no consideration.' Or as one of their own authorities writes, "These modern skeptics, these doubters of the truth of Still's back-bone theory of disease live and grow prosperous on that theory while they doubt the truth of it in their hearts."

Let there be in the interest of the nation a common standard of training and examination for all aspirants to the practice of the healing art. Let there be one avenue of approach, one portal of entry.

## Medicolegal

**Malpractice Liability of County Hospital**—The defendant hospital was organized pursuant to chapter 169, Statutes of Nevada, 1929, which provided that any county in the state might establish a public hospital. The plaintiff, a pay patient, entered the hospital for care and treatment. As the result of the negligence of the hospital's nurse, it was alleged, a liquid not prescribed by the plaintiff's physician was instilled in her eye, destroying the sight of the right eye. The trial court dismissed the action brought by the plaintiff to recover damages from the hospital and she appealed to the Supreme Court of Nevada.

It is a well recognized general rule, said the Supreme Court, that a county cannot be sued without legislative consent. Conceding the correctness of this general rule, the plaintiff contended that it did not apply in the present case. The establishment of the defendant hospital, it was argued, was not mandatory, and since the acceptance of the plaintiff as a patient was discretionary, and no governmental function was involved in her treatment and care, the same rule of law should apply to the defendant hospital as would apply to an individual or corporation operating a hospital for profit. Furthermore, it was argued, the county had nothing to do with the management and control of the institution, the management and control being vested in an agency created by the legislative enactment. The liability of an organization created by or organized pursuant to statute said the court, is dependent on the intention of the legislature in enacting the law. The act under which the defendant hospital was organized provided that "any county may establish a public hospital in the following manner." The act did not create a corporation but merely authorized the respective counties to establish a hospital, and it did not provide that such hospital might sue or be sued. All moneys raised by taxation pursuant to the act for the establishment of county hospitals are collected as other taxes are collected and must be credited to the 'hospital fund.' The money so collected "shall be paid out on the order of the hospital trustees for the purposes authorized by this act, and for no other purpose whatever." The title to all property donated for the benefit of such a hospital is vested in the county. It seems to us, said the court, that the legislative intent is plain to create a public institution which should own no property, have no income and no method of raising money and hence no ability to pay anything. Certainly it was not the legislative intent to make such an institution liable in damages for any act done in carrying out the purposes sought to be obtained. Furthermore, the court said, the failure of the legislature to provide that the defendant might sue and be sued was a conclusive reason why the present action could not be maintained. The judgment of the trial court was affirmed.—*McKay v. Washoe General Hospital (Nev.)*, 33 P. (2d) 735.

**Evidence Credibility of Expert Witnesses**—The Prudential Insurance Company of America issued to the deceased a life insurance policy in which was incorporated an accidental death benefit clause. On the death of the deceased, the plaintiff as beneficiary under the policy sued for the accidental death benefit and obtained a judgment in the trial court. The insurance company appealed to the Supreme Court of New Hampshire.

Prior to the accident, the deceased had enjoyed good health and had never suffered from any pain in the region of his heart or from any abnormal shortness of breath. While engaged one afternoon in operating a circular splitting saw, the deceased was struck on the right forearm by a small piece of wood, weighing only a few ounces, which was thrown back by the saw. A V-shaped wound, approximately an inch and three quarters on each side, and about an eighth to a quarter of an inch deep, was inflicted. A physician cleaned the wound and closed it with seven stitches. At the doctor's office, on the way home, and during the early evening, the insured was pale or, as some witnesses described it, was greenish in color, had difficulty in breathing, and complained of intermittent pains in the region of his heart. Later in the evening he died suddenly. A physician who performed the autopsy on the body testified that

he found the heart in a condition to indicate that the insured was suffering from and had died of angina pectoris. Other medical experts, called by the defendant, testified to the same effect in answer to hypothetical questions. Two physicians who testified for the plaintiff, in answer to hypothetical questions, stated that the insured died of an embolism which formed at the wound on the forearm, proceeded in the blood stream to the heart, and lodged in the pulmonary artery. The defendant contended, among other things, that the jury in finding a verdict for the plaintiff erred because the testimony of the plaintiff's expert witnesses was clearly incredible.

To support this contention, the defendant argued that the witnesses had never seen a case of pulmonary embolism, verified by autopsy, resulting from a superficial, uninfected wound of the forearm, and that they disagreed with a statement found in a textbook on surgery published in 1917 to the effect that infection is an essential prerequisite of embolism from wounds. Both witnesses, said the court, were men of long practical experience as practicing physicians and surgeons. Both testified that they had seen cases of pulmonary embolism result from superficial uninfected wounds. The fact that the witnesses had never encountered, and verified by autopsy, a case of pulmonary embolism which had resulted from a precisely similar wound as the one in this case at most affected their credibility. Their disagreement with the statement read from the textbook, and their willingness to follow their own experience even if that ran counter to statements to be found in all texts, likewise affected only their credibility. The witnesses were practical as well as theoretical experts. If their practical experience was at variance with the authorities, they could either follow what their experience taught them or else conclude that their observations were wrong and follow the authorities. In the instant case, they elected to follow their own experience. Their abandonment of authority may, of course, be shown to affect their credibility, but not to such an extent as to render their testimony valueless. We are not prepared to hold, concluded the court that, as a matter of law, the testimony of an iconoclast is always without probative force. The verdict for the plaintiff was upheld and judgment was rendered on the verdict.—*Ricard v Prudential Ins Co of America (N H)*, 173 A 375

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City, N J June 10-14 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Academy of Pediatrics New York June 7-8 Dr Clifford G Grulee, 636 Church Street Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Atlantic City N J June 10 Dr Loring T Swaim 372 Marlborough Street Boston Secretary
- American Association for Thoracic Surgery New York June 3-5 Dr Duff S Allen 3720 Washington Boulevard St Louis Secretary
- American Association of Genito-Urinary Surgeons White Sulphur Springs W Va June 6-8 Dr Henry L Sanford 1621 Euclid Avenue Cleveland Secretary
- American Association of the History of Medicine Atlantic City, May 6 Dr Edward J G Beardsley 1919 Spruce Street Philadelphia Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Longwood Drive Boston Secretary
- American Child Health Association Iowa City June 19-22 Dr Philip Van Ingen 50 West 50th Street, New York Secretary
- American College of Physicians Philadelphia April 29-May 3 Mr E. R Loveland 133 South 36th Street Philadelphia Executive Secretary
- American Dermatological Association White Sulphur Springs, W Va May 2-4 Dr William H Guy 500 Penn Avenue Pittsburgh Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C Wright 1601 35th Street NW Washington D C Secretary
- American Gastro-Enterological Association Atlantic City, N J June 10-11 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Hot Springs Va May 27-29 Dr Otto H Schwarz, 630 South Kingshighway Boulevard St Louis Secretary
- American Heart Association Atlantic City N J June 11 Dr Irl C Ruggin 50 West 50th Street New York Executive Secretary
- American Laryngological Association Toronto Canada May 29-31 Dr William V Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto Canada June 3-5 Dr Robert L Loughran Sharon Conn Secretary
- American Neurological Association Montreal Canada, June 3-5 Dr Henry Alsop Riley 117 East 72d Street New York Secretary
- American Ophthalmological Society Hot Springs Va June 5-7 Dr J Milton Griscom 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association, Philadelphia June 5-8 Dr Ralph K Ghorimley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Toronto Canada May 27-29 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Pediatric Society Cleveland May 2-4 Dr Hugh McCulloch, 325 North Euclid Avenue St Louis Secretary
- American Physiotherapy Association Atlantic City N J June 11-12 Miss Louise Jetter 17 East Styles Avenue Collingswood N J, Secretary
- American Proctological Society Atlantic City N J June 10-11 Dr Frank G Runyeon 1361 Perkiomen Avenue Reading Pa Secretary
- American Psychiatric Association Washington D C May 13-17 Dr William C Sandy State Education Building Harrisburg Pa Secretary
- American Radium Society Atlantic City N J June 10-11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City N J May 6 Dr H L Blumgart 330 Brookline Avenue Boston Secretary
- American Society of Clinical Pathologists Atlantic City N J June 7-9 Dr A S Giordano, 531 North Main Street South Bend Ind Secretary
- American Surgical Association Boston June 6-8 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City, N J June 7-8 Dr Oscar B Hunter, 1835 Eye Street NW Washington D C Secretary
- Associated Anesthetists of the United States and Canada Atlantic City N J June 10-12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology, Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City, N J June 10-11 Dr Warren T Vaughan 808 Professional Building Richmond Va Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10-11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- Association of American Physicians, Atlantic City May 7-8 Dr James H Means Massachusetts General Hospital Boston Secretary
- California Medical Association, Yosemite May 13-16 Dr F C Warnhuis 450 Sutter Street San Francisco Secretary
- Conference of State and Provincial Health Authorities of North America, Atlantic City N J June 15 Dr A J Chesley State Department of Health St Paul Secretary
- Connecticut State Medical Society, New Haven May 22-23 Dr C W Comfort Jr 27 Elm Street New Haven Secretary
- District of Columbia Medical Society of the Washington May 1 Dr C B Conklin 1718 M Street NW Washington Secretary
- Florida Medical Association Ocala May 13-15 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Georgia Medical Association of Atlanta May 7-10 Dr Allen H Bunce 139 Forrest Avenue NE Atlanta Secretary
- Illinois State Medical Society Rockford May 21-23 Dr Harold M Camp Lahl Building Monmouth Secretary
- Iowa State Medical Society Davenport May 8-10 Dr Robert L Parker 3510 Sixth Avenue Des Moines Secretary
- Kansas Medical Society Salina May 8-10 Mr Clarence Munns Stormont Building Topeka, Executive Secretary
- Louisiana State Medical Society New Orleans April 29-May 1 Dr P T Talbot 1430 Tulane Avenue, New Orleans Secretary
- Massachusetts Medical Society Boston June 3-5 Dr Alexander S Begg 8 The Fenway, Boston Acting Secretary
- Medical Library Association Rochester N Y June 17-19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9-11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Mississippi State Medical Association Biloxi May 14-16 Dr T M Dye McWilliams Building Clarksdale, Secretary
- Missouri State Medical Association Excelsior Springs May 6-9 Dr E J Goodwin 634 North Grand Boulevard St Louis Secretary
- National Association of Private Psychiatric Hospitals Washington D C June 1 Dr James M O'Neill St Vincent's Retreat Harrison N Y Secretary
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## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

23: 247-476 (Feb.) 1935

- \*Bronchiogenic Cancer Combined with Tuberculosis of Lungs B M Fried, New York—p 247
- \*Myxosarcomas Report of Fifty One Cases Studied at the State Institute for Study of Malignant Disease Buffalo A A Thibadeau and L C Kress, Buffalo—p 267
- Heterologous Tumor Transplants from Mice to Splenectomized Rats J Heiman New York—p 282
- Effect of Bromopropic Acid on Rat Sarcoma J9 W A Selle and M Bodansky Galveston Texas—p 289
- Possible Effect of Oil of Thyme on Incidence of Spontaneous Cancer in Mice L C Strong New Haven Conn—p 297
- Influence of Magnesium on Growth of Carcinoma Sarcoma and Melanoma in Animals K Sugiura and S R Benedict New York—p 300
- \*Blood Glutathione in Human Cancer Janetta W Schoonover Philadelphia—p 311
- Plasma and Erythrocyte Glutathione in Human Cancer Janetta W Schoonover Philadelphia—p 315
- Physiologic Validity of Enzyme (Amylase) Determinations in Tumor Tissue F H Scharles Phoebe Robb and W T Salter Boston—p 322
- Carcinoma of Lingual Thyroid Report of Case L M Levi and F D Hankins Los Angeles—p 328
- Mucous Gland Tumors of Female Perineum T P Eberhard New York and S Warren Boston—p 334
- Carcinoma of the Duodenum Case Report C R Davis Detroit—p 337
- Schubert Dannmeyer Test for Cancer E R Holiday and F C Smith London England—p 339
- Proliferation Stimulating Action of 1 2 5 6 Dibenanthracene on Obelia Gemiculata S P Reimann and F S Hammett Philadelphia—p 343

**Bronchiogenic Cancer Combined with Tuberculosis of Lungs**—Fried reports thirteen cases in men in whom both tuberculosis and cancer were present in the same lung. The tuberculous lesion found in the lungs of the patients was of the healing fibrotic type being to all appearances of long standing. Most of the patients had had a history of cough extending over a number of years. In two cases there probably occurred a recent dissemination of the bacillary infection (causing a slight exacerbation) in which the advancing cancer may have played a biologic (lowering of resistance) and a mechanical part. The malignant condition had then developed independently from the tuberculous disease in some cases, while in others it was engrafted on an ancient fibrotic infection. In five of the thirteen cases a correct diagnosis was made in other institutions but had not been suspected by the private physicians who attended the patients for some time prior to hospitalization. Eight of the patients were admitted to the hospital with no diagnosis or with one of tuberculosis of the lungs. From the histories present it is seen that the patients had been ill for a considerable length of time and that their symptoms and physical signs were suggestive of malignant disease of the lung. They entered the hospital when the disease was advanced. In three patients there occurred a spontaneous pneumothorax on the side affected by the malignant disease. The author stresses the point that in any case of chronic pulmonary disease in a person of middle or past middle age with persistence of symptoms, particularly if it is accompanied by a progressive loss of weight and strength the possibility of malignant disease should always be considered also that the presence of pulmonary tuberculosis does not exclude the existence of a malignant process in the same lung.

**Myxosarcomas**—Thibadeau and Kress studied fifty-one cases of myxomatous tumors including forty-two myxosarcomas and nine myxofibromas. Three cases of lipomyxosarcomas are included with the myxosarcomas as they differed from them in

no respect in their clinical course and in their response to treatment. The occurrence of myxomatous tissue in a tumor is not an evidence of degeneration. Myxomatous tissue is a derivative of connective tissue and can probably originate from the metaplasia of different types of connective tissue. The more malignant a myxomatous tumor, the more cellular it becomes. Myxosarcoma is clinically a highly malignant tumor, responding only occasionally to recognized forms of therapy. As a group the myxosarcomas are resistant to radiation therapy; some tumors, however, have responded admirably to this type of treatment. Myxosarcoma is most apt to arise between the ages of 40 and 60 years, it shows no special predilection for either sex. The shorter the clinical duration of the tumor before treatment, the more satisfactory is the response to therapy. Cases of myxosarcoma in which recurrences have occurred do not respond to treatment. Widely disseminated metastasis occurs late in myxosarcoma. Myxofibroma is readily eradicated by surgical treatment only, surgery and roentgen radiation, or roentgen radiation alone.

**Blood Glutathione in Human Cancer**—Schoonover found the average glutathione contents of the blood in untreated and treated cancer cases and in nonmalignant conditions to be practically identical with those of normal subjects. In the cases showing liver damage the contents were somewhat lower. Moreover, the ranges of the results from which these averages were drawn show fairly close agreement. The slightly increased red cell glutathione content of cancer blood is not significant in view of the decreased erythrocyte count, and especially in view of a similar increase in the blood in the nonmalignant cases in which the erythrocyte count is likewise low. Since the blood cells contain nearly all the reduced glutathione, low figures are to be expected in anemic conditions. While the cases in the author's series present a lowered average erythrocyte count, an advanced stage of anemia, with a count lower than three millions, was seen in but three. It is therefore possible that the low whole blood figures reported by Ulibarri and by Truhaut and Minopoulos were the result of a greater degree of anemia in their patients. In view of the fact that the erythrocyte glutathione appears to be slightly elevated in nonmalignant conditions, it seems justifiable to indicate that comparisons of malignant and nonmalignant cases should not be used as evidence that cancer lowers the blood glutathione concentration below the normal level.

### American Journal of Surgery, New York

27: 187-388 (Feb.) 1935

- Technic of Abdominoperineal Resection for Carcinoma of Rectum. T E Jones Cleveland—p 194
- Two Stage Abdominoperineal Resection of Rectum and Rectosigmoid for Carcinoma F H Lahey and R B Cattell Boston—p 201
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- Sacroperineal Resection W H Barber New York—p 223
- Perineal Excision of Rectum for Carcinoma F C Yeomans, New York—p 226
- Technic of Radiation Therapy and Colostomy in Rectal Cancer G E Bunkley New York—p 231
- Hydatidiform Mole Study of Seventy Eight Patients J T Sherman, Brooklyn—p 237
- Calcification of Tibial Collateral Ligament (Pellegrini Stieda's Disease) S H Wetzler and D V Elcomin Milwaukee—p 245
- Operability of Gastric Carcinoma E E Larson Los Angeles—p 248
- \*Diverticula of Upper End of Stomach F Cunha San Francisco—p 252
- Removal of Plaster of Paris Casts Made Easy by Preliminary Soaking in Water H D Grossman Chicago—p 267
- Recurrences Following Inguinal Hernioplasties A H Iason, Brooklyn—p 268
- \*Surgery of the Diabetic Preoperative and Postoperative Management of the Diabetic Subjected to Surgery W E Leonard Los Angeles—p 277
- Study of Morbidity and Mortality in Two Hundred and Seventy Two Hysterectomies Performed in a Private Hospital by Twenty Nine Different Surgeons J C Rinsaman Miami Fla and T B Sellers, New Orleans—p 282
- Rectal Analgesia in Obstetrics C R Tew New York—p 289
- Pilonidal Sinus K E Smiley Los Angeles—p 298
- Local Treatment of Wounds M Thompson Louisville Ky—p 307
- \*Congenital Defects of Lumbosacral Joints with Associated Nerve Symptoms Study of Twelve Different Types with Operative Repair L C Wagner New York—p 311

**Diverticula of Upper End of Stomach**—Cunha alleges that more careful scrutiny of the upper end of the stomach and particularly of the cardio-esophageal junction during fluoroscopy



scopic examination would show that the instances of diverticula in this area are more common than supposed. He has seen fifteen such cases during a period of two years. The finding of these diverticula would help to explain the symptomatology in many cases in which the observations are said to be negative. There is association of a considerable number of these cases with ulcer and pylorospasm. The possibility of obtaining a past history of prolonged period of abnormally increased intragastric pressure, such as was obtained in the author's two cases of pertussis, and in women a history of a prolonged period of pernicious vomiting of pregnancy should not be overlooked. Treatment should be medical rather than surgical, owing to obvious technical operative difficulties. The differential diagnosis of true diverticulum is not difficult, penetrating ulcers having different outline characteristics as illustrated in two cases. The possibility of ulcer within the lesion itself must be kept in mind. The occurrence of carcinoma in one of these diverticula, although extremely improbable if based on past post-mortem experience, should be kept in mind because of the irritative factors present.

**Surgery of the Diabetic**—Leonard urges a standardized hospital routine for the care of diabetic patients subjected to surgery with the responsibility vested solely in the surgeon until the surgical period is over. Every patient having diabetes who is operated on should be regarded as a candidate for coma, and its prevention is better than the cure. A high carbohydrate intake for a period of one week before operation should be the rule unless a surgical emergency arises. The carbohydrate intake varies with the individual patient, but, in the author's opinion, should never be less than 150 Gm in twenty-four hours and, if the patient is obese, should be as high as 225 Gm. Insulin is used in any amount necessary to control any glycosuria that may arise. When the patient returns from the operating room he should receive approximately the same amount of insulin in twenty-four hours that he was receiving on his regular diet. Dextrose should be given in amounts equal to his sugar producing intake on his regular diet. Insulin should be given in small repeated doses so that at least 75 Gm of dextrose is metabolized every twenty-four hours in the average patient, in the obese, 150 Gm of dextrose should be metabolized. All urine should be tested for the presence of sugar and diacetic acid. The plasma carbon dioxide combining power is estimated whenever there is any clinical evidence of acidosis. If the acidosis is under control and symptoms of alkalosis occur (prostration and tetany), a close check should be kept of the carbon dioxide capacity of the blood. The slightest acidosis or alkalosis must be combated vigorously. The healing of operative wounds is somewhat delayed, owing to the peculiar lack of resistance to skin infections even in well controlled cases of diabetes. The healing of chronic ulcers or indolent wounds requires the closest application of surgical technique and control of sugar metabolism. Most patients with diabetes, particularly those requiring surgical procedures, are advanced in years, overweight and suffering from circulatory disturbances and other degenerative lesions, which of themselves make the surgical risk serious.

**Congenital Defects of Lumbosacral Joints with Associated Nerve Symptoms**—Wagner stresses the point that one must, as a rule, learn the exact anatomic structure and the lesion of the congenital variations of the lumbosacral joint if an accurate diagnosis is to be made and the proper treatment applied. Neurologic study is always indicated to exclude spinal cord tumor or radiculitis. Congenital lesions of the lumbosacral joint may be of a diversified nature but are more subject to strain than the normal vertebral articulations. The possessors of such variations are usually the persons who go through life suffering from chronic undetermined backache often with little disability. The defective articular facet is most of all to be associated with defects in the pedicle and laminae of the vertebrae. This type of case sooner or later presents neurologic symptoms and signs. In an analysis of twelve cases of congenital defects of the lumbosacral joint all of which have been studied and proved the occurrence of pain was as follows: pain in the sacro-iliac region ten cases; pain in the vicinity of the lumbar muscle of the affected side twelve; bilateral one, pain over the sacrolumbar joint, ten; pain on the opposite side, one; pain in the gluteal muscle and hip four; pain on the outer side of the thigh and knee five; pain along the sciatic

nerve, three; numbness about the outer side of the leg and calf, four; and pain about the instep, five. Pain could be produced by certain movements. In lumbosacral anomalies the subjective pain is segmental in distribution, being completely localized to the areas supplied by the first, second and third segments. The inflammation about the spinal column and its articulations causes spasm of the lumbar muscles with a physico-chemical irritation of them and a great deal of the pull on their periosteal attachments with a further demonstrable tenderness. The rotation of the fifth lumbar vertebra associated with a too adherent dura to the spinal nerves as they make their exit from the vertebral foramina or the narrowing of the intervertebral foramina must transmit such irritability to the spinal cord of the nerves supplying the muscles, ligaments and periosteum affected.

### Annals of Internal Medicine, Lancaster, Pa.

8 893 990 (Feb.) 1935

- \*Systolic Murmur. Further Observations on Its Clinical Significance. R. D. Friedlander. San Francisco and M. G. Brown. Boston.—p. 893.
- \*Dual Nature of Action of Insulin on Heart. S. Soskin, L. N. Katz and R. Frisch, Chicago.—p. 900.
- Critical Review and Evaluation of Tests for Liver Function. W. B. Yegge. Denver.—p. 907.
- Postural Hypotension with Syncope. Report of Case Cured with Ephedrine Sulphate. C. R. Weiss. Dayton, Ohio.—p. 920.
- Evaluation of Use of Quinidine Sulphate in Persistent Auricular Fibrillation. C. M. Kohn, Kansas City, Mo. and S. A. Levine. Boston.—p. 923.
- Trichinosis. Report of Eight Cases with Skin and Precipitin Tests. A. I. Goldschlager. Islip, N. Y.—p. 939.
- Paroxysmal Auricular Flutter with 1:1 Auriculoventricular Ratio. H. Arenberg. New York.—p. 951.
- Dermatomyositis. V. P. Sydenstricker and D. R. Thomas, Jr. Augusta, Ga.—p. 959.
- Congenital Osteosclerosis (Marble Bone). C. M. Pounders. Oklahoma City.—p. 966.
- Catharsis in Acute Upper Respiratory Infections. F. N. Miller, Eugene, Ore.—p. 972.

**Significance of Systolic Murmur**—Friedlander and Brown observed the effect of amyl nitrite in the production of murmurs in 100 persons showing no evidence of heart disease. A systolic murmur developed in forty-seven. In none did a diastolic murmur or a systolic murmur of grade 3 or greater occur. Murmurs of grade 1 were about twice as common as those of grade 2 and they were more common at the pulmonary region than at the apex. The systolic murmur that develops following the use of amyl nitrite was found not to be due to the increased pulse rate but to be present as the rate began to slow. Twenty-six observations in twenty patients were made on the effect of fever. In only four were systolic murmurs detected. Observations in a small group of cases with anemia indicate that the relationship between anemia and the development of the systolic murmur is inconstant. There are some cases, however, in which the presence of the former, of itself, can account for the latter. In the production of systolic murmurs a factor of some importance is the velocity with which the blood is ejected from the heart. In many of the conditions (apart from organic heart disease) in which systolic murmurs are present, the velocity of the blood flow is increased. The fact that systolic murmurs of grade 3 or greater were not detected in the conditions that were investigated is further evidence that these louder murmurs are probably associated with organic cardiovascular disease.

**Dual Nature of Action of Insulin on Heart**—Soskin and his associates studied the effects of adequate doses of carbohydrate in animals that had received large doses of insulin. The carbohydrate was administered either before or after hypoglycemia had occurred. The results of these experiments made it desirable to study animals in which hypoglycemia was produced without hyperinsulinemia. For this purpose exsiccation was employed. In the exsiccation experiments, changes in the electrocardiograms accompanying hypoglycemia were observed that were reversible on the administration of dextrose. Hypoglycemia caused a decrease in the amplitude of the upright T wave in all leads. In two cases the upright T wave actually became inverted during hypoglycemia. In one animal the control electrocardiographic records after operation showed inversion of the QRS complex in leads II and III. Hypoglycemia in this case increased the amplitude of the upright T wave in these leads. These changes persisted and progressed with the

hypoglycemia, and the changes in the T wave disappeared only on the elevation of the blood sugar level by the administration of sugar. The magnitude of the changes due to hypoglycemia could not be strictly related to the degree of hypoglycemia that occurred. With two exceptions, no change was seen until the blood sugar fell below 30 mg per hundred cubic centimeters. In addition, progressive changes were observed in the electrocardiogram which bore no relationship to the glycemic level. Characteristic electrocardiographic changes, unrelated to the glycemia level, also appeared when the blood pressure fell to extremely low levels. In such instances, an increase in blood pressure brought about by the injection of isotonic sodium chloride solution returned the electrocardiogram toward normal. However, sodium chloride solution repeatedly failed to affect the electrocardiographic changes accompanying hypoglycemia which were reversed by the injection of sugar. These results demonstrate beyond doubt that hypoglycemia affects the electrocardiogram.

### Annals of Medical History, New York

7 193 (Jan) 1935

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Medicine in Charlestown 1750 to 1775 J I Waring Charleston S C —p 19  
Evolution of the Concept of Fever in the Nineteenth Century II M Winans Dallas Texas —p 27  
Historic Backgrounds of Orthopedic Surgery W G Stuck San Antonio Texas —p 36  
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St Francis and Medieval Medicine E F Hartung New York —p 85

### Archives of Dermatology and Syphilology, Chicago

31 291-444 (March) 1935

- \*Erythema of the Ninth Day Following Administration of Arsphenamine Preliminary Report H L Keim Detroit —p 291  
Syphilis and Skin Diseases in the American Negro Personal Observations H H Hazen Washington D C —p 316  
LeClere's Account of the Origin of Chemotherapy and the Introduction of Syphilis into Europe J E Klein Chicago —p 324  
Fluorescence of Fungus Colonies with Filtered Ultraviolet Radiation (Wood's Filter) An Aid in Determination of Species Preliminary Report G M Lewis New York —p 329  
\*Effect of Hormones of Sex Glands on Acne M T Van Studdiford New Orleans —p 333  
Gastric Acidity in Acne Vulgaris with a Consideration of Normal Gastric Acidity Report of Fractional Gastric Analysis in Ninety Three Cases S L Immerman Philadelphia —p 343  
Unusual Form of Allergic Cutaneous Reaction in Lymphogranulomatosis Inguinalis Report of Case B Saenz Havana Cuba —p 348  
\*White Sponge Nevus of Mucosa (Naevus Spongiosus Albus Mucosae) A B Cannon New York —p 365  
Coincidence of Lichen Scrofulosorum with Lupus Erythematosus D W Montgomery San Francisco —p 371  
Therapy with Cold Quartz Lamp in Dermatology Preliminary Study of Therapeutic Effect and Dosage C S Wright Philadelphia —p 374

### Erythema After Administration of Arsphenamine —

Keim believes that the essential features of erythema of the ninth day following the administration of arsphenamine are sufficiently characteristic to distinguish the syndrome from the ill defined group of so called mild reactions to arsphenamine. Evidence is presented showing that the recognition of this typical mild reaction will in most cases make possible the differentiation of this mild, self-limited medicamentous dermatitis from the serious vesiculo-edematous erythrodermia which leads to crustaceous dermatitis and exfoliation. A possible explanation of the mechanism of production of erythema of the ninth day is suggested by the theory that the arsenical radical of the drug may not be responsible for the self-limited train of symptoms, which distinguishes erythema of the ninth day from true arsenical intoxications. The phenol content of the molecule may possibly explain this type of dermatitis, a hypothesis supported by Weiss's experimental evidence of the retention and elimination by the dog of free and conjugated phenols after a single maximal tolerated dose of nearsphenamine. Further treatment with arsphenamine after erythema of the ninth day is considered not to be warranted by the facts at hand. Additional treatment for a patient with early syphilis is justified if the accident has been properly interpreted as

uncomplicated erythema of the ninth day. The author questions the value of the administration of sodium thiosulphate and other detoxicating measures in the treatment of this self limited intoxication. Four of his ten patients received no sodium or calcium thiosulphate, and there was no alteration in the self limited signs or symptoms. The disease in other patients from whom the treatment has been withheld has likewise followed the same limited course as in the treated patients.

**Effect of Hormones of Sex Glands on Acne**—Van Studdiford gave female patients of various ages between the periods of adolescence and the menopause 10 grains (0.65 Gm.) of a desiccated extract of the whole ovary daily. The treatment was begun five days after the cessation of menstruation and continued until the next period. Fractional doses of roentgen radiation were given at weekly intervals. Of the 284 acne patients thus treated 130 showed no improvement within eight weeks. Of these, six suffered from infections of the sinuses ten from latent infections of the teeth and two from intestinal ova. Two gave positive reactions to tuberculin, two were unable to continue the use of the ovarian extract because of the appearance of sexual stimulation and nervousness and two used iodized salt. In seventy-six of the patients, improvement began within six weeks. Of these, one lost 30 pounds (13.6 kg.), three received combined ovarian and orchic extracts, three, whose periods had been markedly irregular, menstruated regularly and four used iodized salt. In thirty-five of the patients, improvement appeared within five weeks or less. Of these normal menstruation was restored in three, pregnancy proceeded to term in three and five used iodized salt. Because of the frequently observed curative effect of marriage on women with acne 15 grains (1 Gm.) of orchic extract was given daily to twenty-seven women, with the following results. Of eighteen patients who had previously been given ovarian extract over a long period, ten failed to show improvement and eight improved, one of whom was relieved of the accompanying nervous symptoms. Of nine patients who were given orchic extract alone two failed to improve and seven showed improvement. Of the fifteen patients who received three doses of estrogenic substance of 50 rat units each on alternate days beginning seven days before the calculated menstrual period eleven improved. Of these, six menstruated normally within three months, two after amenorrhea of a duration of five years, two after periods of irregular menstruation since adolescence and one who had undergone oophorectomy one year previously menstruated and showed improvement. Of sixteen amenorrheic patients who were given the daily injection of 50 rat units (folliculin or antuitrin S) during a period of five or six days just after the time for the cessation of menstruation as calculated and 50 rat units of estrogenic substance every other day for three doses, commencing seven days before the next menstrual period, eight showed improvement and menstruated regularly. Of the others, four showed improvement but menstruation was still irregular, occurring at intervals of from thirty-five to forty days and four remained without improvement. Orchic extract 15 grains (1 Gm.) daily, was administered by mouth to nine young male patients with no improvement in the symptoms of acne. However, as certain hemophilic males are said to have reacted favorably to the administration of ovarian extract, three doses of 5 grains (0.3 Gm.) of the desiccated ovarian extract were given by mouth to ten boys. Five showed improvement before receiving four doses of roentgen rays and five showed no improvement.

**White Sponge Nevus of Mucosa**—Cannon on examining a woman for a banal skin eruption found a peculiar whitish lesion of the mucous membrane of the mouth. Further investigation revealed a similar discoloration of the mucous membrane of the labia, the vaginal walls and the upper part of the anal canal and the rectum. One of the patient's two children aged 13, the patient's mother, a brother, two sisters and a maternal aunt had the same "white mouth." The possibility of the development of a malignant process caused considerable anxiety, as there was a familial history of cancer. A specimen of tissue from the mouth was taken for biopsy. This patient and three members of the family, representing three generations, were healthy and showed no other abnormalities. There was no history of consanguinity among the forebears and no other congenital abnormalities could be ascertained. The maternal

grandfather of the patient and one sister of the patient's mother died of cancer, but there seems to be no ground for considering the present condition as even potentially cancerous unless some change occurs subsequently in the affected areas in one or more of the members still living. The patient's experiment with smoking is interesting by virtue of its analogy to the part smoking plays in the evolution and malignant degeneration of some types of leukoplakia of the tongue. In this instance not the slightest change could be detected after a period of two years during which the patient smoked as many as twenty cigarettes a day. The complete absence of any subjective disturbances and of any signs of inflammation in the parts involved, the static nature of the process and its strict limitation to the buccal rectal and vaginal mucosa and that of the upper portion of the anal canal, coupled with its congenital, hereditary and familial basis (three generations on the maternal side) suggest its classification among the nevi. In the absence of a heretofore recorded parallel, the author proposes the name "white sponge nevus of the mucosa" (naevus spongiosus albus mucosae).

### Archives of Otolaryngology, Chicago

21 131 248 (Feb.) 1935

- Changes in Color of Intranasal Mucous Membrane as Guide to Status of Sympathetic and of Parasympathetic System D C Jarvis Barre Vt.—p 131
- Oculomotor Nerve Spasm in Gradenigo's Syndrome A Fine Brooklyn—p 142
- Intranasal Vaccine Spray Its Use for Prophylaxis Against Common Cold T E Walsh Chicago—p 147
- Prophylactic Vaccination Against Intracranial Complications Following Pneumococcus Type III Mastoiditis J L Goldman G Schwartzman and Cecile Herschberger New York—p 154
- \*Dysphonia Plicae Ventricularis Phonation with Ventricular Bands C Jackson and C L Jackson Philadelphia—p 157
- Adenoma of Esophagus H J Moersch and A C Broders Rochester Minn.—p 168
- Congenital Web of Larynx G Tucker Philadelphia—p 172
- Diagnosis and Surgical Treatment of Tuberculosis of Larynx H P Schugt New York—p 175
- Carcinoma of Trachea Review of Recent Literature and Report of Case F Stenn Chicago—p 190
- Rhinoderma Report of Two Cases A A Schwartz New York—p 199

**Dysphonia Plicae Ventricularis**—The Jacksons state that phonation with the ventricular bands is a rather frequent and usually unrecognized cause of hoarseness. It may be a vicarious dysfunction with a pathologic basis or a physiologic compensation for lost or impaired vocal cords. When it is a desirable compensatory function, a good voice can be developed by systematic training. When it is a usurpation of function by aggressively overactive ventricular bands or when the resumption of activity by temporarily disabled vocal cords renders persistent phonation with the ventricular bands undesirable this phonation can be checked by training or if necessary, by operation. The operation consists in nipping out a bit of tissue from the middle of the free edge of one or both ventricular bands. Before this is done, however, it is necessary to be certain that the vocal cords can approximate, draw tense and vibrate.

### California and Western Medicine, San Francisco

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- Statistical Study of Uterine Ruptures L G McNeile and R D McBurney Los Angeles—p 73
- Peritonitis and Drainage Pathologic and Clinical Study G K Rhodes and J Fernald San Francisco—p 79
- Pharyngo Esophageal Diverticulum Pulsion Type E F Ziegelman San Francisco—p 85
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- Development of Public Health in Manitoba R Mitchell Winnipeg Manit.—p 62
- Method of Determining Blackboard Visibility in School Ruth C Partridge and D L MacLean Toronto—p 70
- Typhoid Fever Mortality in Ontario 1880 to 1931 Mary A Ross Toronto—p 73

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- Indications for Surgery in Gallbladder Disease Report of Eighty Four Consecutive Operative Cases L Grove and J C Read, Atlanta—p 44
- Cholecystography Advantages of Intravenous Administration of Dye. K R Bell Atlanta—p 52
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### Illinois Medical Journal, Chicago

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- The Schilling Differential Blood Count Its Significance as Aid to Diagnosis in Typhoid Malaria and Undulant Fever Fanny Bell Warnock, Champaign—p 182
- Diverticulum of Bladder Report of Unusual Case Review of Literature H C Rolnick and P H McNulty Chicago—p 184
- Collapse Therapy of Pulmonary Tuberculosis M Joannides Chicago—p 188
- An Old Time Doctor E O Laughlin Paris—p 192

### Journal of Immunology, Baltimore

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- \*Agglutinins for Sheep and Rabbit Erythrocytes in Human Serums C A Stuart Juanita Tallman and E G E Anderson Providence, R I—p 75
- Sheep and Rabbit Cell Agglutinins in Horse Serum Sickness and Infectious Mononucleosis C A Stuart Juanita Tallman and Esther Brintzenhoff Providence R I—p 85
- Ring Precipitin Test for Estimating Concentration of Antibody in Small Amounts of Immune Serum J H Hanks Washington D C—p 95
- Mechanism of Tuberculin Hypersensitiveness Role of Tubercle and of Inflammatory Reaction of Early Tuberculous Lesion in Production of Tuberculin Hypersensitiveness as Determined by Inducing Tuberculin Type of Hypersensitiveness with Egg White or Horse Serum J H Hanks Washington D C—p 105
- Quantitative Measurements of Absorption of Agglutinins by Bacteria L Olitzki Palestine Jerusalem—p 123
- Some Observations on Relative Importance of Reticulo Endothelial Tissues and Circulating Antibody in Immunity I Bacterial Immunity in Relation to Role Played by Circulating Antibody and Tissues Following Intravenous Introduction of Bacteria F H Teale London England—p 133

**Agglutinins for Sheep and Rabbit Erythrocytes in Human Serums**—Stuart and his collaborators observed that in individual serums normal with respect to horse serum sickness and infectious mononucleosis, there is quantitative relationship between the two agglutinins. Although their results indicate that such a relationship does exist, it is not a hard and fast rule. In the 760 serums examined, titers above or below normal in one agglutinin in any one serum indicated for the most part correspondingly high or low titers for the other agglutinin. The relation of warm to cold (37 and 5 C) agglutinin titers in normal serums is puzzling. It would appear that the warm titer could increase or decrease markedly without a similar quantitative fluctuation in the cold titer. This does not necessarily mean that the warm and cold sheep agglutinins in human serums are two separate agglutinins for sheep erythrocytes. The ratio average cold/warm rabbit titers is not too large to be explained by a difference in adsorption and dissociation between the cells and the agglutinins at the high and low temperatures. Work now in progress tends to confirm this assumption. The statistically significant sex difference was found in both sheep and rabbit agglutinin titers in human serums, with the higher agglutinin content in female serums.

## Journal of Lab and Clinical Medicine, St Louis

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- \*Diphtheria Immunization with Single Injection of Highly Purified Formol Toxoid and Aluminum Hydroxide C N Leach New York  
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- Chemical Study of Lymph in Experimental Pneumonia J S Davis Jr.,  
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- Observations on Intestines of Rats Fed Inert Materials C F Long,  
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- \*Hemography Controlled Nonspecific Immunotransfusions in Treatment of  
Septicemia and Other Acute Infections W J Crocker, E H  
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- Simple Differential Stain for Human Hypophysis C Spark New York  
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- Method of Maintaining Laboratory Strains of Trypanosoma Brucei in  
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- Quantitative Determination of Sugar in the Urine Office Test J F  
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- Method for Ovarian Transplantation on Rabbits Used for Aschheim  
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- Simple Method for Calibration of Clinical Oxygen Regulators J G M  
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- The Costa Reaction Results in Two Hundred Cases R H Kamp-  
meier New Orleans—p 531
- \*Heterophile Antibody Reaction in Diagnosis of Infectious Mononucleosis  
E M Butt and A G Foord Pasadena Calif—p 538
- New Slide and Hand Shaker for Use in Slide Precipitation and Agglu-  
tination Studies in Immunology B S Levine Chicago—p 543
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- Clinical Photography with Leica Camera W T Vaughan Richmond  
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**Diphtheria Immunization with Single Injection**—Lerch and his associates selected 728 children from 2 to 11 years of age, of whom 553 were injected with a highly purified formol toxoid, with 10 per cent by volume of aluminum hydroxide, leaving 175 as controls. The toxoid was administered in 2 cc doses injected subcutaneously at the inferior angle of the left scapula. Of the 553 children receiving a single injection, seventy-one showed local or general reactions. These reactions are generally supposed to result from a hypersensitiveness to the specific diphtheria antigen. The reactions in the group of children who had had diphtheria were twice as frequent as in the group with no history of diphtheria. The reactions were not alarming in character. There were no abscess formations. The antitoxin content of the serum was determined in blood samples taken immediately before and twenty-eight days after the injection of antigen. The antitoxin determinations were made by the intracutaneous rabbit method of Jensen. Every sample of blood was accurately titrated by two or three successive determinations of increasing exactitude. In this manner each titration served as a control for the preceding titration on the same serum and any chance of error was thus avoided. The method makes possible the detection of traces of antitoxin as low as 0.00005 unit per cubic centimeter of serum. An increase in antitoxin titer was found, and in the majority of cases this increase was considerable. No evidence of a negative phase was found. No cases of diphtheria occurred among the immunized children after the immunization. During the five months following the administration of the antigen, seven cases of diphtheria occurred among the group of unimmunized children.

**Immunotransfusions in Treatment of Acute Infections**—Crocker and his co-workers employed hemography-controlled nonspecific immunotransfusions in fifty-two cases of acute general infections, including pneumococcal and streptococcal pneumonia, postoperative septicemia and peritonitis, hemolytic streptococcal septicemia, and puerperal and postabortive sepsis. The elimination of the primary focus of infection or the establishment of adequate drainage is of equal importance in all cases. Of the fifty-two patients, twenty-five recovered and twenty-seven died. The same general clinical types of disease

appear in each group (the recovered and the fatal). Of the first group, blood culture was positive in five cases of Streptococcus haemolyticus, one of Staphylococcus albus and one of pneumococcus type I. In the second group, blood culture was positive in four cases of Streptococcus haemolyticus, five of Staphylococcus albus, one of Staphylococcus aureus and three of pneumococcus type IV. The hemogramic prognosis was equally bad in all cases before nonspecific immunotransfusion was begun. From twenty-four to forty-eight hours after the last treatment the hemogramic prognosis was good in the twenty-five patients who lived. In the fatal cases the hemogramic prognosis from twenty-four to forty-eight hours after the last transfusion was generally bad. In estimating the value of nonspecific immunotransfusion therapy, the authors believe that it is only fair to point out that of the twenty-seven patients who died six were incurable, fourteen had complications with other serious conditions and in the remaining seven there were either no complications or no necropsy was performed. The average number of days of illness that elapsed before treatment was seventeen in those recovering and twenty-three in those dying. Many of the patients who failed to recover were in apparent need of more than one transfusion but additional donors were not to be had. This may have reduced the possibility of success with this form of therapy. Nonspecific immunotransfusion should be used as early as possible in all severe septic conditions. It seems to abort pneumonia. It is not contraindicated in the late stages of disease.

**Heterophile Antibody Reaction in Diagnosis of Infectious Mononucleosis**—Butt and Foord offer corroboratory evidence, having performed the test in eighteen cases of infectious mononucleosis and tested the serums of 412 hospitalized adult patients for sheep cell agglutinins, in support of Paul and Bunnell's test for infectious mononucleosis. The points of interest are that the presence of heterophile antibodies in high concentration is a constant feature of the disease, that the production of heterophile agglutinins is roughly parallel to the leukocytosis and that the height of the agglutinin response is dependent on the stage of the disease in which the serum is obtained for testing. A nonspecific fixation of complement was not obtained in the Wassermann test with serums containing high concentrations of heterophile antibodies.

## Journal of Pediatrics, St. Louis

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- \*Intravenous Administration of Fat Practical Therapeutic Procedure  
L E Holt Jr, H C Tidwell and T F M Scott, Baltimore—p 151
- Prenatal Influence in Rickets I Fetal Rickets J M Rector San Francisco—p 161
- Id II Early Postnatal Rickets and Florid Rickets with Multiple Fractures J M Rector, San Francisco—p 167
- \*Rare and Peculiar Form of Acute Interstitial Pneumonia Report of Eight Cases M Solis Cohen Philadelphia—p 178
- Tracheobronchial Obstruction Produced by Tuberculous Lymphadenitis Report of Case in a Two Months Old Infant J B Bilderback and C G Ashley Portland, Ore—p 199
- The Tuberculin Patch Test J I Waring Charleston S C—p 207
- Exophthalmic Goiter Before One Year of Age P C Elliott Nashville, Tenn—p 204
- Clinical Record and Postmortem Pathology of Diabetic Children H J John Cleveland—p 211
- Perimenigitis Staphylococcus Septicemia Complicated by Osteomyelitis of Second Lumbar Vertebra E E Martmer and G C Penberthy Detroit—p 226
- \*Pulmonary Lesions Resembling Pneumonia as Result of Allergic Shock G L Waldbott and A D Snell Detroit—p 229
- Roentgenologic Studies of Infant's Gastro-Intestinal Tract J S Bouslog T D Cunningham J P Hanner J B Walton and H D Waltz Denver—p 234

**Intravenous Administration of Fat**—Holt and his co-workers used emulsions for purposes of parenteral feeding in sixteen infants with severe nutritional disorders, who received from two to seven injections each on successive days, the dose was 1 Gm of lipid per kilogram of weight in all but a few instances, in which twice that quantity was given. A number of these cases were hopeless from the start, the patients being infants with tuberculous or pyogenic meningitis, peritonitis or septicemia, the fatal outcome that ensued can hardly be held against the treatment. In other instances, even though recovery took place it cannot be credited to the treatment, for other therapeutic measures—fluids, transfusions—were given simul-

taneously. The authors present three cases, however, in which they gained the impression that the treatment had been responsible for improvement.

**Acute Interstitial Pneumonia**—Solis Cohen describes a rare form of acute interstitial pneumonia that was discovered at necropsy in six infants and two children. The most characteristic feature is the histologic appearance of the affected portions of the lung, which present capillary engorgement and infiltration of round cells, epithelioid or plasma or endothelial cells and in some cases polymorphonuclear cells, which is not abscess formation. Other characteristic features are the muscle-like feel of the affected portion of the lung and its peculiar color. The cases presented no characteristic clinical, roentgenologic or laboratory changes by which they could be recognized during life. The most prominent clinical features are the commonly short duration of the disease, the virulence of the infection, its fatality and its failure to respond to treatment. Leichtenstern, Buhl, Stokes Corrigan, Gordon and Gouley and Eiman are the only ones found by the author to describe conditions closely resembling this form of acute interstitial pneumonia.

**Lesions Resembling Pneumonia as Result of Allergic Shock**—Waldrott and Snell assert that in allergic patients pulmonary infections resembling bronchopneumonia may arise as the result of allergic shock and of severe asthma. They present evidence suggesting that these lesions are superimposed on an edematous hemorrhagic process of allergic origin in the lungs. In seven of twelve asthmatic children who had been hospitalized for pneumonia the infectious process may have thus been originated. In an attempt to differentiate this type of pneumonia from other pulmonary lesions, the following clinical features were found to be of diagnostic value: the presence of an afebrile period with collapse and associated asthmatic symptoms, a lesser severity of the infection and a shorter duration than in ordinary pneumonia, and a relatively low white blood count at the onset of the febrile period.

### Medicine, Baltimore

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- Role of Heredity in Disease Madge Thurlow Macklin London Ont.—p 1  
Muscular Atrophies and Allied Disorders C D Aring and S Cobb Boston—p 77  
Acute Syphilitic Meningitis H H Merritt and M Moore Boston—p 119

### New England Journal of Medicine, Boston

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- Acute Hematogenic Osteomyelitis R H Miller Boston—p 283  
Diabetic Coma A Marble H F Root and Priscilla White Boston—p 288  
\*Iodo-Bismuthate of Quinine in Treatment of Syphilis E L Oliver and G M Crawford Boston—p 297  
What We Have Learned from One Hundred Intrapleural Pneumolyses F H Washburn Holden Mass—p 300

212: 323 366 (Feb 21) 1935

- Lymphogranuloma Inguinale Report of Sixteen Cases in and Around New Haven Marion E Howard and M J Strauss New Haven Conn.—p 323  
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Questions Before the Medical Profession T F Rock Nashua N H—p 341

212 367-412 (Feb 28) 1935

- Visual Mechanism in Diabetes Mellitus Comparative Study of Two Thousand and Two Diabetics and Four Hundred and Fifty Seven Nondiabetics for Control J H Waite and W P Beetham Boston—p 367  
Pulmonary Tuberculosis and Pregnancy C Floyd Boston—p 379  
Modified Tracheotomy Tube L A Schall Boston—p 386  
The Nephritides A A Epstein New York—p 387

### Quinine Bismuth Iodide in Treatment of Syphilis—

Oliver and Crawford selected a series of seventy-six uncomplicated cases of syphilis without regard to the stage of the disease. No parietic tabetic or cardiovascular cases or any with involvement of the central nervous system were included. No obviously serofast cases were selected. All had a general checkup including a serodiagnosis and urine before a course of fifteen injections of quinine bismuth iodide was begun. The patients were questioned as to pain following injections, itch-

ing skin eruptions, jaundice, stomatitis, urinary symptoms or gastro-intestinal disturbances, any of which might not have been picked up in the routine interview each week. At the same time a similar series of cases was selected from the larger group of patients in the clinic as a whole who were getting bismuth salicylate. The same restrictions were exactly adhered to throughout and the same type of case picked for each one receiving quinine bismuth iodide, i. e., according to the stage, the status of previous treatment and the condition of the patient. In addition to the present series of cases another group of 118 patients who had received both types of bismuth salt in the past and are still under observation was studied from the subjective angle. Their interrogation was facilitated by the variance in color of the products. The results as tabulated suggest that quinine bismuth iodide, in spite of its lower bismuth content, is superior to bismuth salicylate. The additional series of cases was found to substantiate the results obtained in the present series, in that quinine bismuth iodide produced a markedly smaller number of unfortunate incidents.

### New Jersey Medical Society Journal, Trenton

32 59 118 (Feb.) 1935

- Reduction of Maternal Mortality in New Jersey W B Mount, Montclair—p 65  
Hemorrhagic Blood Dyscrasias Symptomatology, Diagnosis and Treatment H I Goldstein Camden—p 69  
Sinusitis in Children L Richards Boston—p 78  
Keratoplasty Report of Cases with Especial Reference to Complicated Ones R Castroviejo New York—p 80  
Osteitis Fibrosa C O Leff K Blanchard and C M Peabody South Orange—p 89  
Adequate Pay for Efficient Medical Care N B Van Etten New York—p 98

### New Orleans Medical and Surgical Journal

87: 501 588 (Feb.) 1935

- Early History of Medical Education in New Orleans Centennial of Medical Education in New Orleans A E Fossier New Orleans—p 501  
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Influence of Last One Hundred Years of Medical Education on Culture Growth and Prosperity of New Orleans R Matas New Orleans—p 514  
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Consideration of Diagnostic Criteria in Heart Disease J M Bamber, New Orleans—p 538  
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Management of Bladder Tumors M M Green New Orleans—p 544  
Acute Suppurative Arthritis J R Veal New Orleans—p 549  
Follicular Conjunctivitis W F Cotten McComb Miss—p 553

### Ohio State Medical Journal, Columbus

31 81 160 (Feb 1) 1935

- Clinical Significance of Achlorhydria C D Christie Cleveland—p 101  
Representation of Visceral Function in the Brain A R Vonderahe Cincinnati—p 104  
Mucous Membrane Color Changes as an Index to Treatment in Children S D Giffen Toledo—p 109  
Present State of Individual Preventive Medicine A A Hall Columbus—p 114  
Rachitic Dwarfism with Nephrosis with Reference to Renal Rickets I H Kass Toledo and E J Huenekeas Minneapolis—p 119

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- Amebiasis C C Perry Cleveland—p 181  
Surgical Treatment of Tracheobronchial Diphtheria J D Fouts Dayton—p 184  
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Women's Contribution to Reduction of Maternal Mortality Mabel E Gardner Cincinnati—p 191  
\*Some Unusual Complications in Malarial Therapy L J Karnosh and G H Williams Jr Cleveland—p 193  
\*Administration of Oxygen by Intranasal Catheter L E Barron and G M Curtis Columbus—p 196  
Asthma Due to Bacteria Atopic Type J Forman Columbus—p 200

**Unusual Complications in Malarial Therapy**—Karnosh and Williams made a survey of 580 cases of dementia paralytica that were subjected to the paroxysms of tertian malaria. Prime evidences of serious complications were found to be a paroxysm with a temperature of 41 C (105.8 F) or more, a low chill temperature accompanying an unusually high pulse

and respiratory rate, a fever that remained for more than eight hours after a normal chill peak, a blood pressure under 100 systolic and 60 diastolic, a blood urea of more than 60 mg., and cyanosis of any degree. Delirium, confusion and excitement during the height of the fever occurred in more than 75 per cent of the cases and cannot in themselves be regarded as having significance. The same can be said of herpes of the lips and face. Physical habits offered no reliable index as to resistance. Roentgen diagnosis of dilatation of the aortic arch, unless it was associated with pronounced clinical symptoms, did not contribute to a greater number of fatalities than did a negative observation. Fatalities from all causes occurred in seventy-four, or 127 per cent. Bronchopneumonia was found in 35 per cent. The unsatisfactory diagnosis of circulatory failure in thirty-two cases could not be clarified, because no postmortem examination was allowed. Hemorrhages, hematomas and noninflammatory ulcers of the intestine may be said to be specific lesions due to malarial infection. Enlargement of the spleen is also a characteristic sign, and rupture of this organ may occur and result in immediate shock and death. No specific lesion of malaria can be demonstrated in the brain tissues from a study of the material in twenty-three cases. Rapidly fulminating septic states may apparently develop in otherwise normally resistant patients after malaria is injected, suggesting a symbiotic relationship between the plasmodium and many pathogenic organisms.

**Administration of Oxygen by Intranasal Catheter** — Barron and Curtis claim no originality in describing the administration of oxygen by the intranasal catheter but emphasize its simplicity, efficiency and economy. The method described by Barach has in their experience produced highly satisfactory results. Its simplicity makes it available for use in the office, in the hospital and even in the home. Six cases are cited which illustrate the clinical occurrence of anoxemia, in the management of which oxygen, by the intranasal catheter was used successfully.

### Oklahoma State Medical Assn Journal, McAlester

28: 43 78 (Feb.) 1935

- Diabetic Problems L. A. Riely Oklahoma City—p. 43  
 Thoracoplasty C. A. Thomas and S. C. Davis Tucson Ariz.—p. 48  
 The Pigmented Mole F. H. Clark El Reno—p. 53  
 Connection Between Nasal Sinuses and Certain Eye Lesions V. V. Wood St. Louis—p. 55  
 Proper Time for Removal of Cataracts F. M. Cooper Oklahoma City—p. 57  
 Electrocoagulation in Rhinopharyngology M. D. Henley Tulsa—p. 59

### Psychoanalytic Quarterly, Albany, N. Y.

4: 1 226 (Jan.) 1935

- Psychoanalytic Psychology of the Young Child S. Bernfeld Vienna Austria—p. 3  
 Psychoanalysis and Training of the Young Child Anna Freud Vienna Austria—p. 15  
 Profound Disturbances in Nutritional and Excretory Habits of a Four and One Half Year Old Boy Their Analytic Treatment in a School Setting Anni Portl, Vienna Austria—p. 25  
 A Rejected Child K. Pemsinus Vienna Austria—p. 37  
 Psychoanalysis and the Future of Education E. Homburger Cambridge Mass.—p. 50  
 Child Analysis and the Mother Dorothy Tiffany Burlingham Vienna Austria—p. 69  
 Phobia in a Two and a Half Year Old Child Berta Bornstein Vienna Austria—p. 93  
 From the Analysis of a Bed Wetter Anny Angel Vienna Austria—p. 120  
 Excerpt from Analysis of Dog Phobia Edith Sterba Vienna Austria—p. 135  
 Exhibitionistic Onanism in a Ten Year Old Boy Edith Buxbaum Vienna Austria—p. 161  
 A Child Analysis S. Bornstein Prague Czechoslovakia—p. 190

### Public Health Reports, Washington, D. C.

50: 237 280 (Feb. 22) 1935

- General View of Causes of Illness and Death at Specific Ages Based on Records for Nine Thousand Families in Eighteen States Visited Periodically for Twelve Months 1928 to 1931 S. D. Collins—p. 237

### Puerto Rico J. Pub. Health & Trop. Med., San Juan

10: 133 254 (Dec.) 1934

- Studies on Schistosomiasis Mansonii in Puerto Rico III Biologic Studies: Mammalian Phase of Life Cycle E. C. Faust, C. A. Jones New Orleans and W. A. Hoffman San Juan—p. 133

### Radiology, Syracuse, N. Y.

24: 131 260 (Feb.) 1935

- \*Study of the Esophagus in Relation to the Heart, Aorta and Thoracic Cage S. Brown and J. E. McCarthy, Cincinnati—p. 131  
 Apparatus for Serial Radiography and Demonstration of Mucosal Relief in Gastro-Intestinal Examinations J. B. Bell Louisville Ky.—p. 143  
 Radio Frequency High Voltage Apparatus for X-Ray Therapy R. S. Stone, M. S. Livingston, D. H. Sloan and M. A. Chaffee San Francisco—p. 153  
 Renal Tuberculosis: Plea for Early Diagnosis C. J. Bucher and T. R. Fetter Philadelphia—p. 160  
 Spectrographic Method of Measuring Voltage Wave Form of a Roentgen Tube R. R. Newell San Francisco—p. 165  
 Certain Diagnostic Phases of Excretion Urography A. E. Jones and R. A. Arens Chicago—p. 169  
 \*Multiple Urograms: An Aid in Urologic Diagnosis E. C. Baker and J. S. Lewis Jr. Youngstown Ohio—p. 177  
 Urologic Problems in Childhood W. J. Engel, Cleveland—p. 183  
 Malignant Tumors of the Kidney in Children: Report of Six Cases E. A. Pohle and G. Ritchie Madison Wis.—p. 193  
 Importance of Roentgen Gastric Functional Study in Differential Diagnosis of Pyloric Lesions W. H. Meyer New York—p. 206  
 The Social and Economic Aspects of Cancer A. Soland Los Angeles—p. 213  
 Cholecystographic Diagnosis: Management and Technic for Oral Cholecystography D. S. Beilin Chicago—p. 218  
 X-Ray Study of the Gastric Rugae W. E. Pennington Indianapolis—p. 221  
 \*A Simple Method for Determining Degree of Inspiration from Chest Film K. D. A. Allen and H. D. Waltz with technical assistance of Dorothy D. Hanner Denver—p. 225

**The Esophagus in Relation to the Heart and Aorta**—Brown and McCarthy observed that the following abnormal conditions affected the position of the esophagus to a more or less degree: thoracic deformities, pleuropulmonary disorders, lesions of the mitral valve, lesions of the aortic valve, general enlargement of the heart with or without aortic dilatation, congenital heart disease, dilatation of the aorta with or without aneurysms, and pericarditis with or without effusions. Enlargement of the heart from any cause will encroach on the posterior half of the thorax and thus displace the esophagus backward. If the displacement of the heart takes place in pleuropulmonary diseases, the esophagus is usually displaced in the same direction. In pulmonary emphysema or kyphosis, the distance between the esophagus and dorsal spine is increased. In lesions of the mitral valve, the esophagus is displaced to the right and backward. The degree of displacement to the right will help to determine to what extent the left auricle contributes to the formation of the right border of the heart. The backward displacement determines the degree of enlargement of the heart in the anteroposterior diameter. In lesions of the aortic valve the esophagus is displaced to the left and backward. The degree of displacement to the left will help to determine the degree of displacement of the descending aorta to the left. The backward displacement determines the extent of the enlargement of the heart in the anteroposterior diameter and the degree of displacement of the descending aorta to the back. In general enlargement of the heart without aortic dilatation, the esophagus is displaced to the right and backward. In general enlargement of the heart with aortic dilatation, the esophagus is displaced to the left and backward. In congenital heart disease, the displacement of the esophagus depends on the particular defect or defects in the heart and blood vessels. The esophagus is frequently found to be displaced to the right and backward, but seldom to the same degree as in acquired lesions. Frequently the anterior chest wall is found to protrude forward to compensate for the enlarged size of the heart in the anteroposterior diameter. In dilatation of the aorta without cardiac enlargement the esophagus is displaced to the left and backward only behind the great blood vessels. When the heart also is enlarged, the esophagus is also displaced behind the heart. In the presence of aneurysms, the position of the esophagus will help to differentiate between aneurysms arising from the ascending aorta and anterior half of the arch and those arising from the posterior portion of the arch and descending aorta. In enlargement of the heart as a result of dilatation or hypertrophy or both, the esophagus is invariably displaced backward and either to the left or right. In the lateral position the shadow of the heart is seen to extend beyond the shadow of the esophagus and often also the bodies of the vertebrae.

**Technic of Making Multiple Urograms**—Baker and Lewis in obtaining multiple urograms usually take an ordinary



film of the entire urinary tract prior to cystoscopy. The usual cystoscopic examination is made. Inspection of the bladder is completed. Indigo carmine is injected intravenously and the time of appearance of a concentrated dye is noted. Catheters are passed into the kidney pelvis, nonobstructing catheters being used whenever possible. Specimens are collected under aseptic precautions for laboratory examination. The cystoscope is removed and the catheters are left in place, after which second specimens for laboratory examination are collected. The patient is transferred to a roentgenologic table with the usual fluoroscopic and Bucky equipment. The catheters are now connected by means of metal adapters to syringes containing a known amount of a 15 or 20 per cent solution of skiodan. Under direct fluoroscopic control the pelvis and calices are filled by gravity. When satisfactory visualization is complete the catheters are drawn down to a point about 8 cm from the ureteral meatuses. The roentgen set-up is then thrown in quickly, the catheters are withdrawn and the lower ureters are slowly injected with 1 cc of the opaque medium. The first roentgenogram is taken as the catheters reach the bladder. Two or three other roentgenograms are then made as rapidly as possible. Exposure time varies from one-half to three-fourths second and the time between exposures from eight to ten seconds. A residual roentgenogram is made about ten minutes later. In cases of suspected ptosis a vertical film is taken after the last serial exposure. The roentgenologist must take time to prepare his eyes for proper fluoroscopy. From the fluoroscopic part of the examination much valuable information can be obtained as to fixity of the urinary passages, the type of peristalsis, the relation of extra urinary shadows, the movements of the kidneys with respiration and the passage of the mediums down the ureter. It is frequently necessary to change the position of the catheter by withdrawing it slightly. With practice the roentgenologist is able to estimate accurately by the size and density of the shadow the amount of the opaque medium that flows into the pelvis and calices. At times, fluoroscopy easily answers the query as to why the pyelogram is incomplete. Blurred roentgenograms are due to movements of the intestine, therefore the exposure should be fast enough to stop this peristalsis. Pyelograms for proper detail should be made as rapidly as possible. The entire urinary tract is included in the examination as a routine, a method the authors feel is essential. The present technic of complete examination is attended with much less discomfort than resulted from the old method of unilateral examination in which sodium iodide was used as the opaque medium. Many patients sleep through the procedure on the preliminary dose of morphine, except at the time the catheters are withdrawn.

**Determination of Inspiration from the Roentgenogram**—Since it is impossible to obtain roentgenograms as a routine in a known phase of respiration in infants and uncooperative patients, Allen and Waltz state that the only way that this can be attempted is through visual determination by the technician. Probably the best results are obtained when the operator assumes a position which places the eyes tangential to the anterior or posterior body wall of the patient closing the primary switch when the abdominal diameters assume the greatest proportions. One half second or less is the limit of time during which an exposure of complete inspiration can be obtained. There may be more air in the lungs at all phases of respiration during a crying spell than during quiet breathing. Therefore, more complete inspiration can be depicted on the plate if it is made during a crying spell. A couch with the tube beneath the patient permits the infant to lie on its back with the plate held to the anterior chest wall by a special frame. The height of the table facilitates a tangential position of the technician's eyes. The following criteria were studied and applied to a large number of roentgen examinations of infants in determining the phase of respiration from the x-ray plate: the angulation of the ribs with the spine, the angle made by the anterior with the posterior portion of a rib at the axillary border, the angle of the outline of the heart in relation to the perpendicular, the change in the position of the clavicles, the position and contour of the diaphragmatic domes, and the magnitude of the cardiophrenic and costophrenic angles. The authors present experimental and clinical evidence supporting the accuracy of the method.

## Tennessee State Medical Assn Journal, Nashville

28: 47-92 (Feb.) 1935

- Tumors of Sympathetic Nervous System D. Lewis, Baltimore—p. 47  
Health Insurance Its History and General Trend T. Morford Nashville—p. 53  
Introduction of New Quantitative Complement Fixation System for Syphilis with Reference to Older Systems C. G. Ransom Nashville—p. 62  
Indications for Operation in Cases of Cholecystitis H. H. Shoulders Nashville—p. 68  
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Discussion of Some of the More Common Skin Diseases C. M. Hamilton Nashville—p. 77  
Conservation of Motherhood J. C. Ayres Memphis—p. 80

## Western J Surg, Obst. & Gynecology, Portland, Ore

43: 61-118 (Feb.) 1935

- \*Breast Care, with Especial Reference to Use of Camphor in Oil in the Suppression of Milk Secretion After Stillbirths and at the Time the Infant Is Weaned L. G. McNeile Los Angeles—p. 61  
Ovarian Injury as Cause of Uterine Bleeding C. F. Fluhmann San Francisco—p. 70  
Study of Result of Prenatal Care from Two Five Year Periods at the San Francisco Hospital K. L. Schaupp San Francisco—p. 76  
Comparison of Clinical and X-Ray Pelvimetry N. H. Williams Los Angeles—p. 84  
\*The Vomiting of Pregnancy F. C. Ainley Los Angeles—p. 92  
Prolonged Analgesia in Malignancies C. A. DePuy, Oakland Calif—p. 105  
Uterine Fistulas J. A. Sperry San Francisco—p. 112

### Camphor in Oil in Suppression of Milk Secretion—

McNeile employed camphor in oil intramuscularly in 340 cases for the purpose of causing cessation of breast function. The treatment is indicated in weaning and in patients who do not nurse. On the first day two 1½ grain (0.1 Gm.) doses of camphor in oil are injected, one in the morning and one at night. On the second, third and fourth days one dose is given each morning. The administration should be started on the first day after delivery, if possible. Procedures such as ice bags, tight binders, active catharsis and restriction of liquids should be avoided. If the breasts show any evidence of active function after the fourth day, an injection is given on the fifth and sixth days. The method has increased the certainty of results and has eliminated much drudgery that is always associated with the use of restricted fluids, ice bags, tight binders and active catharsis. In view of the evidence that mechanical factors producing partial or complete blockage of the milk ducts with retention of milk may be a factor in the production of cancer of the breast, in cases requiring cessation of nursing it would seem logical to use an agent that has been shown definitely to cause a cessation of breast function rather than mechanical compression, which in itself causes obstruction to the flow of milk. Camphor in oil given intramuscularly, has a definite inhibiting action on lactation. This effect, as shown by Liegner, is due to a direct action of the drug on the secretory epithelium of the breast. Of the 340 cases cited, an extremely large proportion showed a pronounced beneficial effect. For the suppression of the breast function and the relief of signs of breast engorgement, such as pain, tenderness and heaviness of the breasts, the intramuscular injection of camphor in oil appears to be the most effective form of treatment. Theoretically the use of camphor in oil for the suppression of breast function appears to be more logical than the commonly used methods, and the adoption of such treatment might affect the incidence of carcinoma of the breast following lactation.

**Vomiting of Pregnancy**—Ainley prefers yellow atrophy of the liver and vomiting of pregnancy to acute yellow atrophy and pernicious vomiting as terms more clearly defining the conditions intended to be identified. Yellow atrophy of the liver, which may be acute subacute or chronic, is an organic disease of toxic origin, may occur either in pregnant or non-pregnant persons, can terminate in death as a result of destruction of vital body tissue and at necropsy always shows a central zonal degeneration or necrosis in the liver lobules. Vomiting of pregnancy, which includes nausea, morning sickness and so-called pernicious vomiting of pregnancy as varying degrees of an identical condition is a functional disease of endocrine origin, occurs only during pregnancy, can cause death from starvation as a result of persistent vomiting, and at necropsy shows the pathologic picture of starvation but no constant or uniform liver destruction.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Medical Journal, London

1 289 344 (Feb 16) 1935

- Treatment of Simple Inflammation of Skin (Dermatitis) H Haldin Davis—p 289  
 Streptococcal Dermatoses with Especial Reference to Those Other Than Impetigo J Kinnear—p 291  
 \*Diagnosis of Early Pulmonary Tuberculosis W B Wood—p 294  
 The Springs of Neurosis G F Walker—p 296  
 Pulmonectomy Preliminary Report on Two Cases in Which an Entire Lung Has Been Successfully Removed G A Mason—p 299

**Diagnosis of Early Pulmonary Tuberculosis**—Wood points out that inspection of the form and movements of the chest are of little help in the detection of incipient tuberculosis. The same may be said of percussion, unless pleurisy with effusion or bronchopneumonic consolidation complicates the picture. Auscultation may be of more value, for a weakening of the breath sounds may be obvious over an area of early infiltration. Fine, moist crepitations—heard best in the inspiratory phase following a short cough—audible over the apex or subapex of an upper or lower lobe are almost diagnostic. But one must not expect to hear them. They indicate very active disease and widespread involvement of the affected lobe. The apex of the lower lobe is favorably situated for auscultation. One is not likely to forget the zone of alarm internal to the spine of the scapula when searching for crepitations, but one is apt to forget that a second zone of alarm is situated internal to the angle of the same bone. If the patient's symptoms, history, manner and appearance and if the physical signs or their significant absence indicate the possibility of tuberculosis, the sputum test, repeated two or three times if necessary, will in the majority of cases prove the diagnosis. If the sputum test is negative, roentgen examination is essential before a final opinion can be given. And if this supplies evidence of tuberculosis, roentgen control will thereafter be essential, for the progress of the case can be studied adequately and its treatment conducted properly only in the light of the information that x-rays provide.

## Indian Medical Gazette, Calcutta

70:1 60 (Jan) 1935

- Some Observations on Toxicity of Synthetic Antimalarial Remedies R N Chopra and R N Chaudhuri—p 1  
 Atabrine in Treatment of Malaria in Railway Employees C D Newman and B S Chalam—p 5  
 \*Experiment on Prophylactic and Curative Value of Atabrine and Plasmochin Therapy in a Tea Garden in Assam Notes D P Williams and R Bhattacharyya—p 8  
 Inspectional Value of Phrynoderma and Sore Mouth L Nicholls—p 14  
 Thrombo Angitis Obliterans D C Chakravarti—p 16  
 Observations on Spinal Novocain Anesthesia R Viswanathan—p 19  
 Influence of Fresh Bile on Guinea Worm Larvae Encysted in Cyclops Preliminary Report V N Moorthy—p 21  
 Simple Fly Trap J F James—p 23

**Value of Atabrine and Plasmochin**—Williams and Bhattacharyya compared the efficacy of atabrine and plasmochin as prophylactic and therapeutic agents in a population of 234. Prophylactic doses of atabrine and plasmochin were distributed among the line population. Those who developed fever were admitted into the hospital and given a full course of treatment with atabrine and plasmochin. There were fifty relapses, the majority in children less than 2 years of age, showing the absence of immunity in them. The total infection and total incidence of malaria diminished to some extent. This diminution was due chiefly to the reduction of malignant tertian cases, but there was no reduction either in infection or in incidence in benign tertian cases. The authors believe that the real value of an antimalarial drug especially as a prophylactic agent can be gaged properly only when its efficacy is proved in children, and from this standpoint atabrine and plasmochin have failed, in their experiment, to fulfil the somewhat exaggerated claims made. They have however, decidedly better prophylactic value in adults. They believe that atabrine as a therapeutic agent is at least as efficacious as quinine in controlling the clinical symptoms and freeing the peripheral blood from malaria parasites. As to toxicity, it is decidedly superior to quinine. It does not give rise to neurotrophic symptoms and is well toler-

ated by children and also by those who have an idiosyncrasy to quinine as well as by pregnant women. The higher cost of a course of atabrine treatment is somewhat compensated for by the absence of neurotrophic symptoms. As a gametocyticide plasmochin should be used in mass treatment only under proper medical supervision and under suitable conditions.

## Journal of Neurology and Psychopathology, London

15 193 288 (Jan) 1935

- Chemistry of the Brain in the Mental Defective W R Ashby and Adr Glynn—p 193  
 Symptomatic Epilepsy in One of Identical Twins Study of Epileptic Character W Freeman—p 210  
 Juvenile Amaurotic Family Idiocy Case. R. M. Norman—p 219  
 \*Dinitrophenol in Dementia Praecox I Finkelman and W Mary Stephens—p 230  
 Role of Cerebral Cortex in Narcolepsy Classification of Narcolepsy and Allied Disorders M Levin—p 236

**Dinitrophenol in Dementia Praecox**—Finkelman and Stephens selected twelve female dementia praecox patients of the hebephrenic type from 19 to 63 years old and weighing from 135 to 197½ pounds (61 to 89.5 Kg) for investigating the efficacy of dinitrophenol. All but two had been in the institution from two to twenty-four years. All but one of the group were uncooperative in varying degrees at the beginning of the treatment. Cooperativeness increased as the study progressed. Eight patients were given daily, in divided doses, 100 mg of sodium dinitrophenol. The dose was gradually increased to 270 mg. Four patients were started with 60 mg of alpha dinitrophenol daily, which was gradually increased to 300 mg. The dosage was not increased to the maximum if the loss of weight was rapid on a small dose. One patient was not placed on the maximal dosage, because she lost weight rapidly on the initial dose. No change was made in the diet that the patients had previously received. After medication was started, oxygen consumption rates, blood chemistry, including icteric index, cholesterol and blood counts were determined periodically on all patients except the two used as controls. Seven of the patients were under treatment for sixty and four for thirty days. Medication was discontinued in one case at the end of thirty-two days because the oxygen consumption rate had increased to plus 66. The average increase in the oxygen consumption rate (basal metabolic rate) was 37.16. The average loss of weight was 14½/100 pounds (653 Gm) per week. Two patients with a hypopituitary type of fat distribution did not respond to dinitrophenol with either loss of weight or increased oxygen consumption. The oxygen consumption rates returned to the pretreatment values after the administration of the drug was discontinued. The nonprotein nitrogen and icteric index increased and the blood cholesterol decreased during treatment. The icteric index and the cholesterol showed a tendency to return to pretreatment values but the nonprotein nitrogen remained increased. Five patients improved mentally. The increased attention given the patients during treatment cannot be ruled out as having been the chief agent in causing the mental improvement. The reactions of dementia praecox patients to the administration of dinitrophenol together with oxygen should be studied.

## Journal Obst &amp; Gynaec of Brit Empire, Manchester

42 1 216 (Feb) 1935

- \*Treatment of Prolapse A L Robinson—p 1  
 Postnatal Development of Genital Organs in Albino Rat Discussion of New Theory of Sexual Differentiation B P Wiesner—p 8  
 \*Studies on Movements of Uterus II Action of Extract of Corpus Luteum on Uterus of Unanesthetized Rabbit T N Morgan—p 79  
 Id III Action of Gonadotropic Extracts on Movements of Uterus of Unanesthetized Rabbit T N Morgan—p 84  
 Menstruation and Menstrual Disorders. D J Cannon—p 88  
 Heartburn in Pregnancy Helen E Rodway and Ursula Shelley—p 107

**Treatment of Prolapse**—Robinson states that subinvolution and trauma are the most important factors in the causation of prolapse. Any factor that increases the abdominal pressure, such as constipation, overwork or bronchitis, may cause descent in a woman who is predisposed toward this complaint by congenital or acquired weakness. The author regards operation as absolutely curative only when reproduction has ceased. He believes that prolapse can never be cured by an abdominal operation alone but can nearly always be cured by a vaginal operation. The treatment of prolapse occasionally demands an abdominal as

well as a vaginal operation. The following technic is suggested. An incision is made from two points outside the urethra on each side. These two points are joined by a slightly curved incision, which runs across the vagina below the urethral orifice, and the rest of the incision is completed in the usual way. This technic paves the way for the excision of the bulge, which is generally a conspicuous feature near the urethral orifice, and enables the operator to construct a grid for the support of the urethra and the relief of stress incontinence. The upper vaginal stitches are inserted from side to side, but in the lower part this arrangement is modified by placing the deep stitches laterally and the superficial sutures anteroposteriorly, thus producing a T shaped grid scar in the anterior vaginal wall near the urethral opening, which gives a pleasing esthetic appearance and a good functional result. The uterus is restored to its normal length by excising the redundant portion of the enlarged cervix, and the external os is reconstructed. The uterosacral ligaments are accessible in the posterolateral fornix when the mucous membrane of the vagina has been divided at a distance from the cervix, and their muscular matrix is readily picked up by a needle passed outward and backward in the direction of the sacrum. When these sutures are tied the shortened ligaments pull the cervix upward and backward and restore the uterus to its normal level and position. An oval area is chosen on the outer side of the nymphæ on each side and a portion of tissue corresponding to the displaced labium majus is chosen in accordance with the age, parity and functional requirements of the patient. It is essential that the anterolateral margin of the incision should always be placed on the outer side of the posterior boundary of the nymphæ. By using this method, the reconstruction of the perineal body is greatly facilitated, all sharp angles are abolished and atresia of the vulval outlet is rendered impossible. A further advantage is to be derived from the fact that the length of the vagina is increased rather than diminished.

**Action of Extract of Corpus Luteum on Uterus—**Morgan found that an active extract of corpus luteum injected into suitably prepared sexually immature rabbits, whether castrated or with intact ovaries, is capable of inducing quiescence of the uterus identical with that which is associated with the presence of normal corpora lutea in the ovaries. The action of corpus luteum extract on the movements of the uterus of sexually mature rabbits is, however, profoundly affected by the presence or absence of the ovaries. In animals in which the ovaries have been removed, treatment with corpus luteum extract inhibits the contractions of the uterus, while in animals with intact ovaries the luteal hormone is almost without effect in altering the activity of the uterus or the structure of the endometrium. It would seem, therefore, that the follicular hormone and the corpus luteum hormone exercise respectively augmentor and inhibitor effects on the motility of uterine muscle, and that the degree of activity of the uterus depends on the relative concentrations of these hormones in the blood. This fact should be kept in mind in cases in which corpus luteum extract is to be employed in human therapeutics. For while relatively small doses of this hormone may be effective in inducing endometrial transformation in cases in which the ovaries are absent it is likely that much larger doses may have to be employed in order to produce effects in cases in which the ovaries are intact and secreting estrogenic substance into the circulation.

### Lancet, London

1: 245 302 (Feb. 2) 1935

- Present Discontents in Psychopathology. E. Miller—p. 245  
Treatment of Minor Maladies of the Foot. A. S. B. Bankart—p. 249  
\*Pulmonary Tuberculosis Due to Bovine Type Tubercle Bacillus. Case Report with Autopsy Findings. W. T. Munro and G. Walker—p. 252  
Measurement of Radium Dosage. H. S. Souttar—p. 255  
Metabolic Failure. Cause of Death in Old Age. F. Moor—p. 257  
Methyl Chloride Poisoning. Report of Case. C. A. Birch—p. 259  
Notable Kidney. V. Pennell—p. 261

**Tuberculosis Due to Bovine Type of Tubercle Bacillus—**Munro and Walker discuss a case of pulmonary tuberculosis due to the bovine type of tubercle bacillus showing the relentless spread of the bacillus. The significant facts of the case were the widespread distribution of the lesions, the steadily

progressive nature of the disease and the extent of cavitation, all caused by the bovine type of tubercle bacillus. It was difficult from a postmortem examination to determine the paths of spread of the disease. The most grossly affected gland is not necessarily a clue to the portal of entry. The bacillus may enter through any mucous membrane and leave no trace of its entry. Once invasion has occurred the nearest lymph nodes are found to be affected and in the present case there was a history of enlarged cervical glands at 2 years of age while at 7 the enlarged cervical glands were excised. From the present marked thickening of the pleura on the right side, especially over the upper lobe and also the involved cervical glands, the lowest of which are contiguous with the apical pleura, the authors are tempted to infer that the spread to the lung has been a descending lymphatic one. The excavation in the right upper lobe is undoubtedly the oldest pulmonary lesion, and they note that the lesions in the hilar glands seem to be more recent than the lesions in the upper mediastinal glands. Again, the condition in the left lung seems to suggest that the oldest lesion is just under the pleura where there has been an adherent apical cap. The spread to the lung in the upper lobes would seem to be lymphatic and to be a contiguous spread by lymphatic channels through the pleura to the adjacent lung. In the left lung the spread into the lower lobe is suggestive of spread by contiguity from an enlarged tracheobronchial gland, and this is a recent lesion. The same thing is present in the right lower lobe, but there it is not so evident.

1 303 360 (Feb. 9) 1935

- Staphylococcus Toxoid. Clinical Trial. D. S. Murray—p. 303  
Clinical Uses of Staphylococcus Toxoid. C. E. Dolman—p. 306  
Wisdom Teeth and Their Complications. C. B. Henry—p. 313  
The Deaf Mute. Plea for Early Treatment. P. Franklin—p. 316  
\*Diabetes Mellitus and the Pituitary Gland. Case of Diabetes with Inter-current Pituitary Lesion and Concomitant Improvement of Diabetes. A. Lyall and J. A. Innes—p. 318  
Carcinoma of Stomach with Multiple Secondary Deposits in Colon. T. P. Lawrence and G. H. Steele—p. 321

**Diabetes Mellitus and the Pituitary Gland—**Lyall and Innes cite a case of diabetes mellitus which, they believe, illustrates that pituitary lesions and probably most definitely those of the anterior lobe exert a marked influence on carbohydrate metabolism and shows the result of a complicating pituitary lesion in a well established case of true pancreatic diabetes. The manifestations may be slow and rather indefinite in the presence of a healthy pancreas but are more dramatic when true pancreatic diabetes already exists. It would be extremely important to observe the effect of pituitary lesions, whether natural or produced in well established diabetes in man. Marked improvement has taken place in the diabetic condition concurrently with the development of a pituitary lesion. The patient's condition is considered to be clinically analogous to that of an experimental animal in which both the pancreas and the pituitary are destroyed.

### Medical Journal of Australia, Sydney

1 75 102 (Jan. 19) 1935

- Treatment of Septic States Associated with Pregnancy. R. Magarey—p. 75  
Some Aspects of Pathology of Pulmonary Tuberculosis and Impressions of Surgical Treatment Abroad. E. L. Cooper—p. 83

1 103 132 (Jan. 26) 1935

- Diagnosis of Intracranial Tumors. R. M. Downes—p. 103  
The White Man in the Tropics. A. C. Price—p. 106  
Hypotension. W. E. Fisher—p. 110  
\*Experimental Reinnervation of Paralyzed Bladder. H. C. Trumble—p. 118

**Reinnervation of Paralyzed Bladder—**Trumble describes certain experiments on dogs in the course of which a pelvic nerve was divided and its distal segment anastomosed to the proximal segment of either the divided hypogastric nerve or the obturator nerve. The fibers of the donor nerve grew into the distal segment of the pelvic nerve and reached the bladder. Stimulation of the regenerated fibers caused the bladder musculature to contract. In the case of the hypogastric nerve, fibers belong to the sympathetic nervous system, while those of the obturator nerve belong mainly to the voluntary nervous system. The pelvic nerve forms part of the parasympathetic system. This effect on the bladder of stimulation of the regenerated fibers resembled in type that obtained in stimulation of the

normal pelvic nerve. The effect was much better and more certain when an obturator nerve was used than when a hypogastric nerve was employed as the donor nerve. Examination of the branches of the pelvic plexus to the bladder showed that after a successful anastomosis these contained well formed medullated fibers. When the obturator nerve was used as the donor, the fibers were much larger than those seen normally in the twigs to the bladder. The fact that motor effects were observed in the bladder musculature following stimulation of the regenerated nerves cannot be taken as proof that the new mechanism is capable of subserving satisfactorily the act of micturition. After division of both pelvic nerves, dogs in time usually manage to void urine more or less satisfactorily. The fact that the animals in the author's series voided efficiently cannot be taken as evidence that the regenerated nerves had anything to do with it. If in a human being the obturator nerve should be employed as the donor, the subject would possibly be able voluntarily to initiate contractions of the bladder musculature that would serve to expel urine from the bladder. He discusses the indications and contraindications for attempting some such nerve anastomosis in a human being.

### Practitioner, London

134: 121 248 (Feb.) 1935

- Diagnosis of Chronic Rheumatic Conditions W. Wilcox—p. 121  
Fibrositis Lumbago and Sciatica C. W. Buckley—p. 129  
Institutional Methods in Treatment of Chronic Rheumatism M. B. Ray—p. 147  
Spa Treatment of Chronic Rheumatic Conditions G. Holmes—p. 159  
Chronic Rheumatic and Rheumatoid Conditions in Children E. C. Warner—p. 170  
Latent Sepsis and Its Manifestations W. H. Ogilvie—p. 179  
Diagnosis and Treatment of Acute Pericardial Disease K. S. Smith—p. 194  
Hyperpiesia G. E. F. Sutton—p. 205  
Salpingitis and Its Treatment J. A. Mackenzie—p. 217  
Favorite Prescriptions II The Pharmacopeia of the London Hospital C. Wall—p. 226

### South African Medical Journal, Cape Town

33 64 (Jan. 26) 1935

- Some Mistakes I Have Made C. P. Theron—p. 35  
Insomnia S. Berman—p. 37  
Internal Pneumolysis T. Schrire—p. 41  
Modern Methods in Diagnosis I. Accessory Diagnostic Methods in Pulmonary Conditions Other Than Tuberculosis A. M. Moll—p. 43

### Tubercle, London

16: 193 240 (Feb.) 1935

- \*Actinotherapy at Tuberculosis Dispensary G. Jessel—p. 193  
Some Remarks on Influence of Climate in Treatment of Pulmonary Tuberculosis O. Országh—p. 201  
Technic of Pirquet Test Note G. G. Kayne—p. 205  
Principles of Activity of Tuberculous Processes A. K. Krause—p. 208

**Actinotherapy at Tuberculosis Dispensary**—Jessel gives the results of treatment in 439 cases of nonpulmonary tuberculous conditions, especially lupus and cervical adenitis, mainly by the use of carbon arc and mercury vapor lamps. Of these patients, 281 were discharged as having the disease in the quiescent form and apparently well. These included seventy-five cases of lupus and scrofuloderma and 182 cases of adenitis, i. e. 91 and 98 per cent respectively of those in the groups who completed a course of treatment. Sixteen were improved and in five cases the condition was stationary. Ninety-seven patients did not complete a satisfactory course of treatment but the condition of most of them was improved. Forty-six patients who were discharged as having the disease in the quiescent form and apparently well received additional periods of light treatment. A return to treatment is sometimes necessary, as relapses are apt to occur whenever any undue strain upsets the balance between a patient's resistance and the bacilli that are lying dormant. Actinotherapy is not a specific cure for tuberculosis, but it does serve in most cases to raise a patient's resistance, thereby enabling him to overcome the disease or to keep it in check. In lupus there is direct action of the rays on the diseased skin, when the Kromayer lamp is used. The interval between the cessation of treatment and the beginning of subsequent treatment in the case of lupus and adenitis with softening was twenty-three months, while for adenitis without softening it was fifteen months.

### Presse Medicale, Paris

43 257 280 (Feb. 16) 1935

- Gastric Secretion in Gastrectomized Patients Merklen L. Israel and F. Froehlich—p. 257  
Galega in Treatment of Diabetes G. Parturier and G. Hugonot—p. 258  
\*Partial Flutter and Fibrillation O. Ferreira—p. 260

**Partial Flutter and Fibrillation**—Ferreira discusses a group of patients in whom the electrocardiogram reveals a disorder of the auricular mechanism but which is neither true fibrillation nor true flutter. In some cycles the P wave is absent, but it is present in others. This type of disorder can be well treated, he believes, by administration of digitalis followed by quinidine. Subjective phenomena as well as the electrocardiographic abnormalities usually return to or near normal.

### Pediatrics, Naples

43: 249 360 (March 1) 1935

- \*Conjunctival Symptoms of Measles with Particular Attention to Period of Incubation Observation and Clinical Examinations G. De Toni, F. Caramazza and G. Puglisi Duranti—p. 249  
Epidemic Differences of Diphtheria Studied in Contagious Disease Hospital of Milan from 1905 to 1932 F. Pontieri—p. 215  
Distribution of Blood Groups in Campania V. Moricca—p. 288  
Glycemia in the New Born U. Ferri and E. Giudilli—p. 298  
Heliotherapy and Results in Marine Colonies G. la Torre—p. 306

**Conjunctival Symptoms of Measles**—De Toni and his co-workers examined directly and by means of the corneal microscope and the fissure lamp the conjunctival mucosa of forty-six children having measles. Subepithelial nodules were observed on the inferior tarsal conjunctiva of thirty-eight of the children. Characteristics of the nodules were their site of predilection, limited number, oval form, opal color surrounding red zone and particularly the rapidity of their evolution. They are most apparent during the incubation period of the disease. They grow in size until eruption occurs, after which they become scarcely visible because of intense conjunctival congestion and finally disappear. These characteristics distinguish the nodules from those of any other known form of conjunctivitis. The majority (87 per cent) of the children exposed to the contagion but not contracting the disease did not develop any nodules, but a few did. Several hypotheses are suggested to explain this paradox. The principal one is that the nodules represent a reaction to the virus of measles, not, however, absolutely specific. The authors state in conclusion that measles and other infections may sometimes give only a local reaction instead of the general disease in immunized or refractory subjects.

### Policlinico, Rome

42 301 364 (Feb. 25) 1935 Practical Section

- Simultaneous Bilateral Pneumothorax in 1933 and 1934 M. Lucacer—p. 301  
\*Aspecific Primary Peritoneal Serositis and Acute Abdominal Disorders. S. Solieri—p. 308  
Complete Bilateral Duplication of Ureters and Renal Pelvis. G. Zappalà—p. 316

**Peritoneal Serositis and Acute Abdominal Disorders**—Solieri says that there is a form of influenzal primary peritoneal serositis simulating acute conditions of the abdomen. Its symptoms are those of influenza, followed by an abdominal crisis with marked pain at the cecal or sigmoid region, fever, and urinary and other disturbances. The study of serous membrane, taken by biopsy, proved that there is noticeable hyperemia of the parietal and visceral peritoneal layers and either a diffuse peritoneal effusion of yellow fluid or foci of exudates at the right or left segments of the colon. Laparotomy with absorption of the fluids by means of absorbent gauze and direct treatment of the serous membrane with 20 or 30 cc. of a solution of colloidal silver has a rapid resolute action on the abdominal symptoms, which recede immediately after the operation until complete disappearance within four to eight days. At the end of the disease a short period of diarrhea appears. There are no postoperative complications. An associated treatment with salicylates, quinine and caffeine and intramuscular injections of a solution of colloidal silver has a beneficial action on the influenzal and general symptoms, which disappear shortly after the abdominal symptoms. The knowledge of this special reaction of the peritoneal serous membrane to influenza is of great importance in the differential diagnosis of acute conditions of

the abdomen and also in the prevention of abdominal adhesions and perivisceritis, which may result in grave cases if the operation is not performed at an early date. The nine cases reported by the author were observed during an epidemic of influenza

### Semana Médica, Buenos Aires

42 557-636 (Feb 21) 1935 Partial Index

- Stellectomy J A Caero—p 557  
Symphysiotomy in Dystocia Due to Disproportion of Fetal Head Case M V Falsa—p 606  
Tuberculous Adnexitis Diagnosis D F Lima and R F Carlino—p 609  
\*Volume of Blood in Circulation in Acute Pulmonary Conditions E Levin—p 611  
Surgical Treatment in Articular Fractures P Gómez Cello and C E Hosch—p 625

**Quantity of Blood in Circulation in Pneumonia—**Levin made determinations of the amount of blood in circulation, by the trypanoth method in twenty-one patients suffering from pneumonia or bronchopneumonia. The determinations were made during the febrile stage in fourteen patients of the group and both during and after the febrile stage in the remaining seven. The quantity of circulating blood increases during the crisis and returns to normal values at the disappearance of the disease, in cases of moderate intensity. Both the plasma and the globules of the blood increase. The increase of the plasma seems to be due to a displacement of the  $pH$  of the blood toward the acid side (with a diminution of the alkali reserve), while the increase of the globules seems to originate in a defective oxygenation of the blood. In grave forms of pulmonary diseases the quantity of blood in circulation is either normal or slightly subnormal. It does not fall, however, to extremely low values even in cases complicated by collapse or in the agonal stage. The amount of blood in circulation was noticeably increased in the agonal stage in a case observed by the author.

### Archiv für Kinderheilkunde, Stuttgart

104 129 192 (Feb 19) 1935

- Modern Diagnosis and Treatment of Whooping Cough H Bischoff—p 129  
\*Treatment of Dysentery with Extract of Posterior Lobe of Hypophysis E Barla Szabo—p 134  
Cutaneous Manifestations in Pulmonary Disturbances in Children and Their Relation to Diagnosis and Prognosis E Mayerhofer and N Skrivaneh—p 137  
Subacute Renal Amyloidosis That Simulated Hypochloremic Azotemia Case P von Kiss and E Kerpel Fronius—p 158

**Extract of Posterior Lobe of Hypophysis in Treatment of Dysentery—**According to Barla-Szabo, the nonspecific symptomatic treatment of dysentery has the aim to reduce the inflammation and the pathologic secretion of the intestinal mucous membrane and to counteract colic and tenesmus. That the extract of the posterior hypophysis reduces inflammatory and secretory processes is known from its therapeutic action in various exanthematous cutaneous changes, but in inflammatory disturbances of other organs this action has not yet been made use of, although it has been determined in animal experiments. The author decided to use the extract of the posterior lobe of the hypophysis to counteract the sanguinolent and purulent stools. He administered it twice or, in severe cases, thrice daily by subcutaneous injection. He treated eight nurslings (from 4 to 12 months old) and eleven children from 1 to 10 years of age. In all these children the dysentery was rather severe, that is they had frequent sanguinolent or purulent stools and their temperature was considerably increased. In five cases the dysentery assumed a toxic character and four of these had a fatal outcome, but even in the fatal cases the blood disappeared from the stool following the administration of the extract. In nurslings the treatment was begun with a dose of castor oil. After that nothing except tea was given for twenty four hours, and then rice gruel. On the third day the feeding was continued with rice gruel and with whey in which from 1 to 3 per cent of flour had been cooked. Breast milk or buttermilk was not given until the fourth day. The injections with the pituitary extract were begun twenty-four hours after the castor oil had been administered and they were continued until the stools became more formed and their blood content lessened. With the exception of one case, this was always accomplished in four days or less. In the children the treatment was similar to that

of the nurslings, except that raw grated apples were given after the tea pause. The extract of the posterior hypophysis influences the inflammatory process, the intestinal secretion and the peristalsis, but it also exerts a favorable effect on the circulation and on the storage of fluid in the tissues. These many points of attack made the extract an ideal symptomatic remedy.

### Deutsche medizinische Wochenschrift, Leipzig

61 285 324 (Feb 23) 1935 Partial Index

- Morbidity of Leukemia Particularly in Higher Age Groups H Curschmann—p 285  
\*Experiences with Widmark's Method in Determination of Alcohol in Blood C Hegler—p 288  
Decisive Significance of First Roentgenogram for Recognition and Estimation of Necrosis of Lunate Bone H Faust—p 291

**Determination of Alcohol in Blood—**Hegler asserts that in case of correct withdrawal of the blood specimen and, provided the chemical analysis is done carefully, Widmark's method is reliable. However he admits that in many cases the results of the chemical tests are insufficient without a more exact knowledge of the time and quantity of the alcohol consumption and the clinical manifestations of the alcohol action. He emphasizes that in the practical application of the test the proper preparation of the tubes used is of great importance. Three tubes are necessary for each test, and it is advisable to keep prepared tubes on hand. According to Widmark's rules, they should be prepared with a solution containing 50 Gm of distilled water, 50 Gm of methyl alcohol, 1 Gm of potassium oxalate and 0.5 Gm of potassium fluoride. The blood specimen should be withdrawn as soon as possible but not sooner than ninety minutes after the drinking of the alcohol. The time of withdrawal should be carefully noted. The tip of the finger or the lobule of the ear is carefully cleansed with a 0.1 per cent solution of corrosive mercuric chloride and wiped with dry sterile cotton. Alcohol, ether, solution of phenol or other volatile organic fluids cannot be used for disinfection of the skin. The author points out that the traffic ordinances prohibit the driving of a motor vehicle by persons who are under the influence of alcohol. For this reason it is important to determine the alcohol content of the blood in case of motor vehicle accidents. In the practical application of the test, the author found that, if the alcohol content of the blood is 0.2 per cent or more, the person is strongly under the influence of alcohol, and even 0.16 per cent makes this quite certain in at least 80 per cent of the cases. He admits that in alcoholic addicts or in persons who have been under the influence of alcohol for several days the alcohol content of the blood is frequently rather low. Persons with delirium tremens often have surprisingly low values. Moreover, the acetone content of the blood may simulate an alcohol content. Nevertheless, the author thinks that in spite of some shortcomings, the test has a distinct value in forensic medicine.

### Klinische Wochenschrift, Berlin

14 257 288 (Feb 23) 1935 Partial Index

- \*Influence of Diet Deficient in Sodium Chloride on Inflammation S Markees—p 260  
Studies on Allergic Disease Factors Eliciting Allergic Diseases F E Haag—p 264  
\*Cirrhosis of Liver and Tobacco F Lickint—p 270  
Pathologic Excretion of Sex Hormone in Case of Dysmenorrheal Dermatitis E Urbach and S Kitamura—p 271  
New Method for Recording Electrocardiogram in Three Leads with Two Amplifiers G Kayser—p 274

**Diet Deficient in Sodium Chloride, and Inflammation—**It was Markees' aim to find a method to determine quantitatively the influence of a salt-free diet on the inflammatory reaction and whether the antiphlogistic action of the restriction of the sodium chloride intake can be proved clinically experimentally. He succeeded in demonstrating experimentally the antiphlogistic action of a diet deficient in sodium chloride. He intentionally restricted the investigation to the sodium chloride action as such, and he did not consider whether it is the restriction of the sodium chloride intake that enables the calcium to exert its antiphlogistic action, whether the sodium ion is alone responsible for the change in inflammation or what part is played by all the other cations and anions in the process of inflammation. The solution of these problems would necessitate numerous other tests. The method employed by him determined the ratio of the sugar content of the bladder and of the blood

This method makes possible the detection of the smallest variations in the intensity of inflammation. This ratio was determined before the salt-free diet was introduced, at the time when the effects of the salt-free diet had reached their maximum and during the time when the salt-free diet was again changed to a normal diet. The curve plotted on the basis of the results of these tests indicates the course of the inflammatory reaction. The test was made on thirty patients, and it was found that under the influence of the salt-free diet the severity of inflammation becomes reduced. That this reduction is the result of the restriction in the sodium chloride intake is proved by the fact that after a return to the normal diet the severity of the inflammation increases again. Another advantage of these tests is the fact that they provide the possibility of connecting a definite idea and meaning with the often used and misused term "umstimmung" (alteration of reaction), for a change in the tendency to inflammation can doubtlessly be considered one form of an alteration of the reaction.

**Cirrhosis of Liver and Tobacco**—Lickint cites experiments indicating that tobacco is an important contributing factor in the development of cirrhosis of the liver. He thinks that in case of a beginning hepatic cirrhosis, when a change in the diet and an altered mode of life are prescribed, the patient should be urged to discontinue the use of tobacco. In advanced, hopeless cases however, it would be useless to deprive the patients of it. On the other hand it is advisable to give the liver especial attention in all persons strongly addicted to the tobacco habit. Slight enlargement of the liver, its sensitivity to pressure and urobilinuria are symptoms that are quite often manifest in strong smokers of middle age. The author thinks that this is probably due to the fact that the liver is the site of detoxication. Moreover, it has been found that these symptoms disappear when the abuse of tobacco is discontinued. The author admits that tobacco is an etiologic factor only in some of the cases of hepatic cirrhosis; nevertheless, it would be wrong to disregard entirely the part played by tobacco in the development of this disease.

### Medizinische Klinik, Berlin

31: 265-300 (March 1) 1935 Partial Index

\*Oral Infection with Lymphogranuloma Inguinale R. Bezecky and F. Sagher —p. 270

Primary Lymphogranulomatosis of Lung Case II W. Sachs —p. 271  
Origin of Pulmonary Edema and of Vagus Pneumonia F. Grogler —p. 274

\*Multiple Sclerosis a Metatuberculosis II Gerhartz —p. 280

**Oral Infection with Lymphogranuloma Inguinale**—Bezecky and Sagher relate the history of a man aged 46, who four weeks previous to obtaining medical aid developed an ulceration of the tongue and a week later a swelling of the lymph nodes of the left side of the neck. The primary lesion and the involvement of the regional lymph nodes made a syphilitic infection likely, but the tests for syphilis gave negative results, while the Frei test was positive. The anamnesis disclosed that the patient had had intercourse with a woman who four years before had a disorder of the inguinal lymph nodes. It appears that a bubo had developed, had become soft and was incised. The localization of the lesion in the man corresponded to the anamnestic statements about the type of intercourse. In the conclusion the author emphasizes that caution is necessary in declaring a patient with lymphogranuloma inguinale cured, for in this instance the woman was apparently cured, and she again became a source of infection four years later.

**Multiple Sclerosis a Metatuberculosis**—Gerhartz observed a relationship to tuberculosis in fifteen cases of multiple sclerosis that is in all cases examined for such a connection. The specific tuberculosis reaction according to Besredka was positive in the blood of nearly all these patients in spite of the fact that there existed no clinical manifestation on the basis of which a positive reaction could have been expected for as a rule, the reaction is positive only in active tuberculosis. Even in the two cases in which the test was negative it was possible to demonstrate a predisposition to 'inflammatory tuberculosis'. However, the author considers that the positive outcome of the specific test for tuberculosis in the cerebrospinal fluid of a patient with multiple sclerosis is the most convincing proof of the metatuberculous character of multiple sclerosis.

### Münchener medizinische Wochenschrift, Munich

82: 283-324 (Feb. 21) 1935 Partial Index

\*What Factors Determine Prognosis of Carcinoma? A. Hintze —p. 283

\*Strophanthin in Treatment of Angina Pectoris, II Zimmermann —p. 286

Takata Reaction in Renal Diseases A. Jezler —p. 289

\*Diagnosis of Latent Phlebitis in Lower Extremities C. L. Schmidt —p. 290

Abnormal Body Structure and Congenital Ectopy of Lens F. P. Weber —p. 291

\*Physiologic Therapy of Angina Pectoris by Means of Musculo-Adenosinephosphoric Acid W. Sommer —p. 292

**Prognosis of Carcinoma**—Hintze points out that the further course can be foretold with considerable certainty in carcinoma, while prognosis is extremely difficult in sarcoma. Carcinoma grows slower and more regular than sarcoma, and the author thinks that this difference in the two types of tumor is the result of their different origins, carcinoma deriving from epithelial and sarcoma from mesenchymal tissues. The author emphasizes that carcinoma begins always as a local disease focus. The prognosis is primarily dependent on the size and the extension the growth has reached before the patient consults a physician and submits to adequate treatment. Other factors that are important for the further course are the localization, the type of growth and the histologic character of the tumor, but also the patient's age and his general constitution. The treatment must take account of all these factors and, in selecting the most suitable method, must aim at a complete removal of the tumor. The control examination by the physician at regular intervals is likewise highly important for a favorable prognosis.

**Strophanthin in Treatment of Angina Pectoris**—Zimmermann shows that the introduction of strophanthin into the treatment of angina pectoris produced a great change in the treatment of this much feared disorder. Strophanthin makes it possible to reduce the danger from attacks, and, even in a patient in whom the primary disease progresses, it is possible to produce a condition that will enable him to be fairly comfortable. The patient's dependence on syringe and physician represents a disadvantage. The fear that the early use of strophanthin would result in habituation, so that in case of real danger the heart would not respond to the treatment, is unjustified, because habituation to digitalis bodies is unknown. Moreover, strophanthin is not the most powerful remedy but the most suitable for these cases and its early use prevents a great danger.

**Diagnosis of Latent Phlebitis in Lower Extremities**—Schmidt states that Meyer's report on deep-seated phlebitis as an example of a focal infection and as a causal factor in rheumatism induced him to study the problem of latent phlebitis. As indicated by the term latent the symptomatology is rather scanty, but the author found that the determination of the pressure points described by Meyer is a valuable aid in the diagnosis. To detect these pressure points, the patient should be lying on the back with the knees bent in such a manner that the musculature is completely relaxed. The examiner should grasp the lower part of the leg with the entire hand and press with the thumb from below the posterior tibial vein against the median edge of the tibia. In the middle portion of the leg this pressure is exerted in the same manner directly beside the edge of the tibia and in the upper third two fingerbreadths from the median edge of the tibia. If areas of muscular hardness should be present along the course of the posterior tibial artery, this is of differential diagnostic significance, but the author thinks that it is probably a rare occurrence. Symptoms highly important for the differentiation of latent phlebitis and muscular myogelosis are the exactly contradictory disturbances during walking and standing. In myogelosis walking increases the pain, while in latent phlebitis walking eases the discomfort and the pains are most severe when the patient is standing. In doubtful cases it is better to assume the existence of a latent phlebitis, for the bandages that are applied for the treatment of latent phlebitis have no harmful effect on a possible myogelosis while massage given in case of a myogelosis would be decidedly harmful for a latent phlebitis. The author admits that the pressure points may be present also in cases of thrombo-angitis obliterans but he thinks that in the more advanced stages of this disorder the differentiation will make no difficulties.

**Therapy of Angina Pectoris**—Sommer is of the opinion that muscular adenosin phosphoric acid is a substance that presents the formerly so-called cardiac hormone preparations in pure form. When this substance was administered in adequate dosage, the results were much better than those produced by the older preparations. Animal experiments disclosed that the intramuscular injection of muscular adenosin phosphoric acid produces a prolonged increased blood perfusion of the coronary arteries and consequently a better oxygen supply for the cardiac muscle. The author's clinical observations indicate that as a physiologic therapeutic agent of angina pectoris the preparation gives good service.

### Wiener Archiv für innere Medizin, Vienna

26:1160 (Dec 10) 1934 Partial Index

- Symptomatology and Early Diagnosis of Syphilis of Aorta H Schlesinger—p 1  
Role of Thoracic Wall in Percussion Sound Complex H von Putkowszky—p 29  
\*Functional Disturbances of Liver in Chronic Hepatitis (Cirrhosis of Liver) A L. Mjassnikow—p 69  
Metabolic Hormone and Insulinogenic Substance of Anterior Lobe of Hypophysis O Steppuhn—p 87  
\*Problems in Treatment of Diabetes Insipidus with Extract of Posterior Lobe of Hypophysis F Mainzer—p 101

**Functional Disturbances of Liver**—Mjassnikow shows that the infectious, toxic disturbances of the liver, which are usually referred to as cirrhosis, can be classified in two groups: the forms in which a number of functional disturbances exist (disorders of bile secretion and of the protein and lipid metabolisms) and the forms in which such disturbances are not present. It can be observed that the chronic hepatitis with hepatic insufficiency are etiologically related to processes in which the epithelial tissues of the liver are the object of the toxic action (acute hepatitis, alcoholism and syphilitic intoxication), whereas the chronic hepatitis without hepatic insufficiency are etiologically related to processes localized in the interstitial hepatic tissue (gummatous syphilis, tuberculosis, periangiocolitis). Thus chronic hepatitis with hepatic insufficiency is the result of an involvement of the hepatic parenchyma (chronic parenchymatous or epithelial hepatitis) while hepatitis without functional disturbances is the result of a disorder of the interstitial tissues of the liver (chronic interstitial or mesenchymal hepatitis). In some cases of interstitial hepatitis, changes in the epithelial cells of the liver may develop later and these changes are then accompanied by functional disturbances on the part of the liver. It is essential to differentiate the different stages of the disease process in the clinical pictures of the various forms of hepatic disorders. During the first stage the degenerative or inflammatory processes predominate and during the second stage the increase in the connective tissue of the liver reaches a considerable degree. The icterus that develops in hepatic cirrhosis is a manifestation of an impairment of the liver cells.

**Extract of Posterior Hypophysis in Treatment of Diabetes Insipidus**—Mainzer discusses the problems encountered when diabetes insipidus is treated by the nasal administration of the extract of the posterior hypophysis. He obtained favorable results in five cases in which the hypochloremic disturbances predominated. In order to measure the efficacy of the extracts, the so-called water equivalent was introduced. The water equivalent is that quantity of fluid by which the fluid exchange is reduced under the influence of one Voegtlin unit for each kilogram of body weight. It is best to administer quantities of extract that are just adequate to effect complete compensation that is, an amount which if decreased would result in an increase of the fluid exchange but if increased would cause no further reduction in it. This amount fluctuated in the author's cases between 0.2 and 35 cc. per kilogram of body weight. Even in the same patient, various amounts of extract may be required at different times. There are cases in which the efficacy of the extract is comparatively slight but complete inefficacy was never observed. The quantities of extract varied between 50 and 280 Voegtlin units that is, the doses were several times as large as in parenteral administration. The administration of the required doses caused no undesirable complications. However if the dose becomes excessive drawing pains in the head and dizziness may result. In two cases the author observed that the establishment of medicinal

compensation resulted in a considerable loss in weight, whereas the disturbance was accompanied by a fluid storage up to 5 Kg. This contradicts the widely held opinion that in diabetes insipidus a dehydration exists which explains the feeling of thirst. If the extract is administered through the nose, the thirst becomes reduced in from ten to fifteen minutes and, after compensation has been established, this effect of the extract persists for from eight to ten hours, following cessation of the medication. After prolonged nasal administration there often results an irritation of the nasal mucous membrane which makes the preparation ineffective, however, a pause in the medication often reestablishes the former condition. Prolonged treatment may improve the diabetes mellitus, in that gradually smaller quantities suffice to produce compensation.

### Wiener klinische Wochenschrift, Vienna

48:193-224 (Feb 15) 1935 Partial Index

- Pathogenesis of Lupus Erythematosus O Kren—p 193  
\*Histamine and Inflammation H O Loos—p 196  
Pseudoxanthoma Elasticum and Angioid Streaks in Fundus Oculi A Matras—p 198  
Bone Formation in Skin Nonmetaplastic Ossifications A Musger—p 200  
Fate of Malignant Alopecias G Nobl—p 205

**Histamine and Inflammation**—According to Loos it is generally believed that the inflammatory reaction is due to substances formed in the irritated or damaged tissues. These substances, similar to the hormones, are formed only in minute quantities. They differ from hormones in that their formation is not dependent on special organs but they may develop in all tissues. Histamine seems to play an important part in these tissue hormones and it was the author's aim to demonstrate the presence of histamine-like substances in the focus of inflammation. His studies disclosed a considerable increase in the histamine-like substances. At any rate, he considers it probable that a close relationship exists between histamine and inflammation.

48:225-256 (Feb 22) 1935 Partial Index

- Pathogenesis and Treatment of Anemia Naegeli—p 225  
Pyelitis During Pregnancy H Kamniker—p 229  
\*Water Wheel Murmur as Symptom of Air Embolism of Right Heart in Artificial Pneumothorax E Hirsch and G Sausser—p 232  
Method of Thrombocyte Count and Its Practical Use Particularly in Diagnosis of Carcinoma K Noeff—p 235

### Water-Wheel Murmurs and Artificial Pneumothorax

—Hirsch and Sausser give the histories of two patients in whom water wheel murmurs developed during artificial pneumothorax therapy. In the first case the murmur was the result of the bursting of a superficial, thin walled cavern into an artificial pneumothorax. The cavity collapsed only partly, because two strands of adhesions stretched it upward and outward. Ten days later during a severe attack of coughing, the patient had the feeling as if something were torn in the chest and after that the water-wheel murmur was perceptible. The author thinks that in the course of the attack of coughing the pressure within the bronchial system connected with the uncollapsed cavity increased to such an extent that it burst into the pneumothorax space. Thus a valvular pneumothorax was formed, the pressure of which increased with every breath. It cannot be doubted that the bursting of the wall of the cavern resulted in the rupture of blood vessels. These ruptured vessels sucked up air from the pneumothorax space, and the blood stream carried the air into the right side of the heart where the water-wheel murmurs were elicited. Since apparently a large amount of air had entered the right side of the heart air was forced also into the lung and under growing dyspnea death finally resulted. In the second case it is probable that a thoracic vein was injured by the pneumothorax puncture and that the violent movements of the patient during an attack of coughing opened the injury and air entered either from the newly formed pneumothorax or from the pneumothorax apparatus. The air reached the right side of the heart, where the water-wheel murmur was then formed. Since symptoms of air embolism developed at the same time and since later a hemiplegia developed air must have entered also into the left side of the heart and thus into the arterial portion of the circulation. In this case the phenomenon terminated after from fifteen to twenty minutes. The authors conclude that these two cases prove with certainty that the water-wheel murmur develops in the right side of the heart.



**Zentralblatt für Gynakologie, Leipzig**

59 369-432 (Feb 16) 1935 Partial Index

- Experiences with Resection of Presacral Nerve According to Cotte's Method J Novak—p 371  
Therapy of Leukorrhea H Rosch—p 380  
Drugs Valuable in Gynecology, Particularly Emmenagogues W Ripberger—p 396  
\*Surgical Technic for New Formation of Vagina J Pribrsky—p 403

**Artificial Formation of Vagina**—Pribrsky employs for the artificial formation of the vagina the method suggested by Kirschner and Wagner in the *Zentralblatt für Gynakologie* (54 2690 [Oct 25] 1930, abstr THE JOURNAL Jan 31, 1931 p 399), but he thinks that the rubber sponge prosthesis used by those authors has disadvantages and should be replaced by a better one. He describes and illustrates a new prosthesis covered by an india rubber mantle presenting the following advantages: 1 It effects good adherence of the transplant to the wall of the prepared canal and controls the pressure that is exerted on the transplant. 2 It insures satisfactory discharge of the secretion. 3 The danger of infection is reduced and sterilization of the prosthesis is easy. 4 The length of the prosthesis is adjustable. 5 Its introduction and removal are simple. 6 The author thinks that the prosthesis could perhaps be used also for maintaining and dilating a canal which has been prepared by other methods than that of Kirschner and Wagner.

59: 433-480 (Feb 23) 1935

- New Observations on Structure of Human Placenta H Stieve—p 434  
Rupture of Vessel of Umbilical Cord During Delivery J Pahl—p 446  
Hematoma of Umbilical Cord Case W Neuweiler—p 450  
Polyneuritis Following Septic Abortion J Heller—p 454  
\*Treatment of Vomiting of Pregnancy by Means of Adrenal Cortex Extract W Stemmer—p 456  
Pathogenesis and Therapy of Eclampsia B Archangelski—p 458  
\*Allergic Theory of Pregnancy Toxicoses B Jegorow—p 465

**Treatment of Vomiting of Pregnancy**—Stemmer followed the suggestion of Kemp and treated women who during pregnancy were troubled with attacks of vomiting, by giving them intramuscular injections of adrenal cortex extract. He administered daily up to three ampules (1 cc. each). In the milder cases of nausea and vomiting he gave the injection during the consultation hour, but the more severe cases were hospitalized. The length of time during which the adrenal cortex therapy has to be continued varies in the different cases. Psychotherapy was omitted whenever adrenal cortex extract was administered, and yet several cases presenting psychotic symptoms responded favorably. The author cites the case of one woman who complained of indistinct pains in the right thigh, which proved refractory to several therapeutic measures but finally disappeared when the adrenal cortex extract was given because nausea and vomiting had set in. He is unable to explain the appearance or the disappearance of the pains, but he points out that in Addison's disease painfulness of the lower extremities has been noted. He also observed a case of general debility and pains in the joints and in the back, in which all these symptoms disappeared after treatment with adrenal cortex extract. He assumes that there may be several forms of adrenocortical insufficiency or several hormones of the adrenal cortex. According to some investigators, cevitic acid is an active principle of the adrenal cortex. In trying to explain the mode of action of adrenal cortex extract in the vomiting of pregnancy, the author suggests that during pregnancy the blood cholesterol is increased and that this is probably the result of a greater fat metabolism. He points out that Anselmino and Hoffmann ascribe the vomiting of pregnancy as well as acetone vomiting of children and adults to an increased elimination of the anterior hypophyseal hormone of the fat metabolism. It seems that the increased secretion of this metabolic hormone is counteracted by adrenal cortex extract. In view of this theory, it would perhaps be justified to try adrenal cortex extract also in acetone vomiting.

**Allergic Theory of Toxicoses of Pregnancy**—Jegorow maintains that the changes which the organs and tissues undergo during pregnancy are an allergic reaction to the fetus and its membranes. The pregnant woman receives parenterally during her nine months of pregnancy increasing doses of protein and other substances that originate in the fetus, its membranes and the placenta. In response to this, the pregnant organism becomes sensitized. The early and late toxicoses of pregnancy

develop not as a result of an intoxication with the waste products of the fetal metabolism but because the organism of the pregnant woman produces an allergic reaction in response to these substances. The allergic theory of the toxicoses of pregnancy is corroborated by the fact that it was possible to produce in pregnant women positive allergic skin reactions and immunobiologic allergic reactions. The author thinks that, in addition to the symptomatic treatment of the toxicoses of pregnancy, a causal therapy, a desensitization, should be tried. He thinks that the efficacy of the dietetic treatment of the toxicoses of pregnancy, particularly of eclampsia, is due to the fact that the dietetic treatment represents a desensitization.

**Vestnik Khirurgu, Leningrad**

35 1316 (Nos 101-102) 1934 Partial Index

- \*Radical Intervention for Tuberculosis of the Hip Joint Thirty Three Cases V S Gelikonova—p 26  
Extra Articular Arthrodesis in Tuberculous Coxitis V V Khrenikov—p 34  
Surgical Treatment of Cold Abscesses S D Volova—p 40  
\*Evaluation of Operative Treatment of Syringomyelia A S Yuzhevskiy—p 111  
Curettement of Bone and Joint Tuberculous Fistulas I B Oleshkevich—p 135  
Osteomyelitis of Symphysis Pubis in Children V A. Shurm—p 139

**Radical Intervention for Tuberculous Coxitis**—The conservative treatment of tuberculous coxitis, according to Gelikonova, is frequently inadequate in bringing about complete healing of the local process and restoring the working capacity of the patient. On the other hand, extensive resections at the height of the disease aggravate rather than improve the results. The proposition advanced by Professor Korney that the conservative treatment of tuberculous gonitis be followed by radical removal of localized lesions of the joint is likewise applicable to tuberculous coxitis. Such interventions are applicable to older children not as an extreme measure but as the last step at the end of conservative treatment. Persistent preoperative as well as postoperative treatment is obligatory. There were no fatalities resulting from the thirty three radical interventions for quiescent tuberculous coxitis. Exacerbation or extension of the local process has not been observed in any of the twenty-two discharged patients. Gravitation abscesses must be emptied and in isolated stubborn cases may be extirpated in the course of the operation before the joint is opened. Arthrectomy and periarticular osteoplastic arthrodesis are useful supplements to resection.

**Operative Treatment of Syringomyelia**—According to Yuzhevskiy, Poussep's operative treatment of syringomyelia consists of laminectomy, exposure of the meninges of the cord and establishment of communication between the central canal of the cord and the subarachnoid space. The incision in the cord is made lateral to the posterior commissure. The mechanism of action is not clear. Poussep's concept that it diminishes the pressure within the central canal is not borne out by comparison of clinical symptoms and postmortem observations. Direct manometric observations demonstrate that the pressure in the syringomyelic portion of the canal as well as in the corresponding subarachnoid space is within normal limits. On the basis of their own twenty-three cases (E. P. Gesse's clinic, Leningrad) and eighty-one cases reported in the literature, the author considers the immediate results of the Poussep procedure generally beneficial. Complete cure has never been observed, the improvement being limited to some of the symptoms. The improvement obtained was not greater than that observed with conservative measures or even from a temporary rest from occupation. The improvement from the operation of syringomyelostomy is not permanent. It terminates in the majority of the cases after a few months or weeks. The operation does not arrest the progress of the disease. Numerous manometric observations on the pressure of the cerebrospinal fluid of the involved portions of the cord and of the corresponding subarachnoid area show that it is within normal limits. Recent clinical observations and microscopic studies fail to provide a theoretical reason for the Poussep operation. The author concludes that the operation is rather contraindicated when the disease runs a chronic mild course. An attempt to alter its course may be justified when the disease presents a stormy character.



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## WATER INTOXICATION

REPORT OF A FATAL HUMAN CASE WITH CLINICAL,  
PATHOLOGIC AND EXPERIMENTAL STUDIES

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Recently attention has been called to the dangers incident to the forcing of fluids, particularly in post-operative cases. De Takats<sup>1</sup> mentions overloading of the circulation in cardiac weakness, production of general anasarca in Bright's disease, and accentuation of cerebral edema in concussion of the brain. However, one of the most interesting complications, which has not been mentioned, is the possibility of so-called water intoxication. Rowntree<sup>2</sup> in 1923 called attention to this phenomenon in man and reported a number of experiments in which he produced this condition in animals. He first noted what he interpreted to be a condition of water intoxication in a number of patients suffering with diabetes insipidus to whom he and his associates had given repeated doses of solution of pituitary. These patients had been in the habit of consuming from 8 to 10 liters of water by mouth daily without any untoward effects. When, however, they were given solution of pituitary and continued to consume their usual quantity of water, headache, nausea, asthenia, incoordination and a staggering gait rapidly developed, and in one instance he states that the patient's symptoms became "extremely alarming." This observation led Rowntree<sup>2</sup> to administer large amounts of distilled water by mouth to animals in an attempt to produce symptoms similar to those observed in the patients mentioned. In these experiments he was able to cause a definite and consistent series of symptoms characterized by asthenia, followed by muscular irritability, convulsions, salivation and finally death which he believed to be due to water intoxication. Since these animals could be relieved of their symptoms and in fact saved from death by the administration of salt solution, he concluded that the pathogenesis of the intoxication was probably due to an upset in the salt-water balance. Moreover, he made the interesting observation that it was impossible to induce water intoxication in animals that had been given 10 per cent solution of sodium

chloride immediately before the administration of the water. In this regard it might be mentioned that both Moss<sup>3</sup> and Brockbank<sup>4</sup> have noted extreme muscular cramps in workmen who perspired freely and drank large quantities of water. These cramps were relieved at once simply by drinking salt water.

Knowing of these instances, we became interested in the subject of so-called heat cramps as a possible industrial hazard and communicated with a well known industrial surgeon who has charge of a large number of men working under high temperatures. He wrote as follows:

In reply to your question as to the use of salt tablets among workers subjected to high temperatures, I wish to state that for several years we have placed 5 grain (0.3 Gm.) sodium chloride tablets in readily accessible places throughout the plant so that several times a day a worker may avail himself of these tablets. Before using these we noticed from fifty to 100 cases of dizziness, weakness, palpitation, nausea or vomiting and headache and a common complaint was 'inward nervousness' among the men. At this time, and since we have been using sodium chloride tablets, not over one or two men enter the first aid station with the above complaints, and almost invariably these men admit of not using the salt tablets. These results are of consequence inasmuch as several thousand men are involved, although the men are not required to take the salt tablets except where they are exposed to unusual temperature. Most of the men who have been employed in a similar type of work are familiar with the symptoms they get when they do not take salt tablets and actually will come into the first aid station to have them dispensed if they are not readily available.

The foregoing clinical observations strongly suggest a close association between water balance and the chloride of the blood.

Of great interest also is the observation of Rowntree that, in all his cases of experimental water intoxication, cerebral edema was noted. He felt that the convulsive seizures and subsequent death of the animal were due directly to the cerebral edema. He substantiated this conclusion by preventing the appearance of the convulsions by decompression of the skull.

So far as we have been able to determine from a search of the literature, there has been no fatal human case of so-called water intoxication nor had it been possible consistently to produce the phenomenon in animals by proctoclysis. There are, however, on record a number of instances in which definite clinical manifestations of water intoxication were observed. Thus, Priestly, McCallum and Benson<sup>5</sup> noted after drinking

From the Departments of Pathology and Surgery, St. Luke's Hospital.  
<sup>1</sup> de Takats, Geza. Push Fluids: the Surgeon's Postoperative Order.  
*Am. J. Surg.* 11:39-44 (Jan.) 1931.

<sup>2</sup> Rowntree, L. G. Effects on Mammals of the Administration of  
Excessive Quantities of Water. *J. Pharmacol. & Exper. Therap.* 29:  
135-159 (Oct.) 1926.

<sup>3</sup> Moss, K. N. Some Effects of High Air Temperature and Muscular Exertion upon Colliers. *Proc. Roy. Soc. London, series B* 95:  
181, 1923-1924.

<sup>4</sup> Brockbank, E. M. Miners' Cramp. *Brit. M. J.* 1:65 (Jan. 12) 1929.

<sup>5</sup> Cited by Rowntree.<sup>2</sup>

a rather large amount of water definite nervous manifestations typical of the early stages of water intoxication. Similarly, Amberg and Austin,<sup>5</sup> during experiments on skin elasticity in which they drank 3,000 cc of water in a period of twenty minutes, noted the development of such severe muscular twitchings

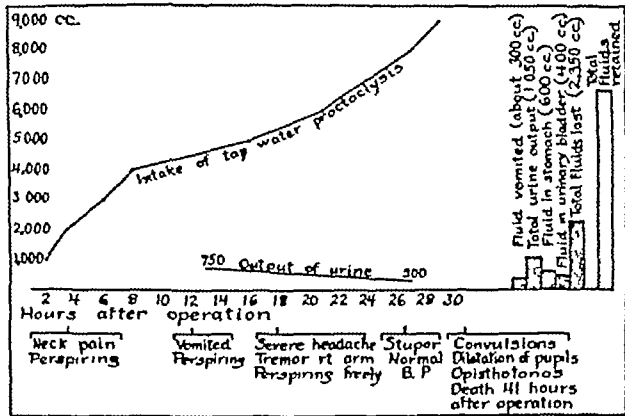


Fig 1—Postoperative course with fluid intake and output with clinical data

that they were unable to make elastometric measurements. In addition, Miller and Williams<sup>5</sup> observed the typical symptoms of severe water intoxication in patients with nephritis on whom large quantities of fluids had been forced

Recently we have observed a case in which death apparently resulted from water intoxication wherein the patient absorbed 9,000 cc of tap water by proctoclysis, and we have been fortunate in being able to produce identical symptoms and pathologic changes in seven

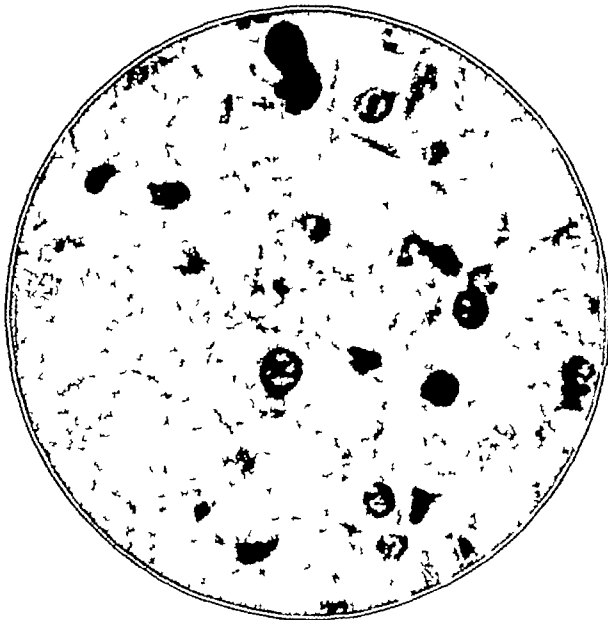


Fig 2—Oil immersion photomicrograph of liver biopsy taken during the operation. Note marked cloudy swelling and sinusoidal obliteration

consecutive rabbits by the administration of large amounts of tap water by rectum

REPORT OF CASE

**History**—A well nourished woman approximately 50 years of age had a long history of gallbladder disease. Laboratory examination before operation was essentially negative. At

operation, a thickened gallbladder containing a number of stones was removed without difficulty. A small piece of the liver was removed for microscopic examination, and a Penrose drain was inserted in the gallbladder fossa. For the first twenty-four hours following the operation, the patient's condition was excellent. Immediately following the operation, 1,000 cc of tap water proctoclysis was started, figure 1 records the amounts and the time of administration of fluids, together with important clinical data.

**Pathologic Changes**—The gallbladder was not enlarged. Its walls were slightly thickened and it contained about 200 small mulberry stones. The mucosa was pale and the trabeculae were flattened. Microscopically, the walls were moderately thickened and a few scattered round cells were found in the interstitial tissue. The piece of liver showed a very striking parenchymatous degeneration. The liver cells were swollen and remarkably granular. The sinusoids were almost completely obliterated by the swollen parenchymatous cells and the liver cells appeared to be packed closely together throughout the entire section. Inflammatory cells were absent (fig 2).

**Necropsy**—This was performed within one hour after death and neither rigor mortis nor livor mortis was present. The

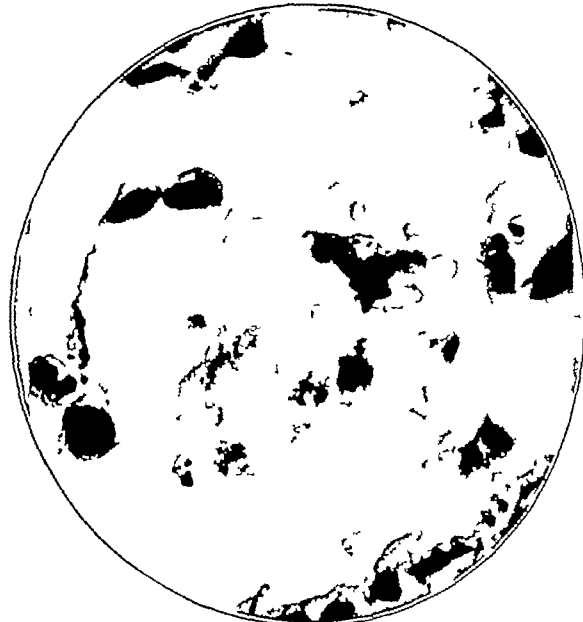


Fig 3—Oil immersion photomicrograph of a so-called corpus amylaceum in the lung. Observe fine pigment granules and adherent cells

body was still quite warm. External inspection was not noteworthy. Edema was not present. An old healed midline surgical scar below the umbilicus was seen and a freshly sutured wound was present in the upper right rectus region. This wound was in good condition and one rubber drain was protruding from it. Inspection of the abdominal cavity revealed that the gallbladder fossa was hyperemic and the liver was somewhat enlarged. It weighed 1,800 Gm and showed a slick, moist cut surface with quite indistinct lobulation. The bile passages were patent throughout. The stomach contained about 600 cc of fluid and was dilated with gas. The bladder also was somewhat distended and contained about 400 cc of urine. The descending and sigmoid colons were almost spastic, while the remainder of the bowel was of about normal caliber. The appendix, uterus and adnexa were absent and no adhesions were present in the pelvis or the right lower quadrant.

In the chest, the organ relationships were normal, the lungs were freely crepitant and no excess of fluid was present in the pleural or pericardial cavities. Careful examination of all the viscera revealed no abnormalities of importance not previously mentioned.

The cranial cavity was then investigated. The scalp and skull presented nothing of pathologic importance. When the skull cap was removed the dura mater was found to be

stretched tightly and the underlying brain was of striking appearance. The subarachnoid space seemed to be completely obliterated and the pia arachnoid was almost bloodless. The cerebral convolutions were very much flattened and the sulci appeared in most instances to be completely obliterated, being seen as fine lines coursing over the cerebral hemispheres. No subarachnoid fluid was present and the brain surface presented a rather dry appearance. After the brain was removed it was found to be uniformly swollen in all diameters and gave the impression that it had been crowded into the cranial vault, having an appearance not dissimilar to internal hydrocephalus. When the ventricles were opened, however, instead of being dilated they seemed to be actually reduced in diameter and a maximum of 2 cc of clear fluid lay on the floor of each ventricle. The choroid plexus contained a cyst about 20 mm in diameter in the left lateral ventricle and the whole plexus appeared swollen and edematous. Cross section through the brain showed a smooth homogeneous "wet" appearing surface and in the cerebral cortex the outlines between the white and the gray matter were much more indistinct than normal. Careful inspection of all the vessels showed no noteworthy alteration. No hemorrhages or foci of encephalomalacia were seen. The brain weighed 1440 Gm.

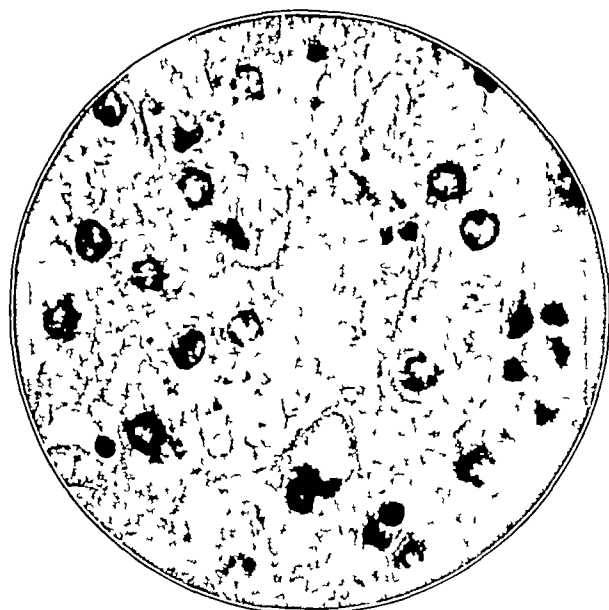


Fig 4—Oil immersion photomicrograph of liver post mortem. The liver cells are swollen and granular. The sinusoids are dilated and are filled with small rounded and oval bodies suggesting red cells that have lost their hemoglobin.

**Microscopic Changes**—The lungs, liver, brain, kidneys and bowel were the only organs showing any alteration from the normal. The lungs showed many rather large corpora amyacea in the alveoli, which in many instances showed a few ragged cell fragments clinging from their outer borders and many of them were seeded with brown pigment granules (fig 3). Some of the alveoli contained a small amount of pink homogeneous precipitate suggesting fluid and the interalveolar capillaries were distended with red cells.

The liver showed a rather advanced cloudy swelling yet many of the sinusoids were quite dilated and filled with small rounded and oval bodies about the size of a red cell with sharply circumscribed outlines and for the most part they were very faintly reticulated but otherwise colorless somewhat suggesting red cells that had lost their hemoglobin (fig 4).

The kidneys, aside from a moderate grade of cloudy swelling of the more highly differentiated tubular epithelial cells were essentially normal.

In the stroma of the mucosa of the large bowel scattered polymorphonuclear leukocytes were found.

The brain showed an apparent increase in vacuolization of the stroma, with what appeared to be an increase in the caliber

of the perivascular and perineural spaces (fig 5). In some areas a few round cells were present in the Virchow-Robin spaces and the brain tissue surrounding the external limiting membrane of the perivascular spaces was quite edematous and

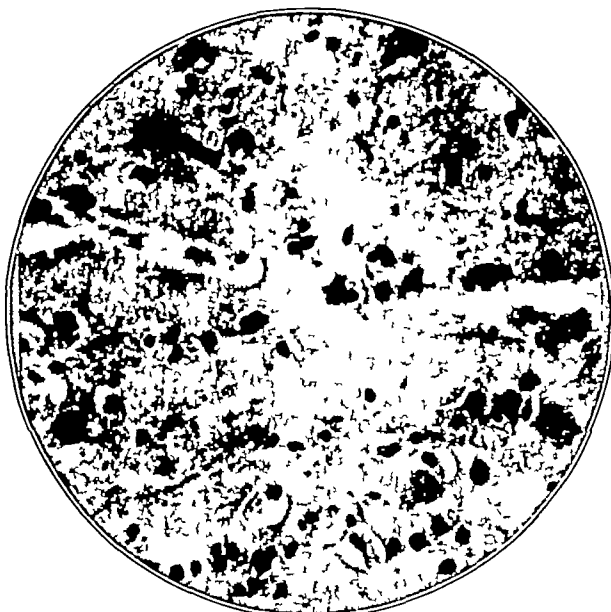


Fig 5—Section of brain of the patient under low power. Perivascular and perineural spaces show dilatation.

frequently showed a rather poorly defined, faintly reticulated, false space immediately adjacent to the limiting membrane (fig 6). Some of the blood vessels contained masses of amorphous reddish brown material suggesting hemolyzed blood. The choroid plexus was distinctly edematous. The ependymal

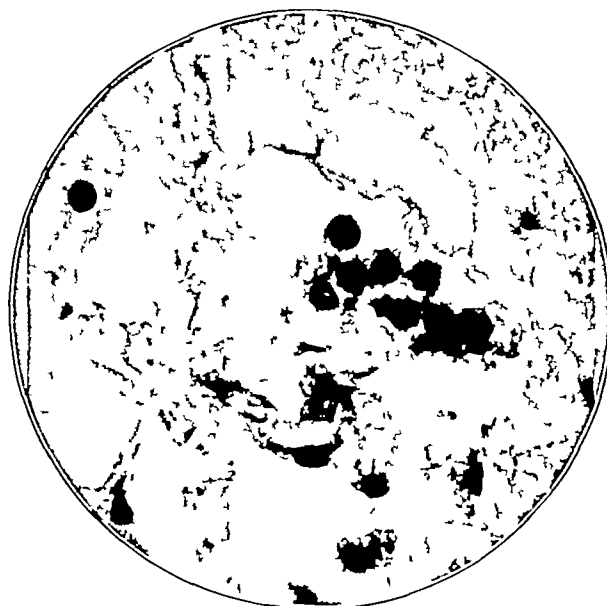


Fig 6—Oil immersion photomicrograph of brain of the patient. Observe dilatation of Virchow-Robin spaces with an infiltration of leukocytes. Peripheral to the outer limiting membrane of the Virchow-Robin spaces a false space is seen traversed by glial fibrils and the adjacent brain substance is highly vacuolated.

cells were swollen and vacuolated and were undergoing proliferation and in many areas, desquamation (illustrated in figures 7 and 8).

There were scattered leukocytes mostly lymphocytes present in the swollen edematous, subependymal, connective tissue and

in some areas the subependymal accumulation of fluid was so striking as to leave large areas between the layers, producing in some fields a picture suggestive of cystic degeneration (fig 9) The ependymal lining of the ventricles showed similar

his experimental animals that died of water intoxication, together with the fact that our patient had absorbed some 9,000 cc of water, suggested the possibility that her death might have been due to water intoxication. We therefore conducted a number of experiments on rabbits in an attempt to reproduce the clinical and pathologic picture shown by our patient, by the administration of water by proctoclysis.

Rowntree<sup>2</sup> stated in the report of his experiments on water intoxication that he was unable to produce water intoxication by the administration of water by bowel, although he did mention that Greene had apparently been successful in one instance. A search of the literature failed to reveal a report of experimental water intoxication produced in this manner. We felt, however, that, if we were correct in our assumption that our patient died as the result of the excessive absorption of water, we should be able to reproduce her symptoms by administering tap water in the same manner as that in which it was given to her.

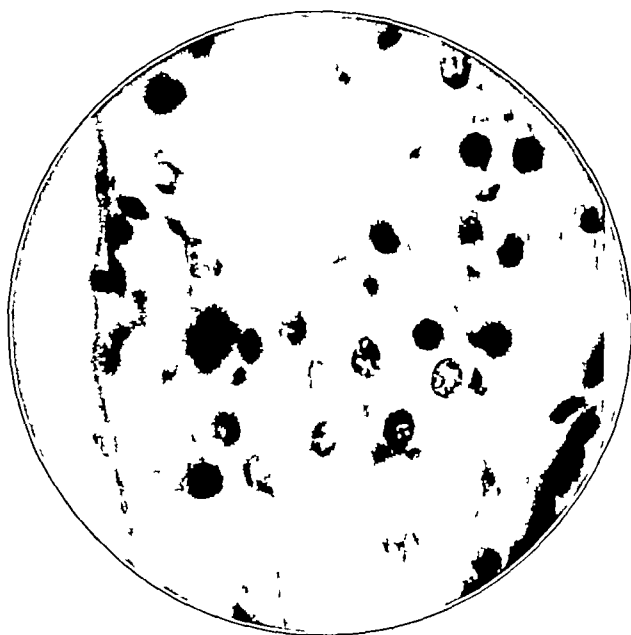


Fig 7—Oil immersion photomicrograph of choroid plexus of the patient. There is proliferation, desquamation, swelling, and vacuolization of the ependymal cells.

changes to those seen in the choroid plexus, and the underlying brain substance was distinctly edematous, showing a rather striking vacuolization (fig 10).



Fig 9—Section of choroid plexus of patient under low power showing a very striking subependymal accumulation of fluid.

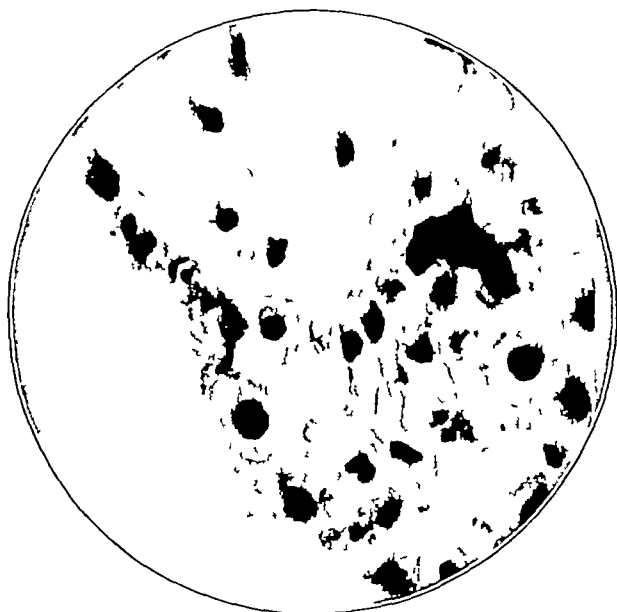


Fig 8—Oil immersion photomicrograph of choroid plexus of patient. In addition to the ependymal change, subependymal edema is quite striking.

Special fat stains were employed on all the organs to eliminate fat embolism. No intravascular droplets were found in any of the viscera.

#### ANIMAL EXPERIMENTATION

The striking similarity of the clinical manifestations of the patient on whom these observations were made to the symptoms and changes observed by Rowntree in

Our technic was extremely simple. Healthy young rabbits, weighing approximately 1,000 Gm., were given 50 cc of ordinary tap water by rectum through an ordinary rubber catheter, at intervals of one-half hour. In the first two animals, no further preparation was made, but since we found that in the third animal we were at first unable to produce intoxication in this manner, we withheld all water and food from subsequent animals for a period of two days before water was administered.

Prior to the experiment, blood counts and blood chemistry studies were made on all animals. These were compared to similar studies made on the animals after the full development of the toxic symptoms. During the experiment the rabbits were placed in metal cages and all urine was collected and measured.

Seven animals were used and in each we were successful in our attempts to produce the picture of water intoxication. In all instances a complete necropsy and histologic studies were made.

Immediately following the death of two of the animals a chemical analysis of the muscles, liver, kidneys and brain was made for the chloride content by one of us (D E C)

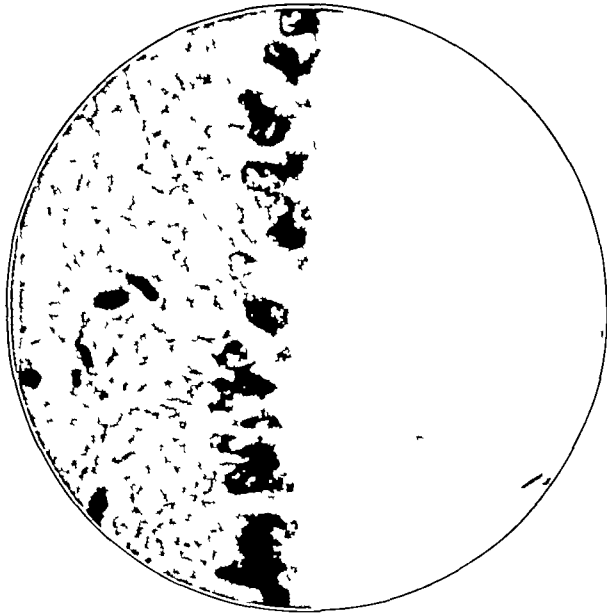


Fig 10—Oil immersion photomicrograph of ependymal lining of the lateral ventricle of the patient's brain. Ependymal swelling and marked vacuolization of the subependymal brain tissue is striking.

In every animal on which the experiment was performed, the clinical manifestations were exactly similar. Following the injection of the first 300 to 400 cc of tap water by rectum, the only change that was noted was a marked increase in the urinary output of the animal and a definite decrease in the specific gravity. After approximately 500 cc of tap water had been given, the urinary output decreased somewhat and the rabbit began to salivate. Soon thereafter the rabbit became restless and fine fibrillary twitchings of the ears and muscles of the extremities were noted. Within the next hour, with the injection of an additional 100 cc. of water, these fibrillary twitchings were replaced by clonic convulsions and marked opisthotonos (fig 11), dilatation of the pupils, and a marked decrease in urinary output. Whether injections were stopped at this point or not, the convulsions continued, becoming more prolonged and more severe. The typical convulsions began with retraction of the head and stiffening of the extremities. Within a second or two, however, this "frozen state" was replaced by rapid, rhythmic movements of the extremities which are best described as a "running motion." The latter phenomenon continued for from one to three minutes, when a sudden and complete relaxation of the entire body took place, only to be quickly succeeded by another convulsive seizure. As death approached, the rest periods became less frequent and of shorter duration, so that just before death the animal was in a continuous state of convulsion. Death in all instances except the animals that were killed during a convulsion, occurred in the midst of a convulsion.

Studies of the blood before and after the experiment revealed a number of interesting changes. There was a consistent decrease in the blood chlorides, ranging from 100 to 240 points. The blood nonprotein nitrogen was inconsistent in some instances remaining

unchanged, in others increasing as high as 100 mg per hundred cubic centimeters. The carbon dioxide combining power of the blood plasma was decreased in those rabbits on which determinations were made, but these studies were not carried out except in two animals. In accordance with the results found by Rowntree, there was a consistent blood dilution, as evidenced by a decrease in the hemoglobin and red blood cells.

In comparing the reactions of our rabbits in which an excessive amount of water was injected by rectum to those described by Rowntree in which an excessive amount of water was administered by mouth, it is evident that they are strikingly similar. It is our opinion that so-called water intoxication has been produced in both series. The pathologic changes in our animals are also of interest in that they not only bear out the same general changes mentioned in the examinations made by Wilson for Rowntree but in addition we have observed some changes that he did not mention.

#### PATHOLOGIC CHANGES IN EXPERIMENTAL ANIMALS

In the experimental animals that were examined at necropsy, no striking gross alterations were observed. The stomach contained a great deal more fluid than normal. In a few instances the bladders contained considerable clear urine, while in others they were empty. There was a rather uniform moderate constriction of the large bowel and the cecum seemed to contain more fluid than normal. The livers in all instances showed a shiny moist cut surface. The brains all appeared to be swollen, the normal markings were somewhat obscured, and the surface vessels were usually bloodless. It was not possible to say accurately whether the lateral ventricles were diminished in size, but when compared to normal rabbit brains we gained the impression that they were.

Microscopic examination of the viscera showed fairly uniform changes in the brains of all animals. When compared to normal brains in frozen section to eliminate shrinkage as nearly as possible, there seemed to be definite widening of the perineural and perivascular spaces, and the intercellular stroma was definitely vacuolated throughout (figs 12 and 13).

Degenerative changes in the nerve cells could not be demonstrated by Nissl's stains.

In all instances, the choroid plexuses were the seat of a distinct increase in vacuolization with swelling and

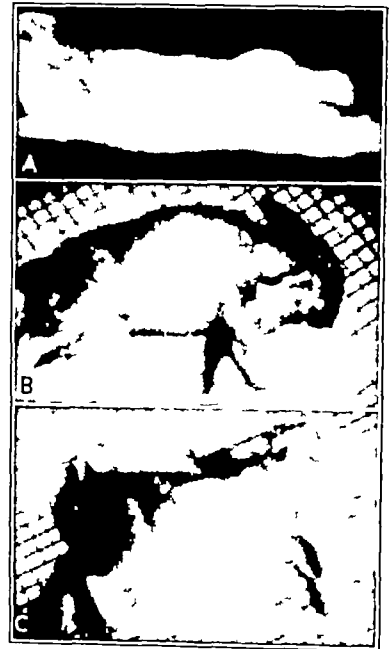


Fig 11—A beginning of convulsion showing opisthotonos and extension of extremities. B height of convulsion. The extremities are extended in clonic contraction. Salivation is profuse. C frozen state. Marked opisthotonos and extension of extremities in spastic type of muscular contraction. These pictures were taken from 16 mm. moving picture films which accounts for the blurring.

subependymal edema The ependymal lining of the ventricles were likewise vacuolated, swollen and desquamating The brain tissue showed vacuolization of the stroma, which seemed to be increased considerably above the normal In all respects the changes in the brains of the experimental animals closely simulated those seen in the fatal human case

Cloudy swelling was uniformly present in the livers of all animals, in some instances to a very advanced

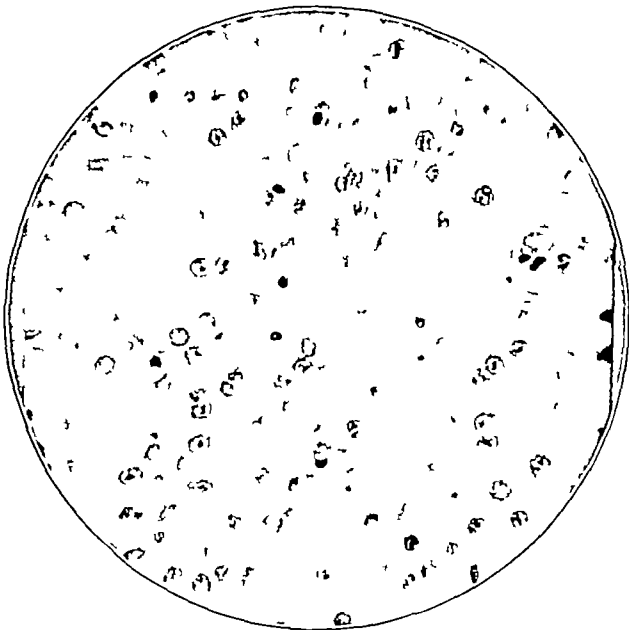


Fig 12—Section of brain of rabbit under low power showing widening of the perivascular and perineural spaces

degree, and in two instances there was a definite concomitant widening of the sinusoids, which contained a stringy faintly staining precipitate containing red cells In many instances these red blood cells were swollen and had lost most of their hemoglobin pigment, suggesting hemolysis (fig 14) In some cases edematous fluid was present in the pulmonary alveoli, but this was by no means generalized

CHEMICAL STUDIES

Analysis of body tissue for chlorine content was performed on two experimental animals as well as on two controls Briefly, the method consisted of digestion of fresh tissue with concentrated potassium hydroxide and heat This resulting solution was neutralized with nitric acid Silver nitrate was added and the chlorine precipitated in the form of silver chloride, from which the determination of chlorine was calculated

The results of this analysis were of interest and very suggestive, although there was considerable variation in the chlorine content The chlorine content of the brain showed the greatest reduction in the water intoxicated animals, showing nearly 50 per cent decrease The liver showed a rise in chlorine content and in all other tissues a decrease The heart was least affected and remained almost the same in every rabbit

This work was performed once before by Dr Misawa<sup>6</sup> He used desiccated tissue and his results were correspondingly less in variation, since the water of the intoxicated animal was not a factor in his

weights However, the results of his work and ours were relatively the same In the water intoxicated animal he found that "there was a reduction of chloride in all the tissues of the body save the liver, as well as the blood The reduction was greatest in skeletal muscle, where it amounted to a loss of 51 per cent, and it averaged 20 per cent in other tissues except in the liver, where a 10 per cent increase occurred" The fact that we used fresh tissue instigated the greater water weight in the water intoxicated animals as compared to the normal animals and naturally resulted in a larger weight difference than that shown in the work of Misawa

As shown in the accompanying table, there was a decrease of approximately 50 per cent in the chlorine

Chlorine Content in Grams per Gram of Tissue

Tissue	Normal	Water Intoxication	Per Cent
Brain	0.0519	0.0255	50.8 decrease
Liver	0.0165	0.0407	147.0 increase
Kidney	0.0356	0.0335	39.8 decrease
Muscle	0.0720	0.0435	40.3 decrease
Heart	0.0339	0.0313	4.8 decrease

content of the brain and a decrease of about 40 per cent in kidney and muscle, with the heart showing only a 5 per cent decrease In the liver an increase of approximately 147 per cent was observed

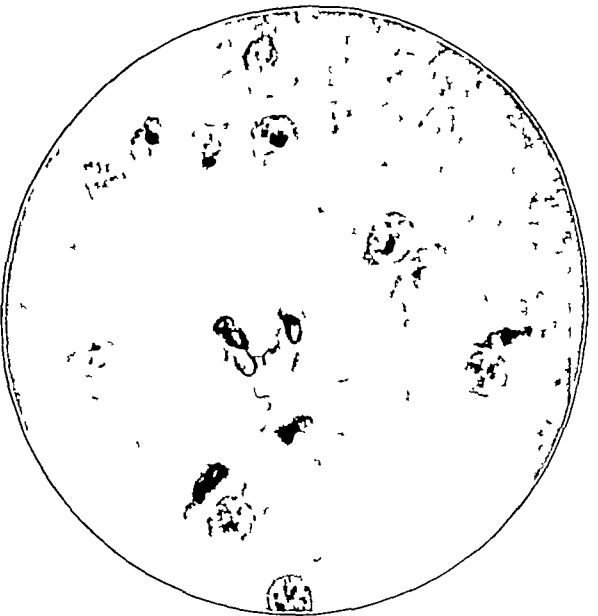


Fig 13—Oil immersion photomicrograph of blood vessel of cortex in a rabbit's brain showing false space peripheral to outer lining of Virchow Robin space traversed by glial fibrils The brain tissue shows definite vacuolization

COMMENT

A number of theories have been advanced to explain the pathogenesis of the so-called water intoxication Thus, Smith and his associates<sup>7</sup> believe that the symptoms of water intoxication are associated with the loss of chlorides and alkalosis Rowntree, on the other hand, as the result of both chemical and pathologic studies believed that the excessive absorption of water

6 Misawa H Ueber das Wesen der sogenannten Wasserintoxikation Jap J M Sc Tr VIII Int Med Pediat Psychiat 1:355 (Dec) 1927

7 Smith, F S Deamer W C and Phatak N M Studies in So-Called Water Intoxication J Clin Investigation 12 55 (Jan) 1931

produced an upset in the salt-water balance of the body with a resulting cerebral edema which was the direct cause of the clinical manifestations. In our experimental studies, the carbon dioxide combining power of the blood plasma was never increased and was usually decreased. The gross and microscopic studies of the brains both of our human case and of our experimental animals seem strongly to support the hypothesis advanced by Rowntree.

Explanation of the exact mechanism of water intoxication presents many interesting and complicated problems. It is difficult to account for the apparent susceptibility of the liver and brain for retaining fluid when tap water is given by bowel. It would appear that water intoxication was dependent on water elimination. The reason the kidneys fail to eliminate properly is unknown. In this respect, the experiments of Meier<sup>8</sup> are interesting. He destroyed the brains of frogs and devised two circulatory systems, one included the heart, liver and kidneys, and the other included only the heart and kidneys. He observed that a certain rate of excretion was present when a perfusing fluid was run through the heart-kidney system, but a very definite increase in the kidney output took place at once when the liver was included in the "hookup." Similarly, Mann<sup>9</sup> frequently noted anuria following complete extirpation of the liver. It seems, therefore, possible that some hepatic dysfunction may be of importance in the pathogenesis of water intoxication. It is interesting in this regard that biopsy of the liver of our patient at the time of operation showed a very advanced parenchymatous degeneration. Moreover, in the livers of all our experimental animals varying degrees of cloudy swelling were uniformly present. In this regard, it is likewise interesting that it has been impossible to produce an intoxication when hypotonic salt solution was administered or when 10 per cent chloride was given prior to the administration of water.

One may speculate as to whether an upset in the normal salt-water balance produces water intoxication or whether a lack of chlorides interferes in some way with the apparent relationship of the liver to renal output.

The mechanism of the acute cerebral edema is very puzzling. The most striking characteristic of the edema was its interstitial character and the fact that at necropsy there was no evidence of increased production of cerebrospinal fluid. On the contrary, the ventricles were decreased in caliber and there was scarcely any cerebrospinal fluid present, while apparently paradoxically there was histologic evidence of definite hyperactivity of the choroid plexus. Recently Terplan<sup>10</sup> has recorded a case of death from insulin shock in which acute swelling of the brain was present. Grossly, the brain in his case closely resembled that observed in our case. He<sup>11</sup> attributes the cerebral edema to a hypotonic condition of the blood due to a marked diminution in blood sugar. Similarly, we might suggest the same mechanism for our results as that due to a decrease in blood chlorides. In addition, Ferraro,<sup>12</sup> by the administration of distilled water intravenously

has produced morphologic changes in the brain and choroid plexus quite similar to those observed in our studies. These facts strongly suggest that perhaps the most important factor in the production of the cerebral edema, which is the major pathologic lesion of water intoxication, is a disturbance in the normal isotonicity of the blood.

#### CONCLUSIONS

1 The possibility of producing water intoxication is emphasized as constituting one of the dangers incident to the injudicious forcing of fluids.

2 In a fatal case of apparent water intoxication, the patient, following a simple cholecystectomy, absorbed 9 liters of tap water proctoclysis within a period of thirty hours after operation and died in convulsions.

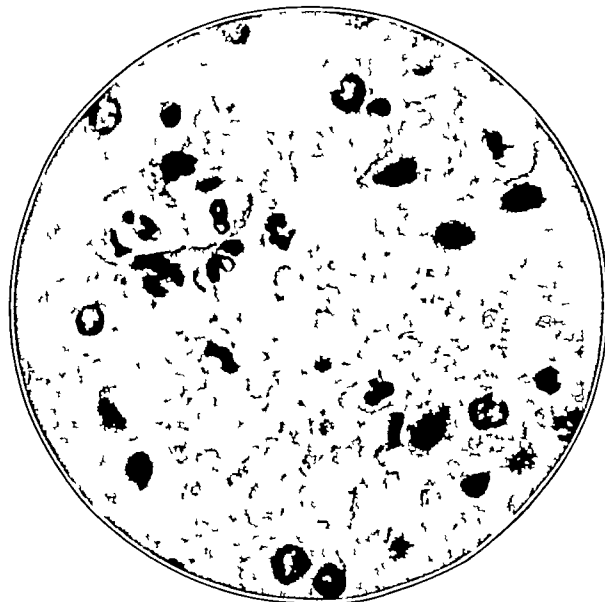


Fig. 14—Oil immersion photomicrograph of rabbit's liver. Note marked sinusoidal dilatation and pale hemolyzing red blood cells in the sinusoids.

The most striking finding at necropsy was an acute swelling of the brain.

3 Young rabbits were given tap water proctoclysis, and the clinical and pathologic picture observed in the fatal human case was reduplicated in every instance in a series of seven animals. Chemical studies of the blood and tissues of these animals were carried out with interesting results.

Forty-Fourth Street and Mill Creek Parkway

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**New Fool-Proof Explosive**—A revolutionary new blasting material for use in quarries and in other blasting operations such as stripping, was announced at the Eighteenth Annual Technical Section Convention of the Explosives Department of the du Pont Company which opened January 22 at Wilmington, Del. This new product it was stated cannot be detonated by the strongest commercial blasting cap by impact, by flame, nor by shooting a rifle bullet into it. In actual use it is exploded by means of a large diameter cartridge of dynamite. It is non-headache producing and is rendered absolutely water resistant by being sealed up tightly in a tin can. It is said to represent the ultimate in safety in so far as a blasting agent is concerned. This new development has been covered by two patents one for the product itself, which will be known as Nitramon, and the other covering its method of use. It is nonfreezing. This new product will be marketed only in large diameters—4-, 4.51 5- and 7-inch.—*Indust & Engin Chem* 27 93 (March 10) 1935

8 Meier H. Role of the Liver in Regulation of the Activity of the Kidneys. *Biochem Ztschr* 209: 200-217 1929

9 Mann F C. Effects of Complete and Partial Removal of the Liver. *Medicine* 6: 419-511 (Dec) 1927

10 Terplan, Kornel. Changes in the Brain in a Case of Fatal Insulin Shock. *Arch Path* 14: 129-132 (July) 1932

11 Terplan Kornel. Personal communication to the authors

12 Ferraro A. Reaction of Brain Tissue to Intravenous Injections of Hypotonic Solutions. *J Nerv & Ment. Dis* 71: 129 (Feb) 1930



ROENTGEN RADIATION NECROSIS OF  
LARYNX AND OTHER STRUCTURES OF THE NECK

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AND

EDWIN F. HIRSCH, MD

CHICAGO

According to Hahn,<sup>1</sup> when irradiation in 1910-1912 replaced surgery in the treatment of tuberculosis of the neck many patients suffered roentgen injuries of the throat. Even after the radiation had been reduced to three fourths of the toxic skin dose, patients so treated after several weeks, became hoarse. Because these patients had no skin reaction, their hoarseness was not associated with the radiation therapy. As the number of patients with hoarseness increased and examinations of the larynx demonstrated an obstinate edema which lasted several weeks radiation was recognized as the etiologic agent. The only reference to irradiation injury of the throat at that time, according to Hahn, was by Mühlmann, who had often noted a stubborn hoarseness in irradiated patients and, in two, a chronic laryngitis. Other reports of severe damage to the larynx and tissues of the neck by radiation were published in 1921 by Wetzel,<sup>2</sup> Holfelder,<sup>3</sup> Schmidt,<sup>4</sup> and Marschik,<sup>5</sup> and more in 1922 and 1923 by von Hofmeister,<sup>6</sup> Feuchtinger,<sup>7</sup> König,<sup>8</sup> Mühlmann and Meyer,<sup>9</sup> Van Rossem,<sup>10</sup> and Jüngling.<sup>11</sup> The injurious effects of radiation on the larynx were so well known then that Jüngling described them as of three types: (1) an immediate reaction occurring within from one to three days, (2) a true roentgen reaction appearing from ten to twenty days after irradiation, and (3) a late reaction appearing any time after from four weeks to a year. In the first he stated, there is a moderate swelling of the neck especially of the subcutaneous fat and of the lymph nodes. The mucosa of the mouth has no appreciable edema, but sometimes a marked salivation is annoying. The true roentgen reaction is characterized by dryness of the throat, by hoarseness, and sometimes by edema and fibrinous exudates on the mucosa. The manifestations of the serious or late stage are edema, marked atrophy and scar tissue replacement of the structures in the neck, perichondritis and necrosis of the larynx. All the late stages may occur, according to Jüngling without any indications of an immediate reaction. Since the report by Jüngling, others on radiation injury to the larynx have been published by Schmitz,<sup>12</sup> Halberstaedter,<sup>13</sup> Strandberg,<sup>14</sup> Güssow,<sup>15</sup> von der Hutten,<sup>16</sup> Tonndorf,<sup>17</sup> Thost,<sup>18</sup> Iglauer,<sup>19</sup> and

Posey.<sup>20</sup> Only the last two of these appeared in American Medical publications.

The amount of radiation therapy received by individual patients has varied. In some the quantity admitted was excessive, in others it was considered small, and in the remainder it was average, not known, or only approximated. Iglauer and others reporting these injuries have emphasized the danger of producing serious damage to the larynx by therapeutic irradiation of the neck and have advised careful protection of this structure against excessive or cumulative dosage.

Among the thirty-two instances of irradiation injury to the larynx recorded in the publications listed, by far the greatest number of deaths has resulted from the so-called late manifestations. Death, however, has been reported in both the other stages. The patient whose clinical record was reviewed by Schmitz died from the asphyxia of an immediate reaction, and one of the two reported on by Posey was saved from an acute death by tracheotomy. An analysis of the diseases mentioned for which radiation therapy of the neck was prescribed discloses a wide variety of actual or alleged disorders. Carcinoma of the larynx (nine) is the most frequent, then lymphoma of the neck (five), Trichophyton infections of the skin (four), papilloma of the larynx (four), tuberculosis of the cervical lymph nodes (three), Hodgkin's disease (one), exophthalmic goiter (one), keloid of the neck (one), actinomycosis (one), malignant tumor of the thyroid (one), a swelling of the base of the tongue and enlarged lymph nodes, considered malignant without tissue examination, and, finally, an acute laryngitis.

Radiation treatment of carcinoma, at present, is in a phase in which high voltage-low resistance doses are given. A warning may be in order at this time of the dangers of damage to the larynx by irradiation for carcinoma or other diseases and of the seriousness such injuries are to the patient.

A recent experience in which death followed severe late radiation necrosis of the larynx prompts this report.

## REPORT OF CASE

An unmarried white man aged 26, consulted a physician in April 1933 because of an enlarged right upper cervical lymph node. This node was about 3.5 cm long and 2.5 cm wide. Without histologic examination of tissues and believing that the enlargement might be due to sarcoma the physician gave four courses of radiation therapy (skin dosage) during the following year spaced at intervals of two months. The node at first decreased in size but never disappeared entirely. March 27 1934 an examination of the patient who then complained of difficulty in swallowing disclosed an inflammation of the right pillar and tonsil, and marked swelling of the tongue. He came into the care of one of us (P. A. N.) at Mercy Hospital where another examination March 30, demonstrated a hard movable, encapsulated mass 3 cm in diameter in the right submaxillary region and another, freely movable 1 cm in diameter in the left submaxillary region. There was a marked edema of the tongue and floor of the mouth, the tonsils had been removed. A nodule 2 cm in diameter was in the right lower tonsillar pillar and from this, tissues were taken for histologic examination. There was no ulceration of the mouth. The general physical and indirect laryngoscopic examinations disclosed nothing unusual. The clinical diagnosis was bilateral metastatic carcinoma of the cervical lymph nodes, secondary to a primary growth in the right tonsillar pillar. The tissues removed from this pillar and examined microscopically, however, contained normal tonsil tissues. The large right submaxillary lymph node was excised, April 6, and histologically it had only inflammatory changes and some edema. The submaxillary salivary gland tissues included with the lymph node

- Aided by the Winfield Peck Memorial Fund  
From the Mercy Hospital Institute of Radiation Therapy and the  
Henry Baird Fawell Laboratory of St. Luke's Hospital.
- 1 Hahn O. *Zentralbl. f. Chir.* 46: 722 1919
  - 2 Wetzel, E. *Strahlentherapie* 12: 585 1921
  - 3 Holfelder H. *Med. Klin.* 17: 681 (June 5) 1921
  - 4 Schmidt H. *Virchows Arch. f. path. Anat.* 231: 557 1921
  - 5 Marschik H. *Monatschr. f. Ohrenh.* 55: 1445 1921
  - 6 von Hofmeister F. *München med. Wchnschr.* 69: 1667 (Dec. 8) 1922
  - 7 Feuchtinger R. *Monatschr. f. Ohrenh.* 56: 865 1922
  - 8 König Erwin. *München med. Wchnschr.* 70: 558 (May 4) 1923
  - 9 Mühlmann E. and Meyer O. *Strahlentherapie* 15: 52 1923
  - 10 Van Rossem A. *J. Laryng. & Otol.* 38: 477 (Sept.) 1923
  - 11 Jüngling O. *Strahlentherapie* 15: 18 1923
  - 12 Schmitz H. *Strahlentherapie* 16: 144 1923 1924
  - 13 Halberstaedter L. *Fortschr. a. d. Geb. d. Röntgenstrahlen* 31: 425 1923 1924
  - 14 Strandberg O. *J. Laryng. & Otol.* 39: 437 (Aug.) 1924
  - 15 Güssow W. *Arch. f. Ohren. Nasen u. Kehlkopf* 116: 89 1926
  - 16 von der Hutten F. *Arch. f. Ohren. Nasen u. Kehlkopf* 115: 271 1926
  - 17 Tonndorf W. *Ztschr. f. Hals. Nasen u. Ohrenh.* 13: 22 1926
  - 18 Thost A. *Handb. d. Hals. Nasen. Ohrenh.* Berlin, Julius Springer 2: 322 1926
  - 19 Iglauer S. *Ann. Otol. Rhin. & Laryng.* 36: 124 (March) 1927

had also a marked fibrous tissue replacement but no tumor tissues. From March 30 to April 24, twenty radiation treatments were given on alternate sides of the neck with 800 kilo volts of roentgen rays. The roentgens at the surface of the field for each of the first twelve treatments were 308, for each of the next seven treatments 450, and for the last one 231. The immediate reactions from the irradiation were severe, as occurs in all patients subjected to this method of treatment. The radiation fields extended from the clavicle upward. The adja-

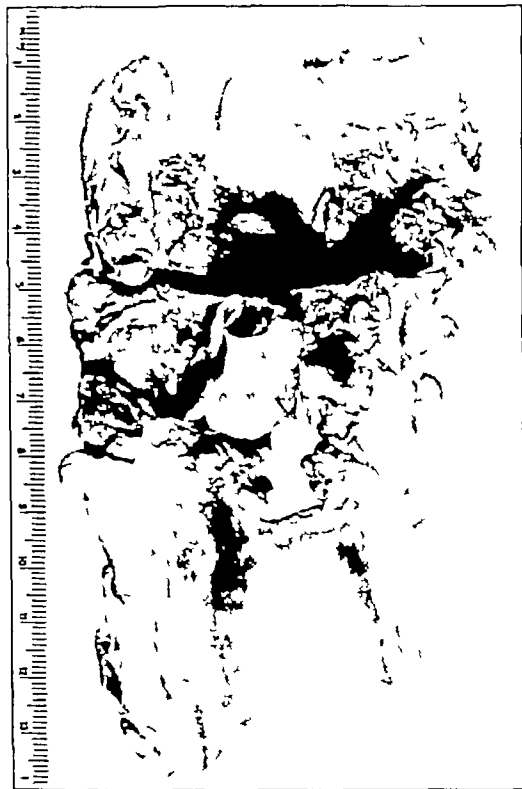


Fig 1—Marked necrosis of the lining of the larynx. The necrotic and displaced cricoid cartilage is just above the tracheotomy opening.

cent body surfaces were protected with heavy lead rubber and 0.5 cm of lead. The patient, however, seemed to remain in good condition except for dryness of the throat and some edema of the arytenoids. May 16 after the radiation therapy had been completed, a severe reaction developed on the inside and outside of the neck.

There is here a gap in the clinical history of the patient until September 10, about which time he was admitted to the Edward Sanatorium. At that time he was silent because of a severe laryngitis thought to be tuberculous. The observations made there are not known to us. He entered St. Luke's Hospital October 2 in the service of Dr. E. P. Norcross unable to speak above a whisper. He had had difficulty in swallowing and a sore throat for three months and cough and pain in the right ear for one week. He could drink only with difficulty and could scarcely swallow even soft foods. Dr. Norcross during his examination, October 3, noted that the skin of the neck seemed to have been burned recently by some form of irradiation and that the base of the tongue was indurated especially on the right side. The anterior surface of the epiglottis, both valleculae, the hypopharynx and the arytenoids were edematous. Both vocal cords were thin and their excursion was limited. Thick mucus filled both pyriform sinuses. October 6 the vocal cords were closely approximated and because of the marked dyspnea the larynx was intubated. The dyspnea and other symptoms became worse so that on October 10 a tracheotomy was performed. In spite of this and supportive measures the patient's dyspnea continued; the temperature ranged daily between 101 and 103 F and he died October 29 at 12:30 p.m.

The essentials of the anatomic diagnosis of the postmortem record are marked gangrenous ulceration (radiation necrosis)

of the pharynx, larynx and upper parts of the trachea and esophagus, sequestration of the cricoid cartilage, marked brawny induration and atrophy of the tissues of the neck, recent surgical tracheotomy wound of the neck, necrosis and acute cellulitis of the tissues about the tracheotomy wound, acute cellulitis of the tissues of the mediastinum, acute bilateral bronchopneumonia of the lungs, acute hyperplasia of the tracheobronchial lymph nodes, cloudy swelling of the myocardium, liver and kidneys, and bilateral fibrous pleuritis.

The markedly emaciated body was 158 cm long and weighed 87 pounds (39.5 Kg). The mucous membranes of the front of the mouth were pale and the cervical lymph nodes were not enlarged. An oval tracheotomy wound of the neck was 4 cm long, 2.5 cm wide and extended cone shaped 3 cm into the lumen of the trachea. The walls were necrotic and brown-black. Dense fibrous adhesions bound each lung to the chest. The pleural spaces contained no fluids. There was a marked brawny induration of the neck in front of the spine. The skeletal muscles were pale red and matted into indurated tissues about the trachea. The tissues in and about the tracheotomy wound including the cartilage rings were necrotic and had a foul odor. The lining of the trachea was ulcerated and necrotic to the level of the clavicle, and all the structures of the neck including the carotid sheaths were bound together. These tissues of the neck were removed in one mass (fig 1) for examination. A perforation of the posterior wall of the trachea opposite the tracheotomy wound extended into the soft tissues about both carotid arteries but did not erode these vessels. The cellulitis had spread behind to the anterior longitudinal ligament of the spine and here was an abscess 3 cm in diameter, filled with purulent material. The vertebrae were not eroded. The brawny induration and necrosis of the tissues extended upward on both sides of the neck to the



Fig 2—Necrotic tissues lining the larynx and in the deeper portions cartilage also necrotic. X 76.

mandible. The entire wall of the larynx was necrotic and several pieces of cartilage including the entire cricoid cartilage were held loosely in the necrotic soft tissues. The destruction of the internal surfaces of the larynx was so marked that the vocal cords and other structures were no longer present. The upper part of the esophagus also was markedly ulcerated, hyperemic and edematous down to the level of the clavicle but mainly above and behind the larynx where the wall had several perforations. The epiglottis was slightly eroded, edematous and hyperemic. In the pharynx the necrosis extended to the

level of the faucial tissues. A small amount of lymphoid tissue was in each tonsillar fossa. The thyroid gland was embedded in indurated fibrous tissues. On surfaces made by cutting it was gray-brown, dry tissue. The cervical lymph nodes on both sides were about 1.5 cm in diameter. They were moderately firm and on surfaces made by cutting had the usual gray lymphoid tissue.

Histologic examinations were made of tissues cut from the margin of a transverse bisection of the larynx so as to include portions from the entire circumference. The lining tissues in these places were markedly edematous, necrotic, fibrillar mucosa without exudates or nuclear structures, simply a stroma framework of devitalized tissues (fig. 2). Even the thyroid cartilage tissues were necrotic. The tissues bordering the necrotic portions had a markedly edematous hyaline stroma with a few shrunken nuclei. The structure of these tissues resembled that of tissues elsewhere in the body injured by radiation therapy.<sup>21</sup>

#### COMMENT

The radiation therapy given this patient, while admittedly large and obviously excessive for his tissues, was according to the procedures of the present trend in roentgen therapy, namely, the use of large quantities of high voltage-low resistance rays. The unfortunate result, however, should be attributed to the combination of four series of low voltage roentgen rays and one series of 800 kilovolts of roentgen rays. The dosage of the latter given has not been followed by such destruction reactions. The experience here related is again a warning that roentgenologists should safeguard their patients against radiation injuries, especially when sensitive tissues such as those of the neck are treated.

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### UNILATERAL SUBLUXATIONS OF THE CERVICAL VERTEBRAE WITHOUT ASSOCIATED FRACTURE

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AND

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Since Jan. 1, 1929, there have been sixty-six cases of unilateral subluxation of the cervical vertebrae without associated fracture seen in the fracture service of the Presbyterian Hospital. Of these, five were seen in the first three years and thirty-nine in the past eighteen months. This sudden and spectacular increase is due not to any change in the neck structure of New York's population but to the education of the members of the staff in the recognition of the condition. We feel, therefore, that it is of value to present this group of cases not in order to describe a new condition or method of treatment but to refresh the memory of the profession at large as to the characteristic picture these patients present and to set forth our experience in their treatment.

Of the sixty-six patients, thirty-six were male and thirty female. Fifty-two were between the ages of 10 and 29 years, the youngest of the series being 6 and the oldest 60.

Fifty-two patients came for treatment within twenty-four hours of the onset of symptoms, ten more within a week. One woman came into the clinic a year and a half after her original trauma, still suffering from pain, disability and deformity.

The initiating trauma is apt to be very slight but to occur when the muscles are "off guard," as for example when the patient has just awakened. A sudden kink on stretching in bed, a turn in answer to a call, a jerk of the head to catch a forward pass, a twist in taking off a dress over the head have all been cited as the cause for the symptoms from which the patient sought relief. Two of the series received their injuries in motor accidents and two in diving.

Following such a sudden twist as one of those just described the patient feels sudden pain and finds that he cannot straighten his head. The pain usually subsides quickly, only to recur when motions of the neck are forced, but it and the disability are usually sufficiently definite to force the patient to seek medical attention fairly soon. He often volunteers the fact that it does not feel just like a stiff neck.

The picture the patient presents is characteristic. The head is tipped and tilted to one side and is moved with great care. Voluntary flexion and extension of the neck are usually possible and rotation and further tilting on the side toward which the head is already inclined can be done easily and painlessly. But the head cannot be inclined toward the opposite side. Passive motions bring out the same manifestations. In other words, if the head is tilted to the right the right ear can be brought down toward the right shoulder, but on attempting to bring the left ear to the left shoulder a definite resistance is encountered and the patient usually complains of pain. Rotation to the affected side may or may not be impaired, but lateral flexion is invariably resisted. Muscle spasm is usually present and is found on the "long" or affected side in contrast to torticollis, in which the spasm is on the "short" side toward which the head is bent. There is usually tenderness over the affected vertebra on the "long" side. Three patients complained of pain radiating down the shoulder and arm. No other signs or symptoms of cord or nerve root involvement were noted.

The differential diagnosis has been of considerable interest to us, as we have encountered two schools of thought among our colleagues: one of complete skepticism as to the existence or at least importance of a cervical subluxation and the other of such complete acceptance that they believe that any one with a pain in the neck must have, *ipso facto*, a partial dislocation. It has been necessary to answer the objections of the former and to sift out the wheat from the chaff in the cases referred to us by the latter.

Various lesions may be mistaken for a true subluxation. Of these, the most common is acute myositis of the trapezius. This can be distinguished by the absence of the block to lateral flexion although motions may be painful, and by the tenderness in the muscle belly, not localized over the vertebra as in subluxation. Cervical adenitis may cause a tilt of the head and limitation of motion, but careful palpation will reveal the tender glands, and motions will be possible though painful and limited in extent. Arthritis of the cervical spine will cause a generalized limitation of motion, not especially lateral flexion to one side. Torticollis will have the muscle spasm on the "short" side toward which the head is bent, and if there is tenderness it is over the strap muscle on the "short" side.

The conclusive proof of the diagnosis of subluxation, however, lies in the stereo lateral roentgenograms, which will show the sliding forward of one articular facet on the one beneath it.

<sup>21</sup> Elliott, A. R. and Jenkinson, E. L. *Radiology* 23: 149 (Aug.) 1934.

From the Department of Surgery, Columbia University College of Physicians and Surgeons and the Fracture and Roentgenological Service, Presbyterian Hospital.

Our routine films include stereoscopic roentgenograms in both lateral and anteroposterior projections, also an anteroposterior projection through the open mouth to delineate better the first two segments, particularly the odontoid process. We would emphasize that stereoscopic films are essential in order that the finer variations from the normal may be recognized. Even in the most marked cases the lateral projections are difficult to interpret unless the third dimension is appreciated which 'separates' the various structures that are otherwise superimposed.

In the usual case the facet surface of one segment is seen displaced upward and forward on that of the corresponding one below. There is usually an associated slight backward displacement of the corresponding facet on the other side, owing to the rotary nature of the displacement. This is recognized best in the lateral view (figs 1 and 2), although the anteroposterior view will give one the impression of a longer superimposed facet shadow on the side of the displacement. Moreover, one will see the tilt of the spine and chin to the opposite side.

The objection has been raised that if the lateral projections are slightly oblique one will get a false impression of subluxation, but if one is careful to use the anterior margins of the facet surfaces as an index of the amount of displacement this source of error can be disregarded. We have satisfied ourselves that the roentgen picture produced by the clinical entity we describe cannot be reproduced by the attempt of a normal individual to assume an attitude corresponding to that seen in a clear cut case of subluxation.

Among the sixty-six cases we have not seen any that has shown a complete forward displacement with the facet slipped forward into the intervertebral notch. In only one case was the roentgen study negative. This

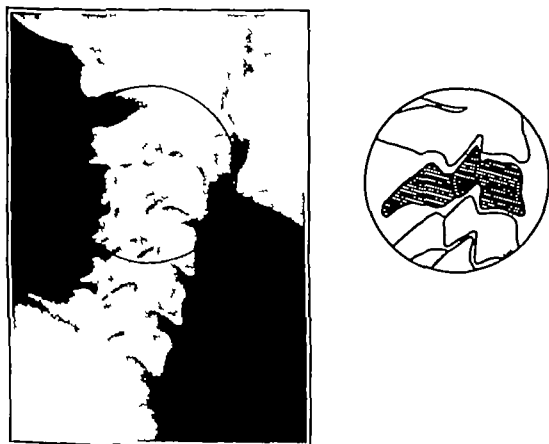


Fig 1—A representative film showing subluxation of the articular facet of the third segment on that of the fourth

can be expected in an occasional case, since very slight displacements may take place which may have been reduced spontaneously or with only slight manipulation as is necessary when placing the patient for roentgenography. The symptoms of pain and spasm persist for a time in spite of the reduction.

In thirty-seven cases the subluxations occurred between the second and third cervical vertebrae, none between the first and second and one at the sixth and seventh. The others were fairly evenly divided between the remaining levels.

We have modified our treatment somewhat since our first article was written. Of the last thirty-nine cases, seventeen were treated by simple head traction of from 5 to 15 pounds, depending on the size of the patient and lasting from twenty-four to seventy-two hours. Two subluxations were not reduced by this method and required manipulation under general anesthesia. Seventeen patients were treated in a manner described by Dr Stookey<sup>1</sup> for more severe fracture-dislocations.

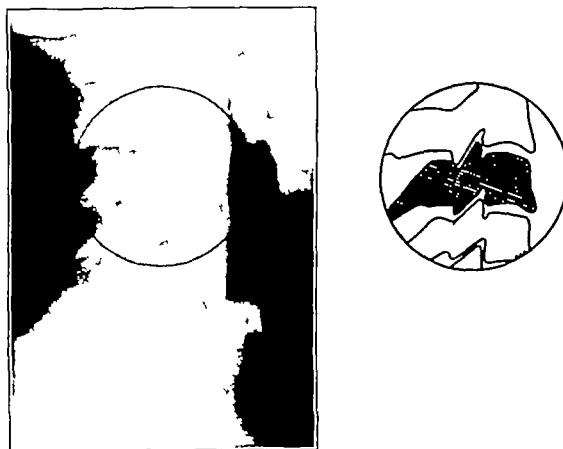


Fig 2—Same case as in figure 1, lateral film (after reduction)

on an air mattress in which hyperextension of the neck is obtained by allowing the head to lie in a trough made by compressing the mattress with a wide strip of adhesive plaster. Three of the results were unsuccessful and the dislocations were reduced by head traction. Two cases were successfully manipulated as primary procedures and three reduced spontaneously either on the x-ray table or during the process of examination.

No form of immobilization was used on the three cases that reduced spontaneously. In the group in which reduction occurred very quickly after admission to the hospital and which seemed to be of a mild type, a Schanz collar of cotton and muslin was applied and maintained for from ten to fourteen days. Patients who required more strenuous efforts for reduction who had had recurrences or who had marked symptoms were immobilized in plaster collars for four weeks.

Five of the sixty-six cases have recurred: one at seven days in an active small boy who twisted inside a loosely fitting collar, one at twelve days in a girl who removed her plaster collar against advice to go to a dance and subluxated it at the dance, one at six weeks in a patient who had cut down his plaster collar a week after leaving the hospital, one at seven weeks in a woman who had worn a plaster collar for four weeks and one at five and one-half months in a man who had worn a plaster collar for four weeks.

#### CONCLUSION

We would stress again the composite picture presented by the sixty-six cases here reviewed: a relatively young adult who seeks relief for stiffness and pain in the neck within twenty-four hours after a mild twist or jerk of the head and who holds his head tilted to one side and cannot bend it to the opposite side. Adequate roentgenograms are necessary for conclusive diagnosis. Treatment is relatively simple after the diagnosis has been established.

# BACK STRAIN AND SCIATICA

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BOSTON

## SCIATICA—OBER

JOUR. A. M. A.  
MAY 4 1935

It is my purpose in this paper to present a new theory relating to the cause of lame backs. The members of the profession at large know only too well that there are many symptoms of low back disabilities for which there have been no explanations. The terms sacro-iliac strain and dislocation or lumbosacral strain are in common use. Up to the present, these explanations have satisfied most physicians, depending on which side of the fence they happen to be. When roentgenograms of the sacro-iliac and lumbosacral joints are presented which show no evidence in this region of any pathologic condition, either congenital or acquired, it would seem difficult to make a positive diagnosis of either sacro-iliac or lumbosacral strain. One is frequently troubled by the fact that there is a negative roentgenogram of a patient whose clinical signs and symptoms are those of extreme irritation in the sacro-iliac or lumbosacral joints. As a result of observation and examination of a number of cases of this type it has been discovered that the ilio-tibial band is an exceedingly important factor in the occurrence of lame backs, with or without an associated sciatica.

### ANATOMY

The fascia lata is a sheath that surrounds the thigh muscles, with trabeculations that pass between the muscles and form intramuscular septums. This fascia



Fig 1—Anatomy of the iliotibial band (Sobotta and McMurich Anatomy)

### PATHOLOGY

It has been observed in many patients with low back disturbances that the iliotibial band is extremely tight and prominent when the patient is lying on his back, with the knees together or when he is in the erect position. The band is very rigid almost bone-like in consistency, when under tension usually about one-half inch wide, and is raised above the level of the fascia lata, with which it connects anteriorly and posteriorly

It is easily located in a line, usually just in front of the trochanter. It may be situated immediately over the trochanter or it may be a little posterior. When the band is situated immediately over the trochanter, many patients complain of a snapping sensation in the hip. This snapping sensation is due to the riding of the band back and forth over the trochanter. Many writers have been cognizant for a long time that this is the cause of snapping hips. When the contracture is present on one

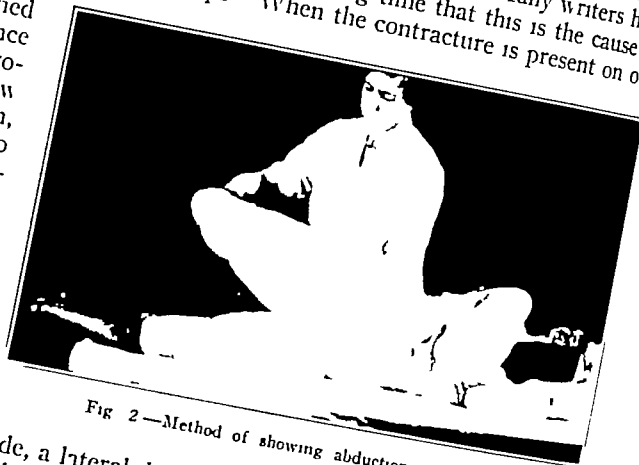


Fig 2—Method of showing abduction contracture.

side, a lateral deviation of the spine is produced on that side and the pelvis is found to be tilted. The mechanics of the contracture and the leverage produced by the contracture are so great that it is possible that the unilateral contracture may account for irritation in the sacro-iliac joint. When both bands are tight and in front of the trochanter, the lumbar spine is held in lordosis in both the standing and recumbent positions. If contracture is posterior to the trochanter, the spine is held in a lumbar kyphosis. In two of the cases to be reported in which operation was done, a chronic, inflammatory condition was found in the iliotibial band under microscopic examination. In one case there was a report of perivascular cellular infiltration in the intermuscular connective tissue and a loss of cross striations in the muscles.

### SYMPTOMS

Patients who have this contracture complain of the low back pain as a sensation of strain in the low part of the back in the region of the lumbar and sacral bones or in the sacro-iliac articulations. Severe sciatica is associated quite often with the condition and there also may be pain along the lateral femoral cutaneous nerve and occasionally along the distribution of the femoral nerve. Those who have the double contracture may show sciatic irritation on one side or both sides, or alternating attacks.

### EXAMINATION

- 1 Straight leg raising is usually limited whether sciatica is present or not.
- 2 When these patients are asked to sit down and bend the body forward, with the legs extended on the examining table, it is very rare for the lumbar spine and pelvis to flex even to a right angle (fig 3). Many of these patients are unable to stoop over and touch the floor with their hands (fig 4).
- 3 In most cases, Ely's sign is present. (This sign was first described as pathognomonic of sacro-iliac irritation or disease.) As a matter of fact, Ely's sign merely indicates a contracture of the fascia lata. This sign is obtained while the patient is lying prone on

the examining table. The examiner flexes the leg on the thigh and as the flexion takes place the pelvis rises from the table.

4 The most important diagnostic sign of the contracture is obtained as follows. The patient is placed directly on his side. The examiner places one hand on the pelvis to steady it and grasps the patient's ankle lightly with the other hand holding the knee flexed at a right angle. The thigh is abducted and extended in the coronal plane of the body (fig 2). If the contracture described is present the leg will remain abducted, the degree of abduction depending on the amount of contracture present. This sign is present both in the conscious and in the anesthetized patient. If there is no contracture present, the thigh will adduct beyond the median line.

#### TREATMENT

The treatment of this condition resolves itself into one factor, and that is the relief of the contracture. In those cases in which there is no sciatica or other pain, the low back pain may be relieved by stretching exercises carried out in the following manner:

The patient stands with the affected side about  $2\frac{1}{2}$  feet away from a table or some other convenient object which he grasps with one hand then with his shoulder and pelvis in the same plane he bends the affected hip toward the table as far as he can his whole figure forming an arc. This position is maintained for a few seconds and then repeated five times the first day and is increased once each day until the exercise is done twenty-five times, twice a day.

In those cases in which there is a severe sciatica, operation is indicated and the method of procedure is as follows:

1 An incision is made from just below the crest of the ilium down to the tip of the trochanter, directly over the contracted iliotibial band.

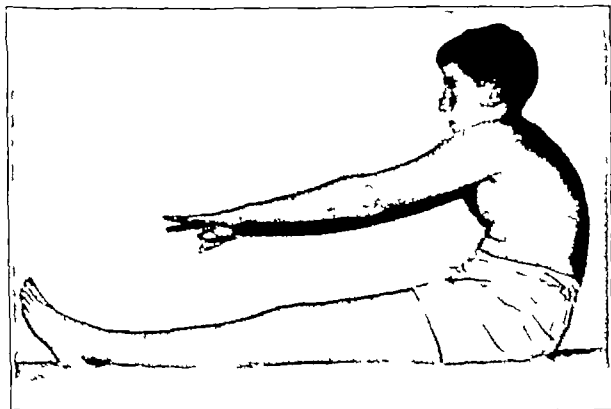


Fig 3—Illustrating shortening of the posterior muscles sitting

2 The fascia lata is exposed forward as far as the anterior superior spine and backward to the edge of the gluteus maximus muscle. The area of the greatest contracture of the fascia can be seen readily and felt easily.

3 The fascia is now divided transversely from just below the anterior superior spine to the anterior border of the gluteus maximus muscle (fig 5). There is immediate separation of the cut edges for a distance of from  $\frac{3}{4}$  to  $1\frac{1}{2}$  inches depending on the amount of contracture present. If the operator now attempts to carry out the test described it will be shown that the thigh will completely adduct.

Several patients with low back symptoms and severe sciatica have been operated on, some of them with

almost dramatic results. These patients have suffered from severe sciatica, lasting, in many instances, for several months. In cases 1 and 3 the relief from sciatic pain was almost immediate, there being a marked diminution of symptoms within twenty-four hours following operation. In several of the other cases the sciatic pain persisted for about six weeks and in one case lasted for eight weeks after operation, the sciatica subsiding very slowly. Thirteen patients have been operated on with relief in all instances except one.

Before the surgeon does this operation he should be very sure that there is no pathologic condition in the spinal canal, especially in the region of the cauda equina. The explanation of the amelioration of the sciatic symptoms and the low back disability

might possibly be made on two grounds. First, that the shortness of the iliotibial band and the contracture of the fascia lata causes a squeezing effect on the sciatic nerve where it passes over the acetabulum. Second, an explanation which seems to be more reasonable, that the mechanical pull of the contracted bands or band is producing a mechanical strain of the sacro-iliac or lumbosacral articulation.

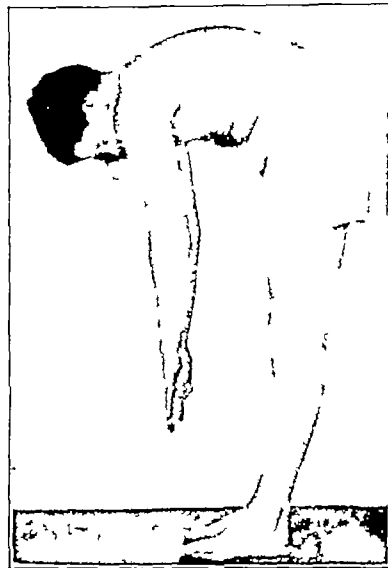


Fig 4—Illustrating shortening of the posterior muscles, standing. Contracture of the iliotibial band plays a large part in this condition.

#### REPORT OF CASES

CASE 1—A F, a man aged 39, seen Feb 5, 1934 complained that while leaning over to dry his left foot following a bath and resting the left foot on the tub bearing his weight on the right foot, he felt a sudden tearing pain in the right lumbar regions. There was no radiation of the pain. There was slight local tenderness to the right of the lumbar spine.

The patient had been leading an active life playing squash regularly until 1932 when he had an attack of angioneurotic edema of the meninges and had no physical exercise until July 1933. In October 1933, following a game of squash he awoke the next morning with severe pain in the right lumbar region which persisted about four weeks. There was no radiation of the pain and only slight local tenderness. Four weeks later he had another attack after playing squash for a few minutes. In the next four weeks the pain grew steadily more severe. It was aggravated by walking standing and sitting and from time to time there was a dull radiation of pain toward the right ischial tuberosity. Coughing and sneezing increased the pain.

Examination at this time showed the ankle jerks equal and active and no tenderness over trunk or nerve. Passive flexion of the hip with the knee extended was painful and the pain was referred to the thigh buttock and right ilio-lumbar angle. A belt gave no relief.

In January 1934 the pain was increased and was constantly present as a severe ache in the gluteal region. The patient had severe cramplike pains radiating to the posterolateral aspect of the thigh and outer aspect of the calf and foot. Pain was aggravated by walking and standing. At this time he was taking from 4 to 5 grains (0.2 to 0.3 Gm) of codeine and

from 40 to 50 grains (2.6 to 3.2 Gm) of acetylsalicylic acid daily. February 5 a tailored corset was applied, which gave some relief, so that the patient was able to walk with less discomfort, but the sciatic pain was almost unbearable if he attempted to stand a few minutes without the support.

February 17 he had an attack of influenza and was confined to bed, with almost immediate exacerbation of the pain. When he entered the hospital there was some decrease in the right ankle and knee jerks and slight diminution in all forms of superficial sensation along the distribution of the sciatic nerve. The general physical examination was negative. No foci of infection could be found. Roentgen evidence of the disturbance at the fourth lumbar vertebra on the left and complete sacralization of the fifth lumbar vertebra on the right. Diathermy and heat gave no relief. Epidural injections consisting of 0.5 per cent procaine hydrochloride and physiologic solution of sodium chloride to a total volume of 280 cc, were given with moderate relief. Massage given in March was painful. The patient remained in bed most of the time from February 17 to April 30.

Examination showed limitation of motion of the lumbar spine in all directions attended by marked spasm of the lum-

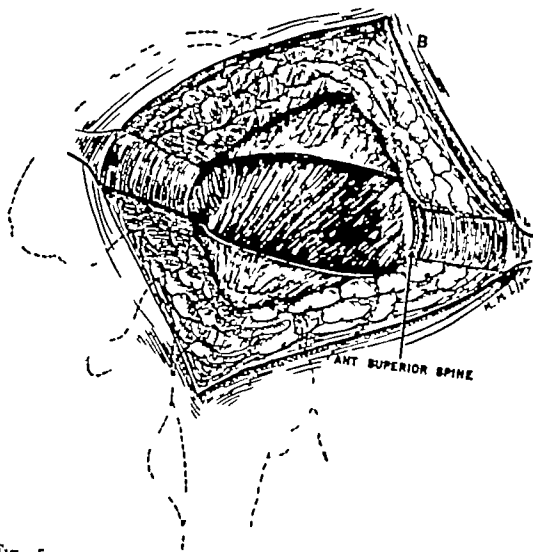


Fig 5—Separation of the iliotibial band after section

bar muscles. Very few degrees of forward flexion were allowed. Straight leg raising was markedly limited on the right and not on the left. The iliotibial band on the left side was moderately contracted. On the right side it was contracted so that there was about 10 or 15 degrees of permanent abduction.

May 2 under a local anesthetic the iliotibial band was divided as described. The patient was returned to bed after his breakdown and suffered some local discomfort as a result of the operation. At 5 p.m. he walked unassisted to the bathroom. When he stood without support, pain radiated to the old area, especially outside of the calf, but the intensity and quantity were diminished. May 3 he stood up and gave himself a sponge bath and shaved. He had been unable to stand this long without support for three months. There was a moderate amount of pain in the outer calf. A pathologic specimen removed at the time of operation showed degeneration of the fibrous connective tissue.

The patient left the hospital May 5 and flew to New York. No supporting belt has been worn since May 8. The only discomfort that he has had is a transitory sensation in the region of the incision. May 24 he walked 4 miles two of them without resting and the only effect of this was moderate fatigue. From the patient's point of view the most striking factor has been the dramatically striking change in the character of the pain. It was almost unbearable in the beginning and now it

has entirely disappeared. The patient was an excellent one from the surgeon's standpoint, as he is himself a neurologist.

CASE 2—A D, a woman, aged 31, married the wife of a physician, seen June 13, 1934, had for a number of years had pain in the lower part of the back, which was worse after prolonged standing, and occasionally it was troublesome in clearing up. Previous to June 13, 1934, she had been admitted to the Lakeside Hospital on two different occasions with severe sciatica. On one occasion the left sciatic nerve was stretched and on another saline injection was performed. The present attack began about six months before and was limited to the course of the left sciatic nerve. The patient was forced to go to bed for four months before admission on account of the severity of the pain. It was severe when she was sitting or bending the body. Roentgenograms had been entirely negative. Baking and massage gave no relief.

The patient was well developed and nourished and did not appear to be acutely or chronically ill. She was uncomfortable on moving and complained of constant pain in the posterior part of the left leg. There was tenderness along the course of the left sciatic nerve and in the region of the ischial tuberosity well down below the knee. Sensation everywhere was normal. The achilles jerk was absent.

June 13 I performed an operation on the left iliotibial band, dividing the band through the usual incision. Following the operation there was some relief from the sciatic pain. There was some discomfort in the wound and some pain low down at the anterior surface of the thigh. She was discharged from the hospital on the fourth day with marked improvement in the sciatica. There was complete disappearance of the sciatica in six weeks and the patient resumed a normal life on the eighth week with no pain.

CASE 3—J A, a Negro man aged 26, single, seen June 13, 1934, had first been seen by Dr. E. B. Castle of Cleveland, April 25, 1934, with a history of sciatica of six weeks duration. He had slipped and fallen down stairs, twisting his body when attempting to save himself.

Examination on his first visit showed considerable spasm of both erector spinae groups of muscles. Most of his complaints referred to the left sacro-iliac joint. There were some left sciatic symptoms with pain radiating down the posterior aspect of the thigh. The left side of the pelvis was tilted and there was a compensatory scoliosis. Straight leg raising on both sides caused pain in the region of the left sacro-iliac joint. The usual treatment was carried out. The back was strapped. He was given large doses of sodium salicylate, and heat was applied. There was no improvement.

The patient was seen in consultation with Drs. Maxwell Harbin and E. B. Castle. June 14, under gas-oxygen anesthesia, a left iliotibial fasciotomy was carried out through a transverse incision midway between the greater trochanter and the iliac crest. The second day after operation the patient sat on the edge of the bed and had no pain in the back and the spine was straight. At the time of operation the patient had a marked scoliosis and during the six weeks previous treatment it had grown steadily worse. The patient was discharged on the seventh day after operation. After he got out of bed a very small amount of the scoliosis returned but this disappeared promptly within a week. The patient returned to work, July 9, approximately three weeks after operation, fully recovered.

CASE 4—F K, a white woman, aged 33, married, seen July 16, 1934, complained of a lame back of twenty-one years' duration. She had been worse since the birth of a boy ten years before. She had been in constant pain and more or less uncomfortable with attacks of sciatica down the right leg. One year before she had a bad attack and was confined to bed from November to July. For six weeks she had been very uncomfortable. During that time she was up once but had severe pain in the left leg going down to the heel and the side of the foot. Sometimes she had pain over the outer side of the thigh, which kept her awake. She was uncomfortable in any position except the semiprone position with the left thigh flexed.

Physical examination July 16 showed that when she was standing all motions of the spine were limited with moderate muscle spasm. Straight leg raising was markedly limited on



both sides but more on the left. There was marked shortening of the iliotibial bands, more marked on the left. Ankle jerks were diminished on the left. Other reflexes were normal. There was weakness in the dorsal flexion of the left foot.

On July 18, under general anesthesia, both iliotibial bands were divided. July 26, straight leg raising was possible to 50 degrees on the left side and 60 degrees on the right. The power of dorsal flexion had increased. She was taking no sedatives after having taken them for nearly a year. Pain was decreasing. By August 11 the conditions had improved markedly. She walked better, with less sciatica. There was no weakness in dorsal flexion of the foot. September 16 she still had a moderate amount of sciatica in the posterior aspect of the thigh, but none down the leg. The patient could put on shoes without difficulty, which she could not do before operation. Straight leg raising was 80 degrees on the left side and to a right angle on the right. There was still slight limitation of the back motions, with a list to the left. The patient felt better than she had for years.

A pathologic report of the specimen removed at the time of operation was acute and chronic inflammation. Muscle fibers showed loss of striations.

CASE 5—A T, a white woman, aged 37, married, seen July 17, 1933, had had a lame back since she was 20, radiating first down one leg and then the other. Pain in the back was very acute in May 1931. Sciatica on the left side was very severe and she was confined to bed part of the time. The condition was much worse throughout 1931 and no ankle jerks were present at that time. Since then she had had difficulty with moderate and mild attacks of sciatica. At the present examination she complained of sciatic pain down the right leg with tingling and numbness. The patient has had snapping hips all her life.

Examination showed poor posture, posterior kyphosis at the lumbosacral region, and rounded shoulders. The lateral motions of the spine were free. The patient on sitting with the legs extended and bending forward, felt pain down the right sciatic nerve. There was no muscle spasm. Straight leg raising was considerably limited on both sides. Reflexes were normal except for an absent ankle jerk on the left. There was contracture of both iliotibial bands.

July 8, 1934, another examination was made, the patient's sciatica on the right side had cleared up a few months before. She now had pain on the left side with hamstring spasm. It was impossible to extend the leg completely while sitting. She had pain in both legs at night.

August 26 both iliotibial bands were divided. On the fifth day she had relief from the discomfort. She was seen on September 20, and while left sided sciatica was still present it was not so severe. The patient was last seen October 22 and at that time the sciatica had entirely disappeared. Straight leg raising was about 75 degrees.

#### SUMMARY

- 1 The chronic lame back problem has not yet been solved.
  - 2 The contracted fascia lata is a common cause of lame backs and has been unrecognized.
  - 3 If this is so, it would seem, in the presence of normal roentgen studies, that fusion of the sacro-iliac or lumbosacral regions should not be done.
  - 4 When the fascia lata is contracted, it must produce bad posture.
  - 5 Therefore, apparatus designed to hold the abdomen or the back, or exercises given to straighten the back will be ineffectual against such severe contractures.
  - 6 The method of treatment proposed is so simple and so beneficial that it should have a place in the armamentarium of the surgeon.
  - 7 No attempt has been made in this article to discuss other known conditions that cause low back disabilities.
- 234 Marlborough Street.

## CUTANEOUS MANIFESTATIONS OF THE LYMPHOBLASTOMAS

REPORT OF A CASE OF HODGKIN'S DISEASE

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The general practitioner is often called on to diagnose and treat various types of skin disorders. Many of these are local conditions peculiarly confined to the skin, whereas others are definite cutaneous manifestations of some systemic disease. Some run a benign course, while others are expressions of a neoplastic process. Any discussion that will aid the physician in arriving at a diagnosis or arouse his suspicions that he is dealing with a cutaneous expression of some hidden visceropathy seems worth while. With this in view, a general discussion of the lymphoblastomas would seem to be of value.

In this discussion the term lymphoblastoma is used to designate certain diseases of the hematopoietic system. Those which often give rise to cutaneous manifestations are Hodgkin's disease, mycosis fungoides, the leukemias (both myeloid and lymphocytic) and

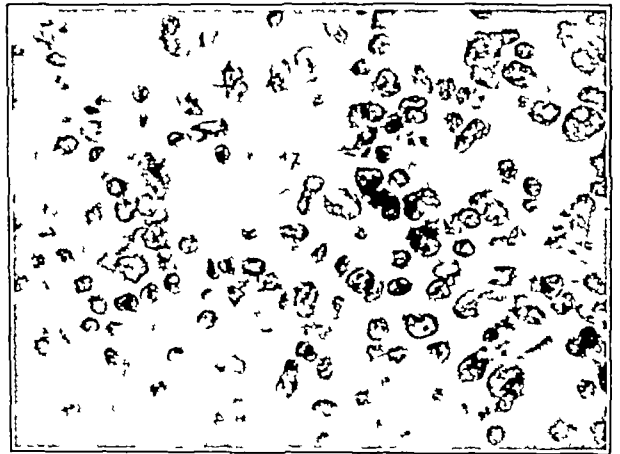


Fig. 1—Section of the lymph nodes showing numerous large vesicular cells and one giant cell.

lymphosarcoma. Occasionally these manifest themselves here before their demonstration in other parts of the body is possible.

It is not within the scope of this paper to discuss the various symptoms and cutaneous manifestations of these individual diseases. They have in common one cutaneous manifestation, however, which is so frequently observed that it deserves special emphasis. This is a generalized exfoliative dermatitis, or universal scaly erythroderma. Whenever such a condition is encountered and persists in spite of treatment, it should always be regarded as belonging to one of the malignant lymphadenoses until definitely ruled out.

Keim<sup>1</sup> has recently discussed the interrelationship of the various lymphoblastomas. He believes that this group of diseases presents itself under multiple clinical pictures and that the various clinical types encountered present interchangeable pathologic observations. He adds that the one constant pathologic condition in all

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<sup>1</sup> Keim, H. L. The Lymphoblastomas. Their Interrelationships. Arch. Dermat. & Syph. 10: 533 (April) 1929.

of these is a cell belonging to the lymphocytic series and, "until further information is forthcoming concerning distinct etiology, the term lymphoblastoma would seem to be justified on the basis of the genetic relationships existing between the members of this group"

All of these diseases are so closely interrelated and merge one into the other so often that one cannot pre-

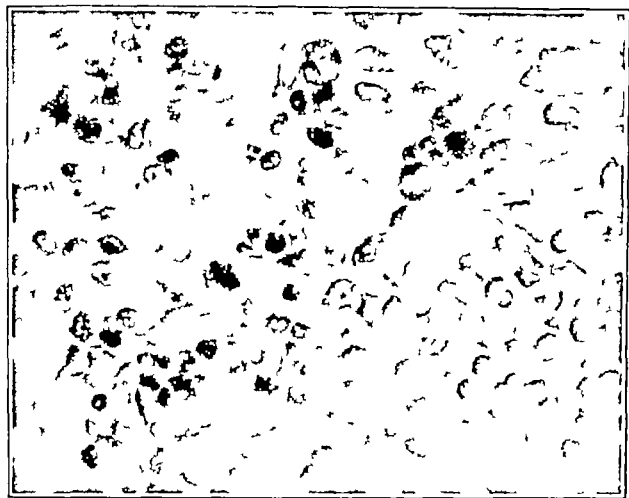


Fig. 2—Section of the lymph node showing two mitoses and increase in stroma.

dict that a typical case of cutaneous Hodgkin's disease might not present a leukemic blood picture before death. Cases of exfoliative dermatitis have been known to persist for months with no evidence other than the biopsy that the condition was lymphoblastoma. Occa-

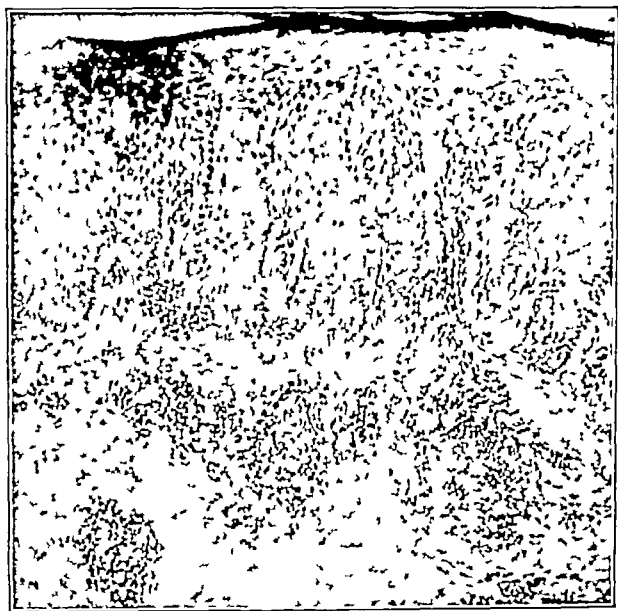


Fig. 3—Section under low power showing dense infiltrate in upper corium with some tendency of cells to arrange themselves in clumps

sionally these symptoms have been seen to disappear under roentgen therapy, the patient enjoys a remission for months and even years, only to return later with sufficient clinical evidence to permit then a specific diagnosis of leukemia, Hodgkin's disease or one of the other associated conditions. Transitions and mutations from one type to another have been reported by

numerous investigators, including Wile,<sup>2</sup> Kristjanson,<sup>3</sup> Keim,<sup>1</sup> Montgomery,<sup>4</sup> Wile and Stiles,<sup>5</sup> Fraser<sup>6</sup> and others. Ginsburg,<sup>7</sup> in a comprehensive review of lymphosarcoma and Hodgkin's disease, concludes that these conditions are fundamentally and biologically similar. He believes that whatever variations exist at times "are merely variations that one would expect to find in any disease affecting different individuals under different constitutional and environmental conditions"

Wile and Stiles<sup>5</sup> in a recent discussion of clinical mutations in lymphoblastomas, reported a case of eighteen years' duration originally diagnosed as the prefungoid stage of mycosis fungoides, which finally developed into a typical Hodgkin's disease, proved by biopsy. They believe that "clinical mutations that occur between various types of lymphoblastomas constitute strong evidence in favor of the view that lymphoblastomas are genetically related neoplasms involving the lymphoid tissue." A similar opinion from the pathologic point of view was expressed by the late Dr. A. S. Warthin<sup>8</sup>

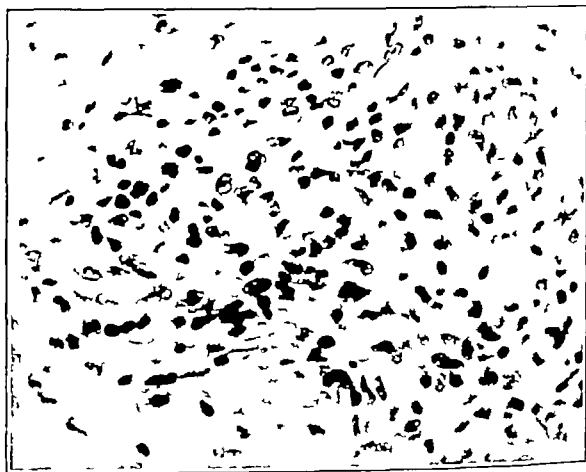


Fig. 4—Same as figure 3 under high power showing polymorphism of individual cells and variations in cell type

Although I am in accord with this view concerning the interrelationship of this group of diseases—as well as their neoplastic origin—one should be appreciative of the relationship of Hodgkin's disease to tuberculosis, as emphasized by L'Esperance,<sup>9</sup> Rulison<sup>10</sup> and others. The former in addition to recovering the avian type of tubercle bacilli from certain cases, likewise developed an avian tuberculin used intradermally as a diagnostic aid. Steiner<sup>11</sup> found no evidence of specific sensitization to the avian tuberculin protein in his cases. He found a marked desensitization (absence of sensitiza-

2 Wile U. J. Cutaneous Manifestations of Systemic Disease. *Ann Int Med* 5:9 (March) 1932

3 Kristjanson, H. T. Complement Fixation in Hodgkin's Disease and Allied Affections. *Am J M. Sc* 156:720-725 (Nov.) 1918

4 Montgomery, Hamilton. Exfoliative Dermatitis and Malignant Erythroderma. The Value and Limitations of Histopathologic Studies. *Arch. Dermat. & Syph* 27:253 (Feb.) 1933

5 Wile U. J. and Stiles Frank Jr. Clinical Mutations in Lymphoblastomas to be published

6 Fraser J. F. The Pathology of Mycosis Fungoides. *J. Cutan Dis* 35:793 1917. The Interpretation of Mycosis Fungoides As a Variety of Lymphosarcoma. *Arch. Dermat. & Syph* 11:425 (April) 1925

7 Ginsburg Solomon. Lymphosarcoma and Hodgkin's Disease. *Biologic Characteristics*. *Ann Int Med* 8:14 (July) 1934

8 Warthin A. S. Genetic Neoplastic Relationships of Hodgkin's Disease, Aleukemia and Leukemic Lymphoblastoma and Mycosis Fungoides. *Ann Surg* 83:153 (Jan.) 1931

9 L'Esperance Elise S. Experimental Inoculation of Chickens with Hodgkin's Nodes. *J. Immunol* 16:37 (Jan.) 1929

10 Rulison R. H. Hodgkin's Disease of the Skin. Report of a Case. *Arch. Dermat. & Syph* 22:3 (Sept.) 1930

11 Steiner P. E. Etiology of Hodgkin's Disease. II. Skin Reaction to Avian and Human Tuberculin Proteins in Hodgkin's Disease. *Arch. Int Med* 54:11 (July) 1934

tion) to both human and avian strains of tuberculin. He believes that Hodgkin's disease either desensitizes to these tuberculin proteins or else occurs only in persons in whom the normal sensitization to the tuberculin protein is impossible. He cannot conceive of either of these occurring without some relation to tuberculosis.

The greatest aid in the diagnosis of the lymphoblastomas is the early skin and lymph gland biopsy. The histology is quite characteristic—an infiltrate of lymphoblastic cells occurring in the upper portion of the corium either as a sharp, bandlike infiltrate or in clumps. The lymph gland biopsy will usually show marked hyperplasia and the same type of lymphoblastic cells as seen in the skin. Numerous cases have been so diagnosed from biopsy months and even years before there was other evidence clinically to substantiate a specific diagnosis. Just as there are mutations and interrelationships clinically in these diseases, so there are pathologically. Frequently the biopsy reveals only a nonspecific lymphoblastoma the specificity of which can be determined, if at all only by the clinical observations. Quite often the clinical and pathologic diagnoses differ with regard to the specificity of the lymphoblastomatous process. Many cases of cutaneous and hematogenous leukemia have been diagnosed Hodgkin's disease at postmortem by competent pathologists. McCartney<sup>12</sup> reported a case in which the microscopic studies of the lymph glands revealed four distinct histologic types. In some areas the pathology was typical of Hodgkin's disease with Dorothy Reed cells while other portions simulated lymphatic leukemia, primary endothelioma of lymph nodes, and lymphosarcoma. Such occurrences are not at all uncommon and perhaps explain the differences in pathologic diagnoses often obtained.

According to Wile,<sup>2</sup> the lymphoblastomas may manifest themselves cutaneously in three different ways. The first group are true metastatic lesions occurring in the presence of lymphadenotic blood pictures. These may express themselves cutaneously as tumors, infiltrations, hyperpigmentation or otherwise. In the second group the cutaneous expressions may antedate involvement of the blood and lymph glands. Most of the cases of exfoliative dermatitis fall in this group. The third group includes the scaly erythrodermas, localized tumors, and so on, in which transitory deviations from normal blood pictures are found as well as changes in the lymph glands. Wile believes that although the majority of the cases are lymphoblastomas at the onset there are perhaps a few cases in which the lymphadenosis is secondary to a prolonged skin insult. It is quite likely that the following case is such an example.

#### REPORT OF CASE

**History.**—A man aged 55, referred to me Aug. 22, 1933 by Dr. Harry S. Frazier had been confined to bed intermittently for the past year and continuously for the past few months. In September 1932 he got some rust remover on his hands and wrists and, before washing this off, had contaminated his penis and scrotum. The following day he noted itching of the hands, wrists and scrotum. He stated that these were red and inflamed. The eruption was treated blandly but proved resistant and gradually spread over his entire body. The condition was very pruritic and gradually exfoliation occurred in sheets of epidermis. He lost considerable hair from his scalp, eyebrows, axillae and pubic area. He became very weak and lost from 40 to 50 pounds (18 to 23 Kg.). He had numerous remissions and exacerbations some of which were associated with weeping and oozing.

The original diagnosis was contact dermatitis presumably from rust remover.

In March 1933 the patient consulted Dr. William Allen Pusey of Chicago who made a tentative diagnosis of lymphoblastoma. At this time a biopsy from the skin was taken and proved to be consistent with this opinion. The patient was given some roentgen therapy with no apparent benefit. Since his return home from Chicago he had received no further roentgen therapy and had become much worse.

In 1913 the patient was ill for twelve or thirteen months. He consulted numerous physicians but no final diagnosis was ever made. The symptoms were loss of weight and inability to walk for a time. He gradually recovered. In 1921 he fell from a Pullman berth and dislocated (?) a vertebra. He was an invalid for about nine months but finally recovered. The rest of his past history is unessential.

**Examination.**—The patient was lying in bed obviously in agony from scratching. There was definite evidence of loss of weight. There was marked thinning of the scalp and eyebrows and practically total alopecia of the axillae and pubic area. There was generalized lymphadenopathy, the largest glands being found in the axillae. These were lemon size and moderately firm but not matted together. The liver was felt a hands breadth below the right costal margin, the edge was hard but not tender. The spleen was questionably palpable. The knee jerks were diminished. The patient presented a universal scaly erythroderma, the scales varying from a branny type over the legs to thicker ones over the back. In areas the skin was thickened and lichenified, but there were no infiltrations or tumors noted. There was marked hyperkeratosis of the palms and soles. A tentative diagnosis of lymphoblastoma was made but it was necessary to substantiate this by biopsy and rule out certain other possibilities.

The blood Wassermann reaction was negative. Urinalysis was essentially negative. Slides were sent to the Simpson Memorial Institute for Medical Research at Ann Arbor, Mich., and the report in part was as follows: There is absolutely no evidence of leukemia. The differential count is as follows: polymorphonuclear neutrophils 65 per cent, eosinophils 18 per cent, large lymphocytes 2 per cent, small lymphocytes 8 per cent, monocytes 7 per cent. This differential count can be accounted for both by a lymphoblastoma such as Hodgkin's disease or as a result of roentgen therapy. Frequent blood counts were made and, although they showed a secondary anemia and an eosinophilia, at no time was there evidence of a leukemic blood picture. Tests for arsenic were negative on the urine, hair and cutaneous scales. Roentgen examination of the lungs September 15 was, according to Dr. J. C. Bell, essentially negative; there was no evidence of enlargement of the mediastinal glands.

Gordon's test (intracerebral inoculation of rabbits) was not performed nor was avian tuberculin employed intracutaneously.

**Biopsy.**—September 24 a lymph gland was removed from the right inguinal region and with it a piece of the overlying skin. A diagnosis of Hodgkin's disease of the lymph glands was made by Dr. A. J. Miller and corroborated by Dr. Jaffe of Chicago (figs. 1 and 2). Dr. Hamilton Montgomery of the Mayo Clinic reported the following on examination of the skin biopsy (figs. 3 and 4): 'The skin section shows a definite picture of lymphoblastoma nonspecific however, in type. The infiltrate in the upper cutis is too varied and dense and shows too much polymorphism of the individual cells and variation in cell types to permit regarding the picture as a simple inflammatory affair. There are no Dorothy Reed cells present to warrant a diagnosis of Hodgkin's disease, but otherwise the infiltrate together with the eosinophilia would fit in with either Hodgkin's or mycosis fungoides. The usual epidermal changes with microabscess formation seen in mycosis fungoides are absent. The infiltrate is not uniform or dense enough for leukemia cutis or lymphosarcoma, nor does it have enough immature cell forms for these two conditions. In conclusion therefore, I would make a diagnosis of lymphoblastoma, nonspecific in type.' Dr. Gordon, acting pathologist at the University of Michigan Hospital corroborated the diagnosis of a nonspecific lymphoblastoma and added that it might become leukemic at any time.

**Treatment and Course.**—The patient was entirely too weak to bring into the office for roentgen therapy so it was necessary

<sup>12</sup> McCartney, J. S., Jr. Malignant Lymphoblastoma. Report of Two Cases. J. Cancer Research 12: 195-207 (Sept.) 1929.

to resort to other local means in order to give him relief from his intractable pruritus. Treatment consisted of wet boric acid dressings continuously and corn starch and baking soda baths. The latter afforded him marked relief from his itching and he gradually spent most of his time in the tub, even eating and sleeping there. Various other local measures were employed, including the usual bland lotions, ointments and powders. In addition he was given calcium, iron and solution of potassium arsenite by mouth. His itching was so intolerable that four or six times the normal sedative dose was of no avail. After several days under the foregoing regimen, roentgen therapy was started. This consisted of generalized superficial therapy as well as high voltage roentgen therapy over the glands. Between September 14 and November 9 the patient received filtered x-ray treatments to the axillary, inguinal and retroperitoneal glands (factors 4 mm aluminum filter 5 milliamperes 135 kilovolt peak distance 16 inches time five minutes, 120 roentgens). In addition he also received generalized and localized superficial therapy between Aug 29, 1933, and Feb 12 1934 (factors no filter, 3 milliamperes, 87 kilovolt peak distance 12 inches, time one minute, 75 roentgens). A 3 mm aluminum filter was employed with this set-up when localized edematous swellings were treated.

The patient made noticeable improvement after three or four roentgen treatments. The relief from the pruritus was remarkable. In spite of improvement in general, there were exacerbations during which the patient would develop chills and fever, and insomnia and would experience a return of the pruritus associated with weeping and oozing of the skin. He also experienced periods of profuse perspiration and developed intermittent edematous swellings over his body as well as some bluish black tumors. He also developed pain and weakness in the right arm apparently due to pressure on the brachial plexus from the enlarged axillary glands.

All of these symptoms gradually subsided, the adenopathy practically disappeared, the liver edge receded and eight weeks after beginning roentgen therapy the patient returned to his work. When I last saw him, Aug 23 1934 he was entirely asymptomatic. His skin, according to him, was smoother than he had ever known it to be. His weight was 206 pounds (93 Kg). There were no appreciably enlarged glands, and the blood count, June 22 1934, was essentially normal.

#### COMMENT

There were four major diagnostic possibilities in this case, namely, sensitization dermatitis (contact with an external irritant), an arsenical exfoliative dermatitis, a universal psoriasis, and lymphoblastoma.

*Sensitization Dermatitis*—Although there was every reason to suspect such a diagnosis at the onset, the subsequent course and clinical picture were entirely inconsistent with such a diagnosis. The symmetry of the eruption, the keratosis of the palms and soles, the development of subcutaneous nodules, with outbursts of perspiration and fever, and the failure to respond to bland therapy, made such a diagnosis untenable.

*Psoriasis*—Occasionally psoriasis is ushered in by a generalized exfoliative dermatitis, and sometimes a typical psoriasis eventually develops an exfoliative stage. There was no history of a previous psoriasis in the case under discussion and the same factors that would rule out a sensitization dermatitis would likewise dismiss this possibility. In addition, the cutaneous biopsy was not the picture encountered in psoriasis, and of course such a condition could hardly explain the lymph gland picture of Hodgkin's disease.

*Arsenical Exfoliative Dermatitis*—The generalized exfoliative dermatitis along with the loss of hair and keratoses of the palms and soles would certainly rouse suspicion of arsenismus. There was evidence, however, against such a diagnosis. There was no history of arsenic ingestion, arsenic was not demonstrated in the urine, hair, nails or cutaneous scrapings, and there

were no other signs or symptoms of arsenic poisoning. Add to this lack of evidence the edematous nodules found in the skin and the information gleaned from the biopsy of skin and lymph glands, and one is forced to exclude this from the diagnostic possibilities.

*Lymphoblastoma*—The presence of a generalized exfoliative dermatitis along with a palpable liver, generalized lymphadenopathy, loss of weight, fever, and development of subcutaneous nodules, was in itself sufficient to place the diagnosis in the group of lymphoblastomas. The cutaneous biopsy definitely showed a nonspecific lymphoblastomatous infiltrate whereas the lymph gland was even more specific, permitting a diagnosis of Hodgkin's disease. Had it been possible to secure a biopsy from one of the bluish tumors or subcutaneous nodules, no doubt a typical Hodgkin's architecture would have been found. According to Rulison,<sup>13</sup> 25 per cent of all cases of Hodgkin's disease show skin manifestations, and in 10 per cent of the cases the cutaneous are the first symptoms.

Cutaneous Hodgkin's disease can be divided into two types: the essential type, in which there are definite plaques and nodules with a typical Hodgkin's picture microscopically, and the so-called nonspecific type, in which one finds prurigo-like nodules, excoriations, pigmentation, and a generalized exfoliative dermatitis. The latter are usually toxic manifestations and, as a rule, do not show the typical microscopic changes of Hodgkin's disease, although at times they may. The microscopic changes, however, are not always constant, varying at times from a simple inflammatory process to a typical lymphoblastomatous infiltrate with Dorothy Reed cells.

Cole<sup>13</sup> placed the order of frequency of signs and symptoms in Hodgkin's as follows: diffuse exfoliative dermatitis, pruritus, prurigo-like eruptions, urticaria, edematous swellings, pigmentation, outbursts of perspiration, alopecia, dryness of the skin, icterus, purpuric lesions and red or bluish tumors of the skin. In the case here reported, all these manifestations except icterus were present at some time or other.

Wile and Stile's<sup>6</sup> paper has shown that the prognosis in such cases is better than heretofore believed. Their patient has already lived eighteen years since the diagnosis was first made.

At the present time our patient is in a state of remission, is entirely asymptomatic, and is enjoying excellent health. No one can predict the future course. Whether or not he will eventually develop typical clinical Hodgkin's disease, the tumors of mycosis fungoides, lymphosarcoma, or the blood picture of leukemia is not known, but no doubt one of these will eventually transpire.

#### CONCLUSIONS

1 In a case of Hodgkin's disease of the skin, the cutaneous manifestations were the first symptoms, preceding the fever and adenopathy.

2 Every case of generalized exfoliative dermatitis or universal scaly erythroderma should be regarded as a possible cutaneous manifestation of one of the lymphadenoses.

3 The early cutaneous and lymph gland biopsy is of great value.

4 Roentgen therapy to the skin and lymph glands is the most useful form of treatment at the present time.

Heyburn Building

<sup>13</sup> Cole H. E. The Cutaneous Manifestations of Hodgkin's Disease. *Lymphogranulomatosis* J. A. N. A. 69: 341 (Aug 4) 1917.

SUBACUTE COMBINED DEGENERATION  
OF THE SPINAL CORD IN  
PERNICIOUS ANEMIATHE COMPLETE ARREST OF THE LESION WITH  
PARENTERAL LIVER THERAPY

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A survey of the recent literature on the effectiveness of liver therapy in subacute combined degeneration of the spinal cord associated with pernicious anemia reveals grossly contradictory opinions. Seyderhelm<sup>1</sup> believes that this disorder of the nervous system is entirely uninfluenced by such therapy and Cohen<sup>2</sup>, McAlpine,<sup>3</sup> Curschmann,<sup>4</sup> Krause<sup>5</sup>, Fahr<sup>6</sup>, Carey<sup>7</sup>, Davison,<sup>8</sup> Sargent<sup>9</sup>, Ahrens,<sup>10</sup> Thaysen<sup>11</sup> and Morawitz,<sup>12</sup> among others, believe that unfavorable progression of the disease may occur in spite of liver treatment. On the other hand, optimistic reports have been recorded by Minot and Murphy,<sup>13</sup> Richardson<sup>14</sup>, Fried,<sup>15</sup> Ungley and Suzman<sup>16</sup>, Suzman<sup>17</sup>, Lottig<sup>18</sup>, Starr,<sup>19</sup> Strauss and Castle,<sup>20</sup> Baker, Bordley and Longcope,<sup>21</sup> Meulengracht<sup>22</sup> and many other clinicians.

Our purpose in this communication is threefold: 1 To consider why such different results have been obtained by various clinicians; 2 To present the data obtained from a critical study of twenty-six patients

with outspoken spinal cord degeneration treated by liver extract injections for an average period of three years; 3 To consider the significance of the fact that spinal cord disease has not developed in any of eighty patients with pernicious anemia while under adequate parenteral liver therapy during an average period of three years, whereas the reported incidence of this condition in pernicious anemia indicates that a significant number of these patients would doubtless have developed spinal cord lesions if untreated during that period of time.

This paper is concerned only with changes referable to the spinal cord. Both the peripheral nerves and the brain may be involved in pernicious anemia, but changes in these parts of the neural system are not for consideration here.

The contradictory reports in the literature may be best understood by considering certain fundamental facts relevant to the spinal cord symptomatology. First of these is the nature of the pathologic lesions. Fried's summation<sup>14</sup> seems sufficient: "Indeed, the pathologic process, like the clinical picture, passes through a series of nuances from barely demonstrable degenerative changes to a complete degeneration of nerve cells and axon cylinders followed by a gliosis." Later he states: "Whereas in visceral organs degenerative cellular changes are often followed by a *restitutio ad integrum*, analogous processes of regeneration of nerve cells or nerve fibers in the central nervous system have never been observed." Regeneration of completely destroyed nerve cells and fibers of the central nervous system following any therapy cannot be expected in subacute combined degeneration of the spinal cord any more than in *tabes dorsalis* or paralytic poliomyelitis. It is true, however, that in both the latter conditions provided renewed injury is prevented much improvement may be expected over a long period of time through reeducation and because it is possible that unaffected cells and fibers may take over functions previously mediated by destroyed pathways. While it is apparent that a nerve cell or fiber in the central nervous system cannot regenerate when completely destroyed, it appears probable that function may be lost to a greater or less extent in the early stages of the disease process while regeneration is still possible.

These considerations lead to the conclusion that the effectiveness of therapy in subacute combined degeneration of the spinal cord must be determined not by the degree of improvement but by the evidence of arrest of the process.

Secondly, apparent improvement in the neurologic condition may be entirely due to betterment of general health and strength, reeducation and training, and improved circulation and subsidence of edema in the spinal cord. In fact, many of the reports that indicate remarkable improvement in patients with spinal cord lesions fail to consider the fact that when the patients were first observed they often suffered from severe anemia and other manifestations of the deficiency state as well as from spinal cord lesions. Marked improvement in such individuals following liver therapy has no necessary significance with regard to the state of the spinal cord cells or nerve fibers.

Furthermore, since peripheral nerves are capable of complete regeneration as long as the cell body has not degenerated, signs and symptoms referable to such peripheral nerve injury may completely disappear and lead to the impression that marked regeneration has occurred in the spinal cord.

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1 Seyderhelm R. Möglichkeiten und Grenzen der Lebertherapie. Deutsche med. Wchnschr. 55: 1704 (Oct. 11) 1929.

2 Cohen A E. Subacute Combined Sclerosis. Progressive During Remission of Pernicious Anemia. J. A. M. A. 90: 1787 (June 2) 1928.

3 McAlpine Douglas. A Review of the Nervous and Mental Aspects of Pernicious Anemia. Lancet 2: 643 (Sept. 28) 1929.

4 Curschmann Hans. Die Nervenstörungen der Biermerschen Anämie und die Lebertherapie. Med. Klin. 25: 1767 (Nov. 15) 1929.

5 Krause F. Ueber das Versagen der Lebertherapie bei den funikulären Erkrankungen der perniziösen Anämie. Klin. Wchnschr. 8: 2177 (Nov. 19) 1929.

6 Fahr T. Pathologisch-anatomische Beiträge zur Kritik der Lebertherapie bei der perniziösen Anämie. Deutsche med. Wchnschr. 57: 8 (Jan. 2) 1931.

7 Carey J B. Pernicious Anemia with Fatal Termination During a Liver Diet. Arch. Int. Med. 47: 893 (June) 1931.

8 Davison Charles. Subacute Combined Degeneration of Cord Changes Following Liver Therapy. A Histopathologic Study. Arch. Neurol. & Psychiat. 26: 1195 (Dec.) 1931.

9 Sargent William. Treatment of Subacute Combined Degeneration of the Cord by Massive Iron Dosage. Lancet 1: 230 (Jan. 30) 1932.

10 Ahrens R S. Neurologic Aspects of Primary Anemia. Arch. Neurol. & Psychiat. 26: 92 (July) 1932.

11 Thaysen T E H. Death from Nervous Complications of Pernicious Anemia. Role of Liver Therapy. Hospitalstid. 76: 23 (Jan. 5) 1933. abstr. J. A. M. A. 100: 1378 (April 29) 1933.

12 Morawitz P. Kritik und Aufgaben der Anämiebehandlung. Deutsche med. Wchnschr. 59: 560 (April 14) 1933.

13 Minot G R and Murphy W P. A Diet Rich in Liver in the Treatment of Pernicious Anemia. Study of 105 Cases. J. A. M. A. 89: 759 (Sept. 3) 1927.

14 Richardson Wyman. Pernicious Anemia. New England J. Med. 200: 540 (March 14) 1929.

15 Fried B M. Subacute Combined Degeneration of the Spinal Cord in Pernicious Anemia. J. A. M. A. 92: 1260 (April 13) 1929.

16 Ungley C C. and Suzman M M. Subacute Combined Degeneration of the Cord. Symptomatology and Effects of Liver Therapy. Brain 52: 271 (Sept.) 1929.

17 Suzman M M. Effects of Liver Therapy in One Hundred Cases of Subacute Combined Degeneration of the Cord. Tr. Am. Neurol. A. 1931. p. 339.

18 Lottig Heinrich. Zur Frage der Beeinflussung der Rückenmarks-Erkrankung bei Biermerscher Anämie durch Leberdiät. München med. Wchnschr. 77: 858 (May 16) 1930.

19 Starr Paul. The Prevention of Spinal Cord Degeneration in Pernicious Anemia. J. A. M. A. 96: 1219 (April 11) 1931.

20 Strauss M B and Castle W B. Parenteral Liver Therapy in the Treatment of Pernicious Anemia. J. A. M. A. 98: 1620 (May 7) 1932.

21 Baker B M Jr, Bordley James III and Longcope W T. The Effect of Liver Therapy on the Neurologic Manifestations of Pernicious Anemia. Am. J. M. Sc. 184: 1 (July) 1932.

22 Meulengracht E. Verhütung und Behandlung der Rückenmarksstörungen bei perniziöser Anämie. Klin. Wchnschr. 12: 1163 (July 29) 1933.

The third point to be borne in mind is that sepsis has a deleterious effect on many kinds of spinal cord lesions and may inhibit the effect of liver therapy in pernicious anemia not only on the spinal cord but on the blood. The study of Cobb and Coleman<sup>23</sup> suggests that the healing of traumatic lesions of the spinal cord may be delayed by the presence of cystitis. Patients with decubitus ulcers and sloughs, those with pronounced urinary tract infections secondary to "cord bladders" and those with other severe febrile septic conditions usually have poor prognoses. The fact that such patients do not do well is not to be construed as meaning that liver therapy has no effect on the spinal cord but rather that it has no effect on sepsis.

The fourth and probably most important consideration is the fact that there is no "standard" dose of liver, stomach or their products, nor is the "usual" dose adequate for many patients. "Adequate" by dictionary definition means "sufficient for some (specific) requirement." When oral therapy is employed it is not uncommon to find that patients cannot ingest a sufficient amount of potent material for their individual needs because of nausea, vomiting or diarrhea produced in some instances by the large amounts of liver or liver extract. Although the exceptional patient may be able to take more, 400 Gm of fresh liver or the extract derived from 1,000 Gm of liver is about the maximum daily amount that can be continued indefinitely by mouth without producing distaste or nausea.<sup>24</sup> The fact that even these quantities fail to maintain the blood at a normal level in a significant number of cases, about 5 per cent according to Beebe and Lewis<sup>25</sup> makes it apparent that some patients cannot receive without great difficulty enough potent material by mouth. As more potent material is often required to influence spinal cord lesions than to improve the blood, it becomes apparent that many patients cannot ingest satisfactory amounts of potent material for their given cases.

In this clinic we have encountered patients who were showing unfavorable progression of their spinal cord lesions in spite of the fact that they were taking all the liver and liver extract it was found possible for them to ingest. That their unfavorable course was due to the inadequacy of even the massive amounts that they took by mouth was clearly evidenced in eight of our twenty-six cases by the favorable course of events following the parenteral injection of liver extract equivalent in hematopoietic effectiveness to still greater quantities of orally administered material. Many of the unfavorable reports in the literature are without doubt due to the failure to realize that there is no "standard" dose of liver and may well be compared to unfavorable results that would be obtained in diabetes mellitus if all patients were given a "standard" dose of insulin. In the latter disease, failure to control the blood sugar level with a certain dose of insulin usually is considered indicative not that insulin is ineffective but that more insulin is required. In subacute combined degeneration of the spinal cord it must similarly be understood that the failure to arrest the progress of the lesion in an appropriate period of time nearly always means that more liver, stomach or allied potent material is required unless such severe infection or damage to vital organs is present that arrest cannot be

achieved. That arrest is possible in the absence of such factors is evidenced by the data to be presented.

A fifth possible reason for disagreement in the statements of the literature lies in the recording of results obtained over too brief periods of time. When one recalls that many months may be required for the regeneration of a peripheral nerve following trauma or neuritis, it is obvious that conclusions cannot be drawn from short periods of observation of a disease that involves destruction of fibers within the central nervous system. The shortest period of observation in any of the cases reported on here was fourteen months.

#### PROCEDURE

Woltman,<sup>26</sup> Schilling,<sup>27</sup> Ahrens,<sup>10</sup> Smithburn and Zervas<sup>28</sup> and other physicians have noted the occurrence of neural symptoms in from 80 to 100 per cent of patients with pernicious anemia. Many of the patients, however, have no more than paresthesias and slight changes in proprioceptive sensation. Suzman<sup>1</sup> determined that although 73 per cent of his series of pernicious anemia patients had neural symptoms, only 41 per cent were suffering from subacute combined degeneration of the spinal cord. Young<sup>29</sup> found that 20 per cent of his 515 patients with pernicious anemia had well defined spinal cord disease marked by reflex changes and ataxia, although many other patients had lesser changes referable to the neural system. In order to evaluate results of therapy, we selected for special study twenty-six consecutive patients who had spasticity or ataxia, or both, resulting in definite disturbances in locomotion, in short, patients who had at least moderately severe degeneration of the spinal cord. Without exception these patients also had paresthesias in the hands and feet and all had either diminished or absent vibratory sense in the legs and moderate to marked muscle weakness. Impotence not due to age, or sphincter disturbances, were encountered in five patients. Girdle sensations were common. Patients with decubitus or pronounced urinary tract infections were excluded in selecting these twenty-six cases. For this study we have evaluated the "initial" status of the spinal cord involvement only after the erythrocytes were 3.5 million per cubic millimeter or more. During the period when the "initial" neurologic status of the twenty-six patients was being evaluated the average erythrocyte count was 4.30 millions per cubic millimeter, the hemoglobin 84.6 per cent (13.18 Gm per hundred cubic centimeters) and the color index 0.98. At the time of final evaluation of the neurologic status the average erythrocyte count was 4.78 millions per cubic millimeter, the hemoglobin 94.6 per cent (14.74 Gm per hundred cubic centimeters), and the color index 0.98. Many patients showed striking improvement in signs and symptoms referable to the neural system during the one or two months when the erythrocytes were increasing from low levels to above 3.5 millions per cubic millimeter. Although it is probable that the most effective opportunity for neutralizing the physiologic damage to the neural system would be at this time, data on the improvement during this period of rapid

26 Woltman H W. The Nervous Symptoms in Pernicious Anemia. An Analysis of One Hundred and Fifty Cases. *Am J M Sc* 157:400 (March) 1919.

27 Schilling Viktor. Die Wirksamkeit der Lebertherapie bei der funikulären Medullose (Myelose) der Anämie perniciosa. *Fortschr d Therap* 7:5 (Jan 10) 1931 cited by Baker Bordley and Longcope.

28 Smithburn K C and Zervas L G. The Neural Symptoms and Signs in Pernicious Anemia. *Arch Neurol & Psychiat* 25:1100 (May) 1931.

29 Young R H. Neurologic Features of Pernicious Anemia. *J A M A* 99:612 (Aug 20) 1932.

23 Cobb Stanley and Coleman C C. The Course of Recovery Following Trauma of the Spinal Cord. *Arch Surg* 3:132 (July) 1921.

24 Minot, G R. Personal communication to the authors.

25 Beebe R T and Lewis G E. The Maintenance Dose of Potent Material in Pernicious Anemia. *Am J M Sc* 181:796 (June) 1931.



regeneration of blood have been excluded, since such betterment might have been due to the relief of the anemia, its attendant physiologic alterations and the acute deficiency state in general, hence any conclusions based on such improvement would be open to serious criticism.

Since there occur fluctuations in neurologic signs and symptoms from day to day that cannot be related to significant anatomic spinal cord changes three successive examinations over a period of from one to two months were made after the patients' red blood cells had reached a level of 3.5 millions or more per cubic millimeter. Abnormalities persisting at each of these three examinations were considered significant. Similarly three examinations over a period of from one to two months were made from one to four years later. During the intervening period patients were examined neurologically every three to four months. In general, these neurologic examinations were made by two of us who had no particular further knowledge of the patient's blood, details of treatment, and the like.

As has already been mentioned, eight of the twenty-six patients had had a progression of their neurologic manifestations prior to the time the present observations were begun and while they were taking as much liver or liver extract as they could be made to ingest. This 30 per cent incidence of highly resistant cases among our twenty-six cases, all with advanced spinal cord lesions, is probably from four to six times as great as would be encountered in a consecutive series of pernicious anemia cases. Although it is possible that this incidence of highly resistant cases with advanced spinal cord lesions is higher than would occur in a larger series of such cases, it is probable that it represents the approximate actual incidence of such cases, although one should recognize that difficult cases are more frequently referred to a clinic than simple ones. The neurologic condition of another eight of the twenty-six cases under oral liver therapy was essentially stationary. Ten were improving coincidentally with the remission of their anemia. Nineteen of the twenty-six patients had had neurologic manifestations for over a year, one for at least seven years. Seven patients had had neural symptoms for less than a year.

Treatment in all patients consisted of the intramuscular injection of Solution Liver Extract-Lilly (N N R).<sup>30</sup> This material is an aqueous solution of "fraction G" of Cohn, Minot and their associates,<sup>31</sup> prepared according to the method of Strauss, Taylor and Castle.<sup>32</sup> Five cubic centimeters of this solution of liver extract is derived from 25 Gm of liver and is approximately 100 times as hematopoietically effective by injection as by mouth,<sup>33</sup> which may also be true in respect to its effect on spinal cord lesions. Since neither the amount of liver from which an extract is derived nor the quantity of liquid in which it is dissolved indicates the potency of the product, the only suitable means at present of evaluating the latter lies in the determination of the minimum amount of extract that will produce an approximately maximal reticulocyte response in appropriate cases of pernicious anemia in

relapse.<sup>34</sup> Approximately 5 to 10 cc. of the extract employed derived from 25 to 50 Gm of liver, may produce such a response when given in one dose,<sup>20</sup> but it often takes more than this amount to produce a maximal response in resistant cases.<sup>20</sup> Six of the patients either injected themselves or had members of their families do so for them. These individuals usually took for one dose from 2 to 5 cc of the liver extract solution. The remaining twenty patients received their liver extract in the clinic 10 cc being injected into the gluteal muscles at a time. The average amount of extract received per week by the twenty-six patients was 10 cc. The maximum amount given to any patient was 10 cc twice a week and the minimum 10 cc once in three weeks. The key note of the treatment of these patients was that, no matter how much liver extract was being given the amount was increased whenever the progress of the patient was unsatisfactory.

These patients given parenterally the extract, on the average, derived from 50 Gm of liver per week received approximately the equivalent of the same extract for oral use derived from 5,000 Gm of liver per week, or 714 Gm per day, which is about 50 per cent more than the amount taken by mouth by many patients. It is our belief that the results recorded were not due to any specific or peculiar virtue of intramuscular injection but rather to the larger equivalent amounts that were administered as compared to the usual orally treated patient. It is of course also true that parenteral therapy eliminates the possibility of faulty gastro-intestinal absorption.

#### RESULTS

For the sake of brevity and clarity the results of approximately 300 neurologic examinations made on the twenty-six patients are summarized in table 1. The average period of time elapsing before the final evaluation of neurologic signs was 34 months, varying from fourteen to forty-six months. Changes in neurologic signs of the upper extremities are not recorded in the table. In general, these signs have paralleled but with a lesser degree of abnormality, those referable to the legs.

Three main points stand out clearly in this tabulation. First, and of greatest significance, is that in no instance did a single objective neurologic sign become more marked during the period of treatment, nor did an abnormal sign, not previously present, appear. Complete objective arrest of the lesion has occurred in every case.

Second, subjective improvement of a greater or less degree appeared in every patient. In two patients this was very slight. In others it enabled previously bedridden individuals to return to their usual occupation. Nevertheless such changes may be due entirely to reeducation and training achieved in the presence of a definite, but completely arrested, spinal cord lesion. It is to be emphasized again that the tremendous gains in strength and activity often observed in such cases are not necessarily evidence of regeneration of the spinal cord fibers or cells.

Third, excluding changes in gait and paresthesias, approximately 58 per cent of all the abnormal signs encountered in the twenty-six patients remained objectively unchanged (table 2). Seventeen per cent of all the abnormal signs disappeared and 25 per cent of such signs were present in less intensity. When the

30 Eli Lilly & Co. Indianapolis supplied the extract that was used.  
31 Cohn E J, Minot G R, Fulton J F, Ulrichs H F, Sargent F C, Weare J H and Murphy W P. The Nature of the Material in Liver Effective in Pernicious Anemia. *J Biol Chem* 74: 119 (July) 1927.

32 Strauss M B, Taylor F H L and Castle W B. Intramuscular Use of Liver Extract. *J A M A* 97: 313 (Aug 1) 1931.

33 Cassilen M. Ein Hochwirksamer injizierbarer Leberextrakt. *Klin Wchnschr* 9: 2099 (Nov 8) 1930. Castle W B and Taylor F H L. Intravenous Use of Extract of Liver. *J A M A* 96: 1198 (April 11) 1931. Strauss M B and Patek A J Jr. Unpublished observations.

34 Minot G R. The Interpretation of Reticulocyte Responses in Pernicious Anemia. *Tr A Am Physicians* 49: 287 1934.



TABLE 1—The Results of Parenteral Liver Therapy in Twenty-Six Cases of Pernicious Anemia with Subacute Combined Degeneration of the Spinal Cord

Case Sex Age Years	Time of Examination	Red Blood Cells Millions per Cu Mm	Hemoglobin per Cent	Abnormality of Gait	Romberg's Sign	Incoordination	Position Sense	Vibratory Sense	Paresthesias	Knee Jerks	Ankle Jerks	Babinski's Sign	Subjective Changes at End of Period Indicated
1 ♂ 36	Initial exam 46 mos later	3.50 5.02	71 85	+ /	N /	N /	N /	— — — —	++ /	++ +	++ +	N /	Very much stronger walks several miles daily has returned to work libido and potentia absent 18 mos., have returned
2 ♀ 54	Initial exam 44 mos later	4.38 4.59	75 95	+++ +++	N /	++ ++	— — — —	— — — —	+ /	++ ++	++ ++	+ +	Stronger walks much better is able to go about unassisted
3 ♂ 52	Initial exam 41 mos later	4.82 4.86	95 101	++ +	+	N /	N /	— — — —	++ +	N /	— —	N /	Stronger libido and potentia absent for 3 yrs., have returned
4 ♂ 57	Initial exam 40 mos later	4.42 5.47	71 85	+ +	+	+	— N	— — — —	++ +	N /	— — — —	N /	Stronger walk* better
5 ♂ 78	Initial exam 40 mos later	4.57 4.81	86 98	+ +	N /	+	— — — —	— — — —	++ +	— — — —	— — — —	N /	Pronounced gain in strength walks more easily
6 ♀ 59	Initial exam 40 mos later	6.23 5.10	102 101	+++ +++	++ ++	+++ +	— — — —	— — — —	++ +	++ ++	— /	+	Markedly stronger less staggering lag can do own housework
7 ♂ 70	Initial exam 39 mos later	4.01 5.20	87 104	+ /	N /	++ ++	N /	— — — —	+ /	+++ ++	++ ++	+	Patient was entirely disabled now walks easily feels strong and considers himself entirely normal
8 ♂ 51	Initial exam 39 mos later	3.85 4.78	90 105	+ +	N /	N /	N /	— — — —	+ /	++ ++	++ ++	N /	Striking gain in strength and ability to walk
9 ♀ 42	Initial exam 39 mos later	3.74 4.07	71 84	+ +	+	+	— — — —	— — — —	+ /	++ ++	— +	+	Stronger walks better climbs stairs now without aid
10 ♂ 29	Initial exam 39 mos later	4.40 4.84	92 85	+ /	N /	+	— — — —	— — — —	++ +	++ /	++ +	N /	Very much stronger walks normally libido and potentia absent 6 mos. have returned, is back at work
11 ♀ 46	Initial exam 39 mos later	3.74 4.32	83 87	+ +	N /	N /	N /	— — — —	+ /	+ +	N /	+	Very marked improvement in strength and ability to walk can again climb ladders no further urinary disturbances
12 ♂ 50	Initial exam 38 mos later	4.18 4.90	85 97	+++ +	++ +	+++ +++	— — — —	— — — —	++ /	N /	N /	+	Great increase in strength walks easily without a cane considers himself entirely well
13 ♂ 59	Initial exam 38 mos later	4.08 5.04	86 110	+++ +	+++ +++	+	— — — —	— — — —	++ +	++++ ++++	++++ ++++	+	Much stronger walks better
14 ♂ 32	Initial exam 28 mos later	5.17 4.97	90 105	++ ++	+	++ ++	— — — —	— — — —	++ /	++++ ++++	++++ ++++	+	Pronounced improvement in strength walks much better feels more solid on feet has returned to work
15 ♂ 68	Initial exam 35 mos later	4.01 4.82	90 104	+ +	N /	N /	N /	— — — —	+++ /	+	— /	N /	Marked gain in strength and ability to walk has been able to return to work
16 ♂ 71	Initial exam 25 mos later	3.68 4.65	85 87	+++ +++	++ ++	+++ +++	— — — —	— — — —	+ /	++ ++	++ ++	+	Slightly stronger walks somewhat steadier
17 ♂ 52	Initial exam 33 mos later	4.00 4.74	94 96	++ /	++ +	+	— — — —	— — — —	++ /	++ +	— /	N /	Marked gain in strength, walks much better, steadier on feet
18 ♂ 65	Initial exam 31 mos later	3.71 4.50	83 90	++ /	++ /	+	— N	— — — —	++ +	— /	— — — —	+	Complete disappearance of all symptoms This patient's cord lesions developed acutely while he was receiving inadequate parenteral liver therapy remission commenced soon after adequate parenteral therapy
19 ♀ 62	Initial exam 29 mos later	4.28 4.56	81 95	+ /	+	+	— — — —	— — — —	+ /	+	N /	N /	Very great improvement generally
20 ♀ 40	Initial exam 28 mos later	3.71 4.66	81 81	++++ ++	++ ++	+++ +	— — — —	— — — —	++ /	— /	— — — —	++ +	Patient formerly bedridden now walks about house unaided was incontinent now normal this patient also had a definite multiple peripheral neuritis
21 ♀ 42	Initial exam 28 mos later	4.24 4.55	85 86	+ /	N /	+	— — — —	— — — —	+ /	++ +	++ /	N /	Patient considers herself entirely normal
22 ♀ 62	Initial exam 27 mos later	3.76 4.44	85 94	+ /	N /	+	— — — —	— — — —	++ +	++ +	++ /	+	Very much stronger walks better
23 ♀ 32	Initial exam 27 mos later	4.29 4.58	80 96	+ /	N /	+	N /	— — — —	+ /	+	+	N /	Considerable gain in strength and ability to walk
24 ♂ 65	Initial exam 26 mos later	4.21 4.86	76 101	+ /	N /	+	N /	— — — —	++ +	N /	N /	N /	Stronger walks better finer movements of hands much improved
25 ♂ 57	Initial exam 25 mos later	5.28 4.48	115 94	+++ +++	++ ++	+++ +++	— — — —	— — — —	+	++ ++	++ ++	+	No change except for slight increase in strength and the disappearance of incontinence
26 ♀ 54	Initial exam 14 mos later	5.04 5.10	92 91	+++ +++	++ ++	+++ +++	— — — —	— — — —	+	+++ +++	+++ +++	+	Was bedridden can now walk with difficulty

N signifies normal  
The degree of abnormality is indicated by the number of plus or minus sign. Four minus signs indicate the absence of the reflex or sensation  
Conditions designated Initial were persistently present on three successive neurologic examinations made after the patient's erythrocyte level was 3.5 million per cubic millimeter or higher  
The conditions recorded from fourteen to forty six months later were persistently present on three successive neurologic examinations made after that many months of parenteral liver therapy

nature of the spinal cord lesions is considered, the remarkable fact is not that such a small number of signs decreased in intensity or became normal but that any should have done so at all. Patient 18 is of particular interest since severe neurologic symptoms and signs developed very acutely while he was receiving inadequate parenteral liver therapy. Within a month of the onset of the neural symptoms he was given intramuscularly each week the extract derived from 50 Gm of liver. The final neurologic examination in this case showed a return to normal of all signs except that the achilles tendon reflexes and vibration sense at the ankles remained absent. This state of affairs has been repeatedly seen in other cases not included in the series of twenty-six. We believe thus that, the sooner adequate treatment is commenced after the onset of neural symptoms and signs, the greater the probability for a complete disappearance of abnormal signs, whereas such signs that have been present for over a year seldom disappear entirely.

Of additional importance are observations at this clinic on eighty other patients with pernicious anemia who have been treated similarly with parenteral injections of liver extract. These patients had in many instances evidences of mild spinal cord lesions not interfering significantly with their ability to walk. Other cases showed no objective abnormal neurologic signs. These eighty patients have been treated with liver extract parenterally for from twenty-four to forty-eight months. The average length of treatment has been three years. It is statistically certain, as mentioned at the beginning of this paper, that a number of these eighty patients would have developed spinal cord lesions or had their lesions progress within this period of time if untreated, and from our own experience it is certain that a smaller number would have developed such lesions if treated inadequately by mouth. In not one of these eighty patients has any further evidence of neural lesions appeared. It is therefore apparent that adequate parenteral liver therapy not only arrests the progress of spinal cord degeneration but prevents its development in pernicious anemia.

#### COMMENT

These data should not be construed to indicate that satisfactory results in the treatment of subacute combined degeneration of the spinal cord may not be obtained with oral therapy, whether by liver, liver extracts, desiccated stomach or other sources of potent material. The experience in this clinic as well as that of many other clinicians has indicated that treatment by the oral route has left nothing further to be gained from parenteral therapy in many cases. Although we know of numerous patients treated orally for more than seven years whose neurologic manifestations have not advanced, we know of no significant number of consecutive cases so treated in which not one patient has become worse. The fact remains that certain patients do become worse while taking all the potent material by mouth that they can ingest and retain. This state of affairs has been repeatedly described in the literature.

It has been suggested from time to time<sup>33</sup> that whole liver, desiccated stomach, and brain are superior to extracts of liver in the oral treatment of spinal cord lesions, but no one has published conclusive evidence of this. Often no proper comparisons have been made of the potency of the products used and many instances

can be found recorded in the literature<sup>36</sup> in which it appears probable that the effects of large doses of potent material in the form of desiccated stomach are compared with the effects of liver extract in much smaller potent dosage. As has been previously pointed out, the actual potency of the material employed, not the quantity of raw material from which it is derived, is the important factor in making a comparison. Sargent<sup>37</sup> has even suggested that a massive amount of iron is more effective than liver therapy. His data, however, cannot be considered satisfactory, because of his failure to take into consideration the points discussed in the introduction of this paper, and also because of the fact that liver had frequently been employed immediately before iron therapy was commenced in many of his cases. The results we have recorded indicate that entirely satisfactory results may be obtained uniformly with an extract of liver when it

TABLE 2—Summary of Changes in Abnormal Neurologic Signs Referable to the Legs Following Treatment of Subacute Combined Spinal Cord Degeneration in Twenty-Six Patients with Pernicious Anemia

Neurologic Sign	Initial Examination	Final Examination			
		Number of Patients with No Longer Present Abnormal Sign	Number of Patients Showing Improvement with Regard to Abnormal Sign	Number of Patients Showing Abnormal Sign Unchanged	Per Cent of Patients in Whom no Change in Abnormal Sign Occurred
Positive Romberg's sign	14	12	10	10	71
Incoordination	21	15	10	14	66
Position sense in toes					
Diminished or absent	19	3	6	10	52
Vibration sense in tibias					
Diminished or absent	20	0	11	15	57
Abnormal knee jerks					
Diminished or absent	3/22	5	5	12	54
Increased	10/22				
Abnormal ankle jerks					
Diminished or absent	9/22	5	6	11	50
Increased	13/22				
Positive sign of Babinski	16	5	1	10	62
Abnormal gait	20	0	6	11	42
Paresthesias	20	14	10	9	7

Conditions designated initial were persistently present in three successive neurologic examinations made after the patient's erythrocyte level was 3.5 millions per cubic centimeter or higher.

Conditions designated final were persistently present in three successive neurologic examinations made after from fourteen to forty-six months of parenteral liver extract therapy.

is given parenterally in adequate amounts for the given individual case.

The practical application of this study is obvious. First, patients with pernicious anemia while under oral treatment should be carefully observed for the development of symptoms or signs referable to abnormality of the spinal cord and other parts of the neural system quite as much as they should be watched for abnormalities of the blood, tongue, gastro-intestinal tract, and the like. Should neural manifestations appear, one can surely arrest the process very rapidly by instituting adequate parenteral liver therapy. Secondly, patients with distinct spinal cord lesions who have not been previously treated should at once have parenteral liver therapy. Although many such individuals would make

36 Wilkinson J F Pernicious Anemia Brit M J 1 236 (Feb 8) 1930 Renshaw Arnold Treatment of Pernicious Anemia with Desiccated Hog's Stomach ibid 1 334 (Feb 22) 1930 Leschke Erich Die Magentherapie leberrefraktärer Fälle von perniziöser Anämie Med Klin 26 1445 (Sept. 26) 1930 Wilkinson J F Treatment of Pernicious Anemia with Hog's Stomach Report of 108 Cases Brit M J 1 83 (Jan 17) 1931

37 Sargent P On the Treatment of the Nervous Disorders Accompanying Anemia by Intensive Iron Therapy Lancet 2 1322 (Dec 17) 1932

35 Suzman M Neulengracht M Ungley C C Effect of Brain Diet in Pernicious Anemia Lancet 2 63 (Jul 11) 1931

satisfactory progress with adequate oral therapy, the uniformity of good results obtained with parenteral treatment makes this the method of choice. Failure to arrest the process with such therapy must be taken to mean that inadequate amounts of potent extract are being employed. The essential factor in any form of treatment of subacute combined degeneration of the spinal cord in pernicious anemia must rest in individualization of the therapy to suit the needs of each patient. This must be borne in mind in considering the following routine.

In commencing the management of a previously untreated patient our usual procedure is to inject intramuscularly 10 cc of extract derived from 50 Gm of liver every three to four days during the first two to three weeks, followed by weekly injections of the same amount for the remainder of the first year. If satisfactory results have been obtained with regard to every aspect of the disease for a year, one may then reduce the amount to 10 cc every second week, watching the patient with extreme care for any signs of relapse, however slight relating to any system of the body. Should a single such manifestation appear weekly injections of 10 cc are at once resumed and continued indefinitely. Patients who have proved resistant to the usual amounts of potent material given orally are, as a rule, injected with 10 cc of the liver extract each week for at least eighteen months and then the amount may be reduced, with observation of the precautions noted. Those patients however who have proved resistant to large amounts of potent material given orally are usually injected with 10 cc of the liver extract twice each week for at least two years and preferably much longer. The state of the individual patient at the end of such a period must be carefully evaluated in order to decide whether it is safe to reduce this dose. Although more than 20 cc of the liver extract (derived from 100 Gm of liver) per week has not been given in any of the twenty-six cases critically studied, there are cases that require more than this amount to arrest the unfavorable progress of spinal cord lesions, especially if infection or arteriosclerosis is present. It must not be forgotten, of course, that when one takes care of a patient suffering from the spinal cord lesions of pernicious anemia one must do more than see to it that the patient receives adequate amounts of potent material for his given case. The physician must treat the patient, not merely the blood and neural systems.

#### SUMMARY

1 Twenty-six patients with pernicious anemia and advanced subacute combined degeneration of the spinal cord were treated by the intramuscular injection of liver extract for an average period of thirty-four months. The amount of extract given varied but was selected for each patient so as to be enough to accomplish the desired effect. Complete arrest of the neural lesions occurred in every case.

2 Eighty other patients with pernicious anemia and little or no neurologic disturbances were treated in the same manner over an average period of three years. In none of these patients was there any evidence that spinal cord lesions progressed or developed under treatment.

#### CONCLUSION

By means of appropriate parenteral liver extract therapy for each case, the spinal cord lesions of pernicious anemia may be prevented from developing or, having appeared, may be completely arrested.

## RATE OF BLOOD FLOW IN PATIENTS RECEIVING DINITROPHENOL

HAROLD ROSENBLUM, MD

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Blumgart and his co-workers<sup>1</sup> have shown the close relationship that exists between the height of the metabolic rate and the velocity of the blood flow. This relationship was demonstrated on hypothyroid and hyperthyroid patients with the use of the radium method<sup>2</sup> for the determination of the speed of the flow of blood. These observations were abundantly confirmed by Tarr, Oppenheimer and Sager<sup>3</sup> and by Gargill,<sup>3a</sup> who used the sodium dehydrocholate method<sup>4</sup> in studying circulation time.

The conception that the amount of work done by the heart is partly determined by the metabolic rate has been substantiated and clinically applied in recent years. It has become a well established fact that when serious heart disease is associated with hyperthyroidism the cardiac embarrassment is grossly aggravated when the level of the metabolism is high and is much improved when the metabolic rate is lowered.<sup>5</sup> This improvement follows naturally after a procedure that lightens the heart's load through reduction of the basal metabolic rate, with consequent lowering of the cardiac rate,<sup>6</sup> minute volume output of the heart<sup>7</sup> and the velocity of the blood flow.<sup>1</sup> This conception has been further applied in the treatment of intractable cardiac failure, either congestive or anginal, by means of complete removal of the normal thyroid gland.<sup>8</sup> Improvement in the cardiac symptoms follows with the fall in the level of the basal metabolism from normal to subnormal.

Since this clear-cut association has been both logical and clinically useful, it seemed highly important to determine whether an appreciable raising of the basal metabolism with alpha-dinitrophenol would affect the dynamics of the circulation as does hyperthyroidism. Tainter's statement that dinitrophenol had been given safely to three patients suffering from angina pectoris<sup>9</sup> was quite provocative, because of the occasional disaster that follows the administration of thyroid substances to patients with coronary sclerosis and coincidental my-

- From the Department of Medicine Mount Zion Hospital.
- 1 Blumgart H L, Gargill S L and Gilligan D R. Studies on the Velocity of Blood Flow. *J Clin Investigation* 9: 69 (Aug.) 1930.
  - 2 Blumgart H L. The Velocity of Blood Flow in Health and Disease. *Medicine* 10: 1 (Feb.) 1931.
  - 3 Blumgart H L and Lens O C. Studies on the Velocity of Blood Flow. *J Clin Investigation* 4: 1 (April) 1927.
  - 3a Tarr L, Oppenheimer B S and Sager R V. The Circulation Time in Various Clinical Conditions Determined by the Use of Sodium Dehydrocholate. *Am Heart J* 8: 766 (Aug.) 1933.
  - 3a Gargill S L. The Use of Sodium Dehydrocholate as a Clinical Test of the Velocity of Blood Flow. *New England J Med* 209: 1089 (Nov. 30) 1933.
  - 4 Winternitz, M, Deutsche, J and Brull, Z. Eine klinische brauchbare Bestimmungsmethode der Blutumlaufzeit mittels Dekolininjektion. *Med Klin* 27: 986 (July 3) 1931. 28: 831 (June 10) 1932.
  - 5 Rosenblum Harold and Levine S A. What Happens Eventually to Patients with Hyperthyroidism and Significant Heart Disease Following Subtotal Thyroidectomy? *Am J M Sc* 185: 219 (Feb.) 1933.
  - 6 Rosenblum and Levine S. *Blumgart*.
  - 7 Robinson G C. The Measurement of the Cardiac Output in Man and Its Variations. *J A M A* 87: 314 (July 31) 1926. Burwell C S and Smith W C and Neighbors D W. The Output of the Heart in Thyrotoxicosis. *Am J M Sc* 178: 157 (Aug.) 1929. Rabinowitch I M and Bazin Eleanor V. The Output of the Heart per Beat in Hyperthyroidism. *Arch Int Med* 28: 566 (Nov.) 1926.
  - 8 Blumgart H L, Levine S A, and Berlin D D. Congestive Heart Failure and Angina Pectoris. The Therapeutic Effect of Thyroidectomy on Patients Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch Int Med* 51: 866 (June) 1933. Blumgart H L, Roseman J E, F. Davis David and Berlin D D. Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris. III Early Results in Various Types of Cardiovascular Disease and Coincident Pathologic States Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch Int Med* 52: 165 (Aug.) 1933.
  - 9 Tainter M L, Stockton A B, and Cuttng W C. The Use of Dinitrophenol in Obesity and Related Conditions. *J A M A* 101: 1472 (Nov. 4) 1933.

edema, occasionally even before the basal metabolic rate has reached a normal level<sup>10</sup>

There has been a certain amount of evidence that the actions of thyroid substances and dinitrophenol are not similar except for their common ability to increase the metabolic rate. For instance, dinitrophenol does not afford symptomatic relief to patients suffering from hypothyroidism, even though the rate of the metabolism is brought up to normal<sup>11</sup>. Furthermore, when the metabolism of a patient is raised above normal with dinitrophenol, anxiety, palpitation and tremor (as seen in hyperthyroidism) do not occur,<sup>11</sup> nor is there any change in blood pressure, pulse rate or temperature when doses of the drug are kept within therapeutic limits<sup>12</sup>. Further, there is no correlation between the metabolic rate and the blood cholesterol concentration when dinitrophenol is used to elevate metabolism<sup>11</sup>. Also, Cutting and Tainter<sup>18</sup> have shown that the drug does not accelerate the development of tadpoles as does thyroxine. On the other hand Hall and his associates<sup>14</sup> making use of the Fick principle in three experiments on anesthetized dogs, concluded that the minute volume output of the heart was increased following dinitrophenol administration. The figures were rather variable, and the doses of dinitrophenol were massive, being either toxic or lethal. Rabinowitch and Fowler<sup>15</sup> studied cardiac output during dinitrophenol administration in two cases and obtained inconclusive results.

We wished to determine in these experiments whether in patients whose metabolism had been heightened by therapeutic doses of dinitrophenol the speed of the blood flow was increased as it would have been with a similar rise in metabolic rate from hyperthyroidism or from the administration of thyroid substances. The cardiac output itself was not determined in these experiments. Blumgart and his co-workers, however, believe that the velocity of the blood flow is one of the most important factors that make up cardiac strain.<sup>5</sup> Ventricular rate and blood pressure changes are regarded by them as negligible,<sup>10</sup> and furthermore these have been shown not to be changed by dinitrophenol.<sup>1</sup>

## PROCEDURE

Observations on the blood velocity were made before, during and after the administration of dinitrophenol on patients who were receiving the drug for the treatment of obesity. The blood velocity was determined by the sodium dehydrocholate method,<sup>3</sup> which gives a normal circulatory time (arm to tongue) of from ten to sixteen seconds, the average being thirteen seconds. The blood velocity determinations were always done in duplicate. Sixteen-gauge needles were used and, for each determination 5 cc of a 20 per cent solution of sodium dehydrocholate was injected rapidly into one of the veins of the cubital fossa. The time between the beginning of the injection and the appearance of a bitter taste in the mouth was recorded with a stop watch. These measurements were made under basal conditions immediately following the basal metabolism test, for which the patients had been prepared in the usual way and which were to be used to compare with the blood velocity rate. Notations were also made on the weight, the pulse rate and the electrocardiographic records before and during the period during which dinitrophenol was given.

## RESULTS

Basal metabolic rates, followed by measurements of the blood velocity, were determined on twenty-five patients.<sup>18</sup> There were twenty-four women and one man. All the patients at the beginning of treatment were obese. Preliminary orientation experiments had indicated that the presence of obesity made no effect on the circulation time. The ages of the patients varied from 12 to 60 years, the average age being 37.5 years. The patients averaged 193½ pounds (87.8 Kg.) in weight. The basal metabolic rates of these individuals varied from -17 to +16, their average being -1 per cent (Aub-Du Bois Standard). The blood velocity in the patients in this group was within normal limits.

Blood Velocity, Basal Metabolic Rate, Pulse Rate and Body Weight Before and After the Administration of Dinitrophenol

	Number of Patients	Average Blood Velocity Seconds	Average Basal Metabolic Rate, per Cent of Normal	Average Pulse Rate per Minute	Average Weight Pounds
Before dinitrophenol	8	12.6	-6	71	210½
After dinitrophenol	8	13.3	+31	70	190½

(between ten and sixteen seconds) in each case. The average blood velocity was 12.4 seconds. Pulse rates were also within normal limits in each case.

Of these twenty-five patients, all were given dinitrophenol, and eight were found who were satisfactory in every respect for contrast before and after dosage with the drug. An examination of the accompanying table will show that, except for the increased rate of metabolism and the reduction in weight, no appreciable change had occurred. The blood velocity (and the pulse rate), in other words, had remained within the established normal levels. Similarly, no differences were obtained in measurements of the blood pressure or in the form of the electrocardiographic curves before and during dosage with dinitrophenol.

18 Permission to study these patients was granted by Dr. Russel F. Rybins of the Metabolic Department who was using them for another dinitrophenol investigation.

10. Christian, H. A. The Heart and Its Management in Myxedema. Rhode Island M. J. 8: 109 (July) 1925. Pratt G. P. and Morton H. B. Management of the Circulation in Myxedema. Am. J. M. Sc. 173: 274 (Feb.) 1927. Read J. M. Treatment of the Cardiac Disturbances Due to Thyroid Disease. J. A. M. A. 89: 493 (Aug. 13) 1927.
- Means J. H., White, P. D. and Krantz C. J. Observations on the Heart in Myxedema. Boston M. & S. J. 195: 455 (Sept. 2) 1926.
- Sturges C. C. and Whiting W. B. The Treatment and Progress in Myxedema. J. A. M. A. 85: 2013 (Dec. 26) 1925. Swan J. M. A Case of Auricular Fibrillation Occurring During the Administration of Thyroid Substance. Am. Clin. Med. 3: 311 (Oct.) 1924.
11. Cutting W. C., Ryland D. A. and Tainter, M. L. Relationship Between Blood Cholesterol and Increased Metabolic Rate from Dinitrophenol and Thyroid. J. Clin. Investigation. 13: 547 (July) 1934.
12. Looney, J. M. and Hoskins R. G. Effect of Dinitrophenol on Metabolism as Seen in Schizophrenic Patients. New England J. Med. 210: 1206 (June 7) 1934. Dunlop D. M. The Use of Dinitrophenol as a Metabolic Stimulant. Brit. M. J. 1: 524 (March 24) 1934. Stockton J. A. M. A. 103: 912 (Sept. 22) 1934.
13. Cutting W. C. and Tainter M. L. Comparative Effects of Dinitrophenol and Thyroxine on Tadpole Metamorphosis. Proc. Soc. Exper. Biol. & Med. 31: 97 (Oct.) 1933.
14. Hall W. E., Field J., Sahyun M., Cutting W. C. and Tainter M. L. Carbohydrate Metabolism, Respiration and Circulation in Animals with Basal Metabolism Heightened by Dinitrophenol. Am. J. Physiol. 106: 433 (Nov.) 1933.
15. Rabinowitch J. M. and Fowler A. F. Dinitrophenol. Canad. M. A. J. 30: 128 (Feb.) 1934.
16. Weinstein, A. A., Davis David, Berlin D. D., and Blumgart H. L. The Mechanism of the Early Relief of Pain in Patients with Angina Pectoris and Congestive Failure after Total Ablation of the Thyroid Gland. Am. J. M. Sc. 187: 753 (June) 1934.
17. Freeman (The Effect of Dinitrophenol upon the Circulation Time. J. Pharmacol. & Exper. Therap. 51: 477 (Aug. 1) 1934) studied the relation of the velocity of the blood flow (as measured by the cyanide technique of Robb and Weiss [A Method for the Measurement of the Velocity of the Pulmonary and Peripheral Venous Blood Flow in Man. Am. Heart J. 8: 650 (June) 1931]) to oxygen consumption in schizophrenic patients who were given dinitrophenol. He concluded that there was a decrease in the circulation time when the oxygen consumption was raised. His data and results are difficult to interpret however since the decreased circulation times were actually considerably in excess (by 40.5 per cent) of the measurements which Robb and Weiss considered normal.

## COMMENT

The lack of change in the measurements of the dynamics of the circulation in these experiments would indicate that no increased work was placed on the heart by therapeutic doses of dinitrophenol. Thus, the fact that the drug had been given with impunity to patients suffering from anginal failure can be understood. In addition, another difference is shown between the pharmacologic effects of thyroid substances and the effect of dinitrophenol, namely, that dinitrophenol causes no obligatory increased demand on the circulation in either the speed of the blood flow or the cardiac rate as does medication with thyroid.

## CONCLUSION

In eight cases studied when the metabolism was normal and again when it had been heightened by dinitrophenol no discernible effects on the blood velocity or pulse rate were found.

Post and Scott streets

## Clinical Notes, Suggestions and New Instruments

### STAPHYLOCOCCIC MENINGITIS WITH RECOVERY

JOHN E. DUNLAP, M.D., DALLAS, TEXAS

My purpose in this report is to present a case of *Staphylococcus aureus* meningitis in which a complete recovery was made during treatment with *Staphylococcus aureus* bacteriophage administered intraspinally. Conclusions should not be drawn from one case. A single successfully treated case however seems worthy of being added to the scant literature relative to this almost invariably fatal illness as a series of treated staphylococcic meningitis cases is difficult to obtain. Schless<sup>1</sup> reported the first and only case in detail in the literature of a successfully treated *Staphylococcus aureus* meningitis with bacteriophage administered intraspinally. He used larger amounts of the bacteriophage than were used in the present case but his results were very similar. Stout<sup>2</sup> reported treating successfully two cases of staphylococcic meningitis with bacteriophage but no details of the case were given.

In this paper no attempt will be made to discuss bacteriophage therapy itself as this has recently been thoroughly and effectively done by Eaton and Bayne-Jones.<sup>3</sup> Suffice it to say that its exact nature and mode of operation against infection in man is not yet definitely understood and that its results are often contradictory.

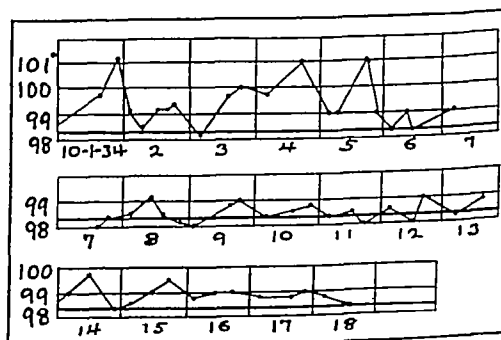
## REPORT OF CASE

P. C., a boy aged 8 years seen in his home Oct. 1 1934 had come home from school four days before stating that while playing on a swing he had struck his left knee on the ground and his back on an iron post. He had no fever that day but his mother said that he complained of pain across the back at the level of a small congenital cyst located at the second lumbar vertebra. The left knee was red tender and slightly swollen and the cyst over the spine was slightly inflamed and swollen the mother stated. The next morning he felt fine and had no complaints but in the afternoon his temperature rose to 101 F and remained elevated that night. He was seen by a local physician then who reported that the patient had a rather severe throat infection (The patient complained of sore throat). The physician also noted some rigidity of the neck. The cyst, he stated, seemed to be infected and had a slight

white discharge. Questioning the family revealed that, though the cyst (about the size of a pecan) had been present since birth, it had never given trouble as at the present time, though for several months the child complained of intermittent pain across the lower part of the back. The physician also stated that the left knee seemed swollen and red and that the right parotid was swollen tender and hot. The patient's gums were spongy and infected. The following day the patient felt better except for headache and the temperature was only slightly over 100 in the afternoon. It was on the following day—the fifth since the beginning of the present illness—that I first saw him. He was complaining of severe headaches then. His temperature was 101 F and he was very restless. On examination it was noted that there was marked rigidity of the neck, the head was retracted as far back as it was possible. The knee and parotid appeared normal. There were no petechiae, no splenic enlargement was present and the heart was normal. The cyst was tender and a little red in its center, there was no secretion at the time. The ears were normal. Immediate hospitalization was ordered.

The patient was admitted to Parkland Hospital October 1. A spinal tap on admission revealed cloudy spinal fluid under greatly increasing pressure. A direct smear of the spinal fluid showed gram-positive diplococci. Several groups of four or five organisms in a group were found in a number of smears. This direct smear was made immediately after the spinal tap. The culture of this initial spinal fluid showed pure culture of *Staphylococcus aureus*. All laboratory work was done in the department of Dr. Sanders pathologist to Parkland Hospital. The patient's progress and the spinal fluid changes in the hospital can best be followed in table 1.

Urinalysis was negative except for 2.2 per cent of sugar on two occasions. The initial blood count was: white blood cells 15,300, red blood cells 3,900,000, hemoglobin 80 per cent, polymorphonuclear leukocytes 76 per cent, large lymphocytes 16 per cent, small lymphocytes 8 per cent. The blood count on discharge was: white blood cells 7,600, polymorphonuclear leukocytes 58 per cent, small lymphocytes 36 per cent, large lymphocytes 4 per cent, eosinophils 2 per cent. The temperature curve during hospitalization is shown in the accompanying chart.



Course of temperature showing a return to normal of the temperature after the second administration of bacteriophage intraspinally.

Test tube experimentation showed specificity of the bacteriophage used for the infecting strain of organism (table 2).

The clinical condition of the patient on admission and for several days thereafter was bad. He was very restless and complained of severe headache. The head was retracted almost between the shoulders, the child was toxic and at times semi-conscious and delirious. He did not vomit, however, and took fluids and nourishment well. His lips were covered with sordes and his mouth and gums were much infected. During his entire stay he was troubled by great abdominal distention. A blood culture was not made because at no time, after hospitalization, was there any evidence of a blood stream infection. Bilateral choking of the disks was observed throughout the illness although at all times a free drainage of spinal fluid was obtained. No tap was bloody and at no time could any direct communica-

1 Schless, R. A. *Staphylococcus Aureus* Meningitis. Treatment with Specific Bacteriophage. *Am. J. Dis. Child.* 44: 813-822 (Oct.) 1932.  
2 Stout, B. F. Bacteriophage Therapy. *Texas State J. Med.* 29: 205-209 (July) 1933.

3 Eaton, M. D. and Bayne-Jones, Stanhope. Bacteriophage Therapy. *J. A. M. A.* 103: 1769 (Dec. 8) 1934.

tion between cyst and subarachnoid space be demonstrated. There was no discharge from the cyst. The taps were all done in the intervertebral space above the cyst. No evidence of an epidural abscess was obtained. The spinal fluid pressure on discharge was 20 mm of mercury.

Following his discharge after eighteen days in the hospital, the patient remained in bed voluntarily for several weeks complaining of weakness, headaches and inability to walk, also of pain in the flexor leg muscles on attempting to extend his legs completely. Both disks remained choked and the retinal vessels

infection of the meninges by direct extension or by way of the lymphatics from the infected cyst overlying the lumbar spine. The treatment consisted of copious spinal drainage by lumbar taps, approximately twice a day, all the spinal fluid that would drain off until the pressure was below normal, and the early administration intraspinally of *Staphylococcus aureus* bacteriophage, following which the head of the bed was lowered. Acriflavine hydrochloride, 1 4,000 (10 cc.), was also given intraspinally for two injections, but the first negative spinal fluid culture resulted after the administration of the

TABLE 1—*Spinal Fluid Changes During Hospitalization*

	Spinal Fluid	Treatment	Smear	Culture
10/ 1/34	4 500 cells 80% polymorpho nuclear leukocytes no blood in any of the spinal fluids	10 cc antimeningococcus serum intraspinally	Gram positive extracellular diplococci	<i>Staphylococcus aureus</i>
10/ 2/34	5,300 cells 91% polymorpho nuclear leukocytes	Antistreptococcus serum 1 ampule in forenoon smear and culture not yet identified acriflavine (1 4,000) (10 cc.) intraspinally in forenoon	Many pus cells and occasional gram positive cocci	<i>Staphylococcus aureus</i>
10/ 3/34	3,100 white cells 74% polymorphonuclear leukocytes	Parke-Davis <i>Staphylococcus aureus</i> bacteriophage, 1 ampule (5 cc.) intraspinally acriflavine 1 4,000 (10 cc.) in forenoon	Not done	Culture from afternoon specimen negative at end of 17 hours
10/ 4/34	Not done	<i>Staphylococcus aureus</i> bacteriophage 1 ampule (5 cc.)	Not done	<i>Staphylococcus aureus</i>
10/ 5/34	770 white cells, 64% polymorphonuclear leukocytes	Bacteriophage 1 ampule	Not done	Negative after 24 hours incubation
10/ 6/34	1 450 cells 68% polymorphonuclear leukocytes in forenoon 590 cells 68% polymorphonuclear leukocytes in afternoon	Bacteriophage 1 ampule	Not done	Negative after 48 hours' incubation
10/ 7/34	225 cells 85% polymorphonuclear leukocytes	None	Not done	Negative culture after 22 hours
10/ 8/34	250 cells 82% polymorphonuclear leukocytes	None	Not done	Negative after 24 hours incubation
10/ 9/34	160 cells 32% polymorphonuclear leukocytes negative globulin	None	Not done	Negative culture after 24 hours
10/10/34	90% white cells 44% polymorphonuclear leukocytes	None	Not done	Negative culture after 24 hours
10/12/34	110 cells 42% polymorphonuclear leukocytes	1 ampule bacteriophage subcutaneously	Not done	Negative culture after 24 hours
10/17/34	5 white cells per cm sugar 30 mg negative globulin	None	Not done	Negative culture after 21 hours incubation

full for one month. Fluids were limited and magnesium sulphate was given by mouth every other day. Neurologic examination revealed a weakness of the muscles of the left arm and leg, a markedly diminished left knee jerk and a negative Babinski sign. Ankle jerks were present and equal. Nuchal rigidity gradually decreased in intensity. There were complaints at intervals of blurring and double vision. Improvement, however, was steady. Two spinal taps, done at home, were negative. At the present time, three months since the onset of his illness the boy is bright and happy and is going to school. His gait is not quite normal owing to some dragging of the left leg after much walking. There is no muscular contraction

second ampule of bacteriophage and remained negative throughout the duration of the illness. The temperature became normal along with the first negative spinal fluid culture and remained so. One ampule of 5 cc. of the bacteriophage was given daily for five successive days. Test tube experimentation proved that the bacteriophage used was specific for the strain of *Staphylococcus aureus* organism infecting the patient's meninges.

610 Medical Arts Building

#### CONTINUOUS SUBARACHNOID DRAINAGE FOR MENINGITIS BY MEANS OF A URETERAL CATHETER

J GRAFTON LOVE M.D. ROCHESTER MINN

Repeated spinal drainage has proved advantageous in the treatment of meningitis. It occurred to me that the discomfort of repeated lumbar and cisternal punctures could be avoided by introducing a ureteral catheter through a specially constructed spinal cannula into the subarachnoid space and leaving the catheter in place for continuous drainage.

For several years in the neurosurgical service at the Mayo Clinic, a ureteral catheter frequently has been introduced into one of the lateral ventricles either to secure gradual decompression in cases of internal hydrocephalus or to control the increased intracranial pressure associated with hydrocephalus, of patients who had inoperable neoplasms of the brain while they were undergoing roentgen therapy. The ureteral catheter is threaded through a flanged ventricular cannula, previously introduced into the ventricle with its obturator, through a burr hole placed over the posterior horn of one of the lateral ventricles. The ventricles tolerate well the presence of a ureteral catheter and postmortem examination of the brains of patients who have had continuous ventricular drainage by this method

From the Section on Neurologic Surgery the Mayo Clinic

TABLE 2—*Almost Complete Lysis of the Organism in the Fifth Tube Containing 2 cc of the Bacteriophage*

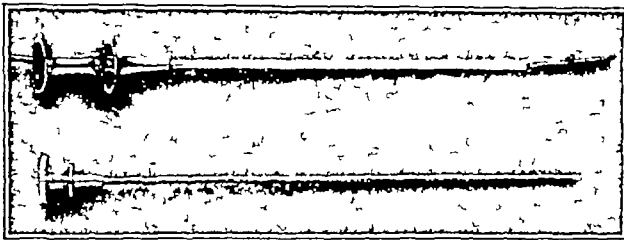
First Tube Brain Broth Staph Aureus 12 Hour Old Culture Added	Second Tube Bacterio- 0.8 Cc. Added	Third Tube Bacterio- 0.5 Cc. Added	Fourth Tube Bacterio- 1 Cc. Added	Fifth Tube Bacterio- 2 Cc. Added
No decrease in turbidity	No decrease in turbidity	No decrease in turbidity	No decrease in turbidity	Complete clearing of turbidity after 24 hrs incubation
Culture 12 Hours on Slant Agar Shows				
Fairly heavy growth	Fairly heavy growth	Fairly heavy growth	Fairly heavy growth	Very small growth

of the leg and the only positive finding is an absent left knee jerk. The disks are both completely normal and he has no headaches. The cyst is small and innocuous in appearance.

#### SUMMARY

In a case of *Staphylococcus aureus* meningitis in which recovery was complete, the etiology is not certain but appears likely to have been part of a transient bacteremia from a focus in an acute throat infection. The other possibility is

has not given evidence of ependymitis or other untoward development that could have been caused by the presence of the catheter within the ventricle. With this knowledge I felt that it was safe to leave a ureteral catheter in the subarachnoid space for continuous drainage. The needle used is the length of an ordinary lumbar puncture needle and its lumen is large enough to permit passage through it of a number 4 or 5 French ureteral catheter (fig 1). The instrument maker designates the needle Barker's 13 gage. This needle can be introduced without difficulty into the lumbar subarachnoid space or posterior cistern (cisterna cerebellomedullaris). When the needle enters the subarachnoid space the obturator is withdrawn. When fluid is seen to escape and the surgeon is certain that the needle is properly placed, a number 5 flute-tipped ureteral catheter is passed through the needle until the tip of the catheter reaches the inner end of the needle. The length of catheter necessary for this can be determined previous to the puncture by measuring the catheter by means of the obturator. When the catheter has been introduced it is held in position while the needle is withdrawn. It is unnecessary to suture or otherwise fix the catheter, for the tissues through which it passes are so thick and so closely applied to the walls of the catheter that it remains in position without additional fixation. The catheter, which is flexible, is not dislodged even if the patient turns over in bed and lies on his dressing. The catheter is cut off about 3 inches (7.5 cm) from the surface of the skin and a large absorbent dressing is applied over its outer end to absorb the fluid as it drains outward. If the patient is quiet and cooperative as usually he is not when meningitis is present the catheter may be left full length and allowed to drain into a bottle at the side of the bed.



A number 5 French flute-tipped ureteral catheter and special needle

I have not had an opportunity to try this procedure in a sufficiently large group of cases to give statistics to prove its efficacy but in the few cases in which it was used it gave gratifying results, and I expect to use it more in the future.

#### REPORT OF CASES ILLUSTRATING APPLICATION OF URETERAL CATHETER

**CASE 1—Postoperative cerebellar tumor, continuous drainage used to prevent hydrocephalus and necessity of repeated punctures.** A white woman, in February 1931, underwent a subtotal resection of a cystic astrocytoma of the left cerebellar lobe. The patient returned in August 1934 at the age of 24, for a second operation, at which time complete resection of an extensive left cerebellar tumor was carried out. Following the operation the patient was febrile and the musculocutaneous flap began to bulge unduly. On the fifth postoperative day, because of the evidence of excess fluid and increased intracranial pressure a flute-tipped ureteral catheter was inserted through the needle into the posterior cistern. Cerebrospinal fluid drained through the catheter until the eleventh postoperative day, when the catheter was removed. There was no further bulging of the flap. The wound healed by primary union. The patient was dismissed seventeen days following radical removal of the cerebellar tumor. Her condition on dismissal was satisfactory. She did not have headaches.

**CASE 2—Questionable meningitis (negative culture) continuous lumbar drainage.** A white man aged 38 admitted to the hospital in August 1934, stated that he had received two gunshot wounds forty-eight hours previously. One bullet had lodged in the soft tissues of the neck and the other had traversed the spinal canal at the level of the tenth thoracic vertebra resulting in a complete transverse lesion of the spinal cord.

Two days after the patient's admission, he began to complain of headache and stiff neck and of a sense of constriction about the chest. The temperature rose from normal to 100 F, he was perspiring profusely and appeared toxic. Clinically, meningitis had developed. In addition to the stiff neck, fever and evidence of toxemia, examination of spinal fluid disclosed 6,600 polymorphonuclear leukocytes, 80 large lymphocytes and 40 small lymphocytes for each cubic millimeter of fluid. The fluid was grossly turbid. Smears of this fluid did not reveal any organisms, and cultures were reported later as "negative."

Because of the clinical evidence of meningitis and the fact that the patient appeared worse the next day, continuous lumbar subarachnoid drainage was instituted. An olive-tipped ureteral catheter, which had but one opening not placed at the extreme end of the catheter, was used, because a flute-tipped catheter (having three openings with one at the extreme tip) was not immediately available. The patient was soon much more comfortable. The following day his neck was less rigid, his headache had disappeared, and the sense of constriction about the chest of which he had complained was gone. After forty-eight hours of continuous drainage, the ureteral catheter was removed. The patient had shown marked improvement clinically during these two days. Spinal puncture, performed the next day to obtain a specimen of fluid for examination, revealed a very slightly yellowish fluid, which on microscopic examination contained 8 polymorphonuclear leukocytes, 4 large lymphocytes, and 5 small lymphocytes for each cubic millimeter of fluid. A few erythrocytes also were present.

The patient had no further symptoms or signs of meningitis and the course from then on was that of an uncomplicated transverse lesion of the spinal cord. The patient remained under our care for twenty-five days after which he was transferred to his hospital at home for further care. At the time of dismissal his general condition was satisfactory, but he had not regained any power or sensation, which had been lost from the time of the gunshot injury.

**CASE 3—Influenzal meningitis.** A white boy, aged 3½ years admitted to the hospital July 31, 1934 was suspected of having meningitis.

Lumbar puncture revealed cloudy cerebrospinal fluid and there were 2,503 polymorphonuclear leukocytes for each cubic millimeter of fluid. Gram stain of smears from the fluid disclosed pus cells but no organisms. Cultures of the fluid revealed the presence of *Haemophilus influenzae*. Blood culture was reported as containing small, gram-negative bacilli, probably *Haemophilus influenzae*. Daily lumbar drainage was performed for five days, but this procedure had to be discontinued then for fluid could not be obtained when a spinal puncture needle was introduced into the lumbar subarachnoid space. A ureteral catheter was placed in the posterior cistern (cisterna cerebellomedullaris) according to the technic described for continuous drainage. At the time of institution of continuous drainage, the patient's temperature was 105 F, he was stuporous and entirely uncooperative. The next day he could not move the right upper extremity, and there were "twitchings" of the right side of the face and of the right upper and lower extremities. These manifestations suggested the possibility of a left cerebral abscess particularly because he gave a history of an old infection of the left ear. It also suggested a localized lesion of the left cerebral cortex associated with the meningitis. The catheter in the cistern was draining freely. Two days later clinically, the child was much better. He was conscious and alert and carried on a satisfactory conversation with the examiner. The temperature had dropped to normal and the pulse to 90. This improvement was only temporary, for forty-eight hours later he began to fail rapidly and he died on the twelfth day following admission which was the seventh day following institution of continuous cisternal drainage.

It is questionable in this case whether continuous drainage was of value. However, there was temporary improvement following its adoption and the case proves the practicality of prolonged continuous drainage by means of a catheter placed in the posterior cistern.

The postmortem examination was interesting. The ureteral catheter was patent and lay in the cistern without any local reaction being present. Suppuration in the meninges was minimal and much less than one would ordinarily expect in a



fatal case of meningitis that had lasted for more than twelve days. There was no hydrocephalus, nor was there any cortical or subcortical suppuration (abscess).

#### CONCLUSION

Continuous subarachnoid drainage can be effected without the necessity of a formal operative procedure and without the danger of the presence of a rigid instrument (needle) left in the back. A ureteral catheter introduced into the subarachnoid space will not cause irritation, and it will obviate the necessity for daily spinal puncture.

## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### ESTROGENIC HORMONES AND CARCINOGENESIS

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ST LOUIS

NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—Ed

Three lines of investigation, conducted more or less independently of one another for a number of years, have led recently to the conclusion that a remarkably close relation in chemical constitution as well as in biologic effects exists between estrogenic hormones and certain hydrocarbons that occur in tar and are able to induce cancer. The facts that resulted directly in the formulation of this problem came in part from investigations of Kennaway, Cook and Dodds and their collaborators concerning the chemical constitution of the carcinogenic constituents of tar and the ability of these and related substances to induce estrus and in part from another series of experiments in which it has been shown that estrogenic hormones are factors in the development of certain kinds of cancer. There are then (a) first a series of investigations which beginning with the finding that tar when applied to the skin over a long period of time may induce the development of cancer, led to the isolation of certain substances from tar having the ability themselves to induce cancer formation and to the synthetic preparation of these and related compounds, (b) a second series, beginning with the analysis of the mechanism underlying the sexual cycle, which proceeded to the study of the place of origin, the function and the chemical constitution of the hormones that dominate the various phases of the cycle, and (c) a third series of investigations which concerns the significance of ovarian hormones in the development of mammary cancer in mice.

I shall now discuss briefly these three lines of investigations and the main conclusions to which they lead.

#### FIRST SERIES OF INVESTIGATIONS

The first series of experiments originated with the discovery by Yamagiwa and Ichikawa<sup>1</sup> in 1915 that long continued applications of tar to the ear skin of

rabbits may initiate cancerous changes in the tissue exposed to the action of this substance. Subsequently, Tsutsui<sup>2</sup> showed that in mice epidermal cancer can be produced in a much larger percentage of cases than in rabbits and that therefore mice are the more favorable species for testing the carcinogenic power of various substances related to tar. It was next found by Bloch and Dreifuss<sup>3</sup> that the compounds present in tar and responsible for the production of cancer are neutral, nitrogen free substances possessing a high boiling point. This led to attempts to isolate the active principles involved. Following Bierich, who believed pyrrole to be active, Kennaway<sup>4</sup> showed that, if isoprene is exposed to a high temperature in an atmosphere of hydrogen, a mixture of compounds, chiefly aromatic in nature, develops, which has marked carcinogenic power. Carcinogenic substances were likewise produced in a similar way by exposing acetylene and also yeast and human skin to very high temperatures. These investigations suggested that the active substances in this case might be hydrocarbons. Continuing these experiments, Cook, Hewett and Hieger<sup>5</sup> obtained carcinogenic substances in a pure state, furthermore, Cook and his associates<sup>6</sup> prepared these substances synthetically and showed that some of them were chemically identical with others extracted from tar. It could also be demonstrated that it is the tricyclic phenanthrene ring system which is common to all these carcinogenic hydrocarbons and that a series of compounds related to 1,2-benzanthracene, which itself is inactive, possesses especially marked carcinogenic properties.

The principal carcinogenic hydrocarbons found so far are (1) 1,2-benzpyrene, which has been isolated from pitch and also synthesized, this is perhaps the most active substance, (2) 5,6-benzpyrene, on the other hand, is inactive, (3) 5,6-cyclopenteno-1,2-benzanthracene, which also is very active. Tumors have been obtained with this substance in rats as well as in mice and some of these tumors have metastasized. (4) 1,2,5,6-dibenzanthracene, which is somewhat less effective in initiating squamous cell carcinomas in mice than the first two substances, injected subcutaneously in mice and rats it caused the production of sarcomas. (5) 9,10-dihydroxy-9,10-di-n-propyl-1,2,5,6-dibenzanthracene. (6) Various other derivatives of 1,2,5,6-dibenzanthracene, which are active but less so than 1,2,5,6-dibenzanthracene itself. (7) Chrysene, which is a substance that may give rise to connective tissue tumors when injected into rats and also into mice, but investigators differ somewhat as to its power.

2 Tsutsui H. Ueber das kunstlich erzeugte Cancroid bei der Maus. *Gann* 12:17 (July) 1918.

3 Bloch Bruno and Dreifuss W. Ueber die experimentelle Erzeugung von Carcinomen mit Lymphdrüsen und Lungenmetastasen durch Teerbestandteile. *Schweiz med Wchnschr* 2:1033 (Nov. 10) 1921.

4 Kennaway E. L. The Formation of a Cancer Producing Substance from Isoprene (2 Methylbutadiene). *J Path & Bact* 27:233 (July) 1924. Experiments on Cancer Producing Substances. *Brit. M. J.* 2:11 (July 4) 1925. Further Experiments on Cancer Producing Substances. *Biochem J* 24:497 1930.

5 Cook J W, Hewett C. L. and Hieger, I. The Isolation of a Cancer Producing Hydrocarbon from Coal Tar. I II and III. *J Chem Soc* part 1 395 1933.

6 (a) Cook J W. Aromatic Hydrocarbons VII. 5,6-Cyclopenteno-1,2-Benzanthracene a Cancer Producing Hydrocarbon. *J Chem Soc* part 2 2529 1931. (b) Cook J W, Hieger I, Kennaway E. L. and Mayneord W. A. The Production of Cancer by Pure Hydrocarbons. I. *Proc. Roy. Soc. ser B* 111:455 (Oct. 1) 1932. (c) Barry G. and Cook, J W. A Comparison of the Action of Some Polycyclic Aromatic Hydrocarbons in Producing Tumors of Connective Tissue. *Am J Cancer* 20:58 (Jan) 1934. (d) Barry G. and Cook J W. Discussion on Experimental Production of Malignant Tumors. *Proc Roy Soc ser B* 113:268 (Aug) 1933.

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1 Yamagiwa K. and Ichikawa K. Ueber die kunstliche Erzeugung von Carcinom. *IV, Gann* 11:19, 1917. Experimentelle Studie über die Pathogenese der Epithelialgeschwülste. *Mitt. a. d. med. Fak. d. k. Univ. zu Tokyo* 16:295 (March 18) 1915 1916.

to produce epithelial tumors in mice Bottomley and Twort<sup>7</sup> have obtained some positive results with this substance. The degree of activity of various compounds, however, depends not only on their chemical constitution but also on the medium in which they are dissolved, in the case of chrysene, Twort showed that if it is dissolved in oleic acid the latter may act as a sensitizer and strengthen the potency of this substance. In general it seems, then, that a molecular structure consisting of rings attached to the 1, 2 and 5, 6 position of the anthracene ring system tends to induce a marked carcinogenic activity.

As far as the etiology of cancer is concerned, this series of investigations indicates that tar and the carcinogenic substances it contains are much more specific in their action than had been previously assumed. Apparently they may induce cancer formation without first causing local irritation. They operate evidently as stimulants of growth. On the other hand, these substances are not selective as regards the substratum in which they act, they may produce a cancerous transformation of epithelial as well as of connective tissue cells. The result depends on the kind of tissue with which they come into direct contact. Furthermore, it seems that they produce cancer not directly, as the agent of Rous sarcoma does, but indirectly. They effect, step by step, changes in the cells on which they act and these changes ultimately eventuate in the formation of cancer from originally normal cells. In this process these carcinogenic compounds differ only quantitatively from a number of other substances or conditions that induce cancer formation in a similar manner, such as arsenic, aniline substances given off by certain parasites and long continued regenerative processes caused by chronic irritation.

These investigations, in defining the chemical constitution of the carcinogenic agents present in tar and that of related synthetically produced compounds, have shown the chemical relationship of such substances to a whole series of other biologically important substances, such as cholesterol, bile acids, ergosterol and vitamin D, their relationship to the testis hormone and above all to the estrus producing hormones that are derived from the ovarian follicles and are present besides in the urine of pregnant women and of pregnant mares has also been demonstrated. However to this class of related compounds belong also substances which, as far as their biologic effects are concerned, are as far removed from the carcinogenic and estrogenic principles as the glucosidic heart stimulants strophanthin and digitoxin, and certain alkaloids (morphine, codeine, colchicine). All these substances as well as the carcinogenic agents possess the phenanthrene ring, they differ from one another in the degree of hydrogenation and in the character of polar groups and of side chains. Because of these relationships between carcinogenic substances and the sterols, which naturally occur in the animal organism, Kennaway and Cook suggested that carcinogenic substances similar to those obtained from tar, such as certain derivatives of 1, 2 benzantracene, might under some conditions arise in the body from sterols normally present in cells as the result of those local interferences that lead to the development of cancer.

## SECOND SERIES

Among the various agents mentioned, it is mainly the estrogenic hormones and their relation to the carcinogenic substances that seemed of special interest and gave rise to a series of investigations in which, on the one hand, the estrogenic potency of carcinogenic hydrocarbons and, on the other hand, the possible carcinogenic activity of estrogenic hormones were studied. During the last thirty years a long continued series of experimental investigations has led to the conclusion that in mammals the sexual cycle of the female organism depends on the action of two hormones or of two sets of hormones, namely (1) the follicular hormone, which dominates the first, the follicular phase of the sexual cycle directly preceding and following ovulation, this causes an active proliferation in the vagina and a more restricted growth in the mucosa of the uterus. (2) The luteal hormone, which dominates the second the luteal phase of the cycle, this makes possible the placenta formation in the pregnant animal and also induces the predecidual changes in the uterine mucosa, which take place previous to the embedding of the egg and which represent a part process in the placenta formation.<sup>8</sup> Early extirpation of the corpora lutea prevents these changes.<sup>9</sup> Moreover, the corpus luteum hormone prevents ovulation<sup>10</sup> and insures the uninterrupted continuation of pregnancy. Of these two hormones or sets of hormones, the follicular hormone was alone at first considered by those who had studied the carcinogenic hydrocarbons of tar and related compounds. This was largely due to the fact that, owing to the investigations especially of Doisy<sup>11</sup> and Butenandt,<sup>12</sup> the chemical constitution of estrogenic hormones from the urine of pregnancy had been cleared up, as in the case of the carcinogenic hydrocarbons, so also in the case of theelin and the related estrogenic substances a close relationship to the sterols had been established. The suggestion was made therefore that estrogenic substances might be derived in the body from sterols. Theelin had been found to be a tetracyclic compound which contains one aromatic ring, and, according to Girard,<sup>13</sup> in the urine of pregnant mares

8 Loeb, Leo. The Correlation Between the Cyclic Changes in the Uterus and the Ovaries in the Guinea Pig. *Biol. Bull.* 27: 1 (July) 1914. The Relation of the Ovary to the Uterus and Mammary Gland from the Experimental Aspect, *Tr. Am. Gynec. Soc.* 42: 172 1917. *Surg., Gynec. & Obst.* 25: 300 (Sept.) 1917. Ueber die experimentelle Erzeugung von Knoten von Decidua-Gewebe in dem Uterus des Meerschweinens nach stattgefundener Copulation. *Zentralbl. f. allg. Path. u. path. Anat.* 19: 563 (July 31) 1907. The Production of Deciduomata and the Relation Between the Ovaries and the Formation of the Decidua. *J. A. M. A.* 50: 1897 (June 6) 1908. The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum. *ibid.* 53: 1471 (Oct. 30) 1909. Beiträge zur Analyse des Gewebewachstums. *Arch. f. Entwickl. mech.* 27: 89 (Jan. 12) 1909. 31: 456 (Feb. 14) 1911. 32: 67 (May 16) 1911.

9 Loeb, Leo. Ueber die künstliche Erzeugung der Decidua und über die Bedeutung der Ovarien für die Decidua-Entstehung. *Zentralbl. f. Physiol.* 22: 498 (Oct. 31) 1909. Ueber die Bedeutung der Ovarien für die Decidua-Entstehung. *ibid.* 23: 73 (May 1) 1909. Weitere Untersuchungen über die künstliche Erzeugung der mütterlichen Placenta und über die Mechanik des sexuellen Zyklus des weiblichen Säugetierorganismus. *ibid.* 24: 203 (June 11) 1910. The Function of the Corpus Luteum in the Sexual Production of the Maternal Placenta and the Mechanism of the Sexual Cycle in the Female Organism. *Al. Rec.* 77: 1083 (June 25) 1910. The Mechanism of the Sexual Cycle with Special Reference to the Corpus Luteum. *Am. J. Anat.* 32: 305 (Nov.) 1923.

10 Loeb, Leo. The Cyclic Changes in the Ovary of the Guinea Pig. *J. Morphol.* 22: 37 (March) 1911. Ueber die Bedeutung des Corpus luteum für die Periodizität des sexuellen Zyklus beim weiblichen Säugetierorganismus. *Deutsche med. Wochenschr.* 37: 17 (Jan. 5) 1911.

11 Doisy, E. A. and Thayer, S. A. The Preparation of Theelin, and J. Biol. Chem. 91: 641 (May) 1931. Thayer, S. A., Levin, L. and Doisy, E. A. Characterization of Theelin. *ibid.* 91: 655 (May) 1931. Theelin. Some Physical and Chemical Properties. *ibid.* 91: 791 (May) 1931. Veler, C. D., Thayer, S. A. and Doisy, E. A. The Preparation of the Crystalline Follicular Ovarian Hormone. *Theelin*. *ibid.* 87: 357 (June) 1930. Doisy, E. A., Veler, C. D. and Thayer, S. A. The Preparation of the Crystalline Ovarian Hormone from the Urine of Pregnant Women. *ibid.* 88: 499 (April) 1930.

12 Butenandt, A. Zur Biologie und Chemie der Sexualhormone. *Naturwissenschaften* 21: 49 (Jan. 27) 1933.

13 Girard, A. La chimie des hormones sexuelles. *Bull. Soc. chim. biol.* 15: 562 (May) 1933.

7 Bottomley, A. C. and Twort, C. C. The Carcinogenicity of Chrysene and Oleic Acid. *Am. J. Cancer* 21: 781 (Aug.) 1934.

there occurs another estrogenic substance which contains two aromatic rings (equilenin). The interest in the relationship between estrogenic and carcinogenic substances was further stimulated by the discovery of Aschheim and Hohlweg<sup>14</sup> that in extracts of bituminous material (coal, mineral oil) substances are present that have a definite estrogenic potency. It was obvious that this might be due to compounds related to those which may function as carcinogenic agents. Furthermore, it was pointed out that estrogenic substances can induce active cell proliferation, and lastly it has actually been proved that under certain conditions estrogenic substances may induce or accelerate cancer formation, but the latter observations will be discussed subsequently. Quite recently, Butenandt and Westphal, Allen and Wintersteiner,<sup>15</sup> and Fels, Slotta and Ruschig<sup>16</sup> have made it probable that the luteal hormones have a similar chemical constitution to the estrogenic hormones, apparently these are unsaturated phenanthrene derivatives possessing two ketone groups and it appears therefore likely that the facts stated as to chemical relation between carcinogenic compounds and estrogenic hormones apply in addition to the luteal hormones.

Proceeding with these investigations, Cook and Dodds and their associates<sup>17</sup> examined a number of hydrocarbons (in which previously the carcinogenic potency had been analyzed) as to their ability to induce estrus in castrated mice and rats and also to change the plumage in capons in the direction toward female characteristics.

The following are the principal substances that they found estrogenic: (1) 1-keto-1,2,3,4-tetrahydrophenanthrene. This was the first compound of known chemical constitution that was shown to be estrogenic, although to a much less extent than theelin. (2) 1,2,5,6-dibenz-9,10-di-n-butyl anthraquinol. (3) 7-methoxy-1,2-cyclopenteno-phenanthrene, this is identical with the dehydrogenation product of equilenin. (4) The most efficient of these estrogenic substances was 9,10-dihydroxy-9,10-dipropyl-9,10-dihydro-1,2,5,6-dibenzanthracene, a derivative of dibenzanthracene that itself is not estrogenic but becomes so when hydrogenated and supplied with hydroxyl groups. The butyl preparation approaches the propyl derivative in potency, but if other groups are substituted for propyl or butyl, the potency decreases very much or disappears altogether.

Of particular interest is the fact that the two most active carcinogenic substances, (5) 1,2-benzpyrene and (6) 5,6-cyclopenteno-1,2-benzanthracene, are also estrogenic, although their potency is much weaker than that of the dibenzanthracene derivatives mentioned under 4. Likewise (7) dimethylphenanthrene is weakly active. On the other hand 1,2,5,6-dibenzanthracene, which is actively carcinogenic is devoid of estrogenic

potency. Also a number of other phenanthrene derivatives are nonestrogenic. While the saturated cholesterol itself is nonestrogenic, some related, nonsaturated substances, such as neo-ergosterol, vitamin D and ergosterol, are estrogenic.

It seems, then, that the presence of one or two aromatic rings and of an oxygen containing group in the phenanthrene ring is necessary for a compound to acquire a high estrogenic potency, but even in substances not possessing the oxygen containing group, estrogenic activity may be observed, although it is low under these conditions.

In addition it has now been established that even the phenanthrene ring is not necessary for the manifestation of estrogenic potency, 1-keto-1,2,9,4,5,6,7,8-octahydro-anthracene also shows such activity, moreover a low estrogenic potency is shown even by certain highly unsaturated fatty acids.

If these two series of compounds are compared with each other, the first one, representing the substances possessing carcinogenic activity, and the second, consisting of estrogenic compounds, one may conclude that (1) there are substances which are both carcinogenic and estrogenic, (2) there are carcinogenic substances which are not estrogenic, (3) there are estrogenic substances which are not carcinogenic, and (4) even in cases in which compounds are both estrogenic and carcinogenic, there is no parallelism between the strength of these two activities. The substances most potent carcinogenically are not the most potent estrogenic compounds. A special effort has been made recently by Burrows<sup>18</sup> and Kennaway to demonstrate a possible carcinogenic action of theelin when applied to the skin of mice over a long period of time, a method that has been found effective with the carcinogenic hydrocarbons of tar. However, their essential observations, under these conditions, consisted in certain changes in the vagina, uterus and part of the prostate, which might be expected if some of the theelin had been absorbed through the skin or taken in orally by the animals and thus had exerted the usual effects of these hormones on the sex organs. No tumor was produced in this way.

It seems, then, that the relations between the estrogenic and the carcinogenic potencies of certain substances do not differ essentially from the relations between the estrogenic and the rickets preventing activities of other, also chemically related, compounds, these two functions may or may not be exerted by the same substance but, if they are combined, the association is apparently a more or less fortuitous one. Presumably the chemical groups responsible for these various activities are not the same, although the possibility must be considered that a very indirect connection between them may exist so far as certain peculiarities of chemical constitution of the compounds under discussion might favor their marked potency in different, biologically unrelated directions.

### THIRD SERIES

While, as stated, theelin does not have a carcinogenic effect if applied in the manner which, when tar and certain hydrocarbons are used, leads to tumor formation in mice, in another way it has been possible to prove that ovarian hormones, in interaction with hereditary factors are responsible in mice for the origin of

14 Aschheim Selmar and Hohlweg W. Ueber das Vorkommen oestrogenen Wirkstoffe in Bitumen. Deutsche med. Wchnschr. 59: 12 (Jan. 6) 1933.

15 Allen W. M. and Wintersteiner O. Crystalline Progesterone. Science 80: 190 (Aug. 24) 1934.

16 Fels K., Slotta K. H. und Ruschig H. Die Reindarstellung der Hormone aus dem Corpus luteum. Klin. Wchnschr. 13: 1207 (Aug. 25) 1934.

17 Cook J. W., Dodds E. C. and Greenwood A. W. Sex Change in the Plumage of Brown Leghorn Capons Following the Injection of Certain Synthetic Estrus-Producing Compounds. Proc. Roy. Soc. ser. B 114: 286 (Jan.) 1934. Cook J. W., Dodds E. E., Hewett C. L. and Lawson W. The Estrogenic Activity of Some Condensed Ring Compounds in Relation to their Other Biological Activities. Proc. Roy. Soc. ser. B 114: 272 (Jan.) 1934. Cook J. W. and Dodds E. C. Sex Hormones and Cancer Producing Compounds. Nature 131: 205 (Feb. 11) 1933. Dodds E. C. The Hormones and Their Chemical Relations. Lancet 1: 931 (May 5) 1934.

18 Burrows H. On Some Effects Produced by Applying Estrin to the Skin of Mice. Am. J. Cancer 20: 48 (Jan.) 1934.

mammary cancer, the most frequent tumor in this species. First, it has been shown<sup>19</sup> in breeding experiments (1907-1919) that, in different strains and families kept under the same environmental conditions, the cancer rate varies between almost 100 per cent on the one hand and zero on the other, and that in each strain or family this peculiar cancer rate remains approximately constant in successive generations and is a genetically determined condition. It has furthermore been shown that not only the cancer incidence but also the cancer age is genetically determined and characteristic of each strain. Only on the basis of these data was it possible to analyze the effect of ovarian hormones on the incidence of mammary cancer. If in mice belonging to strains with a known high incidence of cancer the ovaries are extirpated at the age of from 3 to 4 months, the cancer incidence falls to zero in the majority of strains or families and to a ratio approaching zero in others.<sup>20</sup> The subsequent experiments of Cori<sup>21</sup> have proved that if castration is carried out at a still earlier period—two months—the cancer rate is definitely reduced to zero. But when the ovaries were extirpated at successively later periods of life the cancer rate rose correspondingly step by step, until, if the castration took place at the age of from 8 to 10 months the rate became about as high as it was in noncastrated mice. Not only did ovariectomy cause a marked reduction in the incidence of cancer but it also increased the average age at which cancer appeared. Prevention of breeding as a rule also reduced the cancer rate, but to a much less marked degree than ovariectomy. These data were interpreted as indicating that ovarian hormones, acting on the mammary gland in cooperation with hereditary factors, caused the transformation of the normal gland tissue into cancerous tissue. The hormones functioned under these conditions as a stimulant comparable to the action of tar in epidermal and other cancers. The relation between the hereditary (H) and stimulating (S) factors in the production of cancer (C) can be expressed by the equation  $H + S$  (or  $H \times S$ ) =  $C$ .<sup>22</sup>

In further experiments the attempt was made to induce cancer formation in animals in which it does not occur under normal conditions, by supplying ovarian hormones. Thus the ovaries of females belonging to the same strains were transplanted into spayed male mice belonging to high cancer rate strains.<sup>20b</sup> But

cancer did not develop in the males under these conditions, presumably because the ovarian follicles did not function sufficiently after transplantation. Cori likewise obtained negative results.<sup>21</sup> However, subsequently, Murray,<sup>23</sup> experimenting on a much larger scale, obtained a small percentage of positive results.

Of the ovarian hormones that could be held responsible for this carcinogenic effect there were to be considered (a) the follicular hormone that is active during the follicular phase of the sexual cycle and (b) the luteal hormone that is active during the luteal phase. The principal action that these two hormones exert on uterus and vagina has already been discussed. As to their influence on the mammary gland, the organ with which I am here mainly concerned, it could be shown that the follicular hormone causes proliferation in guinea-pigs, rats and mice.<sup>24</sup> In rabbits, Ancel and Bouin<sup>25</sup> attributed the growth of this gland to the luteal hormone, however, it was demonstrated that in guinea-pigs a proliferation of the mammary gland does not take place during the luteal phase of the cycle.<sup>24</sup> On the basis of these data, I considered primarily the follicular hormone as the carcinogenic agent, but there were also indications that in addition, the luteal hormone might be of significance.<sup>26</sup> Cori then attempted to produce cancer in female mice belonging to a high cancer strain and castrated at an early period of life, by the injection of estrogenic hormone at regular intervals over a long period of time. These experiments as well as those continued by him in cooperation with me gave negative results, apparently owing to the use of insufficient doses of this preparation. However, quite recently, Lacassagne<sup>27</sup> succeeded by this method but with the use of much larger doses of estrogenic substance (in the form of a benzoate)<sup>28</sup> in producing mammary cancer in male mice in which normally it would not have appeared. Thus it is possible also to increase the cancer rate through administration of a derivative of an estrogenic hormone. Lacassagne furthermore found that injections of estrogenic substance eventually led to cancer formation not only in high tumor rate but also in low tumor rate strains,<sup>28</sup> although in the latter this effect was accomplished with much greater difficulty.

As stated, under natural conditions the development of mammary cancer in mice depends on the interaction between hereditary factors and an ovarian hormone, acting as a stimulant of tissue growth. The problem arose as to the character of these hereditary conditions. Apparently they act as sensitizers of the tissues, render-

19 Loeb Leo. Further Observations on the Endemic Occurrence of Carcinoma and on the Inoculability of Tumors. Univ. Pennsylvania M. Bull. 20: 2 (March-April) 1907. Ueber einen Kontakt-Kombinations-tumor bei einer weissen Maus. Zentralbl. f. allg. Path. u. path. Anat. 22: 993 (Nov. 30) 1911. Lathrop A. E. C. and Loeb Leo. The Incidence of Cancer in Various Strains of Mice, Proc. Soc. Exper. Biol. & Med. 11: 34 (1913-1914). The Influence of Pregnancies on the Incidence of Cancer in Mice, Proc. Soc. Exper. Biol. & Med. 11: 38 (1913-1914). Further Investigations on the Origin of Tumors in Mice. I. Tumor Incidence and Tumor Age in Various Strains of Mice, J. Exper. Med. 22: 646 (Nov.) 1915. II. Tumor Incidence and Tumor Age in Hybrids, J. Exper. Med. 22: 713 (Dec.) 1915. Loeb Leo. Inheritance of Cancer in Mice. Am. Naturalist 55: 510 (Nov. Dec.) 1921. Slye Maude. The Inheritability of Spontaneous Tumors of Specific Organs and of Specific Types in Mice, J. Cancer Research 1: 479 (Oct.) 1916. Slye Maude, Holmes H. F. and Wells H. G. Comparative Pathology of Cancer of the Stomach with Particular Reference to the Primary Spontaneous Malignant Tumors of the Alimentary Canal in Mice. J. Cancer Research 2: 401 (July) 1917 and numerous subsequent papers of Maude Slye.

20 (a) Lathrop A. E. C. and Loeb Leo. Further Investigations on the Origin of Tumors in Mice. III. On the Part Played by Internal Secretion in the Spontaneous Development of Tumors. J. Cancer Research 1: 1 (Jan.) 1916. (b) Loeb Leo. Further Investigations on the Origin of Tumors in Mice. VI. Internal Secretions as a Factor in the Origin of Tumors. J. M. Research 40: 477 (Sept.) 1919.

21 Cori C. F. The Influence of Ovariectomy on the Spontaneous Occurrence of Mammary Carcinomas in Mice. J. Exper. Med. 45: 983 (June) 1927.

22 Loeb Leo. Quantitative Relations Between the Factors Causing Cancer and the Rapidity and Frequency of the Resulting Cancerous Transformation. J. Cancer Research 8: 274 (July) 1924.

23 Murray W. S. Ovarian Secretion and Tumor Incidence. Science 66: 600 (Dec. 16) 1927. A Note on Ovarian Secretion and Cancer. Ibid. 67: 396 (April 13) 1928.

24 Loeb, Leo, and Hesselberg C. The Cyclic Changes in the Mammary Gland Under Normal and Pathological Conditions. I. The Changes in the Nonpregnant Guinea Pig. J. Exper. Med. 25: 285 (Feb.) 1917. II. The Changes in the Pregnant Guinea Pig. The Effect of Luteal Injections and the Correlation Between the Cycle of the Uterus and Ovaries and the Cycle of the Mammary Gland. J. Exper. Med. 25: 305 (Feb.) 1917.

25 Ancel P. and Bouin P. Recherches sur les fonctions du corps jaune gestatif. II. Sur le déterminisme du développement de la glande mammaire au cours de la gestation. J. de physiol. et de path. gen. 13: 31 (Jan. 15) 1911.

26 Loeb Leo. Heredity and Internal Secretion in the Etiology of Cancer. Report of the International Conference on Cancer. London 1928. p. 48.

27 Lacassagne, A. Apparition de cancers de la mamelle chez la souris mâle, soumise à des injections de folliculine. Compt. rend. Acad. d. sc. 195: 630 (Oct. 10) 1932.

27a Lacassagne<sup>27</sup> employed a preparation called "folliculine benzoate". It is impossible to judge from the literature whether this is the benzoate of ketohydroxyestrin (theelin) or whether it is identical with hydroxy estrin benzoate marketed in this country under the name "Progonon B". In his subsequent publication<sup>28</sup> Lacassagne designates the product employed simply as folliculine.—Ed.

28 Lacassagne A. Sur la pathogenèse de l'adénocarcinome mammaire de la souris. Compt. rend. Soc. de biol. 115: 937 1934.

ing them more receptive to the effects of the stimulants. We considered it therefore possible that in cancer-rich strains there might be a stronger response of the sex organs to the estrogenic hormones, leading to modifications of the sexual cycle. However, preliminary experiments in which we<sup>29</sup> attempted to demonstrate a constant difference in the sexual cycle between high and low tumor rate strains so far proved negative, but Lacassagne has noted such differences in his recent paper<sup>28</sup>.

It may now be asked what bearing these investigations have on the interpretation of the first two series, in which the close chemical relationship between the carcinogenic substances present in tar and estrogenic hormones has been demonstrated and in which it has furthermore been shown that certain of these carcinogenic substances are also estrogenic. It may be regarded as established that estrogenic substances, as a rule acting in association with hereditary factors, may be strongly carcinogenic, but such carcinogenic action is restricted to the tissues of the mammary gland with which they combine and in which, under normal conditions, they induce growth processes. The carcinogenic effect of this hormone is thus restricted to secondary sex organs. It is this specific character which distinguishes the action of ovarian hormones from that of the carcinogenic agents present in tar. Such a specificity is very far reaching, it extends in a graded degree even to the sex organs themselves. Thus it could be shown that the follicular hormone induces growth processes in the vagina, and in the vaginal, middle and uterine cervix of the guinea-pig with an intensity that decreases in these organs quantitatively in the order named<sup>30</sup>. This specificity relates in the first place to the substratum on which these hormones act and to a less extent to the hormone as such. In the case of the carcinogenic hydrocarbons, on the other hand, such a specificity is much less pronounced, or it may be lacking altogether, they seem to be able to induce the transformation of normal into cancer tissues at any point at which they come into long continued contact with tissues, whether these are of epithelial or of connective tissue origin, provided they still possess the potentiality to grow and proliferate. However, while the induction of growth processes in the organs on which they act specifically is accomplished very rapidly by the estrogenic substances, the cancerous transformation that they cause occurs only after these growth stimuli have had a chance to act over a relatively long period of time. Similarly the carcinogenic hydrocarbons of tar effect the cancerous transformation only after long continued action on the tissues, in which they step by step induce manifestations of increased growth energy. In the case of both estrogenic hormones<sup>22</sup> and tar<sup>21</sup> the definite cancerous transformation is preceded by a preparatory period. When this stage has been reached, the carcinogenic agent whether hormone or tar no longer needs to be applied, the carcinogenic effect follows spontaneously in the course of time. Furthermore, in both cases it can be shown that the longer the stimulus has acted the greater is the incidence of cancer and the earlier the period of life at which it appears.

In both instances the carcinogenic effect is evidently an indirect one, it differs from the growth processes that the ovarian hormones as well as other hormones, such as the thyroid stimulating hormone, induce in the susceptible tissues, and it depends on changes that take place gradually in the cells under the influence of the continued action of these various agents. However, while the hydrocarbons of tar, as well as the estrogenic hormones, may be more efficient than other factors in producing cancer, in principle they do not act differently from the numerous other conditions that may cause cancer following a preliminary period of increased, nonspecific growth processes. Provisionally it may be assumed that all these agents, but with varying readiness, gradually induce changes in the normal cell equilibrium and thus, step by step, transform it into a cancerous equilibrium in which certain growth substances are produced in an increased quantity and perhaps also in a qualitatively modified manner. The latter which, as far as fowl sarcoma is concerned, at the same time may also induce specific tissue transformations,<sup>32</sup> continue then to be produced as the result of the changed cell metabolism in a manner that resembles an autocatalytic process. In this connection it may be recalled that Murphy considers the filtrable agent of chicken tumors not as an ultramicroscopic living organism but as a nonliving organic substance. In the case of Rous sarcoma, substances of this nature which are formed in excess in the cancerous cells may be separated from the cells and as such induce the cancerous transformation directly in other cells with which they have combined<sup>33</sup>. However, this interpretation, as stated, must at present be regarded as tentative. There exists the possibility that an extraneous virus, either in combination with cell specific substances or alone, is responsible for this direct, almost instantaneous, cancerous transformation (Gye and Purdy,<sup>34</sup> Andrewes<sup>6d</sup>).

#### SUMMARY

Briefly, the carcinogenic hydrocarbons of tar and related compounds, estrogenic substances as well as certain other factors, in the course of time may induce cancer formation in those tissues on which they act. But while carcinogenic hydrocarbons as well as regenerative processes (irritation) may affect a great variety of tissues, the estrogenic hormones are limited in their action to the tissues in which they induce growth processes during the normal sexual cycle. Both carcinogenic hydrocarbons and ovarian hormones bring about the cancerous transformations of tissues in an indirect manner, they differ in this respect from other agents merely from a quantitative point of view. The mechanism by which ovarian hormones produce proliferative processes in the sex organs differs from the mechanism underlying the cancerous transformation, although the latter may ultimately depend on proliferative processes acting over a long period of time. There exist, therefore, no direct but only indirect connections between the carcinogenic action of the hydrocarbons of tar and the carcinogenic effect produced by estrogenic hormones.

29 Loeb Leo and Genthner I T. Heredity and Internal Secretion in Origin of Mammary Cancer in Mice. Proc Soc Exper Biol & Med 25: 809 (June) 1928.

30 Loeb Leo. On the Graded Relation Between the Intensity of Hormone Action and the Character of the Incipient Tissue. Endocrinology 12: 161 (March-April) 1928.

31 Bang F. Démonstration expérimentale d'un temps de latence dans l'évolution des tumeurs malignes. Compt rend Soc de biol 87: 754 1922.

32 Claude A and Murphy J B. Transmissible Tumors of the Fowl. Physiol. Rev 13: 246 (April) 1933.

33 Loeb Leo. General Problems and Tendencies in Cancer Research. Science 43: 293 (March 3) 1916. footnotes 22 and 26.

34 Gye W E. and Purdy W J. Cause of Cancer. London. Cassell & Co. Ltd. 1931.

## Therapeutics

### THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.

CHICAGO

*NOTE.—In their elaboration these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—En*

#### THERAPY OF UREMIA (AZOTEMIA)

True uremia is a syndrome the characteristic feature of which is retention of nitrogenous waste products in the system owing to insufficiency of kidney function. It must be distinguished from eclampsia (q v) believed to be due to angiospastic cerebral edema, which may occur without kidney insufficiency, as well as from the cerebral angiospastic ischemia attacks of arteriosclerosis (q v), because the therapy and the prognosis of these three conditions are quite different. Although these various disturbances may occur in all possible combinations, it is not only illogical to speak of "uremia without kidney insufficiency" or "pseudo-uremia," as Volhard, for instance, does but also fatal to the drawing of clear indications for therapy.

#### DIAGNOSIS

The diagnosis must be based on definite evidence of a considerable degree of retention of waste products of metabolism (direct evidence of uremia) and of marked kidney insufficiency (indirect evidence of uremia), though organic kidney disease is not necessarily present.

The direct evidence rests on the demonstration of a high percentage of nonprotein nitrogen (the nonprotein nitrogen above 66 mg per hundred cubic centimeters), of high blood urea (urea nitrogen above 45 mg per hundred cubic centimeters) and of creatinine (above 3 mg per hundred cubic centimeters). Of great significance is the demonstration of indican (test 1) in the serum, and possibly of still greater importance is that of phenol (test 2) in the serum. This is accompanied by a severe and progressive acidosis, the degree of which is an even better measure of the danger to the nephritic than is nitrogen retention. Hence the necessity of testing the alkali reserve in every case of severe kidney disturbance (see Acidosis).

The indirect evidence is a low fixed specific gravity of the day and the night urine (1.015 or less) and a relatively high volume of night urine (750 cc or more), with a low salt (test 3) and nitrogen concentration and a low phenolsulphonphthalein excretion (25 per cent or less, test 5). Albuminuria and cylindruria are of no value in the recognition of uremia.

An important variety of uremia is that secondary to hypochloridosis, such as occurs most especially as the result of excessive vomiting in gastrectasia or in intestinal obstruction. When there is little or no chloride for the kidney to eliminate, nitrogen retention occurs, which leads to the phenomena of uremia. This condition should be suspected most especially when the urinary examination is practically negative excepting for the extremely low percentage of chloride in the urine. The blood chloride test (test 4) clinches the

differentiation. In normal individuals the blood chloride ranges between 450 and 500 mg per hundred cubic centimeters.

#### PROPHYLAXIS

The prevention of uremia is one of the chief indications in the therapy of nephritis (q v). It must suffice here to say that the most successful therapy of uremia lies in the recognition of the danger of uremic coma and in energetic efforts to jugulate it.

When the nephritic patient commences to complain of progressive weakness, sleepiness, headache or itching, and he is found to be mentally dull, with urinary odor of the breath and possibly incrustations of urea on his skin, most especially "urea frost" about the nostrils, a phenolsulphonphthalein test (test 5) at least should be taken. If the output is below 40 in the hour, the residual nitrogen in the serum is presumably increased. Special attention should be paid to the circulation, and myocardial insufficiency (q v) must be antagonized, for uremia is aggravated by heart weakness, which in turn increases with the production of a vicious circle.

The physician should beware of unduly antagonizing symptoms that might be interpreted as efforts at vicarious elimination. Diarrhea, vomiting, epistaxis or hemorrhoidal bleeding, if not excessive, may be salutary. If they seem to become too troublesome or to weaken the patient, they should be checked in a gradual rather than a sudden manner by the use of the remedies described elsewhere in connection with the therapy of these conditions. Against the gastro-intestinal manifestations of uremia, lavage of the stomach and bowel is likely to be the most efficient and least harmful procedure.

#### PREVENTION OF UREMIC COMA

The prevention of uremic coma in a patient threatened with it as suggested by the clinical phenomena described requires the following measures:

1 The patient should have absolute rest in bed.

2 The dietary regimen to be resorted to demands differentiation between at least four possible varieties of uremia: (a) intestinal intoxication predominating (indican and phenol in serum), (b) acidosis prominent, (c) hypochloridosis, (d) hypohydration.

(a) Starvation for a day is a good beginning when intestinal intoxication predominates, provided the patient is well nourished. This is followed by high carbohydrate-low protein diet (see Nephritis).

(b) Acidosis does not permit starvation. It demands a sugar diet from the start, which may consist, for example, of the juice of one lemon, one teaspoonful of cane sugar, and six tablespoonfuls of lactose in enough water for solution (1½ cupfuls). This quantity, given four times daily, yields 1,242 calories, which may suffice for possibly two days. It might be followed by the banana-cream diet: morning and evening 300 Gm of ripe bananas and 100 cc of cream, and at noon 200 cc of cream soup, 300 Gm of bananas and 200 cc of milk, yielding 1,335 calories, protein 29 Gm and alkaline ash. This must not be continued for more than a few days and it should be followed by the lactovegetarian diet (see Nephritis) with an abundance of potatoes because of their alkaline ash. Protein must be but moderately restricted for continued sustenance.

Patients who are nearly always on the verge of uremia may be kept in a fair degree of comfort for a long time by a more or less weekly repetition of this program.



c) Hypochloridosis requires the additional administration of sodium chloride given if the stomach is retentive, in the form of retention enemas, hypoboclysis or intravenous injection of Physiologic Solution of Sodium Chloride in accordance with the degree of the emergency. If this is extreme even hypertonic (10 per cent) salt solution may be used in hypoboclysis, drop by drop. Great salt restriction is not feasible in any patient threatened with uremia.

d) Hypohydration is especially threatened when acidosis predominates. Such vomiting indicates gastric stasis. Give with 2 per cent sodium bicarbonate solution followed by duodenal tube administration of 1 or 2 glasses of hot water (110 F) or of 2 per cent sodium bicarbonate solution (if acidosis is present) or of Physiologic Solution of Sodium Chloride if hypochloridemia prevails. Giving these solutions hot may assist in establishing profuse and salutary sweating.

The necessity for intestinal evacuation is especially demonstrated by the presence of indican and of phenol in the serum.

#### *Mild Mercurous Chloride Tablets*

Ten tablets of Mild Mercurous Chloride each 0.006 Gm.  
Dose: One every hour until all are taken.

a) If constipation prevails, a saline cathartic, such as Sodium Sulphate (15 Gm.), may be given every morning, with possibly initial Mild Mercurous Chloride administration in broken dosage for the first day or two.

Magnesium salts are contraindicated in uremia owing to retention of magnesium ions in the system. Retention of coma—easily mistaken for uremic coma—may be induced in nephritic patients by magnesium sulfate purgation. It is not advisable to maintain a diarrheal condition by means of purgation, as this weakens the patient, because relatively more nutrient matters than nitrogenous waste products are lost in the watery stools.

b) When there is diarrhea, and also in the presence of constipation, prolonged colon irrigation with hot water or 2 per cent sodium bicarbonate solution is desirable, with the use of 2 or 3 gallons of the fluid in the course of 24 hours or two days.

Heat must be employed the more cautiously, the more critical the condition. Excepting for applications to the loins it is contraindicated by myocardial insufficiency. One may choose from among the following methods:

a) The loin poultice or hot wet pack is desirable, moist heat being better than dry heat in those cases in which the skin is harsh and dry.

b) The electric light "baker," either general or applied only to the loins, if the heart is weak, is the more convenient method. It is to be preferred therefore, provided the skin is tolerably active.

General diaphoresis by any one of these measures must not be attempted until improvement has commenced to set in, for fear of weakening the heart or of increasing hypohydration or hypochloridosis, thus aggravating the uremia. When definite improvement has set in, a mild degree of sweating may be salutary. Exhausting and drenching sweats should be avoided. If the skin is but a poor vicarious excretory for the kidneys, Pilocarpine Nitrate (5 mg. hypodermically or 15 mg. by mouth) is admissible only if the patient, while in a general heating procedure, does not sweat and has become extremely hot and uncomfortable. It is contraindicated by heart weakness and pulmonary

edema. Excessive or dangerous pilocarpine action may be promptly checked by Atropine Sulphate (0.5 mg.) given hypodermically.

5 Diuresis is contraindicated until considerable improvement has set in. Then it may be attempted cautiously, as discussed under "Therapy of Nephritis," with continued observation of the effect. The diuretic least likely to be harmful is water, which might be given as a deliberate "water thrust" of 2 or 3 liters of water or of other fluid daily, a careful watch being made of the effect on the urine and the intake being promptly diminished if the quantity of urine is not increased or as soon as the initial diuresis commences to fall off.

#### TREATMENT OF UREMIC COMA

The obstinate recurrence of the precoma manifestations or the actual development of true uremic coma is tantamount to the recognition of an incurably malignant condition and requires the application of the principles of the therapy of a hopeless case. When the patient is obviously moribund it is nothing less than cruel to subject him to a barrage of useless and disturbing procedures. It is one's duty then to practice euthanasia, i. e., to minimize, as far as possible, the agony of dying. When the condition is not as extreme, one should aim to prolong life as far as possible by gentle means but not at the expense of subjecting the patient, suffering from an incurable condition that will soon end his life, to painful or terrifying attempts at treatment that cannot do more than merely prolong his suffering for a while. True therapy is tender; it never tortures. It is the business of the physician to make the patient as comfortable and as cheerful as possible. When he asks whether there is any chance for him, the answer might be "The condition is serious but as long as there is life there is hope." To the patient's relatives the full gravity of the situation should be tactfully revealed. It is well to request a consultation, even if—and actually because—the diagnosis and prognosis are clear.

1 When, in spite of the application of the prophylactic measures discussed, the patient's condition becomes alarming or coma manifests itself suddenly, the immediate abstraction of 400 or 500 cc. of blood by vein puncture may be of telling effect. It might be repeated, if required, after four or five days, provided the hemoglobin percentage is not too low. Unfortunately, the results of subsequent abstractions of blood become progressively less satisfactory so that, while it should not be postponed too long, it also should not be resorted to unless actually required possibly to prolong life for a while. Blood transfusion is not to be recommended.

2 Lumbar puncture might be tried in cases that do not respond to other measures. It is stated to be of special value against the itching of uremia.

3 Dextrose phlebotomy might be employed in conjunction with bloodletting.

a) One might infuse 500 cc. of 5 per cent dextrose solution (without sodium chloride, unless there is hypochloridosis), and this might be repeated at intervals after the effect has been carefully observed. Continuous phlebotomy is contraindicated, as it would soon overburden the system with fluid.

b) When the heart is enfeebled or there is evidence of high intracranial tension one should preferably infuse from 100 to 200 cc. of 25 per cent solution of dextrose which might be repeated at intervals if the effect is satisfactory.



4 A heart stimulant, e g, strophanthin (from  $\frac{1}{2}$  to  $\frac{1}{2}$  mg) might be infused with the dextrose solution or injected intramuscularly, provided the patient has not been previously digitalized

5 A purgative might be resorted to if the patient's bowels are constipated

(a) Placing a drop of Croton Oil mixed with a little butter on the back of the patient's tongue is a time-honored procedure in the treatment of uremic coma

(b) Others advise that, because it is less drastic 0.6 Gm of Mild Mercurous Chloride with a teaspoonful of snow-ice be placed on the back of the tongue

(c) Compound Jalap Powder (from 2 to 4 Gm) in water might be given instead of either of the foregoing if the patient can swallow

6 The diet is not of primary importance at this stage The time has passed when rigid dietary restriction will do the patient much good His likes and dislikes should now be consulted

7 Of sedatives, (a) Morphine Sulphate is the physician's indispensable ally for the relief of symptoms that do not respond readily to simpler remedies It should be used against persistent hiccup, paroxysmal dyspnea (uremic asthma), muscle cramps, restlessness, insomnia and delirium In view of its presumably poor elimination in these cases, it should be given in moderate doses (from 8 to 16 mg) at intervals of perhaps six to eight hours It should be avoided, if possible, when there is itching, as it may aggravate the pruritus as an after effect It should be employed only as a last resort in the presence of Cheyne-Stokes breathing, as it greatly accentuates this disturbance

(b) Other sedatives may have to be resorted to when morphine is contraindicated, e g, bromide chloral or scopolamine (see Insomnia)

8 Of stimulants, (a) hot black coffee by mouth or rectum, or caffeine sodiobenzoate (0.2 Gm in ampule) given hypodermically may be of value in the dyspnea of Cheyne-Stokes respiration

(b) Atropine Sulphate (0.5 mg) might be tried against this dyspnea and it should certainly be given with the morphine, if the help of this remedy of despair is required

9 Surgery is contraindicated in the presence of uremia with the exception of the acute uremia of post-scarlatinal glomerulonephritis, in which kidney decapsulation may be worth trying In the uremia of prostatic hypertrophy, operation should not be undertaken until the blood has been rendered as nearly normal as possible

10 Complications, such as "renal pericarditis" and acute infections, should be particularly looked for in these cases When present, they are prone to be "terminal" and appropriate arrangements should be made, such as notifying distant relatives or, with Catholics, calling the priest

#### TESTS

TEST 1—*Blood Indican*—1 Whole blood in centrifuge tube (about 10 cc) is allowed to coagulate Centrifuge decant obtaining 5 cc serum

2 To 5 cc of serum add an equal amount of distilled water (5 cc.)

3 Add 10 cc of 20 per cent trichloroacetic acid Filter

4 To filtrate, add a few drops of thymol reagent (5 per cent thymol in 95 per cent alcohol)

5 Add also to filtrate an equal amount of Obermayer's reagent (0.5 per cent ferric chloride in concentrated hydrochloric acid) Mix thoroughly Let stand two hours

6 Add 5 cc of chloroform, shake vigorously and allow to settle Read as 1 to 4 plus in settled chloroform according to depth of violet color

TEST 2—*Blood Phenol*—1 Obtain about 10 cc. of whole blood in a centrifuge tube, allow to coagulate, centrifuge and decant the blood serum

2 To 4 or 5 cc. of blood serum, add an equal amount of 20 per cent Trichloroacetic Acid

3 Filter

4 To 2 cc of filtrate, add 0.5 cc of concentrated nitric acid

5 Boil from half a minute to a minute.

6 Cool Add 1.5 cc of 33 per cent sodium hydroxide.

Reactions Positive a markedly golden color, depending on the degree of renal insufficiency Negative, a straw color

(Becher in 1924 used 0.03874 per cent aqueous solution of potassium bichromate as a standard, by means of a colorimeter) The gross reaction as described is sufficiently reliable

TEST 3—*Approximate Estimation of Chlorides in the Urine*—Apparatus required 1 A test tube. 2 Two medicine droppers of identical bore at the end 3 A 29 per cent solution of silver nitrate 4 A 20 per cent solution of potassium chromate

Technic 1 Put exactly 10 drops of urine in a test tube.

2 Add 1 drop of the potassium chromate solution. The fluid will now assume a somewhat distinctly yellow color

3 Add drop by drop, with a dropper of the same caliber, the silver nitrate solution until a permanent and distinct color change to red brown occurs (due to the formation of silver chromate)

The number of drops required to produce the change of color expresses in grams the content of chlorides per liter of urine

TEST 4—*Blood Chloride Test*—1 To 12 cc. of distilled water in a 20 to 25 cc. centrifuge tube is added 3 cc. of whole blood and then about 0.5 Gm of dry trinitrophenol The mixture is now stirred until protein precipitation is complete and the mixture turns a bright yellow color The precipitate is next thrown down in the centrifuge and the supernatant fluid is filtered into a dry tube

2 Five cc of the filtrate is then pipetted into a centrifuge tube of 25 cc capacity and 20 cc of the standard silver nitrate-acidified ferric alum indicator solution<sup>1</sup> added The contents are stirred to insure thorough mixing and the silver chloride precipitate thrown down in the centrifuge. The clear supernatant fluid is decanted into a clean dry beaker and 20 cc pipetted into a small porcelain evaporating dish for titration

3 The titration is made with ammonium thiocyanate solution<sup>2</sup> of such strength that 1 cc is the equivalent of 1 cc. of the silver indicator solution The end point is definite and consists of the first permanent tinge of reddish brown that extends throughout the mixture.

4 The calculation may be carried out with the aid of the following formula

$20 - (\text{titer} \times 5/4) \times 0.5 \times 100 = \text{mg of sodium chloride in 100 cc. of whole blood or plasma}$

TEST 5—*Phenolsulphonphthalein Test*—The patient, having received 400 cc of water, should empty the bladder completely An intramuscular injection is given of exactly 1 cc. of the dye solution

Exactly one hour and ten minutes after the dye injection, the patient should empty the bladder ("first hour" specimen)

Exactly two hours and ten minutes after the dye injection, the patient again empties the bladder ("second hour" specimen)

In the presence of edema, the dye must be injected intravenously

1 The standard silver nitrate-acidified ferric alum indicator solution may be prepared by dissolving 2.904 Gm. of silver nitrate in distilled water and making up to 1,000 cc and then mixing with 1,000 cc. of acidified indicator containing 100 Gm. of crystalline ferric ammonium sulphate and 100 cc of 25 per cent nitric acid Two cubic centimeters of this combined solution is the equivalent of 1 mg of sodium chloride Both the silver nitrate solution and the acidified indicator solution are one-tenth (combined one-twentieth) the strength of similar solutions employed in the Volhard Harvey method for urine.

2 The ammonium thiocyanate solution is standardized against the silver nitrate and made of equivalent strength It contains approximately 0.65 Gm of the thiocyanate to 1,000 cc. It is one-twentieth the strength employed for the Volhard Harvey method in urine

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

**POLLEN EXTRACTS-U S STANDARD PRODUCTS CO**—Solutions prepared by extracting the dried pollen of various species of plants with a buffered glycerosaline solution.

**Actions and Uses**—(See General Article Allergic Protein Preparations New and Nonofficial Remedies, 1934, p 25)

**Dosage**—(See General Article, Allergic Protein Preparations, New and Nonofficial Remedies 1934, p 25)

All of the pollen extracts-U S Standard Products Co are supplied in 5 cc vials containing 20,000 units per cubic centimeter. In addition, two of the products (Grasses Combined and Ragweed Combined) are marketed in single treatment set packages of three vials, containing respectively 100, 1,000 and 10,000 units per cubic centimeter and accompanied by a vial containing 2 cc of epinephrine hydrochloride solution 1:1,000.

Prepared by the United States Standard Products Company, Woodworth, Wis. No U S patent or trademark.

Bermuda Grass Pollen Extract U S S P Co. Box Elder Pollen Extract U S S P Co. Burrweed Pollen Extract U S S P Co. Careless Weed Pollen Extract U S S P Co. Cocklebur Pollen Extract U S S P Co. Corn Pollen Extract U S S P Co. Cosmos Pollen Extract U S S P Co. Cottonwood (Poplar) Pollen Extract U S S P Co. Dandelion Pollen Extract U S S P Co. Elm Pollen Extract U S S P Co. English Plantain Pollen Extract U S S P Co. Goldenrod Pollen Extract U S S P Co. Grasses Combined Pollen Extract U S S P Co. (Bermuda Grass, June Grass, Orchard Grass, Red Top, Sweet Vernal Grass and Timothy in equal parts) Johnson Grass Pollen Extract U S S P Co. June Grass Pollen Extract U S S P Co. Lambs Quarters Pollen Extract U S S P Co. Maple Pollen Extract U S S P Co. Marsh Elder Pollen Extract U S S P Co. Mugwort (Wormwood) Pollen Extract U S S P Co. Orchard Grass Pollen Extract U S S P Co. Pigweed (Redroot) Pollen Extract U S S P Co. Ragweed (Common) Pollen Extract U S S P Co. Ragweed (False) Pollen Extract U S S P Co. Ragweed (Giant) Pollen Extract U S S P Co. Ragweed (Western) Pollen Extract U S S P Co. Ragweed Combined Pollen Extract U S S P Co. (Giant and Common Ragweed in equal parts) Red Oak Pollen Extract U S S P Co. Red Top Pollen Extract U S S P Co. Russian Thistle Pollen Extract U S S P Co. Ryegrass Pollen Extract U S S P Co. Sweet Vernal Grass Pollen Extract U S S P Co. Timothy Pollen Extract U S S P Co. White Ash Pollen Extract U S S P Co. White Oak Pollen Extract U S S P Co.

Prepared by extracting the dried pollen with a menstruum containing 67 per cent glycerin and 33 per cent of a physiologic saline solution containing 0.0908 per cent potassium dihydrogen phosphate and 0.238 per cent dibasic sodium phosphate. The pollen is extracted for twenty-two hours in a ball mill pulped and clarified by Berkefeld filtration. The finished liquid is a 3 per cent extract of dried pollen. Each cubic centimeter represents 30,000 pollen units, one pollen unit being the equivalent of 0.001 mg of dried pollen. The marketed products represent appropriate dilutions of this stock solution and are preserved with 0.35 per cent of phenol.

**SCARLET FEVER STREPTOCOCCUS TOXIN** (See New and Nonofficial Remedies, 1934 p 389)

Lederle Laboratories Inc. Pearl River N Y

**Scarlet Fever Streptococcus Immunizing Toxin**—Prepared by the method of Drs. Dick under U S patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. Marketed in single immunization packages of five vials of toxin containing respectively 500, 2,000, 8,000, 25,000 and 80,000 skin test doses also marketed in ten immunization packages of six 10 cc vials of toxin containing respectively 500, 2,000, 8,000, 25,000, 80,000 and 80,000 skin test doses per cubic centimeter.

**SCARLET FEVER IMMUNITY TEST** (See New and Nonofficial Remedies 1934 p 406)

Lederle Laboratories, Inc. Pearl River N Y

**Scarlet Fever Streptococcus Toxin for the Dick Test**—Prepared by the method of Drs. Dick under U S patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. Marketed in packages of one vial containing sufficient toxin for ten tests in packages of one vial containing sufficient toxin for 100 tests.

**AMINOACETIC ACID** (See THE JOURNAL, April 6, 1935 p 1241)

**Aminoacetic Acid-Calco**—A brand of aminoacetic acid—N N R.

Manufactured by the Calco Chemical Co. Bound Brook, N J. No U S patent or trademark.

**DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1934, p 393)

The Cutter Laboratory, Berkeley, Calif

**Diphtheria Toxoid Alum Precipitated Refined**—Prepared from diphtheria toxin having an L+ dose of 0.20 cc or less. The toxin is treated with from 0.3 to 0.4 per cent formaldehyde at a temperature of from 38 to 40 C until the toxicity is so reduced that the injection of five human doses into a guinea pig will produce no symptoms of local or general diphtheria poisoning. The toxoid is precipitated by the addition of not more than 2 per cent of potassium aluminum sulphate. The precipitate is washed twice with physiologic solution of sodium chloride and resuspended in physiologic solution of sodium chloride to a volume not less than the volume of the original toxoid. Merthiolate 1:7,500 is added as a preservative. The product is tested for potency according to the method prescribed by the National Institute of Health: guinea pigs weighing 500 Gm given one human dose, must develop within six weeks at least two units of diphtheria antitoxin per cubic centimeter of blood serum. Marketed in packages of 1 cc (one immunizing treatment) and in packages of one 10 cc vial (ten immunizing treatments).

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
RAYMOND HERTWIG Secretary

### NOT ACCEPTABLE

**DINA-MITE (BLUE LABEL) WHEAT BASE**  
WHEAT—BRAN—FLAX

**DINA MITE (RED LABEL) OAT BASE**  
OATS—BRAN—FLAX

The Dina-Mite Food Company of Los Angeles submitted to the Committee on Foods a mixture of cracked hard and soft wheats, wheat bran and partially defatted flaxseed meal called "Dina-Mite (Blue Label) Wheat Base Wheat—Bran—Flax" and a mixture of rolled oats, wheat bran and partially defatted flaxseed meal called "Dina-Mite (Red Label) Oat Base Oats—Bran—Flax".

**Analyses** (submitted by manufacturer) —

Dina-Mite (Blue Label) Wheat Base	per cent
Moisture	9.0
Ash	3.2
Fat (ether extraction method)	2.5
Protein (N x 6.25)	11.4
Crude fiber	5.8
Carbohydrates other than crude fiber (by difference)	68.1

Dina-Mite (Red Label) Oat Base	per cent
Moisture	9.0
Ash	3.0
Fat (ether extraction method)	4.8
Protein (N x 6.25)	15.5
Crude fiber	5.0
Carbohydrates other than crude fiber (by difference)	62.7

**Discussion of Name, Label and Advertising**—The labels carry the statements: Wheat-Bran-Flax Oats-Bran-Flax. Natural laxative food for young and old.

With all their vital elements, protein, bulk and minerals Dina-Mite used daily gives the system the proteins-heating-foods roughage bulk and minerals.

The name Dina-Mite for a laxative food is vulgar. The label statement listing food ingredients is incorrect, as partially defatted flax, and not 'flax', is an ingredient. The indigestible roughage of these two products will increase the bulk of the intestinal contents but thereby tend to prevent only dietary constipation due to insufficient food residue. Constipation, however, may be due to many other causes. The label should correctly inform the consumer on these matters by recommending the foods for correcting constipation due only to insufficient bulk and advising that a physician should be consulted for cases not corrected in this simple manner. Bran and other foods providing considerable bulk may be irritating to sensitive bowels. Food high in bran content, if generally used by the aged, may be harmful. The products do not furnish all required proteins, food energy or minerals as stated or implied.

Some misinformative claims from the advertising follow:

**A Healthy Body Means a Healthy Mind!** Give your child a chance. A dish of Dina-Mite the famous Laxative Cereal bestows the energy and pep that school work requires. Relieves constipation.

A scientifically balanced natural food. Leading doctors endorse Dina Mite. Hospitals health centers maternity homes state custodial schools and other prominent state and private institutions, use and endorse Dina Mite. The Perfect Balanced Food. The famous health cereal health giving healthful for children. Health for your Kiddies. If you are a victim of constipation eat Dina Mite twice daily until the condition improves contains the essential elements for proper nourishment. Dina Mite is scientifically prepared to enable you to enjoy natural digestion and action. It is an important aid to great health. The wheat (ingredient) retains all of its vitamins proteins minerals and other vital elements. The bran added in scientific proportions gives additional roughage. Flax meal a wonder ful laxative specially treated and deodorized is the third ingredient and it is added in a healthful amount to stimulate normal bowel action.

The advertising includes testimonials of a therapeutic character for example

Dina Mite Food Co of Calif  
Gentlemen

I am now on my third package of 1½ lb size Dina Mite (wheat). I have been troubled with chronic constipation for thirty years and have used laxatives perhaps every day during that period. Such a condition brought on stomach trouble that almost broke my health. I have lost twenty pounds during the past three years. I follow your cooking directions and eat the full portion with cream. After the second day I experienced immediate relief from constipation and gas pains which continues to improve. I have not taken medicine of any form lately. It is the first time for many months that I have been able to sleep without the use of a heating pad on my stomach or getting up at night to walk the floor for a couple of hours. I have gained four pounds in twelve days. I believe you really have struck oil.

(name given)

Dina Mite Food Co of Calif  
Gentlemen

Hollywood California

I am very glad that you familiarized me with your special made food Dina Mite, when I last visited you. If more men and women would use your Dina Mite regularly they would need purchase less medicine and make fewer calls on the physician. It seems to have everything that such a food could or should have. Its mild laxative effect together with it having all the vital food elements makes it a very necessary food.

Very truly yours  
(name given)

These foods will not 'bestow the energy and pep that school work requires'. The terms 'energy and pep' popularly imply a body condition of extreme well being or health which cannot be "bestowed" by any one food or even by the entire diet. The foods are not 'scientifically balanced as claimed. Statements of this character have no real meaning but because of vagueness are misleading by incorrectly implying that the products have unusual values by scientific test. They are not 'natural foods' but rather prepared foods and are not endorsed by "doctors hospitals, health centers, maternity homes, state and private institutions" as claimed. Vague claims of endorsement of this character falsely imply unique nutritional or therapeutic values, or that these professions or institutions as bodies have specially investigated and passed scientific judgment on the products, which is not true. These foods are not "perfectly balanced" but, rather to the contrary are deficient in many respects. They are not 'health cereals health giving or healthful for children' nor are they "health for your kiddies". No foods possess values warranting these designations. Health depends on many factors and conditions other than individual foods or even the entire diet. The foods do not contain the essential elements for proper nourishment", they are in fact much limited in this respect. Dina-Mite is not "scientifically prepared to enable natural digestion". Good digestion and Dina-Mite are not related in any manner. The bran is not 'added in scientific proportion'. This is a misuse of the term 'scientific,' which has impressive connotations.

Testimonials such as the two quoted apparently come from individuals unqualified to express a scientific or authoritative opinion or judgment on the values of Dina-Mite for accomplishing the results claimed. The testimonials by implication give further support to the medicinal or therapeutic character of the advertising as a whole. Testimonials have value only when coming from persons qualified by training and experience to express an unbiased, scientific judgment on the subject.

The labels and advertising are grossly misinformative and false. Advertising for foods should be simply and correctly informative to the consumer. Advertising not filling these qualifications is harmful to the public and to the food industry. These products therefore, cannot be listed among the accepted foods of the Committee on Foods.

## ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary

### WAUKESHA ROXO MINERAL SPRING WATER

*Distributor*—Waukesha Roxo Company, Milwaukee

*Description*—Bottled spring water of moderate mineral content practically free of micro organisms

*Collection and Bottling*—The housed flowing spring at Waukesha, Wis., is protected from surface water contamination by a concrete encasement to a depth of thirty feet. The water is pumped through a filter and an ultraviolet ray machine into glass lined storage tanks from which it flows into filling machines and is sealed in bottles.

All bottles are washed in a bottle washing machine. Used bottles are spryed with a 10 per cent sulphuric acid solution to remove mineral deposit, soaked and sprayed with 3 per cent caustic soda solution at 120 F under 30 pounds pressure, and given four fresh water rinsings. All pipes and storage tanks are regularly treated with sodium hypochlorite solution. Periodic inspections are made by the city of Milwaukee health department and bacteriologic examinations are made each month.

*Analysis* (submitted by distributor)—

Sanitary Analysis	Parts per Million
Ammonia nitrogen	0.01
Albuminoid nitrogen	0.01
Nitrite nitrogen	none
Nitrate nitrogen	6
Chemical Analysis	
Total residue on evaporation	610
Fixed residue after ignition	368
Free carbon dioxide (CO <sub>2</sub> )	22
Carbon dioxide combined as bicarbonate	246
Carbon dioxide combined as carbonate	none
Aluminum (Al)	6
Boron (B)	none
Calcium (Ca)	111
Iron (Fe)	0.1
Magnesium (Mg)	51
Potassium (K)	1
Sodium (Na)	26
Bicarbonate (HCO <sub>3</sub> )	341
Chloride (Cl)	31
Nitrate (NO <sub>3</sub> )	26
Phosphate (P <sub>2</sub> O <sub>5</sub> )	none
Silica (SiO <sub>2</sub> )	12
Sulphate (SO <sub>4</sub> )	116

*Micro Organisms*—Bacteriologic examination shows only few harmless micro organisms in the water

### CELLU JUICE-PAK RED RASPBERRIES

PACKED IN UN-DILUTED JUICE WITHOUT ADDED SUGAR

*Distributor*—The Chicago Dietetic Supply House, Inc., Chicago

*Packer*—Eugene Fruit Growers Association, Eugene, Ore.

*Description*—Processed red raspberries packed in undiluted juice without added sugar

*Manufacture*—Ripe red raspberries are placed in small containers to prevent crushing, conveyed to the factory, graded according to size, inspected for removal of foreign material, spray washed and packed into cans. The cans are filled with undiluted juice expressed from other red raspberries, heated for five minutes, sealed, cooked in a continuously agitated cooker for a definite time and at a definite temperature, cooled and stored. Before shipment, the cans are inspected and labeled.

*Analysis* (submitted by distributor)—

	per cent
Moisture	85.6
Ash	0.5
Fat (ether extract)	1.2
Protein (N X 6.25)	1.0
Reducing sugars as invert sugar	6.3
Sucrose	1.0
Crude fiber	2.3
Carbohydrates other than crude fiber (by difference)	9.4

*Calories*—0.5 per gram 14 per ounce

# REPORTS OF OFFICERS

**NOTE**—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available be published in advance of the session so as to permit careful consideration and discussion—*Ed*

## REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association

The following report of the Secretary is respectfully submitted

### MEMBERSHIP

The members of the American Medical Association are those members of constituent state and territorial medical associations whose names have been officially reported for enrolment by the secretaries of the constituent associations. On April 1, 1935, the membership list contained the names of 99,536 members as compared with 98,041 on April 1, 1934. During the year ended April 1, 1935 the names of 1,725 deceased members were removed from the membership list.

### FELLOWSHIP

The number of Fellows of the Association as shown by the official roster on April 1, 1935 was 61,406, a gain of 692. During the year, 3,833 names were removed from the Fellowship roster, while 4,575 new names were added. Of the names removed 767 were those of deceased Fellows and 863 were the names of Fellows who had become ineligible for various reasons, while the names of 1,130 Fellows were removed because of failure to pay dues and 1,123 because of resignations.

An accompanying table shows the number of counties in each state and territory, the number of component societies as shown by the records in the Secretary's office, the number of members enrolled at the time the count was made for the purpose of compiling the table, and the number of Fellows including Honorary Fellows and commissioned officers of government medical services.

### OFFICIAL CONTACTS WITH COMPONENT AND CONSTITUENT SOCIETIES

The number of visits made by members of the official personnel of the Association to component and constituent societies and the attendance at meetings before which the Association's representatives have appeared have been much larger during the past year than in any similar preceding period.

At the Annual Conference of Secretaries of Constituent State Medical Associations held in Chicago in September 1934 nearly every state association was represented by its secretary and editor, and a number of the presidents and other officers of state associations were present.

The President, the President-Elect, individual members of the Board of Trustees, the Editor, the Secretary and the directing heads of the Association's councils and bureaus have appeared on invitation, at the meetings of a large number of constituent state medical associations and component county medical societies. Many of them have addressed lay audiences in various parts of the country and have thus had opportunity to present the policies and the official point of view of the organized medical profession in the United States to a large element of the public.

### BETTER ORGANIZATION

Marked progress has been made during the past year in increasing the efficiency of medical organization in a number of states and in many individual counties. There can be no question that the official machinery of the constituent state medical associations is being gradually and constantly improved. It has been extremely gratifying to note the increased interest and efficiency of the Councils of a considerable number of the state associations and the great improvement that has been made in working efficiency of a large number of county societies. The elected and appointed officers and committees of state

medical associations and of many county medical societies have rendered most devoted and efficient service in dealing with the many new problems that have been created through social

### Organization of Constituent State Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations							Number of A. M. A. Fellows in State
			Number of Counties in State Not Organized		Number of Physicians in State A. M. A. Directory	Number of Members of State Associations		Number of A. M. A. Fellows in State		
						Apr 1 1934	Apr 1 1935			
									1934	
Alabama	67	67			2 129	1 452	1 451	494		
Arizona	14	12	1	1	468	246	240	189		
Arkansas	75	62	0	9	1 890	880	1 062	363		
California	53	39	12	12	10 490	5,167	5,291	3,523		
Colorado	63	28	2	2	1,874	1 069	1 105	660		
Connecticut	8	8			2 312	1 472	1,516	933		
Delaware	3	3			301	185	194	113		
Dist of Columbia					1 851	676	709	545		
Florida	67	34	20	20	1,840	971	1 030	639		
Georgia	161	95	48	48	2 811	1 689	1 847	701		
Idaho	44	10			388	194	214	124		
Illinois	102	93	0	6	11 504	6 879	6 767	4 390		
Indiana	92	82	2	2	4 049	2,807	2,828	1 581		
Iowa	99	97			3 141	2 191	2,210	1,322		
Kansas	105	63	30	30	2 163	1 536	1,364	778		
Kentucky	120	115	3	3	2,908	1 088	1 710	703		
Louisiana	64	39	18	19	2 127	1 189	1 234	672		
Maine	16	15	1	1	884	718	700	376		
Maryland	23	22	1	1	2 017	1,482	1,323	773		
Massachusetts	14	18			7 014	4 619	4 737	3 004		
Michigan	83	53	4	4	5 678	3 218	3 468	2,160		
Minnesota	87	33	2	2	3 174	2,212	2 230	1 415		
Mississippi	82	20	4	1	1,525	1 218	1 220	313		
Missouri	115	87	8	8	5 570	3 212	3 231	1 734		
Montana	56	15	23	25	480	311	340	192		
Nebraska	93	40	20	20	1 772	1 058	1 161	673		
Nevada	17	3	13	14	189	102	100	63		
New Hampshire	10	10			602	409	479	252		
New Jersey	21	21			4,015	2,899	2,911	1 090		
New Mexico	31	12	19	19	893	206	215	156		
New York	62	60	1	1	22 812	13,074	13,368	9 019		
North Carolina	100	84	2	2	2,460	1,516	1 596	740		
North Dakota	53	13	10	10	511	365	375	266		
Ohio	85	86	1	2	8 769	5 168	5,288	3 668		
Oklahoma	77	65	12	11	2 409	1 571	1 512	698		
Oregon	36	23	3	8	1 308	700	652	443		
Pennsylvania	67	60	0	6	12 008	7,831	8 122	5,297		
Rhode Island..	5	6	1	1	907	405	404	306		
South Carolina	46	39			1 329	835	921	345		
South Dakota	69	12	12	11	583	266	282	104		
Tennessee	95	67	19	16	2,970	1 597	1 503	690		
Texas	254	136	13	12	6 670	3,870	3 060	1 700		
Utah	29	9	15	4	621	379	381	214		
Vermont	14	10	3	3	517	350	368	187		
Virginia	100	52	12	11	2 650	1,823	1 740	843		
Washington	39	23	14	14	2,000	1 312	1,383	787		
West Virginia	55	29	5	5	1 779	1 106	1 122	607		
Wisconsin	71	52	1	1	3,292	2,121	2 182	1,453		
Wyoming	24	11	12	11	237	150	149	85		
Alaska					55	14	13	17		
Hawaii	5	4	1	1	352	221	235	101		
Isthmian Canal Zone					194	108	108	15		
Philippine Islands (Provinces)...	56	11	45	45	2 147	666	717	23		
Puerto Rico (Dist.)	7	7			407	331	326	71		
Foreign									141	
Total	3 142	2,064	434	417	164,514	98,041	99,536	58 774	2 635	
Commissioned Medical Officers and Honorary Fellows									61 406	

and economic changes within the last few years. Two additional constituent state medical associations have employed full time secretaries.

## COMMUNICATIONS AND RESOLUTIONS

The following resolutions were received by the Secretary from the secretary of the California Medical Association

**WHEREAS**, Because the large area and the long distances of the constituent states on the Pacific Coast make it practically impossible for one trustee to maintain intimate contact with the medical organizations of these states and

**WHEREAS** For similar reasons one trustee is unable to visit these several states and advise them in regard to Association policies and activities and

**WHEREAS** Such intimate affiliations would enhance the work of the American Medical Association and also that of the state association therefore be it

**Resolved** That the Reference Committee on Amendments to the Constitution and By Laws prepare the following amendment to article 6 section 1 of the Constitution Strike out the word nine and insert therefor the word eleven thereby increasing the number of Trustees from nine to eleven and be it

**Resolved** That the House of Delegates adopt the rule that one trustee shall be elected from the Fellows in California and one from the mid west or southwestern part of the country

The Secretary received from the secretary of the National Society for the Advancement of Gastroenterology a communication enclosing resolutions as follows

**WHEREAS** The members of the National Society for the Advancement of Gastroenterology assembled Feb 6 1935 which organization is committed to the advancement of gastro-enterology for the benefit of American medicine and

**WHEREAS** Since the establishment of the Section on Gastro Enterology and Proctology in the American Medical Association eighteen years ago has done much in stimulating a higher quality of diagnostic and medical abdominal work in the profession in this country and

**WHEREAS** Most of the advances made have been accomplished by those who have been working intensively in this field of work and freely given of their advances to American medicine and

**WHEREAS** the members of this organization are all of them members of the American Medical Association in good standing be it

**Resolved** That we respectfully request our parent organization the American Medical Association to certify this field of work by authorization of the American Board of Gastroenterology to stimulate still better work in the subject on the part of the profession and request also that we as a national organization be given representation on the Board of Gastroenterology with the section of the American Medical Association and the American Gastroenterological Association

## CALLED SESSION OF THE HOUSE OF DELEGATES

At the request of the Board of Trustees a special session of the House of Delegates called by the Speaker was convened Feb 15 and 16, 1935, in Chicago. Of a possible 168 delegates from the continental United States, 162 official representatives of constituent state medical associations, sections of the Scientific Assembly and government medical services were in attendance.

The following report of a reference committee appointed by the Speaker was unanimously adopted by the House of Delegates

Your reference committee believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people condemns unreservedly all propaganda, legislation or political manipulation leading to these ends

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness the

advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms also its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness

The medical profession has given of its utmost to the American people not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatibilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent, it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplors and protests those sections of the Wagner bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes

The House of Delegates condemns as pernicious that section of the Wagner bill which creates a social insurance board with out specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training

The so-called Epstein bill proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, mordant costs, extravagant administration and an inevitable trend toward social and financial bankruptcy

The Committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements

They must not destroy that initiative which is vital to the highest type of medical service

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop with special reference to the way in which they meet the needs of their communities, to the costs of operation to the quality of service rendered, to the effects of such service on the medical profession and to the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

Harry H. Wilson, Chairman, California  
Warren F. Draper, Virginia  
E. F. Cody, Massachusetts  
E. H. Cary, Texas  
N. B. Van Etten, New York  
F. S. Crockett, Indiana  
W. F. Braasch, Minnesota

A large number of component county medical societies in various parts of the United States have taken official action endorsing the report adopted by the House of Delegates at its called session. Speaking through their councils or through called meetings of their houses of delegates, several constituent state medical associations have taken similar action.

The Secretary makes grateful acknowledgment of the many courtesies and kindnesses extended to him by the officers and members of official bodies of the Association and of state associations and county societies, as well as by hundreds of individual members.

Respectfully submitted

OLIN WEST, Secretary

## REPORT OF THE BOARD OF TRUSTEES

*To the Members of the House of Delegates of the American Medical Association*

The demands made on the various councils, bureaus and departments of the Association and the amount of business transacted by the Board of Trustees and other official bodies were far greater during the last year than in any previous year. At no time in the history of the Association have there been matters of more transcendent importance presented for official consideration and action at the hands of the various official bodies that carry on the work of the Association. In some instances, existing facilities in the Association's offices have been taxed to the utmost and the situation has been one that has called for extreme exertion on the part of the administrative personnel and for well considered action on the part of the officers, councils, bureaus and members of official groups.

The Association has continued to comply to the fullest possible extent with the provisions of the National Recovery Act and with the pronouncements of the National Recovery Administration with respect to wages, working hours and all other phases of the Association's work on which the National Recovery Act has any bearing.

As will be seen from the Auditor's Report, total general operating expenses including depreciation amounted to the sum of \$825,781.09 for the year covered by this report as compared with \$836,954.04 in the preceding year. Association expenses including the cost of operation of councils, bureaus and departments and of miscellaneous operations were \$350,297.48 in 1934 as compared with \$333,730.40 in 1933. The increased expenditures in 1934 were occasioned by the expansion of the work of various councils and bureaus. Miscellaneous expenses

and losses in 1934, including building depreciation, amounted to \$139,084.96 as compared with \$212,961.40 in the preceding year. The reduction in expenditures included under miscellaneous expenses and losses was due to the saving in the amount of insurance and taxes paid, and in the amount required for legal services, as well as to the reduction of the sum charged against the Directory, which may be accounted for by the fact that there was little or no sale for copies of the Twelfth Edition of the Directory in 1933. There was also a marked reduction in the loss incurred through the publication of *HYGEIA*.

The total operating income for 1934 was \$1,439,751.07 as compared with \$1,375,337.99 for the previous year. Interest received from investments amounted to \$82,402.41 almost exactly \$5,000 more than income from this source in 1933.

Net income for the year was \$252,528.02 representing an increase of \$164,062.98 over the net income received in the preceding year. This difference is largely accounted for through increases in the amounts received from Fellowship dues and subscriptions to *THE JOURNAL*, and in income from advertising and from interest on investments, and through reduction in the costs involved in the publication of *HYGEIA* and in the costs charged against depreciation. During the year, an appraisal of the Association's property was made by the American Appraisal Company, and it was in accordance with the findings of this appraisal that the amount indicated was charged against depreciation. A large part of the increased income from dues and subscriptions came from the payment of accounts in arrears.

An appraisal of the bonds owned by the Association was made at the end of the year and disclosed that the total market value of these securities at that time was greater by the sum of \$66,627.13 than the total cost. The Board of Trustees has attempted to pursue a thoroughly conservative policy in the purchase of securities for investment. In a number of instances, premiums have been paid for bonds purchased in order that the securities held by the Association might be of the highest possible quality. Because of prevailing low money rates, the general tendency toward the reduction of interest rates and the high cost of desirable securities, it is quite probable that the amount of interest on securities that will be realized in the next few years will be considerably lower. This will be especially true with respect to income received from investments in government securities, which make up the larger part of the Association's investments. The government has, where possible, called for payment practically all of its bonds with interest rates in excess of 4 per cent and has replaced them with others having much lower interest rates.

During a part of the year it was necessary to employ extra help in connection with the publication of the American Medical Directory, and additional employees were needed for various periods of time in the printing department. Because of increased living costs it was necessary to restore the cut in wages and salaries that was made in 1933. At the end of the year 1934 the total number of employees in actual service was 518.

## The Journal of the American Medical Association

*THE JOURNAL* continued during 1934 the developments begun in previous years. Today it is everywhere recognized as the leading medical publication of the world and as the official voice of the American medical profession. It has kept its readers abreast of developments in the field of legislation and it has spoken promptly for scientific medicine when the tenets and principles of the profession seemed about to be subjected to assault.

Not only from individuals and medical organizations in this country, but from all over the world come constantly appeals for the use of the facilities and prestige of *THE JOURNAL* in advancing various medical causes.

Several series of articles published during last year have attracted extraordinary support from readers. Attention should be called particularly to a new series on the 'Therapy of the Cook County Hospital' and to the special articles arising from the general sessions held as part of the annual session of the Association. The department devoted to questions and answers continues also to receive numerous letters of approval from readers of *THE JOURNAL*.

Similar medical package library services have been developed by a number of the state societies and by other organizations in the field. Nevertheless this subsidiary service has not as indicated in the increase for requests for this material diminished in any way the demands on the headquarters office for this educational activity.



The periodical lending service, which supplements the package library service, lent 8333 periodicals to physicians who requested them. The periodicals regularly listed and abstracted in *THE JOURNAL*, and all those regularly received by the *QUARTERLY CUMULATIVE INDEX MEDICUS* are available for such service. This demand represents a 20 per cent increase over the circulation of periodicals in 1933.

The library of the Association also supplied reference service in response to 5,000 individual requests.

The employees' library had a circulation of 5510; the average daily circulation was 23, the number of borrowers 128.

Visitors from abroad who have seen the development of the package library and reference services of the American Medical Association are enthusiastic in their recognition of the qualities of this work, a type of service not duplicated either in scope or in minimal cost by any other organization.

### Hygeia

*HYGEIA* is recognized today as the only rational publication printed to provide information to the public on matters of health that is interesting, authentic, attractive, and supported by leading organizations in the field of education and the public health. The editorial staff continually exerts itself to advance the quality of the material to new heights.

Series of articles on insects and other parasites of man, the care of the teeth, the hygiene of the eye, and many other topics have been quoted and republished in many places. Publishers of textbooks used in the schools, and leaders of various types write regularly for permission to include material from this magazine in such volumes, thus extending the educational quality of the periodical far beyond its immediate circulation.

A special effort has been made during 1934 to carry to the readers of *HYGEIA* the interests of the medical profession in matters of social security and medical economics. Reprints from its pages have been circulated through the Bureau of Medical Economics and in other ways.

Schools and libraries continue to represent a large percentage of the circulation of *HYGEIA*. Moreover, the use of the magazine for projects in study by pupils in grade and high schools indicates the extent to which the health interests of the future generation are being molded by this publication.

The net loss incurred through publication of *HYGEIA* for 1934 was \$2,059.55, as compared with the net loss of \$30,127.54 in 1933. Total receipts from subscribers exceeded the amount received from the same sources in the previous year by approximately \$30,000, while there was a reduction of a little more than \$5,000 in advertising income.

Since *HYGEIA* is published for the benefit of the lay public, it is perhaps natural that 81 per cent of the subscribers are laymen.

### American Medical Directory

The Thirteenth Edition of the American Medical Directory was made available to subscribers, Aug 7, 1934. The new volume contains the names of 178,516 physicians, including 18,727 new names. The names of 11,473 physicians who died during the interim since the publication of the Twelfth Edition of the Directory were removed and the number of those whose addresses were unknown has been reduced, so that the actual increase in the number of names was 6167. The new Directory is larger by twenty-six pages than the volume previously published. The total cost of the new edition was greater by \$47,394.58 than that of the Twelfth Edition, largely because the publication of the new edition was delayed for twelve months by reason of the unfavorable economic situation. This delay naturally occasioned a tremendous number of changes in addresses, so that it was necessary to reset the type for the entire Directory. Sales receipts at the end of the year 1934 were less by the sum of \$33,934.28 than income received. It is hoped that a considerable part of this loss will be made up as sales proceed.

### Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau represents thirty-two journals of constituent state medical associations. The net earnings of the Bureau for 1934 were \$21,247.06 as compared with \$19,266.25 for 1933. Of the earnings of the

Bureau the sum of \$6,000 was remitted to the state journals concerned. This sum, \$1,000 more than was similarly remitted in the previous year, was distributed to the state journals concerned in proportion to the total amount of advertising secured for each of them.

### Mailing and Order Department

During the year the Mailing Department handled 153 tons of mail in the third and fourth classes and in miscellaneous second class. This included the material distributed through orders received for pamphlets, booklets, reprints and so on, amounting to 284,777 units, the weekly mailing of *THE JOURNAL*, and the mailing of other publications. The number of orders received and handled through this department was 77,423.

Of first class mail, 475,937 pieces were transmitted, and of third class mail 1,564,684 pieces. In addition to the material distributed by mail, a large amount was shipped by express and by freight.

### Council on Pharmacy and Chemistry

This report marks thirty years of service to the medical profession on the part of the Council on Pharmacy and Chemistry. The first session was held Feb 11, 1905, and for nearly a third of a century the Council has made notable contributions for the furtherance of rational therapeutics. Its scope has extended to improved methods of teaching materia medica, to the evaluation of new drugs which the physician has been importuned to use to the education of the profession concerning newer advances in medicine, and to safeguarding public health by bringing forcibly to the attention of the profession, of the public and of legislative bodies the need for corrective measures.

Of the personnel of the Council, four members of the original group who attended the first meeting in Pittsburgh in 1905 still remain active members of the Council in 1934, another one of the original group, though no longer a member of the Council, still takes an interest in its work.

A comparison of conditions prevailing previous to 1905 and those of today reveals strikingly the progress that has been possible largely through the work of the Council. The Council is so busily engaged in the work which is before it that its members cannot devote time to making speeches before medical meetings or to other methods of bringing the work of the Council closer to the profession than through the columns of *THE JOURNAL*. It is to be regretted that there are some members of the profession who have not heeded the warning on the dangers of proprietary domination of therapeutics. The Board of Trustees recently passed a resolution expressing the hope that at meetings of medical societies, hospital staffs and various other conferences there will be emphasized the benefits which will be incurred by the profession in increasing measure if the profession will be still more attentive to the work of the Council. Physicians when asked to try a new remedy might well inquire whether it has been accepted by the Council on Pharmacy and Chemistry. Any honest manufacturer, small or large can have his products considered by the Council. The Council is unique in that no remuneration whatever is accepted for its considerations and it is entirely free from any domination or advertising entanglements.

The work of the Council has expanded to an extent that has made it necessary to enlarge its office personnel. Within two years the amount of work has increased by 50 per cent. The reason for this is that the efforts of the Council are being recognized and appreciated more and more by physicians and this recognition is directly reflected in the desire of pharmaceutical houses of the better grade to obtain Council acceptance of their products. Each year finds it more difficult for the less progressive or less conscientious firms to sell drugs to the medical profession and particularly to institutions.

### PUBLICATIONS OF THE COUNCIL

*New and Nonofficial Remedies*—This book maintains its leadership in the field of authoritative information on nonofficial drugs. During the past year approximately 6,300 copies of *New and Nonofficial Remedies* were distributed to students of materia medica and pharmacology in class A medical schools. The revisions of *N. N. R.* for the 1935 edition have been extensive but not nearly so extensive as will be next year's revision.

when the new Pharmacopeia becomes official. The 1935 volume contains many additions newly admitted in 1934, while older drugs have been omitted as recent advances have rendered them obsolete. The standards for vitamin A and D preparations have been considerably revised, based on the interim revision of the U. S. Pharmacopeia. The Council decided, however, that preparations included in N. N. R. must exceed by a certain amount the minimum requirements of the U. S. Pharmacopeia so far as vitamin A is concerned; the vitamin D content is the same. A special statement sent out on this subject has commanded wide attention. The consideration of antiseptics has been to the fore in the past year and much work has been done by the Council's referee on this subject in order that the status of products in N. N. R. may be further brought into harmony with the progressive scientific evidence dealing with bactericides and bacteriostatic agents. Biologic products also have demanded consideration, though relatively few of the newer preparations have been found worthy of admission to N. N. R. During the year a number of interesting new drugs were accepted. Among these were Carbarsone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug supplementing the preliminary report of 1932), Hippuran and Diodrast, two different types of urographic contrast mediums. Carotene, the precursor of vitamin A. Dilaudid, a substitute for morphine, Neo-Synephrin Hydrochloride, which has a number of advantages as a vasoconstrictor over synephrin tartrate. Diothane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N. N. R., and Scillonin, an example of the development of a drug that was on the market as long as thirty years ago sold with claims that could not be countenanced by scientific medicine.

*Reports of the Council*—The Council has continued publishing adverse reports for the benefit of the medical profession. They were on such products as Oleothesin, Bismoid, Asthmolsin and Spasmolsin, Vita-Cell, Di-Hydranol, Iodochlorol, and Yeast Vitamin-Harris. These, however, represent but a small proportion of the number of adverse reports as many of the products not accepted were withdrawn from the market or were not sufficiently important to warrant publication of reports in THE JOURNAL. These will therefore appear in the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry. Always on the agenda are products on which adverse reports have been made but which the Council has agreed not to publish if the manufacturer in turn agrees not to promote the sale of the product pending efforts to obtain further evidence for the consideration of the Council.

Among the more noteworthy special and preliminary reports published by the Council of a particularly informative nature was that on Phenylmercuric Nitrate (Basic), canvassing the work that has been done on this interesting substance, also the statement to the medical profession on the relation of amidopyrine and barbitol derivatives to granulocytopenia. Since the latter statement has been published, there seems to be a much better understanding on the part of the profession concerning the part played by these two drugs as possible causative factors in this disease. Another carefully considered special report was that on Sterility of Ampules, based on a thorough questionnaire sent to manufacturers. It seems quite likely that as a result of this report all manufacturers will soon be making and testing their products according to a uniform procedure, which will obviate practically all possibility of contamination. The Council published other preliminary reports on drugs the status of which was still somewhat doubtful. Among these were the reports on Pertussis Vaccine, Cysteine Hydrochloride, Gastric Mucin and Anthralin.

*'Useful Drugs'*—'Useful Drugs' underwent a thorough revision during 1934, so that the content of the book is entirely up to date. A less extensive revision will be made in 1936 to bring it into harmony with the new issue of the Pharmacopeia so far as titles and collateral information are affected.

#### REVISION OF FOOD AND DRUG ACT

The Council through its special committee on proposed food and drug legislation gave careful attention during 1934 to the formation of a 'platform' expressing its position in regard to

drugs. This platform and also a similar one issued by the Committee on Foods was endorsed by the Board of Trustees and published in THE JOURNAL, Jan. 12, 1935, page 125.

#### SPECIAL INVESTIGATIONS

Special investigations are under way on *Bacillus Acidophilus* preparations, which have been in a somewhat unsettled state. Under the direction of the referee for these preparations an extensive examination of market specimens was made. As a result of this work, in conjunction with a careful study of the literature, the Council decided to retain *B. Acidophilus* Milk in N. N. R. On the other hand, examinations and evidence indicated that the promotion of these products in the form of blocks or non-milk-containing beverages was ill advised. Therefore reports on the omission of the latter type of products from N. N. R. were published.

The Council is about to issue a report on the sterility of thromboplastic substances, based on bacteriologic examinations of market specimens obtained from various cities in the United States.

#### USE OF NUMBERS IN NAMES

In last year's report there was discussed the decision of the Council concerning the removal of numbers from the names of drugs. This was done to prevent the confusion of numbers in prescribing. The Council is pleased to report that, in the case of all accepted products having numbers in connection with the name, the manufacturers, with one exception, agreed to omit the numbers.

The Council is being called on more and more to pass on names for new therapeutic products. The matter of naming a new preparation intended for therapeutic use is so involved that it seems necessary that there should be a central body for this consideration. In this capacity the Council has served a useful purpose. An example of the erroneous naming of products is the case of crystalline vitamin C. The chemistry of this product was worked out by Szent-Györgyi, so that it could be obtained in pure form and of a known composition. It was Györgyi's right to name the product, but unfortunately he chose the name "Ascorbic Acid." The name Ascorbic Acid is therapeutically suggestive, and though it is not as bad as some others for therapeutic products, it would be inconsistent of the Council to accept any therapeutically suggestive name. Therefore the Council was obliged to coin a new name for the product—Cevitamic Acid, which name has been adopted by American manufacturers. The firm, however, is permitted to use for one year the subtitle "Introduced as Ascorbic Acid."

#### SPECIAL ARTICLES

For many years bacteriophage preparations have kindled the imagination of workers in bacteriology. During this time there have been attempts by practically all pharmaceutical houses to place such products on the market. The therapeutic indications have never been clearly defined and the Council has not felt justified in accepting any bacteriophage preparation for inclusion in N. N. R. Because there was no well formulated statement on the evaluation of bacteriophage preparations, the Council asked one of its members, Dr. Stanhope Bayne Jones, to undertake the preparation of such a report. An excellently comprehensive "special article" by Drs. Monroe Eaton and Stanhope Bayne-Jones was published in three issues of THE JOURNAL in 1934. The contribution has been exceptionally well received.

Approximately ten years ago there was published under the auspices of the Council a series of articles on Glandular Therapy. This series was later reproduced in book form (two separate editions), the entire book comprising ninety-eight pages. The knowledge in this field grew so tremendously that in 1928 it was necessary to withdraw the book from circulation because it no longer covered the field adequately. The demand continued, and in 1934 the Council in cooperation with THE JOURNAL invited a number of prominent medical men to contribute articles to a series on Glandular Therapy. This series is by far the most extensive ever published under the auspices of the Council and is to appear during the current year. When completed it will be reproduced in book form containing more than 400 pages.

### The Chemical Laboratory

The constantly growing work of the Council on Pharmacy and Chemistry and the complex nature of current problems with which the Chemical Laboratory must deal have resulted in imposing unusually heavy burdens on its personnel during the last two years. When a new product is submitted to the Laboratory, it is necessary to make careful investigations to determine its composition and structure. If it is found to be satisfactory from a chemical point of view and is accepted by the Council for inclusion in New and Nonofficial Remedies it is then necessary that suitable standards be elaborated. These standards are established with a view to insuring the highest possible purity in order that the public interest may be properly protected, and an effort is made to avoid creating undue hardships on producers.

Among the important new chemotherapeutic products submitted and studied during the year were Dilaudid, a narcotic somewhat similar to morphine, Diothane, a local anesthetic of a materially different type from any heretofore described in New and Nonofficial Remedies, and Larocaine, a local anesthetic. A great deal of careful investigation and laborious effort were required in preparing suitable standards for these products.

Carotene (provitamin A) was the first of the crystalline vitamin or vitamin like products examined by the Laboratory involving the use of absorption spectrum methods. In cooperation with the manufacturer, suitable standards were outlined. Another vitamin product, introduced abroad as ascorbic acid and now known in the United States under the nonproprietary term of cevitamic acid, was studied, and standards were elaborated. This product in pure form is crystalline vitamin C, and a description of the optical properties of the crystals is included in the standards.

Scillonin, a glucoside preparation from squill, was further studied during the year and proper controls and standards for this preparation have been defined by the Laboratory and adopted by the Council on Pharmacy and Chemistry.

Two types of arsenicals have been under investigation. One of these is a new product, a purified form of arsenoxide, first described by Ehrlich but more recently subjected to an exhaustive therapeutic investigation. The other important arsenical for which standards have been elaborated is Carbarsone, recently accepted by the Council for inclusion in New and Nonofficial Remedies.

The investigation of barbitol preparations has been continued because of the greatly increased use of these products and because a new barbitol derivative has been added to the list each year during the last decade.

Vasoconstrictive substances have also required attention at the hands of the Laboratory staff, among these having been Neo Synephrin Hydrochloride, an ephedrine-like substance and ephedrine. The development of refinements in the manufacture of ephedrine and newly available knowledge concerning its chemistry have made it necessary for the Laboratory to reinvestigate this product with the idea of evolving standards that will be more in keeping with recent developments. Within the last year, another form of the ephedrine base has been brought out, the hemihydrate. The alkaloid may now be obtained either in the form of anhydrous ephedrine or in the form of hydrated ephedrine.

Certain new bismuth compounds have been investigated and continued attention has been given by the Laboratory to dextrose solutions and to solutions of invert sugar. Studies have also been undertaken, for the purpose of making proper revision of standards, on certain calcium compounds and other important therapeutic products, and a large number of other substances have been studied.

The Laboratory staff has continued its cooperation with various departments of the Association, and members of the staff have appeared at the meetings of several scientific organizations and have participated in their programs.

### Council on Physical Therapy

There is undoubtedly a more general appreciation of the value of physical therapy methods in the treatment of disease and it is believed that the investigations and studies of the Council on Physical Therapy pertaining to the efficacy of heat

massage, exercise and other therapeutic agents are, to a considerable extent, responsible for the more general acceptance and application of physical therapy methods. The Council believes that physical therapy has a place in all branches of medicine and does not advocate that it be considered a distinct specialty. It believes that it is desirable that instruction in physical therapy should be incorporated in the courses of instruction in the broad field of therapeutics and that the subject should be properly taught in medical schools. The Council has therefore brought this matter to the attention of the Association of American Medical Colleges. The Council also believes that much can be done to extend knowledge concerning the value of physical therapy and to increase the practical application of physical agents through extension courses and to this end it has undertaken to develop a plan whereby the services of competent speakers may be made available to county and state medical societies.

During the year, seventy reports pertaining to submitted products were prepared, forty-seven of which indicated acceptances by the Council while twenty-three indicated rejections. Not all of the reports pertaining to rejected products were published, since some of them were held in abeyance pending improvement of the products or essential changes in the nature of advertising in order that these products might be made acceptable. Fifteen articles on newer methods of physical therapy were published during the year. The Council has prepared a statement setting forth its requirements with respect to the acceptance or rejection of abdominal belts, supports and similar devices, and it is planning to prepare a similar statement of requirements applying to shoes, posture appliances and other orthopedic devices. In the field of ultraviolet therapy considerable difficulty has been encountered, because no adequate dosage meter for determining the strength of ultraviolet radiation has heretofore been available. During the past year two reliable meters have been investigated and accepted by the Council. Investigations of ophthalmologic appliances have progressed in a fairly satisfactory manner, and reports pertaining to several such appliances have been published. The Council desires to make grateful acknowledgment of the aid received from the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association in connection with the appraisal of ophthalmologic devices. The Council has also continued its work in the investigation of aids to hearing and of instruments for diagnosing degrees of deafness. The consideration of radon and radium products has been continued, and studies of the physical characteristics and therapeutic efficacy of so-called short wave diathermy are now being carried out.

### Bureau of Medical Economics

Interest and activities in the field of medical economics during 1934 were sharply focused on insurance as a method of providing medical and hospital care. For many years the medical profession has been aware of the sickness insurance systems of Europe. Even though all physicians in the United States have not been thoroughly conversant with every detail of foreign sickness insurance, the subject has on several occasions been given serious consideration by the House of Delegates.

Repeatedly that body has recorded its opposition to any form of state medicine or compulsory sickness insurance operated or controlled by the state.

The interest in and the efforts to develop insurance plans as a means of providing medical services or distributing their costs had been largely sporadic, or at most epidemic, until about two years ago when the Committee on the Costs of Medical Care in its Majority Report, recommended insurance as a means of equalizing the burden of the cost of medical care on low income groups.

Since the medical profession in general was not sufficiently impressed with the committee's Majority Report to accept its recommendations, certain interests and individuals outside the medical profession became the self-appointed champions of the sickness insurance cause in the United States. The persistent propaganda poured forth by these interests, represented by certain foundations, is too well known to need detailed description here.

In order that the most recent authentic data might be available for the medical profession, the Board of Trustees directed that a study be made of sickness insurance abroad. This study, entitled "A Critical Analysis of Sickness Insurance," was completed and published in the April 1934 issue of the *AMERICAN MEDICAL ASSOCIATION BULLETIN*. Since that time more than 15,000 reprints of this report have been distributed to state and county medical societies, individual physicians and other interested groups and individuals.

In September 1934 the American Association for Social Security announced that a state sickness insurance bill prepared by that organization would be introduced in as many state legislatures as possible during the sessions beginning in January 1935. An analysis of this bill, which had one revision at the hands of the authors, appeared in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* and reprints were sent to the secretaries of all state medical societies and many county medical societies. Requests for this analysis have been received from manufacturers' associations and many individual physicians.

Toward the autumn of 1934, the demand for information on sickness insurance was so great that other reports, discussions and reprints were prepared by the Bureau. Some of these reprint articles had previously appeared in the *AMERICAN MEDICAL ASSOCIATION BULLETIN*, and one had appeared in *HYGIEA*. It has been necessary to reprint these articles several times to supply the demand for them. The distribution given below is approximately correct.

	A M A Bulletin & Hygeia Distribution	Reprints
Critical Analysis of Sickness Insurance	60 000 plus	12 000
Sickness Insurance Catechism		30 000
Sickness Insurance not the Remedy (First published in the A M A Bulletin in June 1934)	60 000 plus	20 000
Health Insurance in England and County Medical Plans in the U S (First published in A M A Bulletin in October 1934)	60 000 plus	7 500
Sickness Insurance and Sickness Costs (First published in Hygeia in December 1934)	80 000	10 000
Handbook on Sickness Insurance State Medicine and the Costs of Medical Care		2 000

To make it possible for the American Medical profession to have available authentic information on sickness insurance the Bureau of Medical Economics has assembled from all known sources and is continuing to collect documents, reports, articles, statistics and books on all phases of the sickness insurance question. This material is in several foreign languages as well as in English, some of it has been difficult to obtain, and but few of the documents are duplicated. Although the material is in use almost constantly, it is available to any member of the Association who desires to study the original documents in the office of the Bureau. Assistance will be given to those interested in such a study and the Bureau will be glad to find the references in which they are most interested. The Bureau will be especially glad to have visits by chairmen or members of medical economics committees.

The Handbook on Sickness Insurance was first printed in December 1930 to meet the demand on the part of high school and college students for source material with which to prepare debates on state medicine and sickness insurance. The book contained either entire articles or abstracts of arguments presented by well known authors both for and against state medicine and sickness insurance. During August and September 1934, this handbook was revised and rearranged with much new material added. It is now being used not only by high school and college students in preparing debates and theses but also by many physicians in preparing lectures and statements on the subjects covered in the handbook. This publication is a 182 page answer to the criticism sometimes heard, that the publications of the American Medical Association present only one side of the argument on state medicine and sickness insurance.

#### GROUP HOSPITALIZATION

Since 1931, group hospitalization has been spreading throughout most sections of the United States. At first group hospitalization was urged by commercial organizations whose interest in hospital care was secondary to the profits they could derive by promoting, organizing or conducting membership drives. Hospital administrators gradually shifted their

attention from the commercial proposals to plans and contracts prepared, marketed and controlled by the hospitals themselves.

The House of Delegates has never recorded its approval of or opposition to the prepayment method of providing hospital care, per se. The Judicial Council in 1931 reported as follows on plans involving a combination of hospital and medical services:

Within the last year some community hospitals have announced their intention to provide medical surgical and hospital service to families on a flat rate basis. In at least one instance such service has been offered to families for \$35 a year irrespective of the number of members in such families. In most instances certain exceptions are made, in that persons with chronic diseases are not entitled to receive the benefits of the plan and obstetric service is not supplied without additional compensation. The members of the Judicial Council doubt that it is wise to lead the people in any community to believe that all necessary medical and hospital service even though chronic diseases and obstetric care be excepted can be provided for the average family for \$35 a year. In the cases presented to it the Judicial Council has advised against the adoption of such plans by community hospitals because it is believed that they are not economically sound in that they may be unfavorably affected by conditions entirely beyond control under which contracts cannot be fulfilled. There are other aspects of the matter that readily present themselves for consideration involving the interests of physicians in the community who cannot participate in such plans.

The promoters of group hospitalization declare that the schemes they propose are merely service contracts. It was pointed out, in a study made by the Bureau of Medical Economics, published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* for October 1933, that group hospitalization contracts are insurance contracts. But the relationship of hospitals to state insurance departments and law observance, and the liability which a particular form of contract may impose on the contracting hospitals, are not the only items of importance in this newer method of marketing hospital services.

The nature of the contract is of vital concern to the medical profession. If hospitals are permitted to include medical services in their contracts for hospital care, the avenue is opened and the precedent is set for the practice of medicine by hospitals. Furthermore, it is possible that some hospitals that should be closed may, by the assistance of a group hospitalization scheme continue to serve the public badly.

At present there is a wide variation in the status of group hospitalization schemes. Some are being operated with the sanction and active assistance of county medical societies, others are being operated in communities in which the county medical societies maintain a position of noninterference but close observation, in some places the medical societies have succeeded in having hospitalization contracts drawn so as to exclude all medical services, while in other sections the group hospitalization contracts include varying amounts of medical services and thus make it possible at a later date to add more and more medical care under the guise of hospitalization. There is grave doubt that any group hospitalization schemes are using actually sound bases for premium rates.

The theory of the insurance principle in the provision of hospital care appears to be sound, but in the application of this principle to hospitalization, as in the field of sickness insurance, numerous opportunities for perversion and abuse are offered and many of the dangers inherent in sickness insurance practice are introduced. The most important of these dangerous tendencies have already been mentioned, viz, failure to limit the contract coverage solely to hospital care, and the possibility of keeping active some undesirable institutions that, for the public good, should be closed.

The Bureau has a record of fifty-five group hospitalization plans that are now operating or have been discontinued. There are forty-four more plans that have been proposed but as yet are not operating.

#### FEDERAL PROGRAM ON ECONOMIC SECURITY

As soon as it was learned that the President's Committee on Economic Security proposed to include medical services in the economic security program the facilities of the American Medical Association were offered to both the Secretary of Labor, Hon. Frances Perkins, chairman of the committee and Mr. Edwin E. Witte, executive director, for such assistance as might be given in the proposed studies. It was announced that medical interests would be recognized and safeguarded by the appointment of a medical advisory board composed of distin-

guished physicians and surgeons to consider the medical phases of the economic security program, but it was stated emphatically that no medical organization would be allowed representation on the board and no announcement of the names of the members of that board would be made public until just before the first called meeting of the board. Before the close of the first meeting of the Medical Advisory Board in Washington, Nov. 15, 1934, it was agreed that the Technical Staff should be enlarged to include Mr. Michael Davis, Mr. Nathan Sinai, Mr. A. M. Simons and Dr. R. G. Leland, as associate members.

The Medical Advisory Board was called for two meetings, Nov. 15, 1934, and Jan. 29, 1935. The Technical Staff met with the Medical Advisory Board on these dates and held two additional meetings Dec. 12, 1934, and Jan. 19, 1935.

Throughout the work of the Technical Staff on the President's Committee on Economic Security in preparing a Program for Social Insurance Against Illness, the associate staff members from the Bureau of Medical Economics of the American Medical Association offered comments pertaining especially to technical organization and administrative details of the proposed specifications for a federal sickness insurance act.

Since it was clearly pointed out by Secretary Perkins and Mr. Edgar Sydenstricker at the outset that the question of merit concerning a sickness insurance system for the United States was not open for discussion by the Technical Staff or the Medical Advisory Board, but that these groups were charged with the task of preparing the best possible proposal for the United States, in the event that sickness insurance was to become a reality, the participation of the associate members from the Bureau in the work of the Technical Staff might appear to be altogether in conflict with the established policy of the House of Delegates of the American Medical Association. However, in the work of the Technical Staff the associate members from the Bureau of Medical Economics consistently maintained the position that whether any points in the discussions were passed or agreed on, with or without reservations, the members of the Bureau, R. G. Leland and A. M. Simons, reserved the right to submit further observations, objections and reservations after study of the amended or final report. Moreover, it was repeatedly asserted that the participation in these discussions and studies by members of the Bureau of Medical Economics was in no way binding on any officer, department or body of the American Medical Association. It was agreed by all members of the Technical Staff that the American Medical Association should be entirely free to challenge the entire proposed sickness insurance program in any way that might seem proper, after the final report of the Committee on Economic Security had been acted on by the President and his decision had been announced.

#### COUNTY MEDICAL SOCIETY PLANS

In certain sections of the United States, county medical societies have been operating plans for the care of the indigent for more than thirty years.

The growing interest of social workers, philanthropists and foundations in the development of medical plans, services and institutions under lay control has caused an increasing apprehension and unrest in the medical profession. Adhering to the premise that medical services should be controlled by physicians, since by reason of training, licensure and experience they are the only persons competent to judge the necessity for and quality of medical care, medical societies throughout the United States have begun the development of professionally controlled medical services for people of low incomes, as well as the indigent.

Encouraged by the 'Ten Principles' adopted by the House of Delegates in Cleveland in 1934 and firm in the conviction that complete medical care for a community can be made available without state control, about one hundred county medical societies are now conducting or are about to initiate medical service experiments to demonstrate that American medicine need not follow the pattern of foreign sickness insurance schemes and practices.

Several of these county medical society plans appear to be gaining rapidly in favor with the public and in approval of the medical profession. Critical appraisal of these efforts should

however, be deferred until sufficient time has elapsed to provide for adjustments and perfection of the plans according to cumulative experience.

#### CONTRACT PRACTICE

Contract practice continues to hold an important place in medical economics problems. Although the Bureau of Medical Economics files will probably never show a complete census of all contract practice organizations or schemes, there are on record 748 such schemes, either proposed or in operation, some of which have been discontinued either voluntarily or because of court action. The California State Board of Medical Examiners has been particularly active in assisting the courts to catch up with contract practice fakery.

#### COLLECTION AGENCIES

Collection agencies and the collection type of finance companies and corporations continue to be of considerable annoyance to physicians. Notwithstanding the articles that have appeared frequently in *THE JOURNAL* and the *BULLETIN*, physicians continue to be duped by glib-tongued, high-powered collection agency salesmen who promise results impossible of attainment and often succeed in maneuvering the physician into signing a one-sided but within-the-law contract. In the files of the Bureau of Medical Economics there is a record of 1,132 collection agencies that handle medical accounts. The Bureau reprint "Collecting Medical Fees" deals with this subject.

#### HEALTH AND ACCIDENT, LIFE, CASUALTY AND MALPRACTICE INSURANCE

Many requests come to the Bureau for information concerning insurance companies writing life, health and accident, casualty or malpractice contracts. Data in these fields are secured from the most authentic sources and are forwarded to inquirers as confidential. Although it is impossible for the Bureau to make decisions for individuals as to the choice of an insurance company unless there should be but one company in a stated field, it is urged that persons buying insurance contracts take the time to study or investigate the contract provisions, satisfy themselves as to the financial standing of the company, and determine whether the company is licensed in the state in which the purchaser is a resident.

The Bureau has made some investigation of and had correspondence relating to 198 insurance companies of various types.

#### CARE OF THE INDIGENT SICK

In October 1933 a schedule was sent to state medical society secretaries to secure data pertaining to the medical care of the indigent. In April 1934 another schedule was sent to the secretaries of state medical societies asking for the details of organization and the manner of operation of the federal emergency relief plan for the care of the indigent.

Considerable research was conducted to find, if possible, the basis of the customs, methods and legal provisions on which the present system of medical care for the indigent rests.

A somewhat different approach to the status of federal emergency relief was made by Dr. W. C. Woodward, director of the Bureau of Legal Medicine and Legislation who also sent a schedule to secretaries of state medical societies requesting information of a somewhat different nature than that requested by the Bureau of Medical Economics.

All available information was assembled in a report entitled 'Care of the Indigent Sick.' That portion of this report which deals with emergency relief measures and methods is accurate only as of December 1934 when the report went to press. Several changes in the state and local emergency relief organizations and methods have been reported since that time.

It was hoped that this report would serve to show the need for and indication of some methods by which the medical care for the indigent might be improved.

#### DISTRIBUTION OF PHYSICIANS

During the time that could be found in the midst of other work, a study was made of the distribution of physicians listed in the 1931 American Medical Directory. The 156,339 physicians listed have been arranged in fifty-four tables according to geographic distribution, size of community, type of practice and age. Graphic presentations of the statistical data are to be found in fifteen charts. The distribution according to length

of practice has not been completed but will appear later as a supplement to the main report

Several studies of the distribution of physicians have been made. The first of these studies was made by Myers and Harrison and was published in 1924 under the auspices of the General Education Board. Other studies of a similar nature have comprised only single states or cities. As far as is known, the analysis just completed by the Bureau of Medical Economics represents the most complete and detailed study to date.

#### COUNTY MEDICAL SOCIETY AND WORKMEN'S COMPENSATION FEE SCHEDULES

Since March 1931, when the Bureau was established, an effort has been made to collect fee schedules from county medical societies. Thus far the Bureau files contain fee schedules from 383 county medical societies in forty-four states and the District of Columbia and Panama. These schedules have been combined to form a composite list of all the items enumerated. This composite list contains 530 items. Such a schedule is entirely too detailed for practical purposes. For reference work the fees mentioned in the 383 schedules have been arranged to show the minimum and maximum in each state represented. For the entire number of schedules a weighted average was taken for comparison with individual county fees on any particular item.

Since fee schedules where deemed advisable must be based on local conditions, it is not the intention of the Bureau to suggest any nation-wide uniformity. County medical societies should establish their own lists based on a careful study of local factors.

It is not contemplated that the Bureau information on this subject will be published.

In its report entitled *Medical Relations Under Workmen's Compensation* published in March 1933 the Bureau of Medical Economics included some of the more commonly used workmen's compensation fee lists. The complete workmen's compensation fee schedules for eighteen states are on file in the Bureau, and with these as with the county medical society fee schedules, a weighted average has been taken for the eighteen states with which to compare separate state items.

Workmen's compensation fee schedules show some wide variations on certain of the more difficult medical and surgical procedures. When these items in the workmen's compensation schedules are compared with the county medical society schedules in the same state, there are again wide differences.

It is our opinion that the responsibility for securing modification of these schedules, if it is thought desirable, should rest with the medical profession in the several states.

#### UNIVERSITY AND COLLEGE STUDENT HEALTH SERVICE

The study of health services in colleges and universities has progressed as rapidly as possible. Because of the relatively greater importance of other work, it has been necessary to give this study a place of secondary importance.

A preliminary inquiry sent to 329 colleges and universities brought replies from 294 stating that these colleges had student medical services, and from nineteen, that these colleges did not maintain such services. Another schedule was then sent to those colleges having student medical services.

To date, 184 colleges and universities have returned the schedule filled in. The analysis and tabulation of replies and a report of the findings will be completed as soon as possible.

#### GENERAL ACTIVITIES

During 1934 the director appeared before six state medical societies, one state dental society, five county medical societies, and four other groups. During the year twenty-six addresses were delivered before nearly 5,000 physicians and twenty-eight conferences were attended at which 755 physicians were present.

#### PLANS FOR THE PRESENT YEAR

1. There seems to be no way in which to predict a stability of medical economics interests or the importance which different phases of medical economics may assume. At present it seems likely that much of the effort of the Bureau will be required for an indefinite period in the field of sickness insurance.

2. The study of health services in colleges and universities will be completed.

3. There is an increasing demand for information on medical services in industry. An attempt will be made to collect data on this subject.

4. An effort will be made to keep the Bureau files up to date on the subject of state and county medical society activities with special reference to medical economics.

#### SCHEDULE ON MEDICAL ECONOMICS

To The Bureau of Medical Economics American Medical Association, Chicago Date 1935

#### MEDICAL PHASES OF RELIEF ADMINISTRATION

1. Has a definite agreement been concluded between the State Medical Association and the Relief Administration?
2. If not, what were the obstacles to forming an agreement?
3. If an agreement has been made, how long has any definite arrangement been in actual operation?
4. How many county societies are working under this agreement?
5. Have payments been made regularly to physicians for their services in accordance with this arrangement?
6. What arrangements, if any, have been made concerning clinics?
7. If clinics are used to supply medical care under the Relief Administration, what are the arrangements made with physicians serving in these clinics?
8. What is your opinion as to the effects on the medical profession and the public of the effort to supply medical services under Rules and Regulations No. 7 and succeeding arrangements in connection with federal relief? A rather full reply would be appreciated.

#### SCHEDULE ON MEDICAL ECONOMICS

To The Bureau of Medical Economics American Medical Association, Chicago Illinois Date 1935

City President Secretary State Medical Society with headquarters at State Address Address

#### D. Care of the Indigent Sick

1. What is the legally provided method of furnishing medical care to the indigent in your state?
2. If your state has published a summary of the poor laws, where may a copy be obtained?
  - A. What is the governmental unit charged with the provision of medical care for the indigent? (Name of official or body)
    - (a) County
    - (b) Township
    - (c) City
3. What standards of indigency have been established?
4. What is the method of payment for medical care for the indigent?
  - A. Contract with individual—
    - (a) County physician
    - (b) Township physician
  - B. Are they paid for full time or part time services?
5. What are the duties of such employed physicians? (Full or part time)
  - (a) Care of institutional poor (Jail, poorhouse, children's homes or orphanages)
  - (b) Outpatient (home) care
  - (c) Health officers
6. How fully do employed county or city physicians meet the local demand?
7. What arrangements are made to pay for medical care in addition to that furnished by County, City or Township physicians?
8. Have any County Medical Societies in your state contracted with county or city officials to render medical care to indigents? (If so, please give list of such county medical societies.)
9. What actions have County Medical Societies taken with respect to medical care of the indigent aside from such contract?
  - (a) Established fee schedule?
  - (b) Cooperation with authorities
  - (c) Any other actions
10. What changes have been made in methods of medical care for indigents during the past four years?
11. Is the present system satisfactory?
12. Was it satisfactory before 1929?
13. What are the main defects?
14. Has the State Medical Association or any County Medical Society made any special study of the care of indigents?
  - A. If so, is the result of the study or studies available?
15. What, if any, arrangements have been made by the State Medical Association or County Medical Societies with emergency relief bodies? (For example, The Federal Emergency Relief Administration.)

Please send complete file of regulations, forms, used contracts, agreements, rules of procedure, etc. for the Bureau of Medical Economics files.

Distribution: Secretaries of State Medical Societies

#### Bureau of Legal Medicine and Legislation

##### FEDERAL LEGISLATION IN GENERAL

When the last report of the Bureau of Legal Medicine and Legislation was written, the second session of the Seventy-Third Congress was in progress. No legislation of interest to physicians was enacted after that report was made.

The Seventy-Fourth Congress convened in its first session Jan. 3, 1935, and is still in session as this report is being written.



(March 29) Various bills of interest to the medical profession are pending, among them bills looking toward the establishment of "social security," with the possibility of the establishment of a federal state system of health insurance, food, drug and cosmetic bills, and a bill for the continuance of relief work under the Federal Emergency Relief Administration, with every prospect of an extensive program of public works in that connection, calling for an increase in the number of federal employees entitled to medical services under the United States Employees' Compensation Act. The more important of these bills are discussed later.

#### STATE LEGISLATION IN GENERAL

In 1934 the legislatures of nine states met in regular sessions and twenty eight special sessions were held in these and other states. During the current year the legislatures of forty-three states have already convened in regular sessions. In two of the states in which regular legislative sessions have been held special sessions also have been held and special sessions have been held in two other states. All bills of medical interest introduced in all these legislatures were studied and appropriate notices of their introduction with analyses of the bills when indicated, were sent to the presidents, secretaries and chairmen of the legislative committees of the interested state medical associations. Abstracts of these bills were published in *THE JOURNAL*, with the reports of their progress.

A survey of all legislation of interest to the medical profession considered by state legislatures during 1934 was published in the *AMERICAN MEDICAL ASSOCIATION BULLETIN* November 1934. On the whole, little legislation of interest to the profession was enacted. No legislation relating to healing cults was added to the statute books. A hospital lien law was enacted in Iowa. New Jersey's lien law was amended so as to authorize liens for physicians as well as for hospitals.

Most of the legislatures that convened in 1935 in their regular sessions are still in session as this report is being written (March 29). It would be productive of little good to discuss in detail the various measures now pending. A hospital lien law has been enacted in North Dakota and bills to authorize such liens are pending in other states. Basic science laws are pending in three states. Amendments to the medical practice acts of Arkansas and Oregon have been adopted. Vermont has amended both its chiropractic and its osteopathic practice acts. Arkansas and Colorado have forbidden the retail sale of barbital and similar hypnotic drugs except on the prescription of licensed physicians, dentists and veterinarians. The outstanding feature of pending legislation is, however, the Uniform Narcotic Drug Act formulated by the National Conference of Commissioners on Uniform State Laws and approved by the American Bar Association and the American Medical Association. This act will be discussed later, together with some of the other more important pending state legislation.

Note. Since the foregoing section of the report was written there have been enacted a basic science act in Iowa and a naturopathic act in Arizona.

#### FEDERAL HEALTH INSURANCE

In a message to Congress June 8, 1934 the President announced as one of the main objectives of his program the establishment of "the security of the men, women and children of the nation against certain hazards and vicissitudes of life." To formulate that part of his program relating to this matter the President appointed a Committee on Economic Security. On Jan. 17, 1935 the President submitted to Congress the report of that committee and recommended legislation to establish unemployment compensation and old age benefits, to authorize federal grants to states to aid homeless neglected dependent and crippled children, and to provide additional federal aid to state and local public health agencies and to strengthen the United States Public Health Service. With respect to health insurance the President said:

I am not at this time recommending the adoption of so-called health insurance, although groups representing the medical profession are cooperating with the Federal Government in the further study of the subject and definite progress is being made.

The President's Committee on Economic Security, however, in its report to the President, which he transmitted to Congress, was outspoken on the subject of health insurance, saying:

The committee's staff has made an extensive review of insurance against the risks of illness, including the experience which has accumulated in the United States and in other countries of the world. Based upon these studies the staff has prepared a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States.

The committee stated in its report eleven objectives, which it described as the fundamental goals of health insurance, but it did not disclose the tentative plan prepared by its staff.

On the day on which the President's message was submitted to Congress a bill was introduced to make its recommendations effective, 'A Bill to alleviate the hazards of old age, unemployment, illness, and dependency, to establish a Social Insurance Board in the Department of Labor, to raise revenue, and for other purposes.' In the Senate this bill, S. 1130, was introduced by Senator Robert F. Wagner of New York and referred to the Committee on Finance. In the House of Representatives it was introduced by Representative Robert L. Doughton of North Carolina, H. R. 4120, and again by Representative David J. Lewis of Maryland, H. R. 4142 and both bills were referred to the Committee on Ways and Means. This bill is now commonly referred to as the Wagner-Doughton-Lewis bill.

Other bills have been introduced in the Senate and in the House of Representatives thirty-three in all, without administrative support, proposing the establishment of systems of so-called social insurance. Some propose specifically the establishment of federal systems of health insurance. Others propose systems of unemployment, old age and social insurance but are susceptible of being construed as authorizing the establishment of systems of health insurance also. These bills have been referred to various committees in the Senate and in the House.

The Senate Committee on Finance gave lengthy hearings on the Wagner-Doughton-Lewis bill. The Committee on Ways and Means of the House of Representatives followed a similar course. In the House of Representatives, the Committee on Labor held hearings on the bills referred to it. On March 15 while the Wagner-Doughton-Lewis bill was still pending before the Senate Committee on Finance and the House Committee on Ways and Means the House Committee on Labor reported to the House of Representatives one of the bills that had been referred to the committee with the recommendation that it pass, H. R. 2827, a bill for the establishment of unemployment, old age and social insurance, and for other purposes, introduced by Representative Ernest Lundeen of Minnesota. Promptly after the report of this bill its proponents sought to induce the House Committee on Rules to bring in a rule to facilitate its speedy consideration. At present writing (March 29) the bill, sometimes known as the Lundeen bill, is still on the House calendar, and the Committee on Rules has brought in no rule in its favor. The bill authorizes and directs the Secretary of Labor to provide for the immediate establishment of a system for unemployment insurance and of "other forms of social insurance for the purpose of providing compensation for all workers and farmers who are unable to work because of sickness, old age, maternity, industrial injury, or any other disability."

The title of the Wagner-Doughton-Lewis bill specifically denominates it as "A Bill to alleviate the hazards of old age, unemployment, illness, and dependency, to establish a Social Insurance Board in the Department of Labor, to raise revenue, and for other purposes." Only once, however, does the text of the bill refer specifically to health insurance. The bill proposes to establish in the Department of Labor a Social Insurance Board which, among its various duties, shall have the duty of—

Studying and making recommendations as to the most effective methods of providing economic security through social insurance and as to legislation and matters of administrative policy concerning old age insurance, unemployment compensation, accident compensation, health insurance and related subjects.

Obviously, when the title of the Wagner-Doughton-Lewis bill describes it as "a bill to alleviate the hazards of old age, unemployment, illness, and when the bill itself proposes to charge the Social Insurance Board with the specific duty of studying and making



recommendations as to legislation and matters of administrative policy concerning health insurance and related subjects," it is to be assumed that the bill looks toward the establishment of a federal health insurance system, a system either independent of state systems or correlated with such systems. It has been suggested that the situation be clarified by eliminating the specific reference to "health insurance" as one of the fields of activity assigned to the proposed Social Insurance Board. The elimination of those words, however, would be hardly more than a gesture, for the board would still be charged with the duty of studying and making recommendations to determine 'the most effective methods of providing economic security through social insurance' a duty certainly broad enough to cover health insurance.

The Wagner-Doughton Lewis bill proposes to extend the federal subsidy system of the Sheppard-Towner maternity and infancy act to a field much larger than has ever heretofore been contemplated. It ignores the fact that federal subsidies by inducing states to appropriate money for federal state projects that but for such subsidies would not have been appropriated have already contributed toward bringing many states to the brink of bankruptcy, if such subsidies have not already led them into the abyss. It is true that the bill authorizes the almoners of the federal government for the relief of such distressed states, to pay the state's contribution necessary to enable it to obtain federal subsidies for projects that are to be undertaken in the name of social security but the subsidy system thus tends further to promote improvidence in some states and, by reason of the increased contributions that citizens of better organized and more thrifty states will have to pay, tends only to bring even those states into bankruptcy. As is always the case, moreover, the subsidy system is coupled with federal supervision and control over the states in the exercise of rights that under the constitution they are entitled to exercise independently.

In providing for such federal supervision and control of the activities of the several states, the Wagner-Doughton-Lewis bill proposes to perpetuate the mistake made in the Sheppard-Towner maternity and infancy act and to entrust to the Children's Bureau in the Department of Labor medical and public health functions that should rightly be exercised, if they are to be exercised at all by the federal government, by the United States Public Health Service. Without reflecting in any way on the services rendered by the Children's Bureau in its own statutory field, the proposal to create within that bureau a medical division—and this will be necessary if the bureau is to exercise medical functions—has nothing to commend it.

Note On April 4 Representative Doughton North Carolina, introduced a redraft of the Wagner-Doughton-Lewis bill. The redraft was reported favorably by the House Committee on Ways and Means April 5 and passed the House April 19. The redraft omits from its title all reference to illness. The name of the proposed Social Insurance Board' is changed to "Social Security Board, and no duty is devolved on the board to study and make recommendations with respect to health insurance. Corporations organized and operated exclusively for religious, scientific, literary or educational purposes no part of the net earnings of which inures to the benefit of any private shareholder or individual are not liable to the assessments provided in the redraft for old age or unemployment benefits, nor apparently, are employees of such corporations to be entitled to such benefits. The redraft provides, as did the original bill, federal subsidies, contingent on state plans being acceptable to federal agencies, to promote maternal and infant welfare, to care for crippled or dependent children, to provide for child welfare services, and for the development of state and local health work.

#### STATE HEALTH INSURANCE

The President's Committee on Economic Security, in its report to the President, transmitted by him to Congress, said

The rôle of the Federal Government is conceived to be principally (a) to establish minimum standards for health insurance practice and (b) to provide subsidies grants or other financial aids or incentives to States which undertake the development of health insurance systems which meet the Federal standards.

In anticipation of the enactment of federal health insurance legislation along the lines laid down by the committee, the draft of a model bill, intended to promote the establishment of state health insurance systems, was prepared under the auspices of the American Association for Social Security, Inc. This bill is commonly referred to as the Epstein bill, taking its name from one Abraham Epstein, the executive secretary of the association under the auspices of which the bill was developed. Analyses of this bill have been so widely distributed that it seems unnecessary to repeat them here. It is sufficient to say that the bill proposes the establishment in each state of a system of health insurance covering practically every form of medical, nursing and hospital service, to be administered by an all powerful state board, made up predominantly of laymen. Probably the most significant feature of this bill and of the propaganda in its favor is the absence of actuarial estimates of its probable cost. The fact that tax rates and premiums are fixed in the bill indicates that estimates of costs have been made, but for reasons that the proponents of the measure deem sufficient the public, which must in the end pay the cost of any such measure, is kept in the dark. The Epstein bill has been introduced in the legislatures of Massachusetts Nebraska and New York. A somewhat different health insurance bill has been introduced in the legislature of Pennsylvania. In California, seven bills purporting to be health insurance bills have been introduced by title only, apparently leaving the committees to which these titles have been referred the task of drafting bills under them. In no state has a health insurance bill been enacted.

#### FEDERAL EMERGENCY RELIEF ADMINISTRATION

The Federal Emergency Relief Administration continues to provide medical relief, following in a general way the provisions of Rules and Regulations No 7. These rules and regulations are clearly mandatory in their terms and only by having them mandatorily can federal funds for medical relief be properly apportioned. A considerable leeway seems to have been conceded however, to state emergency relief administrators in the interpretation of these rules and regulations with resultant variations in standards for medical relief and in payment for medical services in the several states. The situation has been improved, however by the assignment of Dr Clifford E. Waller, Assistant Surgeon General United States Public Health Service, to duty as medical director of the Federal Emergency Relief Administration. It is hoped and expected that under his direction an efficient, economical system of medical relief will be worked out in every state, satisfactory alike to the administration, to the public, which must pay the bills and to the medical profession.

Unfortunately the problem of medical relief is likely to be complicated by the practically assured adoption of H J Res 117, a joint resolution making appropriations for relief purposes. This is the resolution that proposes to place at the President's disposal, for relief purposes, approximately \$5,000,000,000. So far as direct medical relief is concerned there is no reason why the adoption of this resolution should affect any change from present practices. The resolution, however, contemplates an extensive program of public works, and to the extent that such construction is undertaken directly by the federal government, through its own employees, there will be a large increase in the number of persons entitled to medical services under the provisions of the United States Employees Compensation Act of 1916, as amended (United States Code Title 5, Sec. 785), and as modified by the provisions of An Act Making an additional appropriation to carry out the purposes of the Federal Emergency Relief Act of 1933, for continuation of the Civil Works program, and for other purposes approved Feb 15, 1934 (48 Stats 351). To these federal employees, as will be recalled, medical and hospital service will have to be given by United States medical officers and in United States hospitals wherever they are available, and where no such officer or hospital is available by physicians and hospitals designated or approved by the United States Employees Compensation Commission. The provision of the statute that limits the choice of an injured employee of the United States government to United States medical officers and hospitals or to physicians and hospitals designated by the commission is inconsistent with the principle

uniformly contended for by the American Medical Association. In view, however, of the large claims for compensation, present and future, that will grow out of injuries to government employees sustained in the discharge of their duty and in view of the difficulty that inexperienced and inadequately instructed physicians must have in filling out the elaborate reports called for in connection with government services, regarded apparently as necessary to facilitate the fair adjustment of claims there are grave difficulties in pursuing any other course.

It is assumed, of course, that such medical and hospital services as are rendered to government employees under the projected public works program will be restricted to the relief and cure of injuries sustained by employees who incur illness or injury in the line of duty and that medical and hospital services to such employees for illness or injury incurred otherwise and services to their dependents, will be paid for by the Federal Emergency Relief Administration where the government salary is inadequate to enable the employee to provide the necessities of life for himself and his dependents or by the employee himself whose salary is adequate, with incidental free choice of physicians and hospital.

Note H J Res 117 became a law April 8. So far as the problem of medical relief is concerned, the form in which the resolution was enacted necessitates no revision of the foregoing remarks.

#### FEDERAL FOOD, DRUG AND COSMETIC LEGISLATION

Three bills of major importance are pending in the Seventy-Fourth Congress for the better regulation of foods, drugs and cosmetics, namely, S 5, introduced by Senator Copeland of New York, S 580, introduced by Senator McCarran of Nevada and H R. 3972, introduced by Representative Mead of New York and then reintroduced by him in a modified form as H R. 6906.

The Senate Committee on Commerce gave an extended hearing on the bill introduced by Senator Copeland. The American Medical Association was represented at the hearing and subsequently filed a brief, on both occasions suggesting changes designed to strengthen the bill. The committee reported the bill March 23, with minor modifications and with the recommendation that it pass. The bill as reported is in effect a revision and extension of the Federal Food and Drugs Act of 1906. It proposes to extend federal control to remedial agents so as to make it cover interstate and foreign commerce devices and appliances of all kinds intended for therapeutic purposes and to cover cosmetics. Broad provisions are made for regulating the advertising of foods, drugs and cosmetics. Authority is granted to the Secretary of Agriculture to license food producing establishments, to promulgate regulations and to fix limits of tolerance and in certain cases, standard tests. Advisory boards are to be set up to aid the secretary in the formulating of regulations and possibly in certain other activities.

It is to be hoped that if this bill is to be enacted it will be materially strengthened and improved in form. To class all manner of therapeutic devices as 'drugs' and to prescribe for them the same standards of adulteration and misbranding as are prescribed for the "drugs" of ordinary parlance is illogical and hardly calculated to facilitate the enforcement of the act. The language inserted to satisfy the demands of cultists fearing lest the act might interfere with some of their practices is confusing. The definition of 'medical opinion' is impossible. The requirement that physicians' prescriptions in the District of Columbia, and elsewhere if they enter into interstate commerce bear statements on the labels showing the active ingredients contained in them is unreasonable and uncalled for. The required declarations on the labels, to show the ingredients in certain types of foods and drugs, will convey but little useful information to purchasers, because the bill as reported does not require the quantity of each active ingredient to be stated or require even that the names of the ingredients be stated in the order of their relative quantities in the mixture. Action looking toward strengthening this bill has already been taken.

Note On April 1 the Copeland bill was made the unfinished business of the Senate. For the ensuing week the bill was discussed on the floor of the Senate and numerous amendments were adopted. On April 8 however the Senate dis-

placed the Copeland bill as the unfinished business by voting to take up another bill for consideration. The Copeland bill was thus returned to the Senate calendar and thereby lost its privileged status.

#### FEDERAL AND STATE NARCOTIC LEGISLATION

Two bills are pending in Congress to regulate the distribution of cannabis in interstate and foreign commerce, S 1615, introduced by Senator Hatch of New Mexico, and H R 6145, introduced by Representative Dempsey of the same state. Other than this, no federal narcotic legislation is pending. In the states, rapid progress is being made toward the enactment of the Uniform Narcotic Drug Act formulated by the National Conference of Commissioners on Uniform State Laws and approved by the American Bar Association and the American Medical Association. Narcotic laws literally or substantially in this form have been enacted as follows: In 1933 by Florida, New Jersey, New York and Nevada. In 1934 by Louisiana, Kentucky, Rhode Island, South Carolina and Virginia. In 1935 up to the present date (March 29) by Arizona, Colorado, Georgia, Indiana, Nebraska, New Mexico, South Dakota and Utah. Legislation similar in many respects, but not identical, was enacted in 1935 by Oregon and West Virginia. Bills identical with the Uniform Narcotic Drug Act are now pending in Connecticut, Delaware, Illinois, Maine, Massachusetts, Minnesota, Missouri, Ohio and Wisconsin.

Note Since the foregoing section of the report was written, a uniform narcotic drug act has been enacted in Delaware.

State medical examining and licensing agencies have been criticized in some cases because they do not promptly suspend or revoke the licenses of physicians reported to them by the United States Bureau of Narcotics as being narcotic addicts, in the judgment of the officers of that bureau, and the licenses of physicians whom the bureau alleges have been convicted of violating federal or state narcotic acts. When the evidence submitted by the officers of the bureau warrants such action, the licenses of such physicians should be suspended or revoked according as the circumstances of the case indicate, if in the judgment of the state agency, suspension or revocation is the procedure best calculated to serve the interests of the public and of the medical profession. Where authority for such suspension or revocation does not exist, it is desirable that an effort be made to procure legislation conferring that authority, in order that the medical profession may be freed of the reproach of numbering among its members narcotic addicts and physicians who abuse the authority granted them to administer, dispense and prescribe narcotic drugs.

#### LICENSING OF FOREIGN PRACTITIONERS

Complaints from various sources have been received during the year of the influx of foreign physicians into the United States. Inquiry at the Bureau of Immigration showed that alien physicians had been admitted as follows: In 1929 398, in 1930, 390, in 1931, 329, in 1932, 259, in 1933 187, and in 1934 353, a total of 1,916. While the record showed no substantial diminution in the immigrant physicians entering the country, the total number of immigrants diminished from 279,678 in 1929 to 29,470 in 1934. The reason for the continued influx of foreign physicians is obvious when it is noted that the number coming from Germany increased from 22 in 1929, to 160 in 1934. There was no corresponding increase in immigrant physicians from any other country. The number coming in from Canada in the years named fell from 228 to 108. Of the 1,916 physicians who entered the country during the six years named, 755 announced their destination as New York.

These physicians have not been able to enter the United States, as many physicians seem to have supposed, because of an exemption of physicians from the requirements of the act that limits the number of immigrants who may come in each year from each of the several foreign countries, for physicians are not so exempted. They have been enabled to come in, apparently, because of the general diminution in the number of immigrants arriving from foreign countries, which has left the quotas of those countries unfilled and open to physicians or any other persons desiring to avail themselves of the privilege of coming to the United States. Whether such physicians may or may not practice medicine in the United States on their

arrival depends primarily on their ability to meet the requirements of the laws of the several states with respect to the practice of medicine. If they can do so, there seems at present no practicable way of limiting their immigration.

#### FEDERAL INCOME TAXES

The Revenue Act of 1934 made no change with respect to income taxes that are of special interest to physicians. During the year, however, a controversy arose between physicians practicing in Oregon and in the state of Washington and the federal officers charged with the collection of income taxes in those states and with the auditing of income tax returns concerning the deductibility, as a professional expense, of the cost of maintaining automobiles for professional service. Local officers of the Bureau of Internal Revenue, in auditing the returns of physicians for 1932, called on physicians for written records to show the mileage traveled by them in their automobiles in connection with their professional practices, to prove just what part of the expense of maintaining an automobile in each case was a personal expense and not deductible and what part was a professional expense and therefore deductible. During the year covered by the audit there had been no law or regulation in force requiring the keeping of such detailed mileage records, and many physicians were unable to comply with the unusual and unexpected demand. The matter was submitted through the Bureau of Legal Medicine and Legislation to the Commissioner of Internal Revenue, but without obtaining relief. Relief can be obtained, it appears only through appeals by taxpayers to the Commissioner of Internal Revenue, in Washington, to the Board of Tax Appeals and to the courts.

#### VETERANS' LEGISLATION

Several bills are pending proposing to reenact all laws granting benefits to veterans that were repealed by the act of March 20, 1933. Another bill would authorize the admission to any Veterans Administration hospital of any veteran, not dishonorably discharged on the payment of a per diem fee in an amount equal to the average cost of hospitalization per patient day at the hospital for the previous month. Other bills propose to establish additional hospitals, to provide medical and hospital services to persons not entitled thereto under the existing law and regulations relating to veterans, and to provide an increase in pensions for veterans. There is pending no legislation proposing to provide benefits for contract surgeons of the Spanish-American War comparable to the benefits provided for other persons of grades similar to that of the contract surgeon.

Note. From March 29 to date (April 23) approximately 20 bills have been introduced proposing to erect either new veterans' general hospitals or additions to existing veterans' general hospitals, in the various states. The House Committee on World War Veterans' Legislation has arranged for an early hearing on the bills. Another bill has been introduced proposing generally to revise all veterans' laws. This bill provides, among other things that the term "veteran" shall include any individual who served overseas as a contract surgeon in the army.

#### VIVISECTION LEGISLATION

Bills were introduced in New York and in Wisconsin proposing to prohibit experiments on living dogs for any purpose other than the healing or curing of the dog. The New York bill was defeated. The Wisconsin bill, and a bill in Congress prohibiting experiments on dogs in the District of Columbia, are pending at the time this report is made (March 29).

#### THE OPTICAL RETAIL TRADE CODE

Demands were made in the early part of the current year by the Optical Retail Trade Code Authority, on ophthalmologists practicing in various parts of the country, for the payment of assessments for the support of the code authority and for reports concerning the extent of business done. Inquiry of the National Industrial Recovery Administration at Washington disclosed the fact that those demands had been sent out to ophthalmologists who were supposed to be engaged in the commercial purchase and sale of eyeglasses and spectacles. Ophthalmologists were advised through letters sent to the secretaries of all state medical associations and through the pages of *THE JOURNAL* to disregard demands for the payment of assessments and for

the making of reports unless they were actually engaged in the purchase and sale of ophthalmic lenses and making a profit out of that commercial business as a matter distinct from their professional work.

#### Bureau of Health and Public Instruction

Much of the work of the Bureau cannot be presented in statistical form. Correspondence has increased from 6,593 pieces in 1932 to 9,148 in 1934, radio talks have increased from 171 in 1932 to 208 in 1934 and are now national in coverage instead of local, radio talks distributed for use of county societies have increased from 4,312 in 1932 to 7,495 in 1934.

As in previous years, the work of the Bureau has been concerned with "Questions and Answers," editorial duties in connection with *HYGEIA*, radio broadcasting over two national networks and over local stations, the maintenance of a radio library for state and county medical societies, cooperation with state and county medical societies in health education, preparation and distribution of material relating to protection of medical research representing the American Medical Association on advisory boards and committees of national lay organizations, writing of articles for publication, and the giving of talks to assembled audiences.

#### RADIO PROGRAM

The American Medical Association began in November 1933 a broadcasting program over a Blue network of the National Broadcasting Company, which was continued through June 1934 and resumed Oct. 1, 1934. This program made talks available roughly to forty stations, of which we are informed, about 75 per cent took the program on any given date, though only about twenty stations took all the programs. Correspondence, however, shows that the more important stations, such as WJZ in New York and WENR in Chicago, did take the program regularly and therefore coverage was very good. In February 1934 arrangements were made with the Columbia Broadcasting System for a network program covering the southern and western part of the United States and giving virtually a complete coverage through approximately thirty stations from Chicago west, north and south to the Pacific coast. The total number of network talks thus broadcast was thirty-four on the National Broadcasting Company chain and forty-seven on the Columbia Broadcasting System. The facilities of both of the two great broadcasting systems have been made available without cost, and the Board of Trustees gratefully acknowledges their generous services.

A radio program consisting of twelve talks was delivered during the meeting of the American Medical Association at Cleveland. Through the courtesy of the National Broadcasting Company and Station WTAM, two network broadcasts and two local broadcasts were arranged. One of these network broadcasts took the place of the regular NBC program from Chicago. Through the courtesy of the Columbia Broadcasting System and Station WHK, an exactly similar program was arranged. In addition, four local talks were given over Station WGAR.

The director of the Bureau has participated in broadcasting programs under the auspices of state associations and county societies in various places.

The radio library was increased during 1934 from 440 talks to 652, there being added in 1934 107 fifteen minute talks, eighty-three ten minute talks and twenty-two five minute talks. The total number of radio talks distributed has been stated already. The radio talks distributed to local and state societies included ninety-four county societies and sixteen state societies.

#### SERVICE TO STATE AND COUNTY SOCIETIES

In the discharge of its function as a clearing house of information on public health and health education for state and county medical societies, the Bureau conducted a survey in 1934 to establish an up-to-date record of activities in health education throughout the United States, such as radio programs, speakers bureaus, participation in community public health activities, use of press releases, participation in community health councils and other organized activities in relation to public health and health education. The details revealed by this survey have been embodied in a paper, which was read

before eight county medical societies and has been distributed in mimeographed form. There is no space here to do more than say that this survey discloses great activity in public health and health education on the part of state and county medical societies and an encouraging acceptance on the part of their communities of the interest expressed in public health and health education by the organized medical profession.

The clipping loan service of *HYGEIA* clippings has been continued, seventy-four such loans being made in 1934. Since old issues of *HYGEIA* grow scarcer as time goes by this clipping loan service will assume increasing importance. The correspondence exchanging suggestions and information between local society officers and the Bureau grows heavier month by month.

#### PROTECTION OF RESEARCH

The question of medical research involving animal experimentation is constantly being agitated by the antivivisectionists, particularly in centers where medical education is important. The animal experimentation fight seemed to be centered in Chicago in 1934 but there was also evidence of activity in New York, in Boston and in California. The Bureau has added new publications on this topic to its list of pamphlets. Arrangements were made also for educational talks on animal experimentation and the debt of science to animals over the regular network facilities described in the section of this report dealing with radio. Information has been furnished to local societies, and the Bureau made its annual presentation to graduating students in class A medical schools of one copy each of the pamphlets *The Dog's Gift to the Relief of Suffering* and *The Ethics of Animal Experimentation from the Viewpoint of a Philosopher*.

#### COOPERATION WITH LAY ORGANIZATIONS

By order of the Board of Trustees, the director is now acting as a member of the medical advisory board for the National Congress of Parents and Teachers (Summer Round-Up of the Children), the General Federation of Women's Clubs (Health and Welfare Department), the National Committee for Boys' and Girls' Club Work (4-H Club Movement) and the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.

The printed matter to be officially distributed by the National Congress of Parents and Teachers in 1935 definitely states that preschool examinations whenever possible should be conducted by the family physician in his own office. Copies of this material have been distributed to all secretaries of state medical societies and to the secretaries of the fifty largest county medical societies, and in response the Bureau has received many expressions of approval and the encouragement to proceed with definite development of the policy thus initiated. A leaflet authorized by the National Congress of Parents and Teachers at the advisory board meeting in 1934 will inform physicians, dentists and nurses as to the objectives of the Summer Round-Up and will suggest methods for procuring examinations especially emphasizing the importance of referring all patients wherever possible to the family physician and dentist for examination. The committee to prepare this leaflet includes the director of the Bureau, a representative of the American Dental Association and a representative of the National Organization for Public Health Nursing.

There has been no further development in the cooperative relationships with the General Federation of Women's Clubs. The cancer education campaign previously outlined (1933 annual report of the Bureau of Health and Public Instruction) is going forward and seems to be proceeding satisfactorily and with due regard to the avoidance of hysteria. The federation continues to preserve an attitude of neutrality as regards controversial questions in the field of medical economics contenting itself with informing local clubs of sources of information including the American Medical Association.

The Joint Committee on Health Problems in Education met in February and by common consent the meeting was one of the best in recent years. The meeting was attended on behalf of the American Medical Association by four of its six repre-

sentatives, namely, Drs. Isaac A. Abt, Thurman B. Rice, R. G. Leland and the director of the Bureau. Absent members were Drs. A. J. Chesley of Minneapolis and Edward Jackson of Denver, both unavoidably detained. Their advice on matters pending before the committee was procured by correspondence. The committee discussed progress on a number of reports that were not ready for publication at the time of the February meeting. At least two of these reports, dealing respectively with conservation of sight of the school child and a study of school health service policies, progressed practically to the point of publication by the end of 1934 and will undoubtedly appear during the present year.

#### PERSONAL APPEARANCES

The director of the Bureau made sixty-eight addresses during the year to sixty-six different groups, audiences totaling 1,008 physicians in medical society groups, 15,662 persons in lay groups, and 310 in groups including both doctors and lay persons, total audiences, 16,980 persons.

#### EXHIBITS

In cooperation with the Bureau of Exhibit, the Bureau of Health and Public Instruction assisted in the planning of changes in the American Medical Association exhibit at A Century of Progress. An exhibit entitled *"The Medical Profession and the Public Health"* was shown at the American Medical Association annual session at Cleveland. The Bureau of Health and Public Instruction continues to cooperate closely with the Bureau of Exhibit in making exhibit material available with the consent of local medical societies, to public health or lay groups requesting such material.

#### PAMPHLETS AND REPRINTS

In view of the extensive revision of pamphlets undertaken by the Bureau in 1933 the necessity for such revision was less in 1934. Nevertheless the Bureau added eighteen titles to the lay catalogue, revised four titles and dropped nine titles. Reprints totaling 79,000 were sold.

#### QUESTIONS AND ANSWERS

The question and answer correspondence in 1934 showed an increase of about 15 per cent over 1933.

The number of Questions and Answers published in *HYGEIA* was seventy-eight, representing just under 1 per cent of the total questions. As the correspondence increases, naturally the proportion published which formerly ran as high as 6 per cent will steadily decrease.

For the second year of A Century of Progress the Bureau again prepared a selected set of 145 questions and answers, which were displayed as in the previous year. The Bureau of Exhibit has duplicated these sets and they have been effectively used in connection with local medical society exhibits and personal appearances for public addresses. This particular exhibit technique has also been used by other departments of the Association.

#### Bureau of Investigation

As has been emphasized in each annual report, the best index to the activities of the Bureau of Investigation is the amount of correspondence it handles during the year. In this connection it is interesting to go back over two decades and compare the number of inquiries that the Bureau received and answered in the decade from 1915 to 1924 inclusive as compared with the last decade from 1925 to 1934 inclusive. In the first of these ten-year periods the total number of inquiries received and answered was 37,388. In the second ten-year period the number of inquiries received and answered was 100,919 or an increase in the second period over the first of nearly 270 per cent.

These figures become more remarkable when it is borne in mind that during the second period—that is, between 1925 and 1934—a large amount of correspondence that had previously been handled by the Bureau of Investigation was turned over to other departments including the Council on Medical Education and Hospitals, the Bureau of Medical Economics, the

Bureau of Exhibits and the Committee on Foods. In spite of this the correspondence of the Bureau of Investigation has been maintained at around 11,000 letters annually. It is this work of answering inquiries from physicians and laymen that comprises the most important function of the Bureau, and it cannot too often be emphasized that such correspondence does not have the casualness of ordinary business. Dealing as it does with products, concerns and individuals of questionable standing, it carries with it a serious responsibility. In the twenty-eight years during which what is now called the Bureau of Investigation has been in existence, meticulous care has been exercised to see that no statements are sent out by the Bureau that are not justified by the facts and supported by documentary evidence.

The interest that was evinced in 1933 both by physicians and by intelligent laymen in the proposed new national legislation to extend the powers of the federal government over the sale, and particularly over the advertising, of nostrums extended through 1934. The continued low advertising standards maintained by many broadcasting stations with the resulting amount of fraudulent medical advertising that has gone out over the air has been responsible for the Bureau's receiving and answering thousands of inquiries about radio advertised nostrums and quacks.

The Better Business Bureaus of the country, the Federal Trade Commission, the Food and Drugs Administration, the Federal Communications Commission all continue to cooperate actively with the Bureau of Investigation.

During the past year the Bureau of Investigation has sought and received help from the Division of Investigation of the United States Department of Justice in getting information regarding the criminal records of certain impostors who have been swindling physicians.

The Bureau has continued to be of every possible help to governmental agencies when called on.

The number of inquiries received from teachers and students in educational institutions gets larger every year. It is no unusual thing for the Bureau within the period of a few days to receive scores of requests from members of a class that is making a study of "patent medicines" or quackery, whether from a health, economic or sociological point of view.

The director of the Bureau addressed thirty-seven audiences during the year in various cities in five states and the District of Columbia.

The demand for the pamphlets prepared and issued by the Bureau of Investigation continues. There has been an unusual demand for the Bureau's pamphlet "Cosmetics and Allied Preparations."

Material for a third volume of "Nostrums and Quackery" is being compiled. The plan is to make volume III much more condensed than either of the previous two volumes. While this will necessitate rewriting almost all the accumulated material, it is believed that the greater usefulness of the proposed book will repay the amount of extra effort involved.

### Bureau of Exhibits

#### THE ANNUAL SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Cleveland session was the largest in the history of the Association. For the first time all fifteen sections of the Scientific Assembly participated through special section exhibit committees. Sixty-three papers read before the sections were illustrated with exhibits on the same subjects a larger number than ever before.

The commodious hall at Cleveland facilitated the housing of 167 exhibits, compared to 120 the year before. The special exhibits, put on by special committees appointed for the purpose, included encephalitis, demonstrations in pathology, and nutrition. Ten of the section exhibit committees took part in special features, adding much to the success of the Scientific Exhibit as a whole. Among these features were two special exhibits on 'Home Delivery Technic' and 'First Aid in Eye Injuries', exhibit symposiums included amebiasis, thyroid diseases, treatment of burns, and cutaneous allergy, motion picture programs conducted on regular schedules were shown simultaneously in several parts of the hall.

#### THE CENTRAL SCIENTIFIC EXHIBIT

The Central Scientific Exhibit was dismantled in the headquarters building in December and the equipment and much of the material was lent to the Museum of Science and Industry, where a department for medical exhibits has been established. The exhibit material not lent to the museum was returned to the original donors.

#### ASSOCIATION EXHIBITS

Association exhibits divide themselves into two groups: those of a scientific nature dealing with the work of the Association or with medical science, and those of a more popular nature, for the public.

Exhibits for meetings of state and county medical societies and other scientific groups have been sent out twenty-six times during the year. The closest contact has been maintained with the various councils and bureaus of the Association in order that the work of the Association may be properly presented. In addition to exhibits portraying the work of the Association, there have been added from time to time, mainly from the annual Scientific Exhibit, exhibits dealing with various phases of scientific medicine, constituting in fact an effort at graduate medical education. The advice of the Council on Medical Education and Hospitals has been most helpful in regard to these. There has been prepared for distribution a list of twenty-one exhibits suitable for state and county medical meetings. The exhibits for public expositions, fairs and the like supplement the work of the Bureau of Health and Public Instruction, with which bureau there has been the closest cooperation. During the year exhibit material was sent to fifty different expositions and fairs, in most instances in the care of a state or county medical society in that area.

#### EXHIBIT AT A CENTURY OF PROGRESS EXPOSITION

During the five months of A Century of Progress Exposition in 1934, the exhibit of the American Medical Association was even more successful than in 1933. While the total attendance at the exposition was somewhat less in 1934, the crowds were more discriminating, resulting in a relatively larger proportion of visitors to the medical exhibits in 1934 than in 1933. Some changes and new material in the exhibits of the Association were made, but otherwise the exhibit was conducted on the same general plan as in 1933. In the visitors' book, kept only in 1934, 1,080 physicians registered from all parts of the United States, Canada, Europe and Asia. Several millions of persons visited the exhibit during the two seasons.

The exhibit material shown at A Century of Progress Exposition has been lent to the Museum of Science and Industry for inclusion in the medical exhibit at that institution.

#### MOTION PICTURES

During the year there were many hundred requests for motion pictures. The Association has no films suitable for lay audiences. The Bureau of Health and Public Instruction has prepared a list of film sources, however, which has been given wide distribution.

Films for medical audiences have been sent out on numerous occasions. The Council on Physical Therapy has collected several 16 mm films which have been very popular. The Association has, in addition to these, two 35 mm films for which there has been little demand recently because of lack of facilities in most communities to run them.

#### Committee on Foods

The membership of the Committee on Foods during 1934 was changed by the resignation of James S. McLester, M.D., professor of medicine, University of Alabama, consequent to his election as President-Elect of the American Medical Association, termination of the term of membership of Julius H. Hess, M.D., professor of pediatrics, University of Illinois School of Medicine, and the appointments of Joseph Brenne-mann, M.D., chief of staff of the Children's Memorial Hospital, Chicago, and Lydia J. Roberts, Ph.D., chairman and professor, Department of Home Economics, the University of Chicago.

The following is a statistical summary of products submitted, accepted and rejected, and acceptances withdrawn

Products submitted—Total up to Dec 31 1934	2 985
1932	632
1933	583
1934	1 125
Products accepted—Total up to Dec 31, 1934	2 317
1932	493
1933	490
1934	1 111
Products rejected—Total up to Dec 31 1934	91
1932	16
1933	41
1934	30
Withdrawals of acceptance—Total up to Dec 31 1934	64
1934	33

The volume of work of the Committee increased greatly over that of previous years. The number of foods submitted increased from 600 per annum for the two preceding years to more than 1,100. The number of inquiries regarding the Committee, of requests for information on foods and nutritional subjects, and food advertising and manufacture, from physicians, government officials, hospitals, educational institutions and the public, and the regular routine work have all been much greater than previously. The newly instituted control over accepted products that was put into effect added greatly to the duties of the office of the Committee.

#### RULES AND REGULATIONS

The Rules and Regulations were revised by the addition of a rule governing package label and advertising for 'special purpose foods' with usefulness restricted to specific purposes. This new rule specifies the information which in the interest of the public, should be given on the label and in the advertising for this type of products. Two new editions of the Rules were published.

#### GENERAL COMMITTEE DECISIONS

Eleven new General Committee Decisions were adopted and published in THE JOURNAL.

Acidosis Claims in Lay Advertising  
Advertising Dealing with Treatment of Disease or the Nutrition of the Sick, or Recommending any Special Type of Diet  
Blood Building Claims in Advertising  
Educational Food Advertising  
Energy Claims for Foods  
Iron Claims for Foods  
Pasteurization of Milk  
Resistance Claims in Food Advertising  
Special Purpose Foods for Diets Restricted in Dextrose Formers  
Sweets in the Diet Especially of Children  
Vitamin E Claims for Public Advertising

These decisions explicitly define the Committee's judgment on the particular topics and serve as guides for passing on advertising for accepted products. The General Decisions of the Committee now total fifty-one.

There is a constant demand for copies of the booklet of Committee decisions from advertising agencies, members of the food industry and others. Apparently they are being found to be useful and practical. A number of the decisions are especially helpful in preparing replies to inquiries from physicians and members of other professions for authoritative opinions on important current food or nutritional issues. In certain instances, manufacturers have indicated that the decisions are helpful in planning new food or advertising projects.

#### RECOMMENDATIONS FOR AMENDMENT OF FEDERAL FOOD AND DRUGS ACT

The experience of the Committee gained in the last five years in passing on foods and food advertising has particularly emphasized the need for radical amendment of the present Food and Drugs Act that it may more effectively protect the health, good nutrition and economic interests of the public. Accordingly, twenty distinct recommendations were proposed for amendment of food sections of the act. These recommendations were endorsed by the Board of Trustees and with its authorization were published in THE JOURNAL.

#### SERVICE TO PHYSICIANS

The large number of inquiries regularly received by the office of the Committee from physicians indicates a broader recognition of the valuable service the Committee is capable

of giving the medical profession on food questions. The office of the Committee is becoming a repository of such information and furnishes unbiased and authentic reports on request.

#### APPOINTMENT OF SUBCOMMITTEE TO STUDY RELATIVE HUMAN ANTIRACHITIC VALUES OF VARIOUS TYPES OF VITAMIN D MILKS

Many vitamin D milks fortified by irradiation or by the addition of vitamin D concentrates obtained from cod liver oil have been accepted. These two types of vitamin D milks are considered antirachitic agents when taken in sufficient quantity. Several vitamin D evaporated milks fortified by similar methods have been accepted also, but their status as antirachitic agents has not yet been officially determined. Applications for acceptance of other forms of vitamin D milks, namely milk obtained from herds fed irradiated yeast, and milk fortified with activated ergosterol, have been received and are pending.

The question is now before the Committee of the relative human antirachitic values of these various vitamin D milks. The chairman last May appointed a subcommittee, comprising the three pediatricians of the Committee, to study this problem. The subcommittee has collected all available reports of clinical studies of the various types of vitamin D milks. Owing to the many complex problems involved, the subcommittee was unable to submit its report for consideration by the entire Committee, but this report will probably be available early in 1935. It is the intention of the Committee to publish a report of appraisal of the human antirachitic values of all types of vitamin D milks merchandised. This contribution should be of particular value to physicians, especially pediatricians, the public and the industry.

#### CONTROL EXERCISED OVER ACCEPTED PRODUCTS AND ADVERTISING

It is a basic requirement of the Committee that accepted foods and promotional advertising be maintained acceptable. This is indispensable to the preservation of the significance of the Committee seal and of acceptance and the prestige of the Committee. For this reason the Committee at the end of 1933 adopted its important rule requiring the submission of all advertising of every character as it issues, and the notification of any changes in labels or composition of accepted foods. Application of this rule began last April. This requirement is something entirely novel to the food industry, as never before has any control of such character and thoroughness been exercised over commercial products and advertising. Although all sponsors of accepted products have signed a written agreement to comply with this rule and are apparently in thorough sympathy with it, it must be recognized that the industry has to adjust itself to this entirely new form of voluntary control. Most sponsors of accepted products, judged by the large volume of submitted advertising, are complying quite satisfactorily with this rule.

A number of companies issuing large volumes of advertising have submitted all copy and have voluntarily stated that the benefits derived from acceptance and the control exercised by the Committee over advertising more than compensate for the nominal expense and inconvenience of submitting the advertising.

#### CONCLUSION

The members of the Committee have given another year of conscientious service to the economic and nutritional welfare and health of the public. The Committee has at all times displayed a spirit of cordial cooperation with the food industry in its problems of merchandising foods of desired and expected values supported by truthful advertising.

The members of the food industry who have so thoroughly and wholeheartedly cooperated with the Committee by maintaining their accepted products and advertising in conformity with the high standards of the Committee deserve special commendation. Many manufacturers or sponsors of accepted foods at considerable expense or trouble, have discarded improper advertising and given special effort to the development of truthful advertising thus showing their confidence in the principles enunciated by the Committee for the good of the public and the industry. This attitude shown by large and small



manufacturers alike, must gradually but surely lead to a higher order of business in the field of foods and to the establishment of a better recognition of consumer rights, welfare and health

### Conferences with Councils and Editorial Boards

In order that the Board of Trustees might keep in closer touch with the work of the councils and editorial boards of special journals and thereby be enabled to be as helpful as possible in promoting the fine work that is being carried on by these official groups, conferences were held during the year with the Council on Pharmacy and Chemistry and the Council on Physical Therapy and with representatives of some of the editorial boards

Additional personnel has been provided in the offices of the Council on Pharmacy and Chemistry and of the Council on Physical Therapy, and additional funds have been appropriated for the use of these councils to aid them in meeting the constantly growing demands that are being made on them

### Members of Councils and Committees

Dr Frank H Krusen of Philadelphia was elected a member of the Council on Physical Therapy for a term of three years

Dr Stanhope Bayne-Jones of New Haven Conn who rendered most devoted and efficient service as a member of the Council on Pharmacy and Chemistry resigned after he had been made dean of Yale University School of Medicine Dr J Howard Brown of Baltimore was made a member of the Council to succeed Dr Bayne-Jones

Dr George H Simmons for more than thirty years an active member of the Council on Pharmacy and Chemistry, having expressed a desire to be relieved of active duty was made an honorary life member by official action of the Council and Dr Elmer M Nelson of Washington, D C was elected as his successor

Dr R L Sensenich of South Bend Ind was made a member of the Committee on Legislative Activities

Dr Lydia Roberts of Chicago was elected a member of the Committee on Foods to succeed Dr James S McLester

### Liability Insurance for Members

The Board of Trustees has given its most careful consideration to the resolution, submitted by the delegates from Oklahoma at the Cleveland session asking that an investigation be made to determine the feasibility of perfecting a plan whereby the American Medical Association could provide liability insurance for members As the result of a careful study of the various factors involved in this proposal, the members of the Board of Trustees are of the unanimous opinion that it would be inadvisable for the Association to undertake any such enterprise

### Motion Picture of Headquarters

The motion picture portraying some of the important activities in the offices of the Association was shown during the year before various groups in a number of states The total attendance of physicians at the showing of this picture was in excess of 15000 The picture has been favorably received and has been highly commended by many individual physicians as a means of acquainting the members of the Association with the character and the scope of the work that is being carried on by councils, bureaus and departments

### Building and Equipment

The building of the Association and all equipment have been maintained in the best possible order, and necessary facilities for maintaining the work of all departments on the highest possible plane of efficiency have been provided

Much of the Association's work requires highly specialized service and every member of the working personnel has important duties to perform The Board of Trustees takes pleasure in offering commendation and in acknowledging its grateful appreciation of the faithful and efficient service rendered by the entire body of the Association's employees

Respectfully submitted

J H J UPHAM, Chairman  
AUSTIN A HAYDEN, Secretary  
JOSEPH A PETTIT  
ROCK SLESTER  
CHARLES B WRIGHT

ARTHUR W BOOTH  
ALLEN H BUNCE  
THOMAS S CULLEN  
ROCFER I LEE

## ADDENDA TO REPORT OF BOARD OF TRUSTEES

### COMMITTEE ON THERAPEUTIC RESEARCH

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research

During the year 1934 the committee made thirty five new grants A detailed list of these grants together with a list of publications during 1934 and of unexpired grants made before Jan 1, 1934 will be found in the appendix of this report

The following is a list of the investigations conducted with the assistance of grants made by the Therapeutic Research Committee, reports of which were published during 1934

- 1 Effect of Intravenously Injected Dextrose on the Rate of Propulsion in the Small Intestine J P Quigley and William H Highstone *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* 102:1002 (March 11) 1934
- 2 A Study of the Propulsive Activity of a Thiry Vella Loop of Intestine J P Quigley W H Highstone and A C Ivy *American Journal of Physiology* 108:151 (April) 1934
- 3 Action of Morphine Papaverine Atropine, Pilocarpine, Pituitrin, Pitocin and Pitressin on Intestinal Propulsive Activity Determined in the Unanesthetized Dog by the Bolus Method J P Quigley William H Highstone and A C Ivy *Journal of Pharmacology and Experimental Therapeutics* 51:308 (July) 1934
- 4 A Simple Adaptation of Koltzoff's Colorimetric Method for the Determination of Magnesium in Biological Fluids Arthur D Hirschfelder and Earl R Serles *Journal of Biological Chemistry* 104:635 (March) 1934
- 5 Clinical Manifestations of High and Low Plasma Magnesium Dangers of Epsom Salt Purgation in Nephritis Arthur D Hirschfelder *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* 102:1138 (April 7) 1934
- 6 Effect of Renal Insufficiency upon Plasma Magnesium and Magnesium Excretion After Ingestion of Magnesium Sulphate, Arthur D Hirschfelder *Journal of Biological Chemistry* 104:647 (March) 1934
- 7 The Relation of Serum Protein Fractions to Serum Sickness in Rabbits Lloyd Jones and Moyer S Fleisher *Journal of Immunology* 20:455 (June) 1934
- 8 Studies on the Effect of Narcosis on the Rate of Locomotion of Polymorphonuclear Leukocytes in Vitro Harry Lowenburg Jr *American Journal of the Medical Sciences* 188:472 (Oct.) 1934
- 9 The Etiology of Granulopenia (Agranulocytosis) with Particular Reference to the Drugs Containing the Benzene Ring Roy R Kracke and Francis P Parker *Journal of Laboratory and Clinical Medicine* 19:799 (May) 1934
- 10 The Etiology of Granulopenia (Agranulocytosis) with Particular Reference to Drugs Containing the Benzene Ring Roy R Kracke and Francis P Parker *American Journal of Clinical Pathology* 4:453 (Nov.) 1934
- 11 The Accumulation of Iron in Tuberculous Areas. IV The Effect of Ferric Chloride on the Course of Tuberculosis in Reinfected Rabbits, Vally Menkin *Journal of Experimental Medicine* 60:463 (Oct. 1) 1934
- 12 The Response of the Normal Guinea Pig to the Administration of Liver Extracts Bernard M Jacobson *Science* 80:211 (Aug 31) 1934
- 13 The Influence of Various Preparations of Lactic Acid and Sugars on the Growth of Transplanted Tumors II Mouse Sarcoma 180 I A Parfentjev V D Sunteff and W K Derrient *American Journal of Cancer* 20:117 (Jan.) 1934
- 14 The Effect of Experimental Dehydration on the Action of Certain Convulsant Drugs A H Maloney *Archives internationales de pharmacodynamie et de therapie* 47:284 1934
- 15 Barbiturates in Local Anesthetic Toxicity A H Maloney *Journal of Pharmacology and Experimental Therapeutics* 52:297 (Nov.) 1934
- 16 Magnitude of Urinary Iron Excretion in Healthy Men Ramon F Hanzal and Franklin C Bing *Proceedings of the Society for Experimental Biology and Medicine* 31:617 1934
- 17 Is the High Basal Metabolic Rate in Hyperthyroidism Due to Thyroxine? J W Cavett Carl O Rice and J F McClendon *Science* 80:19 (July 6) 1934
- 18 The Iodine Content of Potatoes J F McClendon Earl Barrett and Thomas Canniff *Biochemical Journal* 28:1209 1934
- 19 On the Use of Ringer Locke Solutions Containing Hemoglobin as a Substitute for Normal Blood in Mammals W R Amberson J Flexner F R Steggerda A G Mulder M J Tendler D S Pankratz and E P Laug *Journal of Cellular and Comparative Physiology* 5:359 (Dec.) 1934
- 20 Oxygen Consumption with Hemoglobin Ringer A G Mulder W R Amberson F R Steggerda and J Flexner *Journal of Cellular and Comparative Physiology* 5:383 (Dec.) 1934
- 21 The Influence of pH upon the Elimination of Hemoglobin by the Perfused Frog's Kidney M D Webster F L Engel E P Laug and W R Amberson *Journal of Cellular and Comparative Physiology* 5:399 (Dec.) 1934
- 22 The Effect of Insulin and Epinephrine on the Amino Acid Content of the Blood of Adrenalectomized Rabbits Burt L Davis Jr and Walton Van Winkle Jr *Journal of Biological Chemistry* 104:207 (Feb.) 1934



During 1934 the following grants were made

Grant 219 Torald Sollmann professor of pharmacology, and Harold N Cole associate clinical professor of dermatology and syphilology Western Reserve University School of Medicine \$100 to investigate the epidemic factor in mercurial salivation

Grant 220 Nora E. Schreiber and Katharine I Henderson Department of Pharmacology Western Reserve University School of Medicine \$200 to investigate the clinical excretion of bismuth and mercury

Grant 221 John G Reinhold, Department of Public Health Philadelphia General Hospital, \$250 to investigate the action of aminoacetic acid in progressive muscular dystrophy

Grant 222 Eugene U Still Department of Physiology University of Chicago School of Medicine \$250 to investigate the changes in the metabolism of the pancreas

Grant 223 Clinton H Thienes professor of pharmacology and Lawrence E Detrick Department of Pharmacology University of Southern California School of Medicine \$200 to investigate withdrawal phenomena in morphine addicted animals

Grant 224 John H Peters, professor of medicine Yale University School of Medicine \$250, to investigate the effects of diminophenol

Grant 225 J Murray Luck professor of chemistry Stanford University Calif \$250, to investigate an insulin test for adrenal function

Grant 226 Elaine P Ralli assistant professor of medicine New York University University and Bellevue Hospital Medical College \$250 to investigate the effect of the mouth feeding of carotene on blood carotene

Grant 227 Katharine I Henderson Department of Pharmacology Western Reserve University School of Medicine \$100 to investigate the clinical excretion of mercury and bismuth

Grant 228 Henry G Barbour associate professor of pharmacology and toxicology, Yale University School of Medicine \$250 to investigate metabolism and water exchange in morphine habituation

Grant 229 J F McClendon professor of physiological chemistry University of Minnesota Medical School \$200 to investigate the iodine in the blood of normal and goitrous individuals

Grant 230 Henry B Richardson associate professor of medicine Cornell University Medical College \$250 to investigate female sex hormone therapy

Grant 231 William R Amberson professor of physiology University of Tennessee College of Medicine \$100 to investigate hemoglobin perfusion fluids

Grant 232 George R Cowgill associate professor of physiological chemistry Yale University School of Medicine \$250 to investigate the heart in vitamin B deficiency

Grant 233 Norman A David assistant professor of pharmacology West Virginia University School of Medicine \$100 to investigate the effect of carbarsone and other related para positioned amine grouped organic arsenicals on the optic nerve

Grant 234 Read M Ellsworth Johns Hopkins Hospital \$150 to investigate the physiology of the parathyroid glands

Grant 235 Owen S Gibbs professor of physiology Georgetown University School of Medicine \$75 to investigate the effects of continuous small doses of substances injected into the arterial supply of an organ with especial reference to secretory glands

Grant 236 Charles W Greene professor of physiology and pharmacology University of Missouri School of Medicine \$100 to investigate the pharmacology of the so-called specific coronary dilator drugs

Grant 237 Louis N Katz physiologist and director of cardiovascular research Nelson Morris Memorial Institute for Medical Research Michael Reese Hospital Chicago \$100 to investigate the action of drugs on the coronary circulation

Grant 238 Roy R Kreck professor of pathology Emory University School of Medicine \$250 to investigate the effect of the oxidation products of amidopyrine and related drugs on the leukocyte counts of rabbits

Grant 239 John R Murlin director and professor of physiology Department of Vital Economics University of Rochester School of Medicine, \$100 to investigate the absorption of insulin from the alimentary canal

Grant 240 Kenneth W Thompson resident surgeon Peter Bent Brigham Hospital Boston \$250 to investigate the effects of the thyroid stimulating hormone pituitary its relationship to other substances in the possible control of hyperthyroidism

Grant 241 George E. Wakerlin associate professor of physiology and pharmacology, University of Louisville School of Medicine \$200 to investigate hematopoiesis

Grant 242 Abraham White Department of Physiological Chemistry Yale University School of Medicine \$100 to investigate the metabolism of the essential amino acids cystine methionine and histidine

Grant 243 Fred C Koch chairman of the Department of Physiological Chemistry and Pharmacology University of Chicago \$250 to investigate the antirachitic potency of irradiated sterols other than ergosterol

Grant 244 Bernard M Jacobson Massachusetts General Hospital Boston \$200 to investigate liver extracts

Grant 245 Carl J Wiggers professor of physiology Western Reserve University School of Medicine \$250 to investigate the usefulness of drugs in coronary thrombosis

Grant 246 Treat B Johnson Sterling professor of chemistry Yale University \$250 to investigate the pharmacologic action of some pyridine derivatives in relation to their chemical constitution

Grant 247 Arthur W Grace Department of Medicine Cornell University Medical College \$250 to investigate the use of antimonial compounds in the treatment of lymphogranuloma inguinale

Grant 248 Fred C Koch chairman of the Department of Physiological Chemistry and Pharmacology University of Chicago \$250 to investigate the testis hormone

Grant 249 J Percy Baumberger associate professor of physiology Stanford University \$200, to investigate the occurrence and oxidation reduction potential of pigments in tumor cells

Grant 250 A R McIntyre, professor of pharmacology University of Nebraska College of Medicine, \$100, to investigate the effects of the digitaloid bodies on the metabolism of dextrose by the cardiac musculature

Grant 251 Bernard Fantus professor of therapeutics University of Illinois College of Medicine \$100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin

Grant 252 Frederick D Weidman professor of dermatologic research University of Pennsylvania School of Medicine \$100 to investigate the causes of human blastomycosis

Grant 253 Katharine I Henderson Department of Pharmacology Western Reserve University School of Medicine \$300, to investigate the excretion of bismuth

The following grants were issued before Jan. 1, 1934 In some cases the grant has expired and an unexpended balance remains, or the work is not yet completed or a report not yet published

Grant 102 C W Greene professor of physiology and pharmacology University of Missouri Department of Physiology \$250 to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia

Grant 119 Nicholas Kopeloff research associate in bacteriology New York State Psychiatric Institute and Hospital \$100 to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies

Grant 143 Cleveland J White MD 104 South Michigan Avenue Chicago \$150 to investigate the local general and prophylactic aspects of superficial fungus diseases of the skin

Grant 152 C W Greene professor of physiology and pharmacology, University of Missouri Department of Physiology \$300 to investigate the reaction of the coronary system to drugs

Grant 164 E L Jackson associate professor of pharmacology Emory University School of Medicine \$200 to investigate the antagonism between sodium barbital and insulin

Grant 166 Jean Oliver professor of pathology Hoagland Laboratory Long Island College of Medicine, \$200 to investigate experimental nephritis in the frog

Grant 171 Ernest C Dickson professor of Department of Public Health and Preventive Hygiene Stanford University School of Medicine \$250 to investigate therapeutic procedures against coccidioid granuloma

Grant 192 Carl J Wiggers professor of physiology Western Reserve University School of Medicine \$250 to investigate the effect of drugs on the coronary circulation in intact dogs

Grant 194 Sarah A Riedman Columbia University College of Physicians and Surgeons \$200 to investigate the effect of a high fat or ketogenic diet on the susceptibility of animals to convulsions of experimental origin

Grant 199 Henry G Barbour associate professor of pharmacology and toxicology Sterling Hall of Medicine, Yale University \$250 to investigate the effects of metabolism and water exchange of long continued administration of morphine

Grant 200 Walter Bauer Massachusetts General Hospital the Robert W Lovett Memorial Foundation of the Harvard Medical School \$250 to investigate the anatomy and physiology of normal joints with special reference to rheumatoid arthritis

Grant 201 George R Cowgill associate professor of physiologic chemistry Sterling Hall of Medicine Yale University \$250 to investigate vitamin B in relation to morphine addiction

Grant 202 Charles M Gruber professor of pharmacology Jefferson Medical College of Philadelphia \$200, to investigate the effects of drugs on Bell's muscle trigon and fundus of the urinary bladder and of dilaudid on the intestine of unanesthetized dogs

Grant 204 E B Krumbhaar professor of pathology McManes Laboratory of Pathology University of Pennsylvania School of Medicine \$100 to investigate leukocyte attraction

Grant 207 Valy Menkin, Department of Pathology Harvard Medical School, \$200 to investigate inflammation and tuberculosis in relation to immunity

Grant 209 V C Myers professor of biochemistry and F C Bing Department of Biochemistry Western Reserve University School of Medicine \$250 to investigate iron metabolism

Grant 210 C I Reed associate professor of physiology University of Illinois College of Medicine \$200 to investigate the use of viosterol 10 000 \ in seasonal hay fever

Grant 211 Samuel R M Reynolds Department of Physiology and Pharmacology Long Island College of Medicine \$150 to investigate the identification and standardization of progesterin

Grant 212 William C Rose professor of physiologic chemistry University of Illinois \$375 to investigate the isolation of an unknown dietary essential present in proteins

Grant 213 Richard W Whitehead professor of physiology and pharmacology University of Colorado School of Medicine and Hospitals \$200 to investigate the influence of the administration of adrenal cortex extract on the resistance to bacterial toxins

Grant 214 E. A Park professor of pediatrics and J A Pierce Johns Hopkins University School of Medicine \$200 to investigate the reaction of cartilage

Grant 215 W R Amberson professor of physiology University of Tennessee College of Medicine \$250 to investigate hemoglobin perfusion fluids

Grant 217 Henry B Richardson professor of medicine Cornell University Medical College \$250 to investigate sex hormone therapy

Grant 218 O W Barlow assistant professor of pharmacology Western Reserve University School of Medicine \$150 to investigate the effects of a series of analeptics against pentobarbital tribrom-ethanol and chloral hydrate

### Report of the Committee on Scientific Research for 1934

During the year, sixty-three formal applications have been received. Thirty-seven awards have been made, the amount awarded is \$13,128.05. Thirty applications have been declined, one was withdrawn, and five are under consideration. The new grants are for the support of research in various fields of medicine. In all cases the money has been paid to the financial officer of the institution with which the grantee is connected. The grants are disbursed on requisition by grantees and full accounts are kept of the disbursements. Recent reports from the grantees indicate that their work as a rule is making good progress. The final or practically final results of work under forty-eight grants, mostly prior to 1934 have been published or are in actual course of publication; the files in these grants have been closed. The results of work under eleven grants prior to 1934 are in the course of preparation for publication. In the case of twenty-nine grants prior to 1934 active work is still in progress but in several cases reports on results have been published. Refunds amounting to \$304.22 have been made from grants.

The committee begs leave to recommend that as nearly as possible the same appropriation be made for 1935 as for 1934 namely, \$12,550 for grants in aid of medical research and \$1,200 for the expenses of the committee.

The financial statement for 1934 is presented also brief accounts of the grants pending at the end of 1933 and a list of the grants made in 1934.

Respectfully submitted

#### COMMITTEE ON SCIENTIFIC RESEARCH OF THE AMERICAN MEDICAL ASSOCIATION

LUDWIG HEKTOEN, Chicago, Chairman  
Term expires, 1936

C C BASS, New Orleans  
Term expires, 1937

JOHN J MORTON, Rochester, N Y  
Term expires, 1938

N W JONES, Portland, Ore  
Term expires, 1939

MARTIN H FISCHER, Cincinnati  
Term expires, 1940

#### GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH NEW GRANTS—1934

Grant 310 Lay Martin Johns Hopkins University \$150 for study of gastric juice

Grant 311 M G Seelig Barnard Free Skin and Cancer Hospital St Louis \$250 for study of radiosensitivity of neoplasms

Grant 312 C A Hellwig St Francis Hospital Wichita Kan \$100 for study of thyroid function in experimental colloid goiter

Grant 313 L A Emge Stanford University School of Medicine \$300 for study of relation between pregnancy and tumor growth

Grant 314 Bernard Portis Michael Reese Hospital, Chicago \$300 for study of immune reactions of Flexner Jobling rat tumor

Grant 315 Phillips Thygeson University of Iowa \$300 for study of virus diseases of the eye

Grant 316 Harry Goldblatt Western Reserve University \$150 for completion of study of hypertension in dogs

Grant 317 M D Overholser University of Missouri \$300 for study of experimental growths in genital tract of monkeys and relation of anterior hypophysis to diabetes

Grant 318 Charles J Sutro Hospital for Joint Diseases New York \$300 for work with the fluorescent microscope

Grant 319 J Paul Visscher Western Reserve University \$1,000 for work on a chemical test for pregnancy

Grant 320 M L Tainter Stanford University School of Medicine \$1,000 for study of metabolic actions of dinitrophenol in man

Grant 321 Ernest C Faust Tulane University \$800 for completion of study on *Strongyloides stercoralis*

Grant 322 W J Nungester Northwestern University Medical School \$130 for study of the effect of mucin on infection

Grant 323 Edward J Van Lier West Virginia University \$300 for study of the effect of anoxemia on smooth muscle

Grant 324 William deB MacNider University of North Carolina \$280 for study of artificial circulation in the kidney

Grant 325 Timothy Leary Office of Medical Examiner Boston \$300 for expenses of publication of results of work under grant 27 1931

Grant 326 Rachel E Hoffstadt, University of Washington, \$200 for study of protein and carbohydrate fractions of *Staphylococcus aureus*

Grant 327 Timothy Leary, Office of Medical Examiner Boston, \$100 for study of cholesterol atherosclerosis in rabbits

Grant 328 W R Tweedy Loyola University School of Medicine, \$300 for further study on parathyroid hormone

Grant 329 Jane Sands Robb Syracuse University \$300 for further study of individual cardiac muscle.

Grant 330 Alexander S Wiener Jewish Hospital of Brooklyn, \$150 for study of agglutinogens and agglutinins of human blood and their heredity

Grant 331 John R Murlin University of Rochester Medical School, \$900 for study of the testis hormone

Grant 332 W T Dawson University of Texas School of Medicine, \$100 for study of the cinchona alkaloids

Grant 333 Arthur J Geiger and Louis S Goodman Yale University \$250 for study of antianemic principle.

Grant 334 H A Kemp W H Moursund and H E Wright, Baylor University \$267.05 for study of relapsing fever in Texas.

Grant 335 Erwin Brand and G F Cahill New York State Psychiatric Institute and Hospital \$200 for further work on cystinuria.

Grant 336 Charles H Frazier Hospital of University of Pennsylvania \$751 for study of autonomic representation of the urinary bladder in the cerebral cortex and in the hypothalamus

Grant 337 James L O Leary Washington University, \$245 for investigation of Loven reflexes

Grant 338 W W Brandes Baylor University \$150 for study of the effect of acidosis on antibodies and resistance to infection

Grant 339 W T Dawson University of Texas School of Medicine \$100 for study of relation between chemical constitution and physiologic action of cinchona alkaloids

Grant 340 Louis S Goodman and Arthur J Geiger Yale University \$200 for further study of antianemic principle.

Grant 341 Ludwig A Emge Stanford University School of Medicine \$500 for study of pregnancy and tumor growth

Grant 342 S S Lichtman Mount Sinai Hospital New York \$400 for study of bile salt metabolism in liver disease.

Grant 343 John Guttman Post Graduate Medical School and Hospital \$400 for study of relation between electrical disturbances in cochlea and the sensation of hearing

Grant 344 Paul L Day and W C Langston University of Arkansas School of Medicine \$300 for study of effect of withdrawal of vitamin G from diet of monkeys

Grant 345 Emile Holman Stanford University School of Medicine \$400 for study by Frederic Fender of prolonged stimulation of the nervous system

Grant 346 William Antopol Mount Sinai Hospital New York, \$750 for study of the relationship of acetylcholine to carbohydrate metabolism

#### STATE OF WORK UNDER PREVIOUS GRANTS

##### 1 COMPLETED DURING THE YEAR

Grant 163 1929 \$750 to George Hermann Tulane University School of Medicine for the study of problems of the circulation (refund \$17.80). The work under this grant has been carried on to completion by Roy H Turner assistant professor of experimental medicine Tulane University. Turner Roy H and Sodeman W A. Repeated Determinations of Pulse Velocity on Normal Individuals. *Proc Soc Exper Biol & Med* 31: 831 1934. Turner Roy H. Studies on the Physiology of the Peripheral Vessels. I. Instruments and Methods to be offered for publication in *Journal of Clinical Investigation*. Turner Roy H and Sodeman, W A. Repeated Studies on the Physiology of the Peripheral Vessels. II. Repeated Determinations of Pulse Wave Velocity in Normal Individuals and in Those Suffering from Hypertension or Arteriosclerosis to be offered for publication in *Journal of Clinical Investigation*.

Grant 167 1929 \$500 to Hans Jensen Johns Hopkins University for aid in the chemical and physiologic study of toad poisons (refund, for aid \$60.81). Jensen Hans and Chen K K. Chemical Studies on Toad Poisons. *J Biol Chem* 87: 741 and 755 1930. Jensen Hans. *Science* 75: 53 1932. Jensen Hans and Evans E A Jr. *J Biol Chem* 104: 307 1934.

Grant 181 1930 Erwin Brand New York State Psychiatric Institute and Hospital \$700 for research in cystinuria (refund \$366.67). See grant 302 1933.

Grant 182 1930 Icie G Macy Merrill Palmer School Detroit \$500 for a study of vitamins A and B in human breast milk. Donelson Eva and Macy Icie G. Human Milk Studies. XI. Vitamin G (B<sub>6</sub>) Content of Mixed Milk. *Am J Physiol* 100: 420 1932. Human Milk Studies. XII. The Vitamin B and Vitamin G Content Before and During Maternal Consumption of Yeast. *J Nutrition* 7: 231 1934. McCosh Sylvia S. Macy Icie G. Hunscher Helen A. Erickson Betty N and Donelson Eva. Human Milk Studies. XIII. Vitamin Potency as Influenced by Supplementing the Maternal Diet with Vitamin A, *ibid* 7: 331 1934.

Grant 183 1930 Robert W Hegner Johns Hopkins University \$1,500 for study of host-parasite relations in man in continuation of work under previous grants 101 (C A Brant Fund) 1926 1925 1927 and 154 1929. For list of articles on results of work under this grant see the report of the committee for 1933. New articles: Hegner Robert

The Effects of a High Vegetable Protein Diet on the Trichomonad Flagellates of Rats *Am J Trop Med* 8:535 1933 Effects of Environmental Changes and Disinfectants and Antiseptics on Trichomonads of Humans in Culture and in Feces, *Am J Hyg* 10:22 1934 Specificity in the Genus *Balantidium* Based on Size and Shape of Body and Macronucleus with Descriptions of Six New Species, *ibid* 10:38 1934 Intestinal Protozoa of Chimpanzees *ibid* 10:480 1934

Grant 189, 1930 Ralph H. Major University of Kansas Lawrence \$500 for study of depressor substances in the brain liver and pancreas Major Ralph H., Nanninga J. B. and Weber C. J. A Comparison of the Properties of Certain Tissue Extracts Having Depressor Effects *J Physiol* 70:487, 1932 Weber C. J., Nanninga J. B. and Major Ralph H. Isolation of a Crystalline Depressor Substance from the Brain *Proc Soc Exper Biol & Med* 30:513 1933

Grant 194 1930 C. H. Thienes University of Southern California Los Angeles \$500 for study of the relationship between the myenteric plexus and ganglions and the mesenteric nerves Shultz Lillian and Thienes C. H. Analysis of the Actions of Cocaine on Excised Smooth Muscles, *Proc Soc Exper Biol & Med* 28:994 1931 Hendricks

### Financial Statement for 1934

Balance, Jan 1 1934	\$ 6,390 51
Appropriation for 1934	13 750 00
Refund grant 133	53 14
Refund grant 236	17 95
Refund grant 239	31 28
Refund grant 260	12 98
Refund grant 276	20 46
Refund grant 284	0 60
Refund grant 285	4 68
Refund grant 287	8 67
Refund grant 296	23 13
Refund grant 302	0 60
Refund grant 325	79 48
Refund grant 334	51 25
	\$20 444 73

### Grants and Expenses Paid in 1934

Grant 310 Lay Martin	\$ 150 00
Grant 311 M. G. Seelig	250 00
Grant 312 C. A. Hellwig	100 00
Grant 313 L. A. Emge	300 00
Grant 314 Bernard Portis	300 00
Grant 315 C. S. O'Brien (Phillips Thygeson)	300 00
Grant 316 Harry Goldblatt	150 00
Grant 317 M. D. Overholser	300 00
Grant 318 Charles J. Sutro	300 00
Grant 319 J. Paul Visscher	1 000 00
Grant 320 M. L. Tainter	1 000 00
Grant 321, Ernest C. Faust	800 00
Grant 322 W. J. Nungester	130 00
Grant 323 Edward J. Van Lierde	300 00
Grant 324 William deB. MacNider	285 00
Grant 325, Timothy Leary	300 00
Grant 326 Rachel E. Hoffstadt	200 00
Grant 327 Timothy Leary	800 00
Grant 328 W. R. Tweedy	300 00
Grant 329 Jane Sands Robb	300 00
Grant 330, Alexander S. Wiener	150 00
Grant 331, John R. Murlin	900 00
Grant 332 W. T. Dawson	100 00
Grant 333 Arthur J. Geiger and Louis S. Goodman	250 00
Grant 334 H. A. Kemp W. H. Moursund and H. E. Wright	267 05
Grant 335 Erwin Brand and G. F. Cahill	200 00
Grant 336 Charles H. Frazier	751 00
Grant 337, James L. O'Leary	245 00
Grant 338, W. W. Brandes	150 00
Grant 339, W. T. Dawson	100 00
Grant 340 L. S. Goodman and A. J. Geiger	200 00
Grant 341 Ludwig A. Emge	500 00
Grant 342 S. S. Lichtman	400 00
Grant 343 John Guttman	400 00
Grant 344 Paul L. Day and W. C. Langston	300 00
Grant 345 Emile Holman (Frederic Fender)	400 00
Grant 346 William Antopol	250 00
Clerical expense	600 00
Committee expense	265 76
Printing and supplies	46 22
	\$14 040 03
Balance on hand	\$ 6 404 70

Max D. and Thienes C. H. A Pharmacologic Study of the Inhibitory Mesenteric Nerves to the Intestines *ibid* 28:993 1931 See grant 236 1932

Grant 201 1931 J. H. Black Baylor University College of Medicine \$100 for study of the relation of certain pollen fractions (refund \$34.80) Black J. H., and Shelmure B. The Urinary Proteose in Allergy *J Allergy* 5:373 1934

Grant 202 1931 James T. Case and C. A. Aldrich Evanston Hospital Evanston Ill. \$250 for roentgenologic and clinical study of the thymus Case J. T. The Present Status of the Roentgen Diagnosis and Therapy of Persistent Thymus to be offered for publication in *American Journal of Diseases of Children*

Grant 210 1931 Harold E. Himwich Yale University School of Medicine \$500 for a study of fat metabolism in diabetes Himwich Harold E. and Spiers, M. A. The Degree of Saturation of Blood Fats Mobilized During Diabetes *Proc Soc Exper Biol & Med* 29:235 1931 Brockett Susan H. Spiers Mary A., and Himwich Harold E. The Lipoid Components of the Lymph of the Thoracic Duct of the Dog *Am J Physiol*

Grant 220 1931 David Polowe Paterson N. J. and Memorial Hospital New York \$100 for a study of the specific gravity of the blood in human cancer Polowe David The Specific Gravity of the Blood in Human Cancer *J Lab & Clin Med* 19:983 1934

Grant 225 1931 R. S. Cunningham Vanderbilt University, Nashville Tenn. \$500 toward a study of the cellular reactions in experimental syphilis with respect to the effects of treatment. Cunningham R. S. and associates The Cellular Pathology of Experimental Syphilis as Studied by the Supravital Method *Am J Syph* 17:515 1933 See Grant 261 1932

Grant 226 1931 Warren C. Hunter University of Oregon Medical School \$100 for a study of the effect of cinchophen on the liver of the dog (refund \$36.07) Hunter W. C. and Snyder George A. C. Experimental Attempt to Produce Hepatic Damage in the Dog by Feeding of Cinchophen *West J Surg Obst & Gynec* 42:288 1934

Grant 229 1931 Timothy Leary, Office of the Medical Examiner, Boston \$810 toward a study of the effect of alcohol and insulin on the deposition of cholesterol in the animal body Leary Timothy Human Coronary and Experimental Rabbit Atherosclerosis A Comparison of Lesions *New England J Med* 209:1132 1933 Experimental Atherosclerosis in Rabbit, *Arch Path* 17:453 1934

Grant 230 1932 Alexander S. Wiener Jewish Hospital of Brooklyn \$50 for a study of agglutination N. See grant 296 1933

Grant 235 1932 E. A. Smith Iowa State College \$100 for study of the effects of illuminating gas and amyl acetate on the rat (See grant 297 1933) Mack, Lillian and Smith, E. A. Methylene Blue in Illuminating Gas Poisoning *Proc Soc Exper Biol & Med* 31:1031 1934

Grant 236, 1932 C. H. Thienes University of Southern California \$400 for studies on the relation of the mesenteric nerves to the myenteric ganglions and plexuses (See grant 194 1930) Refund \$17.95 Newman Milton and Thienes C. H. On the Sympathetic Innervation of Guinea Pig Intestine *Am J Physiol* 104:113 1933 Hockett A. J. Newman Milton and Thienes C. H. The Reciprocal Activity of the Muscle Coats of the Guinea Pig Small Intestine *Arch internat pharm et therap* 46:363 1933

Grant 246 1932 W. C. Langston and Paul L. Day University of Arkansas \$400 for a study of vitamin G deficiency in the monkey with special reference to cataract Day Paul L. Langston William C. and Shukers Carroll F. Leukopenia and Anemia in the Monkey Resulting from Vitamin Deficiency to be published in *Journal of Nutrition*

Grant 248 1932 Helen C. Coombs New York Homeopathic Medical College and Flower Hospital \$575 for work on the relationships between epilepsy and tetany Coombs Helen C. Combined Effects of Drugs and Electrical Excitation of Cortical Motor Area in Cats *Proc Soc Exper Biol & Med* 30:1 1932 Coombs Helen C. and Searle Donald S. Calcium Phosphorus of the Blood Serum During Cerebral Anemia *Am J Physiol* 105:1933 Coombs Helen C. Searle D. S. and Pike F. H. The Changes in the Concentration of Inorganic Calcium and Phosphate During Convulsions of Experimental Origin in Cats, Before and After Thyroparathyroidectomy With and Without Bromide Therapy *Am J Psychiat* 13:761 1934

Grant 249 1932 Arthur H. Smith Yale University \$350 for a study of the acid base balance and the osmotic pressure of the blood of stunted albino rats Brooke R. O. Smith A. H. and Smith P. K. Inorganic Salts in Nutrition VII Change in Composition of Bone of Rats on a Diet Poor in Inorganic Constituents *J Biol Chem* 104:141 1934

Grant 250 1932 S. S. Lichtman Mount Sinai Hospital New York \$400 for work on a method of estimating bile salts in body fluids (See grants 271 1932 and 306 1933)

Grant 253 1932 Willard O. Thompson Rush Medical College Chicago \$250 for study on the influence of thyroxine on the toxic effects of arsenamine and acetomitrile (See grant 268 1932)

Grant 255 1932 Max Wisnofsky Jewish Hospital of Brooklyn \$100 for work on problems in carbohydrate metabolism Wisnofsky Max Absorption of Dextrose from the Human Gastro-Intestinal Tract, *J Lab & Clin Med* 19:1286 1934 Wisnofsky Max and others The Influence of Diminution of Carbohydrate Metabolism *Arch Int Med* Wisnofsky Max The Effect of Equivalent Amounts of Dextrose and Starch on Glycemia and Glycosuria in Diabetics to be published in *American Journal of the Medical Sciences*

Grant 261 1932 R. S. Cunningham, Vanderbilt University \$300 for work on the effects of certain colloidal solutions on experimental syphilis (refund \$1.49) Cunningham R. S. and associates The Effect of Trypan Blue on Experimental Syphilis in the Rabbit *Am J Syph* 17:522 1933 The Effect of Lecithin on Experimental Syphilis in the Rabbit *ibid* 18:333 1934 Lowenstein L. The Leukocytes in Early Acute Experimental Syphilis in Rabbits *Am J Syph & Neurol* 19:39 1935

Grant 267 1932 M. S. Dooley (Jane Sands Robb) Syracuse University \$200 for study of the blood supply of individual heart muscle bundles

Robb Jane Sands Evidence for Characteristic Modifications of the Electrocardiogram Produced by Lesions of Ventricular Muscle Bands *Proc Soc Exper Biol & Med* **31**:311 1933 Progressive Muscular Anemia in the Heart of a Dog *ibid* **31**:761 1934 The Structure of the Mammalian Ventricle *M & Prof Woman's J* **41**:65 1934 An exhibit illustrating the individual cardiac muscles was awarded a certificate of Merit, Class 1 Scientific Exhibit American Medical Association 1934

Grant 268 1932 W O Thompson Rush Medical College \$250 for study of relation between thyroxine and glutathione oxidation system Thompson, W O and others Effect of Alkali on the Absorption of Thyroxine from the Gastrointestinal Tract *Arch Int Med* **52**:809 1933 Thompson W O and others The Effect of Diiodotyrosine on the Basal Metabolism in Myxedema *J Clin Investigation* **13**:29 1934 Thompson W O and others The Effect of Various Compounds of Thyroxine on the Basal Metabolism *Endocrinology* **18**:228 1934

Grant 270 1932 Edwin F Hirsch St Luke's Hospital Chicago \$500 for determination of copper and active iron in tissues in infection and toxemia Locke A Rosbash D O and Shinn L E Copper and Iron in the Motivation of Cellular Metabolism *J Infect Dis* **54**:51 1934

Grant 271 1932 S S Lichtman Mount Sinai Hospital New York \$75 to complete methods for estimating bile salts in normal body fluids (See grants 250 1932 and 306 1933)

Grant 272 1932 Joseph L Donnelly University of Cincinnati \$750 for work on the coagulation of biologic materials Donnelly J L On the Physiological Effects of Radio Waves *Science* **78**:290 1933

Grant 274 William C Rose University of Illinois Urbana \$300 for study of unknown dietary essential in casein Caldwell C T, and Rose W C Feeding Experiments with Mixtures of Highly Purified Amino Acids IV The Supplementing Effect of Casein Fractions Obtained by the Carbamate Procedure *J Biol Chem* **107**:45 1934 Caldwell C T and Rose W C Feeding Experiments with Mixtures of Highly Purified Amino Acids *ibid* **107**:57 1934

Grant 275 1933 John Guttman Post Graduate Medical School and Hospital New York \$400 for study of electric current produced by cochlea on stimulation by sound Guttman John Electrical Disturbances in the Cochlea Produced by Sound *Laryngoscope* 1933 Guttman John and Barrera S E Persistence of Cochlear Electrical Disturbance on Auditory Stimulation in the Presence of Cochlear Ganglion Degeneration *Am J Physiol* **100**:704 1934

Grant 283 1933 Philip B Armstrong Cornell University Medical College \$150 for study of drug action in relation to enervation of the heart Armstrong Philip B The Role of the Nerves in the Action of Acetylcholine on the Embryonic Heart to be submitted to *Journal of Physiology*

Grant 285 1933 M G Seelig Barnard Free Skin and Cancer Hospital St Louis \$200 for a study of the carcinogenic action of dibenzanthracene 1 2 5 6 and of scarlet red Refund \$468 Seelig M G Dibenzanthracene 1 2 5 6 as a Carcinogenic Agent *Am J Cancer* **20**:827 1934

Grant 288 1933 James L O Leary Washington University \$175 for work on the nervous mechanisms controlling blood pressure. O Leary J L Heinbecker P and Bishop G H The Fiber Constitution of the Depressor Nerve of the Rabbit *Am J Physiol* **100**:274 1934 Bishop G H Heinbecker P and O Leary James The Significance of Frequency Number of Impulses and Fiber Size in Vasomotor Responses to Vagus and Depressor Nerve Stimulation in the Rabbit *ibid* **100**:409 1934

Grant 289 1933 Harry J Deuel Jr University of Southern California \$300 for further study of the sexual variation in carbohydrate metabolism Deuel H J Jr and others The Sexual Variation in Carbohydrate Metabolism III The Comparative Glycogen and Fat Content of the Liver and Muscles of Rats and Guinea Pigs *J Biol Chem* **104**:519 1934 Grunewald C F Cutler C H and Deuel Harry J Jr The Sexual Variation in Carbohydrate Metabolism V The Metabolism of Diacetic Acid in Normal and Castrated Male and Female Rats With and Without Theelin *ibid* **105**:35, 1934

Grant 290 1933 Harry Goldblatt, Western Reserve University \$150 for study of experimental hypertension in dogs (See grant 316, 1934)

Grant 291 C Alexander Hellwig St Francis Hospital Wichita, \$50 for work on the thyroid gland and on thyrotropic substance in human urine Hellwig C A Morphogeographic and Experimental Studies on the Etiology of Goiter *West J Surg Obst & Gynec* **41**:453, 1933 Hellwig C A Experimental Colloid Goiter *Endocrinology* **18**:197 1934

Grant 292 1933 Ludwig A Emge Stanford University School of Medicine \$200 for study of transplantable benign tumors during pregnancy Emge L A and Wulff L M R The Influence of Pregnancy on Experimental Tumor Growth in the White Rat Volumetric Studies on Adenofibroma and Fibroma *West J Surg Obst & Gynec* **42**:45, 1934

Grant 293 1933 Arthur Grollman Johns Hopkins University \$200 for study of the effects of adrenal cortex extract Howard E and Grollman Arthur The Effect of Extracts of the Adrenal Cortex on Growth and the Reproductive System of Normal Rats with Particular Reference to Intersexuality *Am J Physiol* **107**:480 1934 Grollman Arthur and Firor W M Studies on the Adrenal IV The Oral Administration of the Adrenal Cortical Hormone and the Use of Fresh Glands Therapeutically *Bull Johns Hopkins Hosp* **54**:216 1934

Grant 295 1933 W R Tweedy Loyola University School of Medicine \$350 for chemical studies on parathyroid hormone. (See also grants 143 and 146 1928 grant 216 1931 and grant 328 1934) I Schour, I Tweedy W R and McJunkin F A The Effect of Experimental Hyperparathyroidism on the Incisor of the Rat *Proc Soc Exper Biol &*

*Med* **31**:517 1934 The Effect of Single and Multiple Doses of Parathyroid Hormone on the Calcification of the Dentin of the Rat Incisor *Am J Path* **10**:321 1934 Tweedy W R Bell W P, and Vickario C Further Chemical Studies on a Parathyroid Hormone, *J Biol Chem*

Grant 296 1933 Alexander S Wiener Jewish Hospital of Brooklyn, \$100 for work on agglutinogens M and N Refund, \$23 13 (See grant 230 1932) Wiener, Alexander S and Rothberg Sidney Heredity of the Subgroups of Group A and Group AB *Human Biol* **5**:57 1933, Wiener A S Zinsher R and Selkove J The Agglutinogens M and N of Landsteiner and Levine *J Immunol* **27**:355 1934 Wiener A S Heredity of the Agglutinogens M and N IV Additional Theoreticostatistical Considerations to be published in the *Human Biology*

Grant 298 1933 Lewis H Hitzrot Philadelphia General Hospital \$100 for study of the therapeutic effect of alternate negative and positive pressure Hitzrot Lewis H and Landis Eugene M The Clinical Value of Alternating Suction and Pressure in the Treatment of Advanced Peripheral Vascular Disease to be published in *American Journal of the Medical Sciences*

Grant 300 J M Wolfe Vanderbilt University \$100 for study of histology of anterior hypophysis Ellison E. T and Wolfe, J M. The Effect of Castration on the Anterior Hypophysis of the Female Rat, *Endocrinology* **18**:555 1934 Wolfe J M Ellison E. T and Rosenfeld L Morphological Studies on the Anterior Pituitaries of Mature Female Rats Receiving Injections of Pregnancy Urine Extracts, *Anat Rec* **60**:357, 1934 Wolfe Jack Morris Phelps Dons and Cleveland Rucker The Anterior Hypophysis of the Rabbit During Oestrus and Pseudopregnancy *Am J Anat* **55**:363 1934 Wolfe, J M Morphological Comparison of Anterior Pituitaries of Normal Castrated Female Rats and Those Receiving Injections of Pregnancy Urine Extracts *Proc Soc Exper Biol & Med* **32**:184 1934 Wolfe J M Comparative Quantitative Effects of Castration in Mature and Immature Female Rats *ibid* **32**:186 1934 Campbell, Mary Wolfe J M and Phelps Doris Effect of Feeding Thyroid on Anterior Hypophysis of the Female Albino Rat *ibid* **32**:205 1934 Wolfe, J M Anterior Pituitaries of Infantile Female Rats Receiving Injections of Pregnancy Urine Extract *ibid* **32**:214 1934 Wolfe, J M. Reaction of the Anterior Pituitaries of Immune Female Rats to Injection of Pregnancy Urine Extracts *J Physiol* **110**:159 1934 Wolfe, J M. The Normal Level of the Various Cell Types in the Anterior Pituitaries of Mature and Immature Rats and Further Observations on Cyclic Histologic Variations *Anat Rec* **61**:321 1935

Grant 302 1933 Erwin Brand and G F Cahill New York State Psychiatric Institute and Hospital \$250 for research on cystinuria. (See grant 181 1930) Brand Erwin Cahill George F., and Harris, M H Metabolism of Various Sulphur Compounds in Cystinuria, *Proc Soc Exper Biol & Med* **31**:348 1933 Brand Erwin, and Cahill George F Further Studies on Metabolism of Sulphur Compounds in Cystinuria *ibid* **31**:1247 1934 Brand Erwin Congenital Anomalies of Metabolism with Special Reference to Cystinuria and Myopathies *Bull New York Acad Med* **10**:289 1934

Grant 306 1933 S S Lichtman, Mount Sinai Hospital New York \$350 for further study on estimation of bile salts in body fluids. (See grants 250 and 271 1932) Lichtman S S A New Procedure for the Estimation of Bile Salts in Body Fluids Based on Bile Salt Hemolysis, *J Biol Chem* **107**:717 1934

Grant 307 1933 E K. Marshall Jr, Johns Hopkins University \$200 for study of the action of iodine compounds on experimental exophthalmic goiter in guinea pigs Friedgood H B The Iodine Remission in Experimental Exophthalmic Goiter of Guinea Pigs *J Pharmacol & Exper Therap*

Grant 316 1934 Harry Goldblatt Western Reserve University \$150 for study of hypertension in dogs (See grant 290 1933) Goldblatt, Harry and others Studies on Experimental Hypertension I The Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia *J Exper Med* **59**:347 1934

Grant 325 1934 Timothy Leary Boston \$300 for expenses of publication of results of work under grant 229 1931 Refund \$79 48. Leary Timothy Experimental Atherosclerosis in the Rabbit *Arch. Path* **17**:453 1934

## 2 INCOMPLETE

A Work under the grant completed account rendered of expenses but results not published fully

Grant 118 1927 \$1000 to Edward Reynolds and E A Hooton, Harvard University for study of the mechanism of erect posture

Grant 133 1928 \$715 to F Lowell Dunn University of Nebraska, for spectrophotometric analysis of biologic fluids Dunn F Lowell A Cylindrical Rotating Sector Photometer, *Rev Scient Instruments* **2**:807 1931 Refund \$53 14

Grant 203 1931 W J Merle Scott University of Rochester School of Medicine and Dentistry \$300 toward a study of the Role of the adrenal cortex in pyogenic infections (refund \$64.23) Scott W J Merle and others The Influence of Adrenal Cortex Extract on the Resistance to Certain Infections and Intoxications *Endocrinology* **17**:529 1933

Grant 209 1931 and grant 243 1932 Wilbur A Selle University of Texas School of Medicine \$400 for a study of the carbohydrate metabolism in its relation to the growth of tumors

Grant 233 1932 Detlev W Bronk, University of Pennsylvania School of Medicine \$550 for studies on the nervous regulation of the circulation Bronk D W and Ferguson L K Impulses in Cardiac Sympathetic Nerves *Proc Soc Exper Biol & Med* **30**:339 1932

Grant 259 1932 Daniel A. McGinty Emory University \$150 for study of lactic acid dextrose and oxygen absorption and carbon dioxide production by heart muscle (refund \$125 49)

Grant 265 1932 S W Ranson, Northwestern University, Chicago \$400 for study of structure and function of cutaneous nerves in man  
Ranson S W Cutaneous Sensation *Science* 78:395 1933 (See grant 299 1933)

Grant 273 1933 Gregory Schwartzman Mount Sinai Hospital New York \$400 for study on antibodies to Rous sarcoma agent by local skin reactivity

Grant 284, 1933 Helen C Coombs New York Homeopathic Medical College and Flower Hospital \$600 for study of the bromide treatment of experimental convulsions

Grant 299 1933 S W Ranson Northwestern University \$250 for study of cutaneous nerves in man (See grant 265 1932)

Grant 304 Frederic A Gibbs Boston City Hospital Boston \$200 for work on the convulsive center in the cat brain

#### B Active work still in progress

Grant 162 1929 \$100 to J P Simonds Northwestern University Medical School for a study of the action of cinchophen and its derivatives on the liver Churchill T P and Van Wagoner F H Cinchophen Poisoning *Proc Soc Exper Biol & Med* 28:581 1931 Van Wagoner, F H and Churchill T P Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning J A M A 99 1859, 1932 Churchill T P and Manshardt D O Experimental Production of Gastric and Duodenal Ulcers in Dogs in Cinchophen Poisoning *Proc Soc Exper Biol & Med* 30 825 1933 Van Wagoner F H and Churchill T P Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning of Dogs *Arch Path* 14:860 1932

Grant 174 1930 Alfred R Ross College of Medical Evangelists Loma Linda Calif., \$1455 for study of hay fever pollens in the Southwest.

Grant 179 1930 George T Pack Memorial Hospital New York \$300 for a study of certain clinicopathologic problems of melanoma (See grant 231, 1932)

Grant 198 1931 Gilbert Dalldorf (Robert L Dickanson) Grasslands Hospital Valhalla N Y \$200 for a study of the human uterus by casts and in other ways (refund \$94 00)

Grant 218 1931 Clayton J Lundy Rush Medical College Chicago \$1000 toward making animated motion pictures of the actions of the heart in health and in disease. See description of film showing normal heart action in *THE JOURNAL* Dec. 23 1933 page 2078 Honorable Mention Scientific Exhibit A M A 1933

Grant 231 1932 George T Pack Memorial Hospital New York \$500 to complete an analysis of 300 cases of melanoma (See grant 179 1930)

Grant 238 1932 Harold E Humwich Yale University \$1000 to study the relation of the autonomic nervous system to metabolism and effect of alcohol on metabolism Humwich H E and associates Effects of Alcohol on Metabolism *Am J Physiol* 101 57 1932 Metabolism of Alcohol J A M A 100 651 1933

Grant 239 1932 Victor C Jacobsen Albany \$1000 for a study of transplantable mouse melanoma Jacobsen Victor C and Klinck, Gustavus H Jr Melanin I Its Mobilization and Excretion in Normal and in Pathologic Conditions *Arch Path* 17:141 1934 Jacobsen Victor C. Melanin II A Review of Chemical Aspects of the Melanin Problem *ibid* p 391

Grant 240 1932 William D McNally Rush Medical College \$650 for a study of the effect of tobacco tar on the lungs of rats and other animals McNally W D The Tar in Cigarette Smoke and Its Possible Effects *Am J Cancer* 16 1502 1932

Grant 247 1932 Wilson D Langley University of Buffalo \$250 for work on the formation of acetone bodies in diabetic animal tissue

Grant 254 1932 J Lisle Williams McCormick Institute Chicago \$200 for work on decreased dextrose tolerance in acute infectious diseases

Grant 266 1932 Herbert S Landes Loyola University, Chicago \$400 for study of the mechanics of residual urine

Grant 269 1932 M M Wintrobe Johns Hopkins Hospital \$250 for study of vertebrate red corpuscles Wintrobe M M Variations in the Size and Hemoglobin Content of Erythrocytes in the Blood of Various Vertebrates *Folia Haemat* 51 32 1933

Grant 276 1933 Jessie L King Goucher College Baltimore, \$75 for study of effect of cortical extract on adrenalectomized rats

Grant, 277 1933 Gustav Zechel University of Illinois College of Medicine \$260 for study of growing malignant cells by moving photomicrographs

Grant 278 1933 Carl C Speidel University of Virginia Medical School \$100 for study of the myelin nerve sheath with polarized light (See grant 303 1933)

Grant 279 1933 E C Faust Tulane University \$800 for continuation of studies on Strongyloides stercoralis

Grant 280 1933 W T Dawson University of Texas School of Medicine \$200 for work on the relations between the chemical constitution and toxicity of cinchona alkaloids Dawson W T and others Hydrocinchonidine and Hydrocinchonine in Malaria *Am J Trop Med* 13:437 1934

Grant 281 1933 Arthur Knudson and Lloyd Ziegler Albany Medical College \$325 for study of the remote effects of rickets in rats

Grant 282 1933 Maurice B Visscher University of Illinois College of Medicine \$200 for study of the mechanical efficiency of the heart

Grant 286 1933 F H Pike Columbia University \$600 for study of the effects of successive experimental lesions of the nervous system

Grant 287 1933 Thomas D Masters Springfield Hospital Springfield \$100 for work on available dextrose in certain common food stuff

Grant 294 1933 Robert Hegner Johns Hopkins University \$300 for a study of the relation between intestinal starch and infections with protozoa

Grant 297 1933 Erma A Smith Iowa State College \$150 for study of effect on the rat of sublethal amounts of illuminating gas

Grant 301 1933 Allen D Keller University of Alabama \$500 for study of functions of brain stem

Grant 303 1933 C C Speidel University of Virginia Medical School \$250 for study of living nerves (See grant 278 1933) Speidel Carl Caskey Growth Irritation and Repair of Nerves *Arch f exper Zellforsch* 15 328 1934

Grant 305 1933 John R Murlin University of Rochester, \$500 for study of the effect of sex hormones on energy metabolism

Grant 308 1933 John L Ulrich Johns Hopkins University \$250 for study of the reflex system in the cat

Grant 309 1933 Carroll L Birch University of Illinois School of Medicine \$300 for work on assay of urine for sex hormone of the anterior pituitary

## TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ending Dec 31, 1934

Reserve Invested as at Dec 31 1933	\$1 895 831 38	
Bonds Purchased (Cost)	366 949 26	
	<u>\$2 262 780 64</u>	
Less Bonds Called	38 000 00	\$2 224 780 64
Balance for Investment Dec 31 1933	\$ 177 524 89	
Interest on Investments	85 745 51	
	<u>\$ 263 270 40</u>	
Less Treasurer's Check on Bonds Purchased	200 000 00	63,270 40
Invested and Uninvested Reserve as at Dec 31 1934		<u>\$2 288 051 04</u>

## DAVIS MEMORIAL FUND

Balance Fund Dec 31 1933	\$6 623 20
1934 Interest on Bank Balance	149 83
Total Fund as at Dec 31 1934 on Deposit	<u>\$ 6 773 03</u>

HERMAN L KRETSCHMER, Treasurer

## AUDITOR'S REPORT

To the Board of Trustees January 25, 1935  
American Medical Association Chicago, Illinois

Dear Sirs

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31 1934, and of the Income Account for the year 1934 In connection therewith, we examined or tested accounting records of the Association and other supporting evidence and obtained information and explanations from officers and employees of the Association, we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions We now submit our report on the examination, together with related statements as enumerated in the index appended hereto

In our opinion, based on such examination the accompanying Balance Sheet and relative Income Account fairly presents the position of the Association as at December 31, 1934 and the result of its operations for the year ended on that date, subject to the following qualifications and observations

(1) The inventories of Materials, Supplies and Work in Progress in the amount of \$65 952 62, are stated in accordance with affidavits sworn to by responsible officials of the Association and have not been confirmed by us in any way

(2) In accordance with the established practice of the Association no provision has been made for (a) accrued interest on bonds (b) membership dues unpaid (c) accrued salaries and wages (d) accrued property taxes for the year 1934, and (e) accrued legal fees

(3) Subscriptions paid in advance represent an estimated amount based on cash received for subscriptions for the year 1935 received in the month of December 1934 This conforms with the method used in prior years

(4) Advanced payments on publications represent an estimated amount of prepaid subscriptions to *Hygeia* \$111,982 62 plus \$11 895 08 received in advance for January advertising and directory sales and service.

Under date of August 15, 1934, the Association property was appraised by the American Appraisal Company. The value of the property as shown by the appraisal was considerably in excess of the book value of the property. It was decided by the Board of Trustees not to place the appraisal value on the books of account. As recommended by the appraisal company the rate of depreciation was reduced on buildings from 5% to 2½% and on machinery and equipment from 20% to 5% of the diminishing book values.

We have received a letter from Messrs Loesch, Scofield, Loesch and Burke, acting as attorney for the Association, stating that during the year ended December 31, 1934 all lawsuits pending against the Association have been definitely terminated without liability for damages against the Association. We have also received a certificate from an official of the Association stating that there are no contingent liabilities at December 31, 1934.

Fidelity insurance is carried against the undermentioned officers and employees of the Association in the amounts here stated:

Dr Olin West General Manager	\$10 000 00
Dr Herman L. Kretschmer Treasurer	10 000 00
E. C. Shelly, Cashier	10 000 00
E. A. Hoffman Assistant Cashier	2 000 00
Sundry Employees (eight \$1,000 00 each)	8 000 00
Total Fidelity Insurance	<u>\$40 000 00</u>

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK MITCHELL & Co

## STATEMENTS

### EXHIBIT A

#### BALANCE SHEET AS AT DECEMBER 31 1934

<b>ASSETS</b>	
Property and Equipment (at cost less depreciation)	
Real Estate and Building	\$ 681 954 32
Machinery	103 388 20
Type and Metal	12 963 54
Furniture and Equipment	50 915 77
Chemical Laboratory	2 750 77
Total Property and Equipment	<u>\$ 851 972 60</u>
Investments (at cost)	
U S Government Securities	\$1 181 405 26
Railroad Municipal and Other Bonds	1 043 375 38
	<u>2,224,780 64</u>
Cash held by Treasurer for Investment	63 270 40
Temporary Investment—Certificate of Deposit	100 000 00
Cash in Banks and on Hand	244 278 74
Accounts Receivable	
Advertising	\$ 67 255 85
Co-operative Medical Advertising Bureau	8 820 10
Reprints	3 231 29
Directory 13th Edition	10 262 00
Miscellaneous	3 786 15
	<u>93 355 39</u>
Inventories of Materials Supplies and Work in Progress	65 952 62
Expenditures on Publications in Progress	37 901 93
Prepaid Expenses—Insurance etc	4 929 40
Total	<u>\$3 686 443 72</u>
<b>LIABILITIES</b>	
Accounts Payable	
Co-operative Medical Advertising Bureau	\$ 8 593 48
Miscellaneous	1 053 36
	<u>\$ 9 646 84</u>
Subscriptions Paid in Advance	114 606 77
Advance Payments on Publications	123 877 70
Net Worth	
Association Reserve Fund	\$ 250 000 00
Building Reserve Fund	750 000 00
Capital Account	
Amount thereof as at December 31 1933	\$2 183 466 41
Adjustment of Reserve for Taxes for 1932	2 317 98
	<u>2 185 784 39</u>
Net Income for the Year ended December 31 1934	252 528 02
Net Worth as at December 31 1934	<u>3 438 312 41</u>
Total	<u>\$3 686 443 72</u>

### EXHIBIT "B"

#### INCOME ACCOUNT

##### FOR THE YEAR ENDED DECEMBER 31 1934

<b>JOURNAL</b>	
Gross Earnings	
Fellowship Dues and Subscriptions	\$ 603 192 58
Advertising	727 112 14
Jobbing	84 168 42
Reprints	3,535 75
Books	9 573 62
Insignia	5 034 39
Miscellaneous Sales	6,596 43
Interest	543 74
Gross Earnings from Journal	<u>\$1 439,751.07</u>
Operating Expenses—Schedule 1	825 781.09
Net Earnings from Journal	<u>\$ 613,969.98</u>
Miscellaneous Income	
Rents	\$ 1,200 00
Sundry Publications	43 256 16
	<u>44 456.16</u>
Association Income	
Income from Investments	\$82 402 41
Miscellaneous Income	1 081 91
	<u>83 484.32</u>
Gross Income	<u>\$ 741,910.46</u>
Association Expenses—Schedule 2	\$350 297 48
Miscellaneous Expenses—Schedule 2	139 084 96
	<u>489,382.44</u>
Net Income	<u>\$ 252,528.02</u>

### SCHEDULE 1

#### JOURNAL OPERATING EXPENSES

##### FOR THE YEAR ENDED DECEMBER 31 1934

Wages and Salaries	\$ 399 598 04
Editorials News and Reporting	13 012 75
Paper—Journal Stock	180,899 48
Paper—Miscellaneous	757 56
Electrotypes and Engravings	16,834 47
Binding	621 56
Ink	6,395 90
Postage—First Class	32,238 64
Postage—Second Class	49,598 78
Journal Commissions	14 781 14
Collection Commissions	1 148 33
Discounts	27 195 66
Express and Cartage	4 759 15
Exchange	3,216 35
Office Supplies	3 748 23
Telephone and Telegraph	3,360 67
Office Jobbing	11 581 57
Power and Light	7,294 30
Factory Supplies	10 132 90
Repairs and Renewals—Machinery	5 963 03
Miscellaneous Operating Expenses	21 198 06
Losses on Bad Debts and Sales of Equipment	2 641 05
Total Journal Operating Expenses Before Provision for Depreciation	<u>\$ 816,977.51</u>
Depreciation on Equipment (Computed on diminishing balances)	
Machinery	% 5 \$ 5 441 48
Furniture and Equipment	% 5 2,253 90
Factory Equipment	% 5 425 86
Type	% 5 308 73
Metal	% 5 373 55
	<u>8,803 57</u>
Total Journal Operating Expenses	<u>\$ 825 781.09</u>

### SCHEDULE 2

#### ASSOCIATION AND MISCELLANEOUS EXPENSES

##### FOR THE YEAR ENDED DECEMBER 31 1934

Association Expenses	\$ 99 993 43
Association	16 004 12
Health and Public Instruction	37 328.00
Pharmacy and Chemistry	12,210 01
Food Committee	22,738 57
Chemical Laboratory	67 537 41
Medical Education and Hospitals	6 432 74
Therapeutic Research	30 081 53
Legal Medicine and Legislation	19,972 07
Bureau of Investigation	20 878 00
Bureau of Medical Economics	13 557 79
Physical Therapy	3 418 28
Bureau of Association Exhibits	144 78
Laboratory Depreciation (5% on diminishing balances)	
Total Association Expenses	<u>\$ 350,297 48</u>
Miscellaneous Expenses	
Insurance and Taxes	\$ 12 756 35
Legal and Investigation	10 680 25
Building Expenses	27,388 10
Building Depreciation (2 5% on diminishing balances)	10 080 40
Fuel	5 721 73
Sundry Publications	72 458 13
Total Miscellaneous Expenses	<u>\$ 139 084.96</u>

## REPORT OF THE JUDICIAL COUNCIL

*To the Members of the House of Delegates of the American Medical Association*

The report of the Judicial Council is withheld from publication pending a meeting of the Council

## REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

*To the Members of the House of Delegates of the American Medical Association*

### I COMMISSIONS OF THE HOUSE OF DELEGATES

1 At the Milwaukee session the House of Delegates referred to the Council on Physical Therapy and the Council on Medical Education and Hospitals a resolution introduced by Dr J Gurney Taylor requesting the formulation of standards for schools of occupational therapy. All of the eleven existing schools have been visited. The Council has conferred with experienced workers in this field and now presents for approval in supplement A, the Essentials of an Acceptable School of Occupational Therapy.

2 At the Cleveland session the House of Delegates adopted a resolution introduced by Dr G Henry Mundt, to the effect that the staffs of hospitals approved for intern training should comprise only members in good standing in their local county societies. A letter has been sent to all intern hospitals advising them of this action. When the next census of hospitals is taken, the Council will be in a position to know whether further action is needed.

3 A resolution introduced by Dr D C McKenney of the Section on Gastro-Enterology and Proctology was referred to the Board of Trustees and the Council on Medical Education and Hospitals for determination of methods of examination and certification in these specialties. The Council expects to be able to develop a comprehensive plan for the identification of qualified physicians specializing in these and related fields of medicine.

4 The House of Delegates also referred to the Council a recommendation of President Lewis that assistance be given to state societies in establishing postgraduate courses of instruction. Two excellent papers on this subject were presented at the Annual Congress on Medical Education Hospitals and Licensure in February. The Council begs leave to report progress.

5 The resolution of the Section on Radiology, introduced by Dr Albert Soiland, was also referred to the Council. On investigation and conference with certain leaders in the field of radiology, it was developed that no single method of compensating the radiologist for his service is universally applicable that without violating the Principles of Medical Ethics of the Association his remuneration may be in the form of salary, fees or commission, or any combination of these but that in no case should there accrue to the hospital a substantial profit over and above the reasonable cost of maintaining the department nor should the patient be exploited through excessive fees. While these principles have been clearly and repeatedly affirmed by the House of Delegates the application of the principles to individual cases sometimes involves complex accounting problems. It is believed that where differences of opinion arise they should be adjudicated by the local medical societies.

6 The resolution on anesthesia introduced by Dr James N Vander Veer, was also referred to the Council. At the February Congress this subject was presented by Dr F H McMechan, secretary general of the International Anesthesia Research Society and discussed by physicians, surgeons and hospital administrators as well as by the director of the Bureau of Legal Medicine of the Association. Opinions expressed were so widely divergent that the Council deems it inexpedient to take action at this time.

7 A resolution from the Section on Ophthalmology condemning the practice of medicine by optometrists was presented by Dr Emory Hill. Although not specifically referred

to the Council, steps have been taken to bring this action to the attention of hospitals on the Council's approved (registered) list.

### II SURVEY OF MEDICAL SCHOOLS

8 In the fall of 1933 the Council determined that a comprehensive resurvey of medical education was needed and to this end solicited the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards of the United States. The Trustees authorized a special appropriation and Dr Herman G Weiskotten of Syracuse was added to the Council's staff. Inspections were begun in September 1934. To date forty-five medical schools have been visited, chiefly in the Eastern and Southern sections of the country. In all cases Dr Weiskotten has been accompanied by a member of the Council or a representative of one of the cooperating societies. As a result of these observations, the Council found it necessary at its February meeting to withdraw approval from the University of West Virginia School of Medicine.

The facts elicited by questionnaires and conditions reported by the inspectors will, it is believed, afford a substantial basis for a thoroughgoing revision of standards and a reappraisal of the aims and methods of medical education. Already it has been discovered that some schools are accepting poorly trained students, most of whom ultimately fail. The Council has issued a general warning against the admission of larger classes than can properly be accommodated or than can reasonably be expected to satisfy approved scholastic standards.

9 The Council, together with the College Association, the Federation of State Medical Boards of the United States and the National Board of Medical Examiners has worked out a procedure for restricting the number of poorly trained students who matriculate in the universities of Europe because they cannot gain admission to the medical schools of the United States and Canada. Unfortunately, the extramural schools of Scotland do not cooperate with us and admit each year large numbers of applicants who have already been rejected in this country.

### III INSPECTIONS

10 During the past year, the Council's staff has visited 592 hospitals with reference to registration 175, with regard to approval for training interns 157, for residency approval 30, and 230 tuberculosis sanatoriums. The net gain of intern hospitals was 22 and of residency hospitals 32 and the decrease in the number of registered hospitals in 1934 was 103.

11 The survey of hospitals and sanatoriums caring for patients with tuberculosis as well as departments of general hospitals devoted to this purpose, has been completed. A report of this undertaking is in preparation and will be available, probably, in a few months.

12 In addition to schools of occupational therapy, referred to in paragraph 1, the Council has made inspections of schools for the training of physical therapy and laboratory technicians. Analysis of these reports and the formulation of standards will proceed during the coming year.

### IV PUBLICATIONS

13 The Council has prepared and distributed a list of textbooks, reference works and journals suitable for a hospital library. It has also contributed substantially to five special issues of THE JOURNAL.

14 The Council desires to call particular attention to the Hospital Number, issued March 30 1935. The distribution of hospitals is graphically represented by state maps, and the significant fact that the country is already oversupplied with general hospitals is incontrovertibly shown. Furthermore, it is demonstrated that, in those sections of the country where the ratio of beds to population is low and where some are inclined to assume that additional hospitalization is needed the actual utilization of existing facilities is also low. The conclusion is inescapable that where the public demands hospital facilities they have been provided, and that in sections where the public does not avail itself of more than 50 per cent of the opportunities for hospital care that now exist it would be futile to provide more.



15 In the State Board Number of THE JOURNAL, it is shown that, during 1934, 7,730 physicians were licensed to practice medicine in the various states. Of these, 5,435 represent actual additions to the number in practice. At this rate, according to the report of the Commission on Medical Education, the ratio of physicians to population will steadily increase. This situation greatly enhances the menacing importance of the fact that a number of states continue to examine and license graduates of unrecognized schools. After a quarter of a century of effort on the part of the Association to raise the standards of medical practice there are still four states which flagrantly evade the responsibility to protect the lives of their citizens.

Respectfully submitted

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

RAY LYMAN WHIBUR Chairman

RECINALD FITZ

MERRITT W. IRELAND

CHARLES E. HUMISTON

FREDERIC A. WASHBURN

J. H. MUESER

FRED MOORE

WILLIAM D. CUTTLE Secretary

#### SUPPLEMENT A

### ESSENTIALS OF AN ACCEPTABLE SCHOOL OF OCCUPATIONAL THERAPY

#### I ORGANIZATION

1 A school of occupational therapy should be incorporated under the laws regulating associations which are operated not for profit. The control should be vested in a board of trustees rather than an individual. This board should be composed of public spirited men or women receiving no financial benefits from the operations of the schools. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself this fact should be clearly stated. Officers and faculty of the school should be appointed by the board.

2 Affiliation with a college university or medical school is highly desirable but is not an absolute requirement.

3 Schools of occupational therapy should not be operated by hospitals independently. It is understood however, that hospitals are needed for practice training and especially for graduate training in the special branches of occupational therapy.

#### II FACULTY

1 The school should have a competent teaching staff graded and organized by departments. Appointments should be based on thorough education and training and successful teaching experience. Nominations for faculty positions should be made in accordance with academic custom. The staff should include not less than one regular salaried instructor and one registered occupational therapist. The question of full time and part time appointments is not as important as the qualifications of the instructors who should be specialists or exceptionally well trained and well qualified in the lines they are teaching.

#### III PLANT

1 The school should own or enjoy the use of buildings sufficient in size to provide adequate lecture rooms, class laboratories and administration offices. Equipment should be adequate for teaching and training. Anatomic charts, manikins and dummies should also be provided. There should be a library receiving regularly all the leading periodicals pertaining to occupational therapy, current numbers of which should be easily accessible to the students.

#### IV ADMINISTRATION

1 *Supervision*—There should be careful and intelligent supervision of the entire school by the dean director or other executive officer who by training and experience, is fitted to interpret the prevailing standards and who is clothed with sufficient authority to carry them into effect.

2 *Records*—There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Schools should require that students be in actual attendance within the first week of each annual session and thereafter. Except for good cause no credit should be given for any course when attendance has been less than 80 per cent.

3 *Credentials*—The admission of students to the occupational therapy school must be in the hands of a responsible committee or examiner, whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the occupational therapy school is an integral part of the university, this work usually devolves on the examiner or registrar.

4 *Advanced Standing*—At the discretion of the administration advanced standing may be granted for work required in the occupational therapy curriculum which has been done in other accredited institutions. Official verification of previous work should be obtained by direct correspondence. Preliminary qualifications should also be verified and recorded.

5 *Number of Students*—The number of students admitted to the training course should not be excessive. In practical work of a laboratory nature the number of students that can be adequately supervised by a single instructor is, in general experience about fifteen; in lectures the number may be much larger. A close personal contact between students and members of the teaching staff is essential.

6 *Discipline*—All training schools reserve the right to drop a student at any time for any cause which the school authorities deem sufficient.

7 *Publications*—The school should issue at least biennially, a bulletin setting forth the character of the work which it offers. Such an announcement should contain a list of the members of the faculty with their respective qualifications.

#### V PREREQUISITES FOR ADMISSION

Requirements for admission shall be:

1 *Age*—The admission of candidates should be governed by the fact that it is required that each student be not less than 21 years old at graduation.

2 *Education*—All candidates must furnish proof of having completed a high school education or its equivalent. In addition it is desirable that all candidates, except those for the degree course, shall have had at least one year, and preferably two years, of further education or successful experience in college, art school, social service, nurses' training or the commercial field.

Candidates for admission to a training course in a college or university which is combined with work leading to a bachelor's degree should be required to comply with the regular entrance requirements of the institution concerned.

3 *Character*—All candidates should be required to present evidence of good character and general fitness, the evidence of which should be investigated and duly weighed by the school concerned.

4 *Health*—All students should be given a physical examination under the supervision of the school as soon as practicable after admission and this examination should be repeated annually. The first examination, at least, should include a roentgen examination of the chest.

#### VI CURRICULUM

1 *Length of Course*—The minimum length of the course should be twenty-five calendar months (100 weeks) of full time training. The course should include not less than sixteen months (sixty-four weeks) of theoretical and technical work, and not less than nine months (thirty-six weeks) hospital practice training under competent supervision, all as set forth in detail in succeeding sections.

2 *Distribution of Time*—The two years devoted to theoretical training should include not less than sixty semester hours of which not less than thirty semester hours should consist of

systematic instruction and not less than twenty five hours of laboratory procedures. In special cases a variation of 10 per cent is permissible.

3 The hours devoted to theoretical training should be still further subdivided as follows:

(a) Biologic Sciences include	
Anatomy	15 Semester Hours
Physiology	
Neurology	
Kinesiology	
Psychology	
Psychiatry	
(b) Social Sciences	4
(c) Theory of Occupational Therapy	4
(d) Clinical Subjects include	
Orthopedics	4
Tuberculosis	
Cardiac Diseases	
Blindness and Deafness	
Contagious Diseases (including Bacteriology if this subject is not given elsewhere)	
General Medical and Surgical Conditions	
(e) Electives	3
Total	30

4 Practical work in the various occupations should be allotted not less than twenty-five semester hours. The following subjects should be covered:

Design	Leather
Textiles	Plastic Arts
Wood	Recreation
Metal	Miscellaneous

5 The curriculum outlined above should be in effect not later than Jan. 1, 1939.

### REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association

At this annual session the two greatest organizations of physicians on the American continent are brought together for participation in a joint program intended to advance the cause of scientific medicine to promote the public health and to cement good will and fellowship further between the physicians of two great nations. We of the American Medical Association are honored by the presence of many members of the Canadian Medical Association and are grateful for the contributions that will be made to the scientific programs by a number of distinguished physicians from our neighbor country.

The Council on Scientific Assembly has had its usual meetings during the past year and has given official attention to all matters that have been brought before it.

The regular annual conference of section secretaries with the Council on Scientific Assembly was held in Chicago Nov. 10, 1934. The President-Elect, the Secretary, the Chairman of the Council and the Chairman of the Central Program Committee of the Canadian Medical Association were invited to attend this conference and were present. These distinguished gentlemen rendered valuable aid in connection with the preparation of the official program for the Atlantic City session.

The usual arrangements for the meetings of the sections of the Scientific Assembly have been made. Sessions on Anesthesia, Military Medicine and the History of Medicine will be held in the Section on Miscellaneous Topics.

An excellent program has been prepared for the General Scientific Meetings to be held on Monday and Tuesday, June 10 and 11.

No resolutions or memorials have been submitted to the Council during the year.

Respectfully submitted,

FRANK H. LAHEY, Chairman

IRVIN ABELL

JAMES E. PALLIN

FRANK SMITHIES

CYRUS S. STURGIS

JAMES S. McLESTER, President Elect

MORRIS FISHBEIN

Editor THE JOURNAL

OLIV WEST, Secretary

} Ex officio

## Medical Economics

### CALIFORNIA AND SICKNESS INSURANCE

A REPORT BY MORRIS FISHBEIN, M.D.

Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Since the House of Delegates of the California Medical Association went on record as favoring compulsory sickness insurance, some progress has occurred in that state in making the action effective. On April 12, 1935, the California legislature published as a part of the *Senate Daily Journal* the report of the Senate Committee on the "Investigation of the High Cost of Sickness." There are various points of view as to how this senate committee happened to be appointed and particularly with the extraordinary title emphasizing medical costs under which it makes its report. Rumor has it that Dr. Walter B. Coffey, chief surgeon of the Southern Pacific Railroad, was primarily responsible—and he confirmed this impression in his statement to the legislature. The preliminary statements of the report indicate that certain foundations were expected to assist largely in making the surveys. This authorization of the California Senate was plainly predicated on the belief that certain foundations, philanthropists and others interested would welcome the opportunity to make ample contributions to carry on this work. This assumption was warranted because certain well-financed foundations had expressed such active interest in the subject and were spending much money to ascertain what could be done in a legislative way. It is significant that the results of the survey duplicate the results of similar surveys made by these foundations in other places. Yet financial assistance was not given by them.

The committee was empowered by the resolution to choose its own officers and drafted Dr. Celestine J. Sullivan as its coordinator-secretary. The record of Mr. Sullivan for he is that kind of doctor, is well known to physicians who have followed the course of medical affairs in California. Some years ago he pleaded with California doctors to take up advertising. The answer to this survey, as the answer to most of the others that have been conducted under similar auspices in this country, is that the surveys found out exactly what they were predestined to find out with the setups that they had.

The report of the Senate Committee on the "Investigation of the High Cost of Sickness" opens with a general statement by the senate committee on the nature of scientific advancement and then emphasizes the importance of the insurance method as a means of meeting the costs. Thus, it says: "Health service insurance will prevent such economic and social disaster, and a vast amount of unnecessary sickness and thousands of unnecessary deaths." The California survey contacted 20,560 families, 1,112 physicians, 646 osteopaths, 828 dentists, 192 hospitals and 96 clinics. It is pointed out that California has a higher proportion of doctors to the population than any other state and that hospital facilities are unevenly distributed. During 1935, state institutions operated at a 90 per cent capacity while private institutions operated at approximately 53 per cent. Hospitals throughout California are suffering with the poor financial conditions and a considerable amount of legislation has been introduced into the California legislature that would save the hospitals but if enacted, would also put the hospitals in the practice of medicine.

The California medical economic survey indicated that in 1933 one third of the doctors were making net professional incomes of less than \$2,000, one half less than \$3,000 and three fourths less than \$5,000. It must be pointed out, however, that the questionnaire method was used in this survey and that only 1,112 doctors out of the total profession of 10,490 in California replied. It may be assumed that the doctors in the higher income levels did not reply. One half of the osteopaths who replied earned less than \$2,000 and five sixths earned less than \$4,000. Of the 18,863 families studied, 15 per cent had in 1933 incomes of less than \$500, 39 per cent less than \$1,000 and 51 per cent less than \$1,200. Thus more than one half of the people of California according to the report receive less than a living income. Only 4 per cent of the families concerned reported incomes of more than \$5,000. The figures also seem to indicate that the families in the lower income brackets

required more medical care than the families in the higher income brackets. The survey also reported that the lower income classes did not get the care they needed, as based on their own replies to the questionnaires. The survey concludes with the suggestion that families with incomes of \$1,200 or less cannot afford unexpected medical and dental charges between \$100 to \$500 during the year, yet 12 per cent of the families studied reported such charges. The report indicates that the investigators believe their survey is representative of conditions throughout California.

The report also discusses the distribution of medical, eye and dental care for families on relief, and indicates that physicians bear the heaviest burden for the sick, giving freely of their services to those unable to pay and lowering their fees for those able to pay only partially. The physicians bear 70 per cent of the total amount due for services to families under \$3,000 annual income and approximately one half of the amount owed by the highest income group.

The survey cost about \$100,000 and duplicates the results of the Michigan and other surveys made by similar surveys.

Continuing the discussion it is pointed out by the senate committee that the action of California is likely to be looked on as a model for American legislation in this field and it asks for a definite separation of cash benefits from health service insurance. The California law proposed is based on foreign experience. The senate committee then presents certain amendments offered to proposed legislation in this field which will be analyzed in *THE JOURNAL*.

To this report there are a considerable number of appendices. The first is an address given by Senator F. H. Tickle in March 1934 at a University of California conference on government, at which Dr. Ray Lyman Wilbur presided. In this address Senator Tickle presented a definite bias in favor of a sickness insurance system. He listed foreign groups that have already adopted such methods and he emphasized the right of the California legislature to pass such legislation.

The second appendix is a statement of Senator Tickle at the public hearings held by the Committee in December 1934. In this statement Senator Tickle supported the majority report of the Committee on the Costs of Medical Care. He attacked the minority report and particularly Dr. Olin West and the American Medical Association giving the impression that Dr. Olin West wrote and was responsible for this report—an impression absolutely unwarranted and untrue. He charged that the British health insurance system had been misrepresented in this country by American Medical Association propaganda but indicated that California did not recommend the panel system.

The statement of Senator Tickle was supplemented by a statement from Chester H. Rowell, who was introduced by Celestine J. Sullivan as chairman of the Social Health Insurance Commission of 1917-1918. At that time Mr. Sullivan was opposed to sickness insurance but he has since apparently had a change of heart. Mr. Rowell modestly concludes his statements by stating that the medical 'men in California' probably know more about it than any number of men anywhere else in the United States.

The next speaker was Dr. French of the Western Hospital Association, who supported the plan of sickness insurance for the low income groups, and then Frank McDonald, industrial accident commissioner, who is also president of the State Building Trades Council of California, indicated that the building trades would support legislation for compulsory health insurance in California. The next speaker was Dr. Walter B. Coffey, who indicated that he had formerly opposed compulsory sickness insurance but that he was very much in favor of a system that would provide adequate care at a reasonably monthly rate. He described the sickness payment system used by employees of the Southern Pacific Railroad and the Southern Pacific Hospital Association. His statement was supported by the head of the railway engineers of the Pacific Coast.

The next statement was by Dr. T. Henshaw Kelly, chairman of the Council of the California Medical Association. Dr. Kelly indicated that an attempt was being made to crystallize the opinion of the California medical profession and introduced Dr. Harry H. Wilson, secretary of the Survey Committee of

the association. Dr. Wilson described the scope of the survey as of that date.

Dr. Roy Green, representing the dental profession, asked some delay pending action by the federal government. Celestine J. Sullivan indicated that any federal plan would involve coercion of the various states and that the federal government can enact only certain laws for the District of Columbia.

A statement was also received from the California Osteopathic Association unanimously approving the insurance plan as outlined by Senator Tickle and Mr. Rowell.

The next speaker, Rodney Yoell, urged the establishment of compulsory sickness insurance in California and recommended that organized medicine sit with the senate committee to work out a proper solution. Dr. Yoell concluded:

Now I believe also that medicine organized medicine will sit down with you and work out a happy solution to this problem because I know in times past that no call has ever been made by an existing civilization on the medical profession wherein the medical profession has been derelict in its duty and it has been unhearing and unmindful of that call. You must be a little patient with us within the next few weeks, in our deliberations and with our contentions but I do believe this. That just as you gentlemen of this senate committee, and you men and women representing the various hospital associations—the great Catholic sisterhoods, the non-Catholic hospitals, the great universities, the labor organizations, the industries—are sitting in this room now and giving an honest intent and a keen mind and an absolutely penetrating judgment on this existing problem and its solution—so too will the medical profession come forward and join you in this study.

We of California who were born on this soil and those who live from the bounty of this soil love this state, we love this our California and we feel absolutely that in your hands and in the hands of the fellow citizens of this state a solution to this problem will be worked out which will provide for every solvent person competent adequate medical care that will retain to the medical profession the right to the competitive effort of practice and that marching forward shoulder to shoulder a great load of preventable want and misery will be lifted from the shoulders of the people of California.

Representatives of various railroad employee associations in connection with the Southern Pacific Railroad also spoke in favor of the legislation.

Dr. Morton Gibbons, representing Stanford University, said that most physicians felt that health insurance is inevitable. He said that the medical profession would not oppose a health insurance law or compulsory health insurance but that they want to be sure that the law will give proper consideration to medicine.

Senator Tickle said that the Canadian report pointed out that there had been a 39 per cent decrease in sickness in England since they had their system of sickness insurance in effect. (This statement is so preposterous that it is comical. The figures actually show more visits to doctors and the sickness rates and death rates of the United States are better than those of other civilized countries of approximately the same populations.—En.)

Celestine J. Sullivan pointed out that the University of California provides medical service to 9,800 students in residence at an annual cost of \$17.86 per student. Professor May, economist of the University of California, brought up the data published by the Milbank Memorial Fund indicating the fear of the medical profession in relationship to sickness insurance. He pointed out that, while he was a member of the advisory council of the California Medical Economic Survey, his opinion had not been asked in drawing conclusions. Dr. Harry Wilson said that the opinions had been received and that they would be given consideration. Professor May said that he would like to have the faculty of the University of California receive the same services as were given to the students. He also indicated the desirability, as pointed out by Mr. Kingsbury of the Milbank Fund, that the state participate in the payment for sickness insurance.

Dr. John Graves said that there are innumerable California families and California citizens who cannot secure adequate medical care without going to the verge of pauperization and that the needs must be met.

Mr. Von Ellsworth, representing the California Farm Bureau Federation, felt that because of the transient population of California there should be a larger taxing unit than the county unit to provide for the medical needs of the indigents.

Dr. Jacob C. Geiger, health officer of San Francisco and president of the San Francisco County Medical Society, felt that there must be unanimity and loyalty among the medical

profession He urged that the San Francisco County Medical Society cooperate with the state medical association and pointed out that the European experiences could not be applied to this country Dr Geiger did not believe that the doctors should be paid for caring for the indigent sick when they were used for teaching purposes by the universities

Dr Harry Wilson pointed out that the California Medical Association did not approve the Public Health League for fear that it would misrepresent medicine to the community

Dr Sloman representing the dental association, pointed out that they had not adopted any definite views in relationship to compulsory sickness insurance and that no system of sickness insurance of which he had knowledge provides adequate service for dentistry He did, however hope that some system might be worked out in California that would be satisfactory

Dr Philip King Brown condemned the individuality of the medical profession He attacked the Public Health League as fighting health insurance and expressed his belief that the compulsory sickness insurance would not lower the standards of medical care if it was run by medical men He also expressed his disapproval of the Alameda County plan and the San Fernando plan and said that the statements of Frederick L Hoffman on sickness insurance were outside the facts

Dr Alson R Kilgore expressed his belief that some form of distribution of medical care would have to be developed, and he was led by Celestine J Sullivan into an expression of approval for health insurance Mr E R Zion spoke in behalf of groups that want to get their own group insurance and hoped that some proper system would be developed for such groups

Dr Loos of the Ross-Loos clinic described the service of his group and asked what would be done in the matter of payment of physicians under the proposed compulsory sickness insurance bill

Dr Coffey indicated that he was one of the originators of the resolution introduced into the senate two years ago providing for the present investigation and providing for a compulsory sickness insurance system

The next appendix indicates the authority given to Celestine J Sullivan by the senate committee and the resolutions adopted by the California Medical Association in relationship to compulsory sickness insurance The California Medical Association's resolutions demanded that

1 The patient shall have absolutely free choice of physician and hospital

2 The medical profession shall determine the scope the extent standards quality compensation paid for and all other matters and things related to the medical and medical auxiliary services rendered under this system

3 There shall be no provision for cash benefit

4 The patient shall receive adequate treatment and the physician shall receive adequate compensation

5 The foregoing principles shall be maintained with such modification thereof as may from time to time be recommended or approved by the profession he it further

Resolved That the California Medical Association offer its full aid and cooperation to the interim committee of the senate and of the state of California charged with the study of this problem to the end and that any measure which shall be passed establishing a health insurance system at the 1935 session of the California legislature shall contain the above principles and be it further

Resolved That there be formed a special committee authorized and empowered to act herein constituted as follows The legislative committee of the association and three members of the association to be appointed by the speaker of the house of delegates

This is the resolution which commits the state medical association to work with the interim committee in developing a sickness insurance law Similar resolutions were adopted by the California Dental Association

The next appendixes provide tables and statistical data of the California Medical-Economic Survey and another appendix gives the compulsory national plans adopted in various foreign countries

A special appendix, marked 'Appendix G,' is devoted to the American Medical Association This bears the delicate touch of the literary style of Celestine J Sullivan and was apparently written within the last two weeks It describes the action taken

by the special session of the House of Delegates of the American Medical Association, February 15 and 16 The statement says

The law of the Vedas and the Persians which altereth not was followed by the A M A House of Delegates at Chicago in reiterating its opposition to all forms of compulsory sickness insurance' The A M A delegates in Chicago reacted like the travelers described by Newman Nothing which meets them carries them forward or backward to any idea beyond themselves

One of the returning delegates expressed the opinion that those distinguished doctors were men of personal charm good golfers and scientifically and financially self assured [This will be news to the House of Delegates—Ed] It is not surprising that those delegates with lucrative practices among citizens with ample incomes fail to grasp the pressing problem of the lower income groups They are not socially conscious of the grievous evils of the present system which are revealed by tables contained in the report of this senate committee. They would not of course prolong the agony caused by the present system if they understood the problem If they understood the problem they would follow the leadership of the House of Delegates of the California Medical Association who have looked ahead with clear vision and seeing that the present system must be changed to meet the demands of today recommended compulsory health insurance so that citizens within the lower income brackets may be assured adequate care at prices they can easily afford

Then the resolution commends the California Medical Association for its action and attacks the American Medical Association for attempting to usurp the rights of the state. It also points out that the American Medical Association in 1930 adopted a resolution "that each state should be left free to formulate its own health program There follows further attack on the actions of the House of Delegates of the American Medical Association Then appears the statement

Testimony given by California physicians at the public hearing of the senate committee in San Francisco showed the extensive propaganda against health insurance conducted by the A M A in this state We are informed by members of the California Medical Association that Dr Morris Fishbein's address on health insurance before the Dental Association in Oakland did not have any official sanction of the medical profession [This is untrue!—Ed] In fact Dr Fishbein although editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION failed to get an invitation to address any of the constituent county societies of the California Medical Association [This is also untrue!—Ed] Dr Fishbein is an entertaining talker [This is true!—Ed] and California welcomes every visitor The California Medical Association after due deliberation having gone on record for compulsory health insurance very consistently refused to permit Dr Fishbein to confuse the issue by inciting prejudice and opposition Dr Fishbein's anti health insurance addresses in California would not merit our attention if they were not designed to undermine the constructive action of the California Medical Association The A M A was powerful enough to make the American College of Surgeons recede from its position on health insurance it was potent enough to make the Michigan State Medical Society lay down and turn face downward its expensive survey and report on health insurance but the A M A was impotent to delay or dismay the California Medical Association by ukase [The statements relative to the American College of Surgeons and the Michigan State Medical Society are untrue!—Ed] The narrow viewpoint of the official A M A on the shores of Lake Michigan compare in breadth and depth with the broader vision of the C M A on the shores of the Pacific as the lake compares to the ocean

There seems to be something about Chicago III, that adversely affects the minds of medical men This is not the first time that Chicago doctors indicated that they are not constructively interested in the problem of reduction of the high costs of illness

There follows a report by California newspapers of an interview given by Dr Louis Schmidt in Chicago and four or more pages about Louis Schmidt taken from Chicago newspapers This of course, does nothing but cloud the issue

The final appendix gives the address by Dr Morris Fishbein before the meeting of the American Academy of Political and Social Science in Philadelphia Feb 7, 1934, and the address by William Trufant Foster on the same occasion The document then concludes with some cartoons, favorable to sickness insurance from California newspapers, and contains a list of publications consulted by the senate committee in developing its opinions It is significant that very few of the publications of the American Medical Association seem to have been brought to the committee's attention

Peas, Peanuts and Beans—The meat substitutes of vegetable origin are chiefly those seeds known as legumes of which peas, peanuts and navy kidney lima and pinto beans are the most commonly used varieties—Newburgh L H, and Macmillan Frances The Practice of Dietetics, New York Macmillan Company 1934

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 4 1935

## REPORTS OF AMERICAN MEDICAL ASSOCIATION OFFICERS

In this issue of *THE JOURNAL* appear the reports of the various officers, bureaus and committees of the American Medical Association which by action of the House of Delegates are published one month in advance of the annual session in order that the members of the Association and the delegates may be informed concerning the activities of the Association during the year. Attention is called particularly to the statement of policy adopted by the House of Delegates at the special session in February which constitutes today the policy of the American Medical Association on the subject of sickness insurance and economic security. This report appears on page 1608.

It will be seen from the Treasurer's and Auditor's reports that the finances of the Association are in excellent condition and that the number of members and of Fellows has increased over the number enrolled in the preceding year. Thus far the Association has weathered satisfactorily the financial depression. Because of the nature of the times, the Bureau of Economics has been under constant strain during the past year carrying out investigations of economic problems and advising physicians throughout the country concerning special problems in various states.

Especial interest attaches also to the report of the Bureau of Legal Medicine and Legislation, which begins on page 1616. Here physicians will find up-to-the-minute accounts of the present status of important legislation in various states and also of legislation now before Congress. Here also is the information relative to Emergency Relief, the present status of food drug and cosmetic legislation and many similar matters.

Every physician will find this report of the greatest importance in relation to his daily work. All the other councils and bureaus of the Association have been exceedingly active in providing for the needs of the medical profession and in carrying out the policies adopted by the House of Delegates encouraging scientific advancement and aiding medical research.

## EXPLAINING CALIFORNIA

Under the heading Medical Economics in this issue of *THE JOURNAL* appears a transcript of hearings and various official actions of the legislature and medical bodies in California in relationship to sickness insurance. Politically the situation in California is exceedingly complicated. The medical profession seems to be playing the role it thinks best under the circumstances and the conditions. Nevertheless the assumption of this role has brought about some peculiar situations. For example the California Dental Association invited the Editor of *THE JOURNAL* two years ago and again in May 1934 to address the annual session of that body. The California Medical Association at that time gave its approval to the visit. Because of the developments in the political situation, state medical officers of California apparently thought it wise more recently that the point of view of the American Medical Association be prevented as far as possible from reaching the membership of the California Medical Association. Notwithstanding the apparent desire of some state officers to avoid presentation of the point of view of the American Medical Association, the medical society in Fresno invited the Editor to address a joint meeting of doctors and dentists in that community. Addresses were made also before three public forums, and several meetings of physicians and dentists. The point of view of the American Medical Association was circulated widely in the press through interviews and reports of addresses. As will be seen from a reading of the outline which appears under the department of Medical Economics, certain lay political leaders in California rejoiced—without warrant—at the suppression of the American Medical Association point of view.

Apparently the officers of the state medical society feel that compulsory health insurance is sure to come in California and that their only hope of obtaining some recognition for the medical point of view is to cooperate fully with the interim committee appointed by the senate of California in response to a resolution recommended by Dr. Walter B. Coffey two years ago. As was explained in an editorial in *THE JOURNAL*, April 6, page 1243, a number of bills are before the California legislature, including six or seven bills for compulsory sickness insurance, one bill opening all the hospitals of the state to all the people regardless of ability to pay, and another licensing corporations to practice medicine in California. Moreover, the state is overrun with cultists of various types and with all sorts of corporation practice, group practice, club practice, industrial practice and similar schemes. The survey made jointly by the California State Medical Association and the interim committee of the senate, like most such surveys, hardly seems to have scratched the real surface of medical conditions, yet the results of the survey are cited in support of the action to which the various bodies concerned in the legislation seem to have been rather largely committed before the survey was

undertaken. It is clear that the Milbank Fund and other foundations have been active in propaganda in California.

As the onlooker from without the Editor would venture the prediction that all will not be as rosy in California as it may now seem to the bespectacled, rose-colored vision of some of the proponents representing the California Medical Association. It should be obvious from the statements that have been made and the hearings that have been held that the very factors in medical care which the profession will demand will not be favorably received by the political group, who will eventually dominate the sickness insurance system in California. The dental profession, some assert, has received inadequate consideration in the proposed legislation and will perhaps oppose the bill that has been offered. The medical profession will perhaps find itself ultimately in a situation in which it will have to oppose the legislation for which it is now responsible, mainly because it decided to compromise rather than to fight to the finish on the principle and the issue.

A complete study of all that has occurred in California indicates to any one who has some understanding of our American political system the difficult path which the leaders of California medicine are treading. Perhaps they will find their way successfully out of the morass without engulfing their profession in a system which will lead to a lowering of the standards of medicine and the quality of medical care in that state.

#### THEORIES ON THE GENESIS OF GASTRODUODENAL ULCER

The circulatory theory of the genesis of gastric ulcer advanced by Virchow and Hauser in 1853 suggested that such ulcers are produced by an infarction of a terminal blood vessel with consequent necrosis, the starting point for the digestive action of the gastric juice. In this theory the role of the excessive gastric secretion assumed especial importance and was considered the decisive factor by Riegel, Boas, Sippy, von Bergmann and, in fact the majority of clinicians.

Chronic ulcers, it was pointed out, occur only in that portion of the gastro-intestinal tract which is exposed to the action of the hydrochloric acid, viz. the stomach and the first two inches of the duodenum. They are rare in the cardia. When the jejunum is exposed to the action of gastric juice following a gastro-enterostomy for ulcer, marginal peptic ulcer develops not infrequently. However, such ulcer has never been observed when the gastro-enterostomy is performed for gastric cancer. Of particular interest are the peptic ulcers of Meckel's diverticulum in which histologic studies revealed the presence of islands of gastric mucosa in the diverticulum. The ulcer itself is analogous to the marginal peptic ulcer. Ulceration here is ascribed to the peptic effect of the gastric juice on the adjacent intestinal mucosa.

The wave of enthusiasm for stomach resections which began about twenty years ago and was advanced with particular fervor in Germany, supplied abundant material for histologic studies and a new point of view. In all cases of gastric or duodenal ulcer, gastritis or duodenitis appeared. The inflammatory areas frequently contained multiple small oval round and linear erosions, the largest of which could be recognized macroscopically as superficial erosions. The fact that he failed to find any change in the blood vessels in these areas was stressed by Konjetzny,<sup>1</sup> who did not observe any evidence of hemorrhage, anemic necrosis or hemorrhagic infarction. Inflammatory changes in the mucosa without any evidence of peptic digestion were, however, observed with great regularity. Konjetzny, Puhl, Moscowitz, Kalma and others, supported by histologic studies, established that ulcerative gastritis or duodenitis is the important factor in the pathogenesis of the ulcer disease. Inflammatory gastritis and duodenitis were the precursors as well as the accompanying anatomic factors and explained the chronic course of the disease with its remissions and exacerbations. These observers denied the importance of pepsin hydrochloric acid in the conversion of an erosion into an ulcer. The neurogenic-spasmogenic theory of von Bergmann<sup>2</sup> was based on the clinical observation that many of the patients with ulcer exhibited disturbances of the vegetative nervous system. Eppinger and Hess suggested that vagotonia provoked spasms of the muscularis and of the muscularis mucosae, leading to areas of ischemia, which favored the formation of erosions and ulcers. A spastic condition of neurogenic origin operating on the vessels and the muscular apparatus was the causative factor. But experiments on severing the vagi and on extirpating the sympathetic and the celiac plexus gave contradictory results, and the hypothesis that all bearers of ulcer are vagotonic or sympathetotonic did not find acceptance.

The mechanical-functional theory advanced by the Aschoff school was based on the existence of a special anatomic unit. The gastric channel of Waldeyer, "the magenstrasse," occupying the lesser curvature, is the seat of 90 per cent of all gastric ulcers. The contention that food and gastric juices move along this path to reach the pylorus, thus exposing it to greater mechanical and chemical injury than the rest of the gastric mucosa, is not supported by the more recent roentgenologic studies. The accumulated clinical and experimental observations force the clinician and the experimental worker once more to look to the digestive power of the gastric secretion as the most important factor in the genesis of the ulcer. The next step was an attempt to produce ulcers in normal gastric mucosa by increasing the amount of the secretion as well as its

<sup>1</sup> Konjetzny, G. F. Entzündliche Gene e des Magendudenalgeschwurs. Arch f Verdauung kr 30 189 (Dec) 1924

<sup>2</sup> von Bergmann, G. Berl klin Wchn chr 55 524 1918

digestive power Burkle-de la Camp<sup>3</sup> was able to produce ulcers in rats by subjecting them to starvation and to hypodermic injections of histamine in doses sufficient to stimulate the secretion of the gastric juice but not sufficient to cause spasmodic contractions of the gastric vessels or the musculature. The ulcers thus produced exhibited a tendency to invasion, bleeding and perforation. These effects could be produced only in fasting stomachs, but fasting alone without injections of histamine failed to produce ulceration of the gastric mucosa. Sectioning of both vagi did not cause ulcer formation unless combined with histamine injections. The role of the gastric secretion in the genesis of ulcer was demonstrated even more strikingly in Silbermann's<sup>4</sup> experiments. Silbermann established esophageal fistulas in dogs and subjected them to sham feedings, thus stimulating the psychic phase of the gastric secretion. The stomach continued to secrete after each feeding a secretion of acid concentration and digestive power five times as great as that of the normal secretion. When examined from fourteen to forty-nine days later, all the dogs showed ulcerations in varying stages of development. Silbermann's experiments demonstrated that excessive gastric secretion of high digestive power is capable of producing severe gastric lesions and fibrinoid necrosis and that the experimental ulcers are localized almost exclusively in the pyloric region.

## Current Comment

### FEDERAL PLANS FOR SOCIAL SECURITY

As our readers no doubt realize, the social security bill has passed the House of Representatives by a tremendous vote and is now under consideration by a committee of the United States Senate. Washington observers predict that its consideration may be somewhat delayed because of other important legislation which has priority. In the final bill the social service board is removed from the supervision of the Department of Labor and placed directly under the President. However, the infant and maternal welfare plans and the care of the handicapped are left to the individual states, subject however to approval of such plans by the Children's Bureau in the Department of Labor. There is, moreover, a considerable contribution for public health work to be conducted under the United States Public Health Service. The words "health insurance" and "sickness insurance" do not appear in the bill. It is interesting in this connection to read the words of Raymond Moley in his periodical *Today*, principally because Mr. Moley, it is understood, represents largely the administration's point of view.

Health insurance is not included. A violent controversy on this subject is raging in the medical profession, and the government is wisely refraining from action until public sentiment, in one way or another, shall have crystallized. In any event, provision for old age and unemployment benefits are the major parts of a program and can immediately be put into effect.

This statement by Mr. Moley is, of course, subject to the criticism that a "violent controversy on this subject" is not raging in the medical profession. The opinion of the organized medical profession, as expressed by the membership of the American Medical Association through the House of Delegates, was unanimously opposed to compulsory sickness insurance on either a federal or a state basis. If, however, the President and Congress are waiting for public sentiment to crystallize, the medical profession must realize that the forces of propaganda in behalf of sickness insurance are multiple and wealthy and that the medical profession must take far more interest in this matter and extend itself to the utmost if its views are to be brought satisfactorily before the American people.

### LOS ANGELES COUNTY MEDICAL SOCIETY BUILDING

Amidst the political turmoil assailing California, as indicated elsewhere in this issue, the medical profession in Los Angeles has been benefiting to a considerable extent through the development of new headquarters for its county medical society. Apparently the wisdom and foresight of Dr. Harland Shoemaker and others in official positions many years ago developed the necessary site and the funds for the conduct of this fine venture. The new building contains an assembly hall seating from 600 to 800 people, a lunch room, recreation rooms, a library of some 30,000 volumes with subscriptions to several hundred leading medical periodicals and adequate provision for extension of the stacks devoted to periodicals, and rooms for literary medical research. The arrangements are among the finest available to a county medical society anywhere in the United States. They constitute a model for similar organizations elsewhere as to both the quality of the accommodations and the financial provisions for the future maintenance of the building and equipment.

### "PRIVATE WORLDS"

Currently in the motion picture houses there is being projected a film called "Private Worlds," based on a novel of the same name by Phyllis Bottome, a well known English writer, who we understand herself spent several years in such an institution as a nurse. In developing this film, we are informed, the Walter Wanger Studios employed a competent psychiatrist full time. As a result of his advice, no doubt, the film meets medical criterions particularly as relates to the portrayal of insanity. The chief value of the film is in its emphasis to the public of the change that has taken place in psychiatry with the introduction of understanding and mildness in place of the penal methods and brutality of a previous century. Significant indeed is the portrait of Pinel, which hangs over the desk of one of the physicians who plays a leading part in this picture. Such a film is bound to be helpful to the cause of modern psychiatry by giving the public a true insight into this work. If there is any adverse criticism to be made it is over the rather sudden projection of the ordinary layman into an atmosphere of insanity without more preparation of his mind for

<sup>3</sup> Burkle-de la Camp H. Deutsche Ztschr. f. Chir. 220: 31 (Sept.) 1929.  
<sup>4</sup> Silbermann I. S. Zentralbl. f. Chir. 54: 2385 (Sept. 17) 1927.



what he will see. The scenes showing occupational therapy and doctor-patient contacts are most effective, indeed so much so that one regrets their brevity. The only inconsistency that was apparent to several medical observers was the emergency surgery performed by a psychiatrist—a rather theatrical performance, which might have been much more conceivable in an English nursing home than in an American institution of this type. One rejoices particularly that the studio which produced this film avoided the usual unfortunate spectacle of a Napoleon wandering about in search of an empire or other methods of introducing cheap comedy through the portrayal of unfortunate mental patients. A fine restraint was exercised in this regard and the producer deserves special commendation for such recognition of artistic values. Physicians everywhere will find this film interesting and, because of the facts that have been presented, a real advance in the portrayal of medicine on the motion picture screen.

## Association News

### ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty-First Annual Meeting held in Chicago Feb 18 and 19 1935

(Continued from page 1528)

DR J H MUSSEY, New Orleans, in the Chair

FEBRUARY 19—AFTERNOON

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

##### Osteopathy and Licensure

DR. FREDERICK ETHERINGTON, Kingston Ont. This article appeared in full in THE JOURNAL, April 27, page 1549

##### DISCUSSION

DR. WILLIAM D CUTTER, Chicago. There are two important factors which cannot always be determined from a perusal of the written announcements of such educational institutions, which are oftentimes submitted to legislative committees in support of claims as to the character of the training that is conducted. The first of these criteria is the character and the educational fitness of the students to undertake the work. The question of the training of students must be looked into most carefully, credentials must be scrutinized their source must be known, their accuracy must be guaranteed, and their terms must be carefully evaluated by one who has had long experience in dealing with documents of this sort. And unless one can determine in the first instance that the students in any school have been adequately prepared to enter on that course of instruction it is unsafe to assume that anything is accomplished by the training even though on paper it may appear that the subjects covered and the time devoted to them are quite equal to those in other institutions. The second point to emphasize is the qualifications of the faculty. The mere fact that a man is in the catalogue as a professor of anatomy is no guaranty that he knows anything about anatomy. The same thing would be true of course in other lines. Consequently, one cannot assume from simply reading in a catalogue that certain courses are given or that the character of those courses is the same as would be required in recognized institutions in the same line of teaching.

CHARLES HAZARD D O, New York. I am a member of the State Board of Medical Examiners of the State of New York, and I am an osteopathic physician. Dr Etherington said that there should be a common standard and there should. If it had existed there would be fewer independent boards in this country than there are today.

P R RUSSELL, D O, Fort Worth, Texas. I do not think this is a fair report. I do not desire to bother this organization with a long discussion of this report, which I have spent nights studying, but in fairness to the sixteen or eighteen osteopathic members of this federation I have prepared a brief on my observations of Dr Etherington's report, and I should like to request the privilege of this organization to file the same with the secretary, that is, my discussion of that report.

DR. FRANK M FULLER, Keokuk, Iowa. If practitioners of regular medicine can find their brothers of the osteopathic faith gradually seeing the light and coming to realize that they are basing their practice on an unstable theory, and if they will of themselves, with possibly some stimulation from the outside, raise the standards of their medical schools and of their personnel, the theory of osteopathy will gradually begin to disappear and the adherents of that cult may be found gradually recognizing that the treatment of disease and the responsibility for patients is based on a broad scientific and inclusive practice of medicine.

DR. CHARLES E HUMISTON, Chicago. Let me ask of the advocates of osteopathy. Do you wish the sort of investigation that is now being conducted by the Council on Medical Education and Hospitals? Will you welcome such an investigation that will not be hurried but will be complete to your satisfaction?

DR. WILLIAM C WOODWARD, Chicago. One thing alone in the history of osteopathy is sufficient to condemn it in the eyes of all intelligent, fair thinking men, and that is the utter unwillingness of the osteopaths to produce any evidence through animal experimentation of the truth of their theories. If there is any formal diagnosis and treatment that is susceptible of demonstration on animals, it is certainly that form which is advocated by the osteopathic school. And yet not only has no evidence of any experimentation by the osteopaths themselves been offered, but never have they invited a fair and impartial investigation of the truth of the dogma to which many of them have professed still to adhere by any scientific body appointed by any state legislature. Their progress in the legislatures of the states has been altogether political and in no sense or measure scientific. So far as this inspection is concerned it is quite possible to find things within a very few minutes that are sufficient to condemn the subject matter of the investigation. I imagine that this is what happened in the case of these schools. Osteopathy in its entire career has turned out practically no scientific literature of its own but depends on the books that are turned out by scientific medical men. One of the stronger opponents of the enactment of basic science laws has been the osteopaths for the reason that they recognized, I believe, the inadequacy of their men in the basic sciences. Their fears with respect to those laws are demonstrated by the fact that over a period of years, and over the experience of quite a group of nonmedical, unbiased basic science boards, 36 per cent of the applicants from osteopathic schools failed utterly as against 10 per cent of the medical men and medical students.

DR. E S RYERSON, Toronto. Dr Etherington merely picked out three or four paragraphs in the report. It would take over three or four hours to read all the details given in the report by Dr Etherington and myself. We did take down a fair amount of detail as to conditions in lectures, laboratories, clinics, and so on. It is hardly fair to judge what Dr Etherington has presented in this very limited time as the report. One of the speakers said he had read the report. I would like to know where he received it, because it has not as yet been published. It is still in the hands of the body for which it was made and has not been disposed of or made public in any way.

DR. FREDERICK ETHERINGTON, Kingston, Ont. There is nothing that I care to add except that the paper I prepared this afternoon was not supposed to be even a synopsis of the report. We have reams of material which we got by direct observation. They said we stayed four hours in Kirkville. We were there from 1 o'clock in the morning until 6 in the afternoon. How many hours is it going to take to size up a hospital with fifteen patients? I have been in touch with hospitals all my life here and abroad. Gross pathology doesn't exist in these schools. They don't teach it as far as I

could ascertain. They have no museums, they don't do post-mortems. In Des Moines they laid claim to only one post-mortem a year and that was done in an undertaker's establishment. So my feeling is that we spent too long in the inspection. We have got a certain number of facts, not opinions and I challenge any one to controvert those facts. It isn't a matter of time. We have offered to osteopaths in Ontario precisely the same rights and privileges that the homeopaths have. Our friend is misinformed. There has been a change in government and they supplanted a medical man by an osteopath on the board of regents. But there hasn't been any change in the law. You know that the osteopath is not practicing osteopathy, he is practicing medicine and he wants to practice medicine. And he knows in his heart that this backbone theory of disease doesn't hold water. The homeopaths conform to our educational requirements. They take all the examinations as laid down by our statutes. We give them a special examination in homeopathy. We will do the same for you. Get the broad general training and we will give you a special examination. Is that fair?

DR DANIEL J. GLOMSET, Des Moines, Iowa. I am from Des Moines. Everything he said about our school is unfortunately true. I visited the hospital a number of times.

### Trends in Graduate Teaching

DR CHARLES GORDON HEYD, New York. This article was published in full in THE JOURNAL, March 30 page 1061.

### Postgraduate Work by the Iowa State Medical Society

DR DANIEL J. GLOMSET, Des Moines, Iowa. Iowa has felt the need for postgraduate instruction for some time. Thomas McManus of Waterloo in 1929 in his presidential address before the Iowa State Medical Society said: "In this state there are approximately 3,260 physicians practicing medicine. Of this number about 1,000 were graduated during the past ten years. That leaves a balance of 2,260 who have been ten years or more out of medical school. It is conservative to assume that 70 per cent of medical practice in Iowa is being done by physicians who were graduated ten or more years ago. Medicine, in a single decade, has made decided progress and it is just as important for the public welfare that physicians who have been a number of years in practice should enjoy the advantages of modern medicine as it is for the recent graduate to have had the first word in scientific attainment."

Dr McManus made arrangements with the University of Iowa faculty to conduct two trial postgraduate courses. One course was given by the department of obstetrics and one by the department of pediatrics. Each course consisted of twenty teaching hours. They were given weekly on two consecutive days in Waterloo and in Mason City, one following the other. The price of this instruction was \$10 for each course. The teaching was received enthusiastically. The next year the council of the state society appointed a committee of three physicians to direct the activities of the newly established speakers' bureau. The committee met and agreed on the following objectives in the program of educating the state of Iowa medically: (1) to increase the efficiency of the practitioner in Iowa, (2) to promote the solidarity of the profession, (3) to develop medical leadership in each community, (4) to educate the public in problems of health. To accomplish these objectives the following procedure was adopted: All work to be carried out through local medical units (a) by members of the faculty of the school of medicine of the state university (b) by members of the state society especially qualified for certain tasks, (c) by occasional distinguished outside talent.

This work the committee was told must be self supporting. Consequently the fees from the postgraduate courses had to be sufficient to pay the expenses of the bureau. As the enrolment for this work increased fees have been cut in proportion. The expenses of the speakers' bureau for the five years of its existence have been \$14,148.09 and the receipts \$17,526.52. After this program had been in effect two years the state society decided that the bureau had proved the worth of its activities and accordingly voted it an allowance from the budget which allowance has not been used up to the present time.

The speakers have all contributed without compensation. The bureau has paid them only their expenses, and in some instances even these have been refused by the men. In spite of the hardships connected with going from place to place, the teachers and the pupils again and again have expressed their enthusiastic approval. The work of the bureau covers five fields: (1) postgraduate courses, (2) scientific programs for medical groups, (3) clinics, (4) talks to lay audiences, and (5) radio talks. During the four years in which the bureau has been in existence there has been an enrolment in the postgraduate courses of more than 1,675 physicians, which is more than two thirds of the total membership of the state medical society. The bureau started out by offering only courses given by faculty members of the college of medicine of the state university. After two such courses had been given, the demand became so great that the university could not arrange enough courses without demanding too much of the time of the faculty members of the medical school. The bureau therefore organized other types of postgraduate courses in addition, namely: (1) those in which the lectures are given by prominent medical men from outside the state, and (2) those in which the lectures are given by outstanding private practitioners within the state. Many of the courses that have been given represent a mixture of two or three of these types of courses. Every department in the university except dermatology has taken part in the course. The men on the faculty have endeared themselves to the profession because of their faithful work for their fellow practitioners. Because these men are doctors first, last and always they are willing to take on the extra amount of work required for this teaching. It is to be hoped that the friendships they have made and the knowledge they have acquired by first hand observation of the problems of the practicing physician will aid them in their teaching and in some way compensate them for what they have so willingly given.

Because of decreased appropriations, the medical faculty is unable to provide the staff for more than two courses in the fall. Outstanding private practitioners within the state and prominent men from outside Iowa have been asked to do the work for the other courses. With few exceptions, the arrangements for these courses have been the same as for the university courses and the enrolment has been 515. Teaching by means of clinics has been used to a certain extent, in cooperation with the Iowa Tuberculosis Association, and these have reached more than 1,700 men in all parts of the state. Pediatric clinics, skin clinics and clinics dealing with other phases of internal medicine have also been conducted by the bureau. In spite of the fact that this work has been carried on during a period of financial stress, physicians have flocked to these courses. It is evident that the Iowa practitioners are anxious to make themselves better prepared for the practice of medicine. There is a marked increase in interest in scientific medicine, shown by more meetings than ever before, by better attendance and by better programs, there is an enormous increase in the output of literature from the state medical library, and there is a distinct increase in fraternal spirit because of the constant intermingling in meetings and postgraduate courses.

### DISCUSSION ON PAPERS OF DRS HEYD AND GLOMSET

GEORGE B. ZIEGLER, M.A., University, Va. I accept in the main Dr Heyd's conclusions that there are three distinct phases of the problem of graduate medical education, namely: (1) research, (2) the training of specialists and (3) "the continuous and periodic reeducation of the general practitioner." I would enlarge on the third type of graduate instruction indicated by adding that the general practitioner needs to be further educated as well as reeducated. The term most generally employed in discussions of graduate medical education is 'postgraduate education' but it is obvious that this term is sometimes used to refer to only one of the three, at other times to two, and at still others to all three types of instruction under consideration. It will simplify the problem if terms that clearly distinguish between these three phases of graduate education are adopted and generally used in medical literature. It is dangerous to say which of these three types of graduate study is most important. However, the needs for research and for the education of specialists has been recognized for years. But the recognition of the problem of the continuing education of

the general practitioner is more recent, the undertaking is more extensive in scope, and resources in teaching facilities are and will have to remain more scattered. In practically every respect the problem is more difficult. Since my interests are distinctly in this phase of graduate education, I will devote the rest of my discussion to it. Dr Heyd said that the defect in medical practice today is the lag between scientific knowledge and practical application. He called attention to the rapid advancement in scientific knowledge so that within a ten year period a physician out of touch with sources of new knowledge may be incapable of practicing modern medicine. He included, too, most of the agencies that should aid in this educational program: (1) county and city medical societies, (2) traveling clinics, (3) two and three day clinics in the larger centers, (4) hospitals, (5) medical publications and (6) medical schools. I disagree, for sake of argument at least, with his conclusion that the systematic approach to overcoming this medical gap will be largely the obligation of universities conducting schools in graduate medical education. I think the principal responsibility rests on the local, state, sectional and even national medical societies and the hospitals. The universities and the medical schools should assume responsibility and a certain leadership and should cooperate with the other agencies working toward the desired goal, but the driving force must come from the medical societies, that is, from the physicians and the hospitals. The hospitals, owing to the rather uniform manner in which they are distributed through the country, are the strategic focal points in which most responsibility in offering instruction can be entered. A rather ideal approach to the problem of cooperation is found in Virginia. The state medical society, with the cooperation of the two state medical schools, sponsors a state-wide program of graduate education. The extension division of the University of Virginia is the executive agency of the society. Instruction is offered in any community only on approval of and in cooperation with the local medical society. But Virginia yet has much to learn about using local hospitals and local instructors and obtaining clinical materials for instructional purposes. Hospitals should take cognizance of the possibilities of the staff meeting as an agency for the continuing education or reeducation of the physicians in the vicinity of the hospital. The standards affecting hospitals set by the American College of Surgeons seem to me to strengthen this institution as an educational agency. They require that medical staffs be organized that complete records of cases be kept, that regular staff meetings be held and that staff members review and analyze their clinical experience. Hospitals should see to it that local physicians have the opportunity to utilize to the fullest the educational features of the staff conferences. As a layman I was interested in Dr Heyd's suggestion that somewhere and in some fashion the public must be considered and consulted. Machinery for communication in some intelligent manner must be established and kept smoothly functioning.

DR A S BEGG, Boston. In September 1933 the state society decided to offer to all the eighteen districts of the state a chance to obtain the type of postgraduate instruction which they appeared to want. These eighteen districts participated in this program the first year, which was completed last June. The registration fee was \$5. But the group in charge of this movement had one advantage over the Iowa group. The society gave it an appropriation of a thousand dollars to start with. The instruction last year was conducted in twenty-four centers and there were more than a thousand physicians enrolled for the courses. That is remarkable in view of the number of other things that are going on in our community. Recently it was reported to us that there are more than fifty organizations in the vicinity of Boston holding medical meetings of a regular character during the year. In fact, the situation has got so bad in Boston that I think I am quoting Dr Christian correctly when I say the one thing that cannot be promised an out-of-state speaker in Boston is a large audience. It may be enthusiastic but it won't be very large because there are a half dozen other meetings going on at the same time. The organization of these outside districts has been spectacular in the way in which the people have responded. The practice has been to try to anticipate what the men were interested in and in each case we have tried to have a liaison officer within the district. Sometimes this liaison officer was

the secretary. We sent out cards and tried to get the men to choose from the courses that were offered, but just a few weeks ago, before the meeting of the council of the Massachusetts Medical Society, there was a meeting of the presidents and secretaries of the district societies in which it was indicated that probably in the future these programs would have to be set by the districts themselves, acting through their officers rather than by the personnel of the district. I wish to mention the surprise of some of us in regard to the subjects that have been chosen. For example, a curious avoidance of any instruction on venereal diseases, and also, in spite of the propaganda that we have had, on psychiatry. The institutions that cooperate with us in this extension work are the state department of public health and the teaching faculties of Harvard University, Boston University and Tufts College Medical School. Some one said a few minutes ago that there ought to be some way to evaluate instructors, and this is what is happening in our case there. Some of these men are very enthusiastically received and occasionally we receive requests that a man be not returned to that community.

DR DANIEL J GLOMSET, Des Moines, Iowa. The thing that impressed itself on the committee is that some form of postgraduate instruction should become the rule for every practitioner. One thing that we have tried in Iowa, which possibly has not been tried in other places, is for the state society to keep the physician from going to sleep, as it were. We have employed more than 1,200 men. We do all of our lay education. The state society takes the position that it is the function of the doctors, as citizens, to educate the public in medical matters. We have used physicians to give lay talks, and in some of our higher institutions of learning we have actually had courses in health. We select doctors from all over the state to give these talks. In that way we have succeeded in keeping a large number of our youngsters up and coming.

#### Are Interns Practicing Medicine?

DR HAROLD RYPINS, Albany, N Y. Since an intern is expected to have the usual training and knowledge of the practicing physician and is engaged, more or less under supervision, in doing those things which ordinarily are done only by duly licensed physicians, the medical or common sense answer must necessarily be "Yes, the intern does practice medicine." From the point of view of the various medical practice acts however, the answer is an equally clear-cut "No." Legally speaking, the intern does not practice medicine. With the exception of the state of Indiana, where the rules of the board now require all interns to be duly licensed to practice medicine. I believe that all of the state laws governing the practice of medicine specifically exempt from the requirement of medical licensure interns or medical residents. There are four ways in which the status of the intern is classified. If the medical profession will arrive at a clear determination as to which of these states is the most desirable the various state laws can be amended to give the necessary legal sanction to the medical profession's views. These four possibilities are as follows: 1. The intern may be exempted from the requirements of licensure. At present this is the case in thirty-one states. 2. A medical license may be required as a condition precedent to internship. So far as I know, this is the case only in Indiana. 3. The internship may be required as a condition precedent to licensure. This is the present law in sixteen states as well as in the District of Columbia and Alaska. 4. Finally the internship may be a requirement for the medical degree. This is now the case in fifteen medical schools in this country and three in Canada. With the possible exception of Minnesota where the degree of Bachelor of Medicine, granted after the completion of four years of professional work, admits the holder to the Minnesota state licensing examination, although the final degree of Doctor of Medicine is not granted until the completion of a year's internship, this means that for practical purposes graduates of these eighteen schools must have the internship as a condition precedent to licensure whether or not such internship is a prerequisite in the state in which the candidate applies for licensure.

Were there any very marked advantages among these four plans it is probable that by this time overwhelming evidence would have led to a more general adoption of one system. In

the absence of such evidence, it is reasonable to conclude that one system appears to work about as well as another. Nevertheless there are certain theoretical advantages and disadvantages. In the first place, there is so great a unanimity as to the desirability of an internship in preparation for the practice of medicine that well over 95 per cent of all graduates now voluntarily undertake such training. It is evident that laws can accomplish relatively little in increasing the number of students taking internships. The disadvantages of having the internship as a state requirement for licensure have been apparent in many states in which this is the law. The state is not as competent as the medical school to regulate the details of professional training and the inelasticity of state laws and regulations constitutes a serious hindrance to effective administration.

The Indiana plan of requiring an intern to have a medical license is not practical, as there would be a considerable delay after the student's receiving his medical degree before he could obtain his license and begin his internship. In addition the large number of students who plan to receive their licenses through passing the examination of the National Board of Medical Examiners would be barred from internship, since the completion of the internship is necessary for obtaining the diploma of the National Board.

Little can be done to increase the number of available internships, which are not quite sufficient in number. Emphasis should be placed on better rather than more internships, that is, internships which are properly supervised for the systematic education of the interns. This can be done adequately only through incorporating the internship in the medical course necessary for the M.D. degree.

The five medical schools of New York City have joined with the Academy of Medicine to make a most extensive survey of the teaching possibilities of internships in New York City. The results of this survey should be a most important contribution to the problem and its conclusions a valuable guide in the matter.

My conclusion is that the proper law is one which states that the intern is not practicing medicine within the meaning of the statute. Ultimately either the medical schools themselves or the state boards will almost certainly require the internship as part of the fundamental training of the medical student, a prerequisite for both the medical degree and admission to the state licensing examination.

#### DISCUSSION

DR J. W. BOWERS, Fort Wayne, Ind. The practice of medicine is a state right, therefore a uniformity of law would be hard to attain because the problems in one locality might be diametrically opposite to the problems of another. The statute of Indiana does have a student's exemption clause but it was written long before the days of internships. "This act shall not be construed to prevent medical students from practicing medicine and surgery under the immediate and direct supervision of a licensed physician for a limited period. In no event shall the said student open an office or offer to engage in the practice of medicine, surgery or obstetrics." In recent years there were graduates from schools serving internships in Indiana that were not eligible for licensure and could never qualify for practice in the state. Therefore, in 1933 the board adopted a resolution that any physician who desires to serve as an intern in a hospital in Indiana shall be in possession of an Indiana license or shall present documentary evidence of having successfully passed the examinations of this board for a license, or the examination of a board of another state, which would entitle him to a license in Indiana through reciprocity. This does not pertain to a student from a college that requires the fifth year because he is not a physician but still a student. Beyond doubt, the intern year is the crowning feature in one's collegiate work. The hospital that gives the proper intern training is one that has a functioning staff on which the intern receives instruction, is allowed to view and assist in various capacities, and has rotating services. This intern is not practicing medicine within the meaning of the law but is still a student. Hospitals that give an improper training are hospitals in which the instruction is secondary. The interns receive maintenance and sometimes a small sum per month. They are

called on to give anesthetics, and the customary fee is collected and returned by the corporation. Another practice is that of emergency cases in which the intern assumes complete charge gives the service and patients return for subsequent treatment and dressings, but the cases are likewise paid for by the patient and the sum collected is retained in the institution's treasury. Perchance one of these cases might prove fatal. Who is going to sign the death certificate? Most certainly neither the intern nor the hospital. On their own initiative interns, nurses and employees in some hospitals do prescribe narcotics. When and by whom was this governmental authority given? The practice of medicine is a privilege and no corporation can obtain this privilege. Therefore these hospitals are aiding and abetting a fraud by having their interns and nurses violate the law by doing that which they have no right. In discussing this problem it seems that the solution lies in a better regulation and supervision of the hospitals available for internship. These violations should be corrected as one of the requisites for a hospital to be recognized as accredited for the proper training of interns.

DR T. J. CROWF, Dallas, Texas. In Texas, no exemption in the law is made for the intern. Any person who treats or offers to treat a disease of any order or any deformity, and charges for it is practicing medicine within the meaning of the present medical practice act. However, no notice is taken of the intern who is practicing in a properly supervised internship. To some extent an intern should be held responsible. For that reason he could be held responsible for practicing medicine, with the present state of the law, which provides that any person who receives money or other compensation, either directly or indirectly, for treating a human being for a disease or disorder is practicing medicine. I think that is a protection. I believe it is figuratively meant that every intern is practicing medicine when he completes his course and goes into a hospital. That is what he is there for.

DR HAROLD RYBINS, Albany, N. Y. I envy the gentlemen who live in western and southern states where apparently the law is flexible and can be enforced or not, according to the whim of the administrative officer. In New York we have to follow the law. But in general I think that as long as we say a license is not required we do not require it. However, if our law said that a license would be required every one who wanted to be an intern would have to have a license.

#### Uniform Standards of Licensure

DR CHARLES B. PINKHAM, Sacramento, Calif. A comparative study of the mechanics of licensure, as administered by boards created under the many medical practice acts of the United States, discloses such a lack of uniformity that one wonders what may be the ultimate solution. Its complexity is rapidly growing because of the allied problems of present-day medical practice. The number of medical schools in the United States has been reduced in the past decade, the requirements for admission have been advanced, enrolment has been limited and an intern year added, yet still the output of the American medical colleges is steadily increasing. Faced with overcrowded medical ranks and the economic distress, the medical graduate today is confronted with a situation that threatens his career as a practitioner of the healing art. In many states, after he has gained his right to practice in the form of a medical license the medical licensee must compete with those who possess diplomas bearing the name of nondescript schools.

The majority of boards authorized under the laws of various states to license the products of these nonmedical groups are none too exacting in the verification of the asserted credentials presented by applicants for a license. Thus is encouraged the forging of credentials, the purchase of diplomas, the activities of diploma mills and the too frequent scandals that besmear the fair name of the victim state because of the misdeeds of a few rascals. A uniform standard of licensure is the crying need.

Basic science legislation has been proclaimed as a solution to elevate the standard of the nonmedical group. A questionnaire distributed to the secretaries of all medical licensing bodies in the United States and returned completed by all except Delaware disclosed that only ten states reported a basic science law in operation. Only four states not having a basic science law reported that they favored such an enact-

ment A basic science law will not uphold the ideals for which it was created unless each member of the board of examiners created under it is fully qualified by completion of the entire resident course in an accredited university

The varying personnel composing medical examining boards may be of interest California has a (1) medical board composed of ten graduates of medical schools (2) an osteopathic board composed of five graduates of osteopathic schools and (3) a chiropractic board Eleven state boards have at least one osteopathic board member Mississippi and West Virginia each have a dentist member The District of Columbia board is composed of one M.D. and four laymen, Illinois reports a chiropractor member for examination only while the Indiana board has a chiropractor member Kentucky has a pharmacist as a board member

A medical graduate passes on the credentials of an applicant for a medical license in the majority of states A lay secretary validates credentials in Illinois, Nebraska New York and Washington, while in Massachusetts credentials are passed on by the chief clerk

Colorado, Georgia, Illinois Kentucky, Maryland Massachusetts, Pennsylvania Utah and Virginia, reported that they do not require the application to be accompanied with a medical diploma Some of these states will accept the certificate of the dean of the medical school in lieu of a diploma An applicant will be admitted to examination in Kentucky without a diploma if graduation is shown within one month after examination

An internship requirement either by law or board rule for admittance to examination was reported by Alaska the District of Columbia, Illinois Iowa, North Dakota, Oregon Pennsylvania South Dakota and Wyoming Washington reported that it admits to examination provided not more than six months is yet to be served to complete the applicant's internship The medical practice acts of sixteen states require completion of an internship before application for medical examination is acceptable Fifteen medical colleges require completion of an internship before a medical diploma will be granted

The urgent need for greater uniformity in standards of medical licensure is reflected in the methods used by various medical examining boards in evaluating credentials from foreign medical schools California has experienced great difficulties in verification of credentials from foreign countries The teaching system followed by foreign medical schools, their method of keeping record of attendance of the individual student, the basis on which is computed each scholastic term or year, their inability or refusal to furnish a tabulated record of the medical studies completed by a student his attendance and grades, and, worst of all that confusing European habit (universally prevalent in Germany) of attending four, five or six medical schools, all combine to form a perplexing problem for a state medical examining board Verification of medical credentials through the proper officer of German medical schools is practically impossible because of the political conditions Russia for years has been in such a state of political unrest that verification of medical credentials from that country has been impossible Puzzling as to authenticity are the average alleged official Russian documents filed by the graduate of a Russian medical college as his credentials Invariably written by hand or typed on a poor quality of paper these documents are far from acceptable evidence of medical qualifications The resolution passed by the Federation of State Medical Boards requiring all graduates of foreign medical schools to serve at least a one year internship in an approved United States hospital or to complete the senior year in an approved United States medical school appears from our questionnaire to be enforced by only one medical examining board The influx of foreign physicians now acute will be a more perplexing problem when the 1,500 Americans reported last year as having gone to foreign countries to study medicine return to our shores in search of a medical license Faced by the uncertainties of credentials from foreign medical schools Alaska Arizona, Georgia Kentucky Louisiana, Mississippi and North Carolina reported that foreign credentials were not accepted and that foreign graduates were not admitted to examination Some state medical boards permit a foreign applicant special privileges New Mexico permits the use of an interpreter

during the examination He is selected by the board, is seated with the applicant in the same room with other applicants and is permitted to refer to books Because this interpreter may be a graduate of a medical school it is conceivable that, fortified by reference books which he is permitted to use during examinations he can be of great help to an applicant for a medical license Texas also permits the applicant to write in a foreign language and he is permitted to use an interpreter This interpreter is usually a board member a graduate of a medical college, is seated with the applicant in the same room as other examinees, and may refer to books Fourteen state boards reported that citizenship is not a requirement for admittance to examination for a medical license however, twelve require that first papers be held Two states require "declaration of intent" to become a citizen before the foreign graduate is admitted to examination Maryland permits distinguished foreign practitioners to be licensed by endorsement of their foreign credentials New York may also grant to graduates of foreign medical schools a medical license by endorsement whenever the applicant has been in practice in a foreign country for ten or more years In THE JOURNAL, Sept. 29, 1934, page 1015, was a list of 105 graduates of foreign schools, applicants for a New York medical license Thirty-nine passed and nineteen failed the written examination, while forty-seven of this group were licensed on endorsement of their foreign credentials

The mechanics of written examination procedure followed by medical examining boards is widely divergent Illinois appears to be the "Santa Claus" for all applicants because it reported that no application fee is required until the "applicant has been notified that he has been successful" A photograph of the applicant attached to his application is recorded as the universally adopted method of identification Had the Georgia board "checked in" applicants by photographs the asserted impersonation of Philip Dymont by Lucian Wright, reported to have written the examination for Dymont, would have been impossible Three state boards report a 'check in' by number only Eleven report that they require that the photograph of the applicant shall be in sight on his desk during his entire examination This is collected by tellers after the examination has been completed The Department of Licenses of Washington made no mention that a photograph of the applicant was required either attached to the application or otherwise

North Carolina reports that it is discretionary with the board as to the kind of examination given Twelve states reported that they offer more questions than the applicant is required to answer thus giving him opportunity for selection California offers twelve questions, the applicant being required to answer any ten Thirty-one states reported that they offer only a written examination Four states reported that bedside examination is required Some state boards reported that the questions of examination are prepared by board members a month prior to the date of the examination, while New York prepares the questions one year in advance of examination In such instances the custodian of examination questions bears a grave responsibility The custodianship of these valuable records varies in the several states Many examining boards place the obligation of protecting these questions from being known in advance on the secretary of the board

A passing grade of 75 per cent is established by practically all medical examining boards although Kentucky and New Mexico report 70 per cent as their passing grade, while Georgia, North Carolina, Rhode Island and West Virginia require 80 per cent The right to a review of the papers of those applicants who fall below the established passing grade is granted under certain conditions by twenty-three state boards Twenty-two boards voiced disapproval of an oral examination requirement for reciprocity applicants, eleven were favorable to such a requirement An interesting sidelight to our survey developed when all were unanimous in voting no to the query as to whether medical examining boards should examine and license in any of the specialties in medicine Because of the wide variation in the state medical practice acts the factors involved in their administration and the ever changing personnel of the average board of medical examiners the Federation of State Medical Boards can point with pride to the present standards of medical licensure

This digest of the survey indicates the need to press on. Consideration of the problems of other boards will broaden our administrative point of view.

## DISCUSSION

DR J N BAKER, Montgomery, Ala. Any one who attempts to compare the laws in the various states is impressed with their polyclot, incongruous nature. I believe those things will be perfected slowly and gradually, as the educational forces get over to the public and to the legislatures. I consider the work of the National Board of Medical Examiners a great driving factor in this educational work.

DR J E MCINTYRE, Lansing, Mich. I have found no class A American medical schools that will accept a foreign graduate in the last year of medicine so Michigan is not bothered much with foreign graduates. We have had the same trouble that Dr Pinkham has quoted in trying to evaluate foreign credits. It is almost an impossibility. There have been many spurious credits or credentials offered to us in the past. Michigan admits to its board only graduates of class A American schools who have served one year of rotating internship in an approved American hospital. Therefore it makes the problem easier in Michigan.

DR JOHN Z BROWN, Salt Lake City. I should like to have Dr Pinkham clarify his statement regarding basic science laws. In Utah some men are considering that problem. In Minnesota and other states with which we reciprocate they have it but we have not adopted it and it would require legislative action to do it.

DR T J CROWE, Dallas, Texas. I think there should be more discussion from the floor. If our work is worth anything at all if it means anything either to the medical profession or to the public, why not make it valuable one way or the other if we cannot both ways. I find that a number of the states go off independently and adopt a basic science law. A number of the basic science states have required that any applicant for reciprocity must take the basic science examination before reciprocity for that state can be granted. It is one of the tragedies of medical judgment that any state should adopt a basic science law without taking notice of the reputable graduate of ten years ago who had all the basic science subjects and who to get that reciprocal license must go back and review work that he did years ago. Arkansas told me that one of our men who went there could not qualify. This graduate had the basic sciences three different times in his academic two years of premedical education in his medical college and we gave them to him in our examination. How many times should he be expected to take the basic science examination? Why medical men will not look beyond the boundaries of their own state I cannot understand. Many boards are in disrepute because one state has one law and the neighboring state has another. Texas has one license certificate, and every man who practices medicine whether he is a drugless man or what-not conforms to the same law and is examined in the fundamentals of medicine and the basic sciences.

DR CHARLES PINKHAM, Sacramento, Calif. Answering the question of the member of the Utah board I did not mean to convey the impression that there was to be a national basic science law. What I tried to make clear was what Dr Crowe has been talking about, that the well educated individual, having obtained his license in one state, should not be required in going to a sister state to pass a basic science examination. California recently had a similar experience with the state of Washington. A graduate of the University of California, a class A institution, with an A B degree and a California medical practice certificate, after a written examination could not get into the state of Washington until he had passed the basic science examination. That is absurd. I tried to stress in my paper that, because California has the chiropractic and the osteopathic boards created by an initiative measure that is, by a vote of the people any legislative enactment of a basic science law by the state of California would be absolutely valueless. However, if such a basic science law is passed by initiative, it would require all who present themselves to either of those two boards to have the basic science certificate first. And that is the only method whereby basic science can be available in the state of California.

## MEDICAL BROADCASTS

## Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 p m central standard time). The next three broadcasts will be delivered by Dr W W Bauer. The titles will be as follows:

May 9 Saving Our Mothers  
May 16 Children's Eyes  
May 23 Saving Our Eyesight

## National Broadcasting Company

The American Medical Association broadcasts under the title 'Your Health' on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 p m central standard time). The next three broadcasts will be as follows:

May 7 Mothers of America W W Bauer MD  
May 14 Training Good Doctors W D Cutter, MD  
May 21 Pain W W Bauer MD

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## CALIFORNIA

**State Medical Meeting in Yosemite**—The sixty-fourth annual meeting of the California Medical Association will be held at the Ahwahnee Hotel Yosemite National Park, May 13-16 under the presidency of Dr Clarence G Toland, Los Angeles. There will be general sessions each morning, at which the following will speak:

Dr Edward Starr Judd, Rochester, Minn., Research in Medicine—Practical Applications.  
Dr George H Whipple, Rochester, N Y, Anemias, Experimental and Clinical.  
Dr Thomas P Sprunt, Baltimore, Md., Medicinal Treatment of Hepatic and Biliary Disorders.  
Dr James S McLester, Birmingham, Ala., President Elect, American Medical Association, The Profession's Economic Responsibility.  
Lionel Browne, San Francisco, deputy attorney general, The Right to Regulate and the Reason for Regulation of Professions.  
Paul A Dodd, Ph D, Los Angeles, director of the association's survey of medical service, Pertinent Facts Uncovered by the State Survey of Medical Service.  
Dr Harry H Wilson, Los Angeles, What Is the Remedy?

In addition there will be guest speakers at the section meetings as follows:

Dr Whipple, Regeneration of Hemoglobin and Plasma Proteins as Related to the Liver.  
Dr Sprunt, Acute Disorders of the Liver.  
Dr Judd, Surgical Treatment of Lesions of the Stomach and Duodenum.  
Dr Byrl R Kirklin, Rochester, Minn., Clinical Indications for Roentgenologic Studies of the Stomach.  
Drs Paul G Flothow and Sylvester N Berens, Seattle, Diagnostic and Alcohol Injection of the Sympathetic Nerves.  
Dr Ralph M Tovell, Rochester, Minn., Modern Trends in Anesthesia.  
Dr Charles U Moore, Portland, Ore., Incidence of Rachitic Imperfections in Children.  
Dr Henry Schmitz, Chicago, A Comparison of 600 Kv with 200 Kv Roentgen Ray.  
Dr LeRoy Sante, St Louis, Roentgenologic Differentiation Between Acute Intestinal Obstruction and Paralytic Ileus.

Dr Frederick C Warnshuis, San Francisco, secretary of the association and speaker of the House of Delegates of the American Medical Association, will address the sixth annual meeting of the Woman's Auxiliary of which Mrs Philip Schuyler Doane, Pasadena, is president.

## CONNECTICUT

**Highway Named for Beaumont**—The Connecticut legislature has authorized a new highway between Lebanon and Willmantic to be named the Beaumont Memorial Highway, in honor of Dr William Beaumont, pioneer in the study of the physiology of digestion. Dr Beaumont was born in Lebanon, where the Beaumont Society of Connecticut erected a memorial some years ago. Dedication of the new highway will take place June 1 with ceremonies at which Gov Wilbur L Cross and Dr Harvey Cushing will make addresses.



**University Appointments**—Mark A. May, Ph.D., executive secretary of the Institute of Human Relations at Yale University, New Haven since 1931, has been appointed director of the institute. President James Rowland Angell has been director. Dr. May came to Yale from Columbia University, New York in 1927 as professor of educational psychology. Dr. Leonard Greenburg, health officer of New Haven has been promoted to be associate clinical professor of public health, and Dr. Chris Harold Neuswanger to be assistant clinical professor of urology. Dr. Robert Tennant Jr. has been made assistant professor of pathology and Gertrude Van Wagenen, Ph.D., assistant professor of obstetrics and gynecology.

## FLORIDA

**Bills Passed**—The following bills have passed the senate S 141, proposing that whenever the word physician appears in any law unaccompanied by any descriptive language denoting some particular kind of "physician," it shall mean a licentiate of the State Board of Medical Examiners or a licentiate of the State Board of Osteopathic Medical Examiners, S 144 proposing to amend the medical practice act by making it the specific duty of all sheriffs, constables, their deputies, police officers, peace officers, prosecuting attorneys, and the state board of health to enforce the provisions of the medical practice act. S 145, proposing to amend the narcotic drug act by permitting osteopaths to administer and prescribe narcotic drugs. S 146, proposing to amend the medical practice act by requiring an applicant for a license to practice medicine to be a citizen of the United States, rather than, as the present law requires to be a citizen of the United States or to have declared his intention to become a citizen.

**Bills Introduced**—S 148 and H 145 propose to accord to hospitals, physicians, osteopaths, chiropractors, naturopaths and nurses, treating persons injured through the fault of others, liens on all rights of action claims judgments compromises or settlements accruing to the injured persons by reason of their injuries. S 238 proposes to require the state board of health to distribute insulin free of cost to indigent residents of the state suffering from diabetes or kindred diseases that require the use of the drug. H 91 proposes to repeal the existing naturopathic practice act and to enact a new naturopathic practice act. The bill proposes, in effect, to extend greatly the scope of a license to practice naturopathy. It purports to permit licensed naturopaths, in addition to the practice now permitted to practice physiotherapy, herb therapy, electro-coagulation and electrotherapy. It also removes the express provision in the existing law prohibiting naturopaths from practicing materia medica or surgery. H 147, to amend the law requiring physicians to register annually with the state board of health and to pay a fee of \$1 proposes that, after a physician has once registered with the board and paid a fee of \$2, he need not reregister until such time as he changes his residence or the place in which he intends to carry on the practice of medicine. H 149 proposes to prohibit all persons, other than licensed physicians and licensed osteopaths from prescribing drugs doing surgery, x-ray, diathermy, electro-coagulation, radiation, or autohemotherapy in the diagnosing treatment operation or prescribing for any human disease, pain, injury, deformity or physical condition. H 494 proposes to require that all persons in the state over the age of 4 be vaccinated and immunized against smallpox.

## GEORGIA

**Society News**—At a meeting of the Fifth District Medical Society in Atlanta March 29, speakers included Drs. Stewart R. Roberts on 'Treatment of Congestive Heart Failure', William M. Scruggs, Charlotte N. C. 'Management of the Toxic Goiter', Thomas C. Davison 'Surgical Treatment of Angina Pectoris' and Louis G. Herrmann, Cincinnati. The Passive Vascular Exercise (Pavaex) Method of Treating Obliterative Arterial Diseases of the Extremities.—The Georgia Academy of Science was addressed at its annual meeting March 22-23 among others by Clinton C. Howard, D.D.S., Atlanta, on 'Two Sets of Identical Twins Presenting Identical Anomalies', Drs. George L. Kelly, Augusta 'The Direct Observation of Ovulation in the Rabbit', Homer R. Blincoe and John H. Venable, Emory University 'Persistence in Man of an Aortic Arch Resembling That Which Persists in Adult Reptiles' and Joseph H. Kite, Decatur 'Nonoperative Versus Operative Treatment of Tuberculosis of the Spine in Children'.—At a meeting of the Fulton County Medical Society March 7 Dr. Frank Lee Brivings presented a paper on 'The Feet in Infancy and Childhood'.

## ILLINOIS

**Bill Introduced**—H 863 proposes to limit the sale of appliances, articles, drugs or medicinal preparations intended or having special utility for the prevention of conception or venereal disease to persons licensed by the department of registration and education to sell them.

**Personal**—Dr. George A. Zeller has retired as superintendent of the Peoria State Hospital, a position he had held consecutively since 1921 when the institution was being organized in 1898. Dr. Zeller was named superintendent but did not assume active charge until 1902, continuing until 1914, when he became alienist for the board of administration.—Dr. John R. Neal, Springfield, a former president of the Illinois State Medical Society has been named medical director of the Alliance Life Insurance Company.—Dr. Albert F. Fritze, Chester, observed his fiftieth anniversary in the practice of medicine March 15.

## CHICAGO

**Dr. Vallery-Radot Lectures**—Dr. Pasteur Vallery-Radot, associate professor of medicine, University of Paris Faculty of Medicine, and physician to the Bichat Hospital, presented a lecture April 28 at the Casino on 'La vie intime de Pasteur'. The lecture was under the auspices of the executive board of the American Library in honor of Pasteur.

**Portrait of Dr. Parker**—An enlarged photograph of the late Dr. Charles A. Parker was presented to the Chicago Orthopedic Society by Dr. Daniel H. Levinthal at a meeting, April 12. The portrait was donated by the Huey Company to Dr. Levinthal for the society. It will be hung in the children's orthopedic ward at Cook County Hospital, where Dr. Parker worked for many years. Dr. Parker died July 16, 1934.

## IOWA

**State Medical Meeting at Davenport**—The eighty-fourth annual session of the Iowa State Medical Society will be held in Davenport, May 8-10 under the presidency of Dr. Gordon F. Harkness, Davenport and with headquarters in the Masonic Temple. Out of state speakers will include:

Dr. Loyal Davis, Chicago, Treatment of Craniocerebral Injuries  
Dr. William S. Middleton, Madison, Wis., Postoperative Pulmonary Complications, Their Prevention and Management  
Dr. Harry S. Gradle, Chicago, Management of Eye Injuries by the General Practitioner  
Dr. Charles Anderson Aldrich, Winnetka, Ill., Treatment of Acute Nephritis in Children  
Dr. James S. McLester, Birmingham, President Elect, American Medical Association, Deficiency Disease as a Clinical Problem.

A symposium on carcinoma of the colon will be presented Wednesday morning, Wednesday and Thursday afternoons will be given over to sectional conferences for discussion of the specialties. In addition, papers will be presented during the morning sessions by Iowa physicians. Entertainment will include a smoker Wednesday evening at the Blackhawk Hotel and the annual banquet Thursday evening with Dr. Frank B. Dorsey, Jr., Keokuk, as toastmaster. Dr. Harkness will deliver his presidential address at the banquet and the president-elect, Dr. Thomas A. Burcham, Des Moines, will also speak. A pre-convention golf tournament will be held Tuesday afternoon. The sixth annual meeting of the Woman's Auxiliary of the state society and the thirty-seventh annual session of the State Society of Iowa Medical Women will also be held at this time.

## KENTUCKY

**Graduate Course in Pediatrics**—A ten weeks course in pediatrics is being given at the Children's Free Hospital, Louisville, under the auspices of the American Academy of Pediatrics. The teaching staff includes Drs. Philip F. Barbour, Thomas Cook Smith, James H. Pritchett, Anne S. Veece, James W. Bruce, William W. Nicholson, Jacob J. Glaboff and Harry S. Andrews. The course began April 24 and is to continue on succeeding Wednesdays through June 26.

## MARYLAND

**The Thayer Lectures**—The eighth course of lectures under the William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine was delivered by Dr. Pasteur Vallery-Radot, associate professor of medicine at the University of Paris Faculty of Medicine April 25 and 26 at Hurd Memorial Hall, Johns Hopkins University, Baltimore. Dr. Vallery-Radot's subjects were 'The Links Between Pasteur's Discoveries (From Molecular Dissymmetry to Antibiotic Vaccination) and From Experimental Anaphylaxis to Human Anaphylaxis'. The Thayer Lectureship was founded in 1927 by friends and admirers of the late Dr. Thayer.



**Johns Hopkins Hospital Appeals for Funds**—For the first time in many years, Johns Hopkins Hospital has opened a campaign for funds to carry on its charity work. The campaign was launched at a banquet at the Hotel Belvedere, April 23, at which Isaiah Bowman, Ph.D., recently chosen president-elect of Johns Hopkins University, made the principal address. Dr. Hugh H. Young, professor of urology in Johns Hopkins University School of Medicine and head of the Brady Urological Clinic at the hospital, is chairman of a committee to ask persons outside of Baltimore to contribute. The fund of \$200,000 that is sought will enable the hospital to carry on its charity work for two years and to open beds now closed in the children's surgical ward and the women's clinic, it was said. About 300 persons attended the dinner.

## MICHIGAN

**Memorials to Former Faculty Members**—Three former members of the faculty of the University of Michigan School of Medicine were memorialized when relatives recently donated plaques to the university in their honor. The Albion Walter Hewlett Memorial Plaque will be placed in the University Hospital in honor of Dr. Hewlett who was professor of internal medicine and director of the clinical laboratories in the medical school, 1908-1916. It is the gift of Mrs. Hewlett now of San Francisco. Other plaques honor the memory of Dr. James G. Van Zwaluwenburg, who at the time of his death in 1922 was professor of roentgenology and Dr. George Edward Frothingham, who at the time of his retirement was professor of materia medica, ophthalmic and rural surgery and clinical ophthalmology. These plaques were the gifts of Dr. Cornelius Van Zwaluwenburg, Riverside Calif., brother of the late physician, and the son of the late Dr. Frothingham, Dr. George E. Frothingham, Detroit. The late Dr. Van Zwaluwenburg was a member of the faculty from 1908 to 1922, and Dr. Frothingham from 1867 to 1889.

**Society News**—A joint meeting of the Wayne County Medical Society with the medical societies of Essex and Kent counties of Ontario, Canada, March 11, was addressed by Drs. George H. R. Hamilton, Chatham, on "Some Pitfalls in Diagnosis of Acute Abdominal Conditions", Chas. S. Sanborn, Windsor, "Relation of Duodenal Mucosa to the Natural Secretion of the Pancreas", William R. Waddell, Windsor, "Ulcerated Colitis," and Charles C. White, Chatham, "Acute Suppurative Arthritis."—Dr. Richard C. Connelly, Detroit, discussed "Gastric Secretion in Health and Disease" before the Grosse Pointe Medical Club, March 6.—At a meeting of the Detroit Oto-Laryngological Society, March 20, Dr. Clifford F. Brunk read a paper on focal infection.—At a meeting of the Genesee County Medical Society in Flint, March 6, Dr. Frederick C. Kidner, Detroit, spoke on "Anatomy of the Lower Part of the Spine in Relation to Pain."—Dr. Raphael Isaacs, Ann Arbor, discussed "The Mechanisms of the Formation of the Different Kinds of Blood Cells in Health and Disease" before the Detroit branch of the Society of American Bacteriologists, March 27.—Dr. Henry A. Luce, Detroit, addressed the Jackson County Medical Society in Jackson, March 19, on "Neuropsychiatry for the General Practitioner."—Dr. Max Cutler, Chicago, discussed "Diagnosis and Treatment of Cancer of the Breast" before the Wayne County Medical Society, Detroit, March 4.—Dr. Harther L. Keim, Detroit, among others, spoke before the Bay County Medical Society, February 27, on "Skin Eruptions of the Face."

## MISSOURI

**State Medical Meeting at Excelsior Springs**—The seventy-eighth annual meeting of the Missouri State Medical Association will be held at Excelsior Springs, May 6-9, at the Elms Hotel. Guest speakers and their subjects will be:

- Dr. John S. Coulter, Chicago, Physical Therapy in Chronic Arthritis
- Dr. Oswald S. Lowsley, New York, New Developments in Renal Surgery
- Dr. Roscoe G. Leland, Chicago, Medical Care for the American People
- Dr. Cecil S. O'Brien, Iowa City, will conduct an ophthalmic diagnostic clinic at the Veterans' Administration Facility at Excelsior Springs, and Dr. William W. Bauer, Chicago, will address the Woman's Auxiliary on "Centuries of Progress in Medicine." Among the Missouri physicians who will participate are:
- Dr. John R. Caulk, St. Louis, Chronic Pyelonephritis in Children
- Dr. Peter T. Bohan, Kansas City, Quinidine Sulphate: Its Actions and Uses
- Dr. Fred W. Bailey, St. Louis, Early Diagnosis in Obscure Abdominal Diseases
- Dr. Samuel H. Snider, Kansas City, Diagnosis and Nonsurgical Treatment of Bronchiectasis
- Dr. Ralph A. Kinsella, St. Louis, Treatment of Chronic Arthritis

- Dr. Frank C. Neff, Kansas City, Changing Practices in Infant Feeding
- Dr. Joseph V. S. Daukays, Excelsior Springs, Schuller-Christian Disease
- Dr. George Wilse Robinson, Kansas City, Practical Factors in Development of Psychoses
- Dr. Titus S. Lapp, Fulton, An Institutional Outbreak of Shiga Poison and Its Control
- Dr. Joseph S. Summers, Jefferson City, Myasthenia Gravis
- Dr. Causus T. Ryland, Lexington, will give his presidential address and Dr. Edwin Lee Miller, Kansas City, his address as president-elect, Tuesday morning, May 7.

## NEW MEXICO

**Institute on Venereal Disease**—Dr. Walter Clarke of the staff of the American Social Hygiene Association conducted an institute of venereal disease at the Charles F. Lummiss Hospital at the U. S. Indian School, Santa Fe, March 18-19, assisted by Dr. Robert H. Heterick, Albuquerque, medical director of District No. 3 of the Indian Medical Service. Twenty physicians and forty nurses attended.

## NEW YORK

**Society News**—Dr. Charles T. Porter, Boston, addressed a joint meeting of the Syracuse Academy of Medicine and the Syracuse Eye, Ear, Nose and Throat Club, March 17, on "Etiology and Treatment of Infections of the Orbit."—Dr. Harrison S. Martland, Newark, N. J., and Alexander O. Gettler, Ph.D., addressed the Onondaga Medical Society and the Onondaga County Bar Association at their annual dinner meeting in Syracuse, April 13, on "Medical Detection of Crime" and "Chemistry in the Detection of Crime," respectively.—Drs. Henry L. K. Shaw and John E. Heslin discussed medical and surgical aspects respectively, of "Urinary Infections of Childhood" at a meeting of the Medical Society of the County of Albany, April 24.

## New York City

**Hospital Council Named**—Members of an advisory council to coordinate the activities of hospitals were named by Dr. Sigismund S. Goldwater, commissioner of hospitals, March 29. As reported in the *New York Times*, they include Mayor La Guardia, Controller Taylor, Dr. Goldwater, Health Commissioner John L. Rice, Charles C. Burlingham, president of the Welfare Council of New York, Solomon Lowenstein, representing Jewish philanthropic agencies, Rev. Joseph S. O'Connell, representing Catholic Charities, Dr. John A. Hartwell, director of the New York Academy of Medicine, and Dr. David J. Kaliski, representing the five county medical societies.

**Annual Art Exhibit**—Two hundred and fifty nine exhibits were displayed in the eighth annual exhibition of the New York Physicians' Art Club at the New York Academy of Medicine, March 30-April 13. Only one of the number was on a medical subject, most of the work showing vacation scenes. The exhibit included paintings, bas-reliefs, plaques, sculpture and photographs. Among the exhibitors were Drs. Howard Lilienthal, Henry H. M. Lyle, Louis C. Schroeder, Winfred Morgan, Hartshorn, Theron W. Kilmer, Walter Beran Wolfe, Yolande E. H. Huber, Alfred Braun and Abraham L. Wolbarst, all of New York, Frederic J. Cotton, Boston, and Florence A. B. Brush, White Plains.

**Census of Diabetic Patients**—The New York City Department of Health recently sent a letter to all physicians in the city asking them to inform the department of the number of diabetic patients under their care. The department is making an effort to place all persons with diabetes under the care of licensed physicians, as it has been found that many of them trust to nostrums, trick diets, alleged substitutes for insulin and the like. Dr. John L. Rice, health commissioner, said. Information assembled by the New York Diabetes Association indicates that there are as many as 100,000 diabetic persons in the city. It is believed that diabetes is more prevalent than tuberculosis.

## NORTH CAROLINA

**Bill Introduced**—S. 504 proposes to require every male applicant for a license to wed, as a condition precedent to obtaining such license, to present a certificate of a licensed physician, executed within seven days of the application, that the applicant does not have any venereal disease or tuberculosis in an infectious stage and that he has not been legally adjudged to be an idiot, imbecile or of unsound mind. Female applicants are to be required to present a physician's certificate showing the nonexistence of tuberculosis in the infectious stages and that they have not been legally adjudged to be of unsound mind.

**State Medical Meeting at Pinehurst**—The eighty-second annual session of the Medical Society of the State of North Carolina will be held at Pinehurst, May 6-8, with headquarters at the Carolina and under the presidency of Dr Paul P McCann, Sanatorium. There will be four general sessions, at which speakers will be the following

Dr James R Young Anderson S C, My Experience in 2,200 Cases of Appendicitis  
Dr Lester A Crowell Jr Lincolnton Pneumothorax Treatment of Lobar Pneumonia  
Dr Russell O Lyday, Greensboro Surgical Treatment in Noncollapsible Cavities  
Dr Williamson Z Bradford Charlotte, Factors Influencing Maternal Mortality in North Carolina  
Dr David R Lyman, Wallingford Conn Pregnancy and Tuberculosis  
Dr Roy B McKnight Charlotte The Charlotte Medical Library  
Dr Franklin C Smith, Charlotte Conservation of Vision and the General Physician  
Dr John Roy Hege Winston Salem A Proposed County City Venereal Disease Program  
Dr Verling K Hart Charlotte Bronchoscopy in Childhood

In addition, Dr William Thornwall Davis, Washington, D C, will address the section on ophthalmology and otolaryngology on "Treatment of Squint by Orthoptic Training and Surgery", Dr Louis H Clerf, Philadelphia the section on practice of medicine, "Bronchoscopy as an Aid in the Diagnosis of Pulmonary Diseases," and Dr Jean P Pratt Detroit, the section on gynecology and obstetrics, on "Application of Endocrinology to Gynecology." There will be a golf tournament Tuesday afternoon, and the president's reception and ball will be held Tuesday evening. The Woman's Auxiliary will hold its annual meeting at the same time and the North Carolina Public Health Association will meet Monday, May 6.

### OHIO

**Graduate Assembly at Youngstown**—The Mahoning County Medical Society presented its eighth annual graduate assembly, April 25, at Youngstown. Lecturers were from Rochester, Minn., as follows:

Dr Walter C Alvarez, Treatment of Gastro-Intestinal Neuroses. Diagnosis of Gastro-Intestinal Disease Purely from a Good History  
Dr Claude F Dixon Rectal Cancer. Management and Prognosis. Essential Operation for Chronic Ulcerative Colitis  
Dr Frank C Mann Functions of the Liver. Functions of the Spleen  
Dr Henry W Meyerding Clinical Aspects of Fibrosarcoma of the Soft Tissues of the Extremities. Spondylolisthesis as a Factor in the Cause of Backache

**Society News**—Dr Rosco G Leland, Chicago, director, Bureau of Medical Economics of the American Medical Association, addressed the Toledo Academy of Medicine, March 1, on "Proposals and Developments Toward Sickness Insurance."—Dr Jesse O Arnold, Philadelphia, addressed the Montgomery County Medical Society, Dayton April 19 on "Dehydration Treatment of Eclampsia."—Dr Charles C Higgins Cleveland, addressed the Cincinnati Academy of Medicine April 1, on "Experimental Production and Management of Renal Calculi."—Paul Nicholas Leech, Ph.D. Chicago secretary of the Council on Pharmacy and Chemistry of the American Medical Association, addressed the Columbus Academy of Medicine, March 25, on "The Physician and His Drugs."—Dr Richard H Jaffe, Chicago, discussed Malignancies of the Lung at a meeting of the Mahoning County Medical Society, March 19.—Dr Raymond E. Paul Botkins addressed the Shelby County Medical Society, Sidney March 1, on trichinosis.—Dr John F Beacher Piqua spoke on Early Diagnosis and Prophylaxis of Female Genital Carcinoma before the Miami County Medical Society Troy March 8.—Drs Kenneth C. McCarthy Toledo, Floyd T Romberger, Lafayette Ind, and Alexander S McCormick, Akron presented a symposium on anesthesia before the Summit County Medical Society Akron April 2. The society's second 'Post-Graduate Day' was held at the People's Hospital April 17. Subjects presented were compression fractures of the spine pneumonia bronchial asthma, birth injuries, Hodgkin's disease and otitis media.

### PENNSYLVANIA

**Annual Clinic at New Kensington**—The Westmoreland County Medical Society will hold its annual clinic at New Kensington May 23. Drs Russell L Haden Cleveland and Arthur M Shipley Baltimore, will conduct clinics and Drs Moses Behrend, Philadelphia president and Alexander H Colwell, Pittsburgh president-elect of the Medical Society of the State of Pennsylvania will make addresses. Other speakers will be

Dr Walter M Bortz Greensburg Juvenile Diabetes  
Dr Robert H Jeffreys Uniontown Fractures of the Vertebrae  
Dr John B McMurray Washington Vertigo  
Dr Horace B Anderson Johnstown Cardiac Pain in Heart Disease  
Dr George A Holliday Pittsburgh Treatment of Gonorrhea

In the evening there will be a banquet at the Hill Crest Country Club.

**Bills Introduced**—S 965 proposes to authorize a licensed optometrist to execute any certificate of ocular conditions or visual efficiency required by any law of the commonwealth. H 2494 proposes to prohibit the marriage of persons who have been legally declared to be either weakminded, habitual drunkards or lunatics. The bill proposes a procedure for the annulment of such marriages. H 2500, to amend the laws regulating the practice of osteopathy, proposes to dispense with the present requirement that applicants for a license to practice osteopathy must have acquired a high school education prior to their osteopathic studies by requiring such applicants to have acquired a high school education prior to the time they apply for a license. H 2502, to amend the law prohibiting the procuring of an abortion, proposes that "if it be found absolutely necessary to save the life of a woman who is pregnant and upon due certification by two licensed physicians at least one of whom shall be a member of staff of a state-aided hospital, that in their best judgment such is the fact, it shall not be unlawful to procure such miscarriage providing that such operation be performed in a state-aided hospital." H 2531 proposes that hospitals receiving state aid shall, as a condition to receiving any aid, transmit to each regular session of the general assembly a full and complete statistical and financial report for the last two of its fully completed fiscal years. H 2637 proposes that the state compensate physicians treating persons bitten by or directly exposed to an animal which in the opinion of a licensed veterinarian is afflicted with or has the appearance of being afflicted with rabies or is found to have been so afflicted by laboratory examination made by the department of agriculture, and to require the department of health to supply without cost sufficient antirabic serum for the treatment of such persons.

### Philadelphia

**Dr Burr Receives Strittmatter Award**—Dr Charles W Burr, professor emeritus of mental diseases at the University of Pennsylvania School of Medicine received the twelfth annual Strittmatter Award of the Philadelphia County Medical Society, April 17. Dr Burr was graduated from the university school of medicine in 1886 and served on the faculty from 1901 until his retirement in 1931. He was neurologist to the Philadelphia General Hospital from 1896 to 1931 and was for many years on the staffs of the Orthopedic Hospital and the Infirmary for Nervous Diseases. He served as president of the Philadelphia Psychiatric Society in 1909-1910 and of the American Neurological Society in 1908. At this meeting of the society a bronze tablet bearing the names of three benefactors of the county society was unveiled. They are Drs Isidor P Strittmatter, donor of the award, Dr James M Anders, founder of the library, and the late Dr Lawrence Webster Fox, who contributed to the support of the society. Dr Joshua E Sweet, New York, delivered the fifth annual John Chalmers Da Costa Oration on this occasion.

### SOUTH CAROLINA

**Society Receives Old Souvenir**—Col Aiken Simons, Charleston, recently presented to the Medical Society of South Carolina a gold medal given to his father, the late Dr Thomas Grange Simons, in recognition of his work during a yellow fever epidemic in Memphis in 1876. Physicians working in the epidemic organized themselves into a corps known as the Howard Medical Corps, in the name of which the medal was given to Dr Simons. Dr Simons was president of the Medical Association of South Carolina 1888-1889, and during the two following years was president of the Medical College of the State of South Carolina, according to a newspaper account.

### TENNESSEE

**State Medical Election**—Dr John B Steele, Chattanooga, was elected president of the Tennessee State Medical Association at the annual meeting in Nashville, April 11 succeeding Dr John Owsley Manier Nashville. Vice presidents elected were Drs J Wallace Wilkes, Columbia, Nicholas S Walker, Dyersburg, and Charles R Thomas, Chattanooga.

**Society News**—Dr Thomas D Moore presented a paper on "Conservation of Renal Tissue" and Drs James R Reinberger and Percy B Russell Jr. Value and Limitations of the Roentgen Ray" before the Memphis and Shelby County Medical Society March 5.—Drs Fred L Moore Blountville, and Edmund A Lodge, Johnson City, addressed the Washington County Medical Society April 4 on "Typhoid Control in East Tennessee" and "Medical and Surgical Treatment of Otitis Media, Mastoiditis and Their Complications" respectively.—Drs Henry A Callaway, Marville, and James W Norton Walland, addressed the Blount County Medical Society,

May 2 on "Risk of Carcinoma of the Cervix Following Supravaginal Amputation" and Treatment of Influenza," respectively—Dr James G Eblen, Knoxville, addressed the Knox County Medical Society, March 5, on "The Abdominal Pain of Throat Infections and Appendicitis in Children"—Dr John H Tilley, Lawrenceburg, among others, discussed "Treatment of Compound Injuries" at a meeting of the Hardin, Lawrence, Lewis, Perry and Wayne Counties Medical Society Hohenwald, March 26—A symposium on tuberculosis was presented at a meeting of the Chattanooga and Hamilton County Medical Society at Pine Breeze Sanatorium April 25 with the following speakers Drs Tolbert C Crowell William D Anderson, James L Hamilton Franklin B Bogart Eugene A Gilbert, John A Steward and Robert C Robertson

### TEXAS

**State Medical Meeting at Dallas**—The sixty ninth annual meeting of the Texas State Medical Association will be held in Dallas, May 14-16, under the presidency of Dr Samuel F Thompson, Kerrville. Three general sessions will be held at the Baker Hotel at which the following guests will speak:

Dr Joseph L Miller Chicago Recent Advances in Our Knowledge of the Thyroid Gland

Dr Dean D Lewis Baltimore Cystic Mastitis

Dr Horton R Casparis Nashville Tenn Allergy in Children

Dr Edward Jacy King New Orleans Puerperal Tetanus

Dr Arthur U Desjardins Rochester Minn Radiotherapy for Acute and Chronic Inflammatory Conditions

Dr Morris Fishbein Chicago Medicine in the Changing Social Order

Dr Albert C Broders Rochester Minn Cancer as We Comprehend It

Several of the guest speakers mentioned will also address section meetings and in addition Dr Stanley J Seeger Milwaukee, will present a paper before the section on surgery on the treatment of burns. Dr Austin A Hayden Chicago secretary, Board of Trustees, American Medical Association will show at a meeting of the house of delegates a motion picture presenting activities at the headquarters of the Association. There will be symposiums on disorders of the heart cancer of the uterus, modern indications for therapeutic abortion tuberculosis, syphilis and communicable disease control and prevention. The following special organizations will hold their meetings during the week: Texas Railway Surgeons' Association Texas Radiological Society, Texas Neurological Society, Texas Dermatological Society, Texas Society of Gastro-Enterologists, Texas State Heart Association and Conference of County and City Health Officers.

### UTAH

**Survey of Medical Facilities**—The committee on economics of the Utah State Medical Association has completed a preliminary report on medical service and medical facilities in the state. Geographic and population features create problems in Utah that are met in few other states. Only six states have a population density lower than that of Utah 6.2 persons per square mile, the most thickly populated county has a density of 256, but nineteen counties have population densities of less than five. The average population per physician for the state is 980, but in the counties the number of persons per physician varies from 719 in Salt Lake County to 2,754 in Duchesne. In Daggett County, which is isolated by mountains and forests, there is no physician. In October 1934 there were registered with the state board of registration 594 physicians, 430 dentists, 1,012 graduate nurses, 35 midwives, 18 chiropractors, 92 optometrists, 27 osteopaths, 64 chiropractors, 15 naturopaths and 462 pharmacists. The committee based its report on questionnaires filled out by 470 physicians giving their type of practice, charges, income, expense, training, years of practice, hours of work, persons served, preventive services given and charity work. It was found that 18 per cent of the physicians were specialists and 21 per cent partial specialists nearly all concentrated in Salt Lake City. Contrary to experience in other parts of the country, it was found that younger physicians tended to settle outside the larger cities. Thirty per cent of those who replied reported that they held either part time or full time salaried positions, and 17 per cent more reported that all or most of their work was on a specified fee basis. Concerning individual incomes it was found that 23.6 per cent of the physicians in Utah had net incomes under \$2,000 in 1933 and 61.1 under \$3,000. The average number of hours worked per week was 63.7 hours. One physician reported working 104 hours per week and the report interpolates that he suffered a breakdown from heart disease at an unduly early age. Many reported that they had taken no vacations in 1933. Thirty-six hospitals have 3,037 beds 42 per cent of which are in Utah County, where there are two mental hospitals. Fourteen counties have no hospitals. Nearly one fifth of the physicians replying to the questionnaire expressed dissatisfaction with the hospital facilities available to them. The state has a well

organized department of health, but its funds are seriously restricted. County health departments are practically nonexistent. An estimate of the expenditures for the services of physicians in 1933 approximated \$2,887,100, or \$5.50 per capita for the state. The physicians estimated that, in the first three months of 1934, 29 per cent of their work was charity to those unable to pay, in several counties the proportion was as high as 75 and 85 per cent. Counties make little provision for care of the indigent sick and at least six counties make none, it was said. Study of incomes of the population revealed that 20 per cent of the population were unable to pay for medical service and another 35 per cent were able to bear only part of the cost. As a result of study of these and various other factors, the committee outlined specific recommendations for the provision of better medical service, including the establishment of periodic prepayment plans to certain limited groups governed by certain specific principles. The state association was asked to urge governmental units to make better provision for hospital service care of the indigent and extension of public health services. Finally it was proposed that a central office be established with a full time executive secretary.

### WEST VIRGINIA

**State Medical Meeting at Wheeling**—The sixty-eighth annual meeting of the West Virginia State Medical Association will be held in Wheeling, May 6-8 with headquarters at the Hotel McLure and under the presidency of Dr Rome H. Walker Charleston. Section meetings will be held the first day. In cooperation with the West Virginia Heart Association the section on internal medicine will have the following guest speakers:

Dr George W Crile Cleveland Surgical Treatment of Diseases of the Cardiovascular System Problems in the Diagnosis and Treatment of the Thyroid Adrenal Sympathetic System

Dr Russell I Cecil New York Recent Conceptions in the Therapy of Pneumonia Bacterial Endocarditis

Dr Thomas R Brown Baltimore Peptic Ulcer with Particular Reference to Differential Diagnosis and Treatment

Dr Howard L Stitt Cincinnati, will address the eye, ear, nose and throat section on Bronchial Suppuration of Non-tuberculous Origin and Treatment by Bronchoscopy and Bronchial Lavage and Dr Stewart H Clifford Boston, the section on pediatrics, on "Reduction of the Premature Infant Mortality." The program of the general sessions includes the following addresses:

Dr Morris I Mendeloff Charleston Management of the Psychoneurotic by the General Practitioner (the oration in medicine)

Dr Benjamin O Robinson Parkersburg Some High Points in Surgical Progress (the oration in surgery)

Dr Morris Fishbein, Chicago editor of THE JOURNAL, The Work of the American Medical Association (motion pictures)

Dr Elmer Hess Erie Pa Relationship Between Urinary Pathology and Abdominal Symptomatology

Dr Clifford Determination of Fetal Size in Utero by Stereocentrometry

Dr John E Brown Sr Columbus Ohio Evolution of Otolaryngology as a Medical Specialty

Dr Virgil E Simpson Louisville Ky Jaundice as a Clinical Phenomenon

Dr Irvin Abell Louisville Uterine Hemorrhage

Dr Fishbein will also make an address at the annual banquet at the Fort Henry Club, Wednesday evening May 8, on "Our Changing Times." Dr Walker will make his presidential address Tuesday evening on "Personal Observations on Medical Practice in West Virginia."

### WISCONSIN

**Bills Introduced**—A 758 proposes that whenever it is relevant in a bastardy proceeding the trial court may order the prosecuting witness, her child and the defendant to submit to one or more blood tests to determine whether or not the defendant can be excluded as being the father of the child. The bill further proposes that whenever it is relevant in a civil action to determine the parentage or identity of any child person or corpse, a court may direct any party to the action to submit to one or more blood tests. A 765 proposes to prohibit persons associations or corporations, other than licensed physicians, to make any report to or for any insurance company regarding an applicant for life, accident or health insurance without a license from the commissioner of insurance. A 733 proposes to authorize the State Medical Society of Wisconsin, or any county medical society, to undertake and coordinate all sickness care of indigents and low income groups through contracts with public officials and with physicians and others, and by the use of contributions, cooperative funds and other means provided only that free choice of physician within such contracts shall be retained and that responsibility of physician to patient and all other contract and tort relationships with patient shall remain as though the dealings were direct between physician and patient.

## GENERAL

**Teachers for Sight-Saving Classes**—Courses for the training of teachers and supervisors of sight-saving classes will be offered this summer at the following schools: Western Reserve University, Cleveland, June 24-August 2; State Teachers College, Buffalo, July 1-August 9; and Teachers College, Columbia University, July 8-August 16. Information may be obtained from the schools or from the National Society for the Prevention of Blindness, 50 West Fifth Street, New York.

**Bequests and Donations**—The following bequests and donations have recently been announced:

Mount Sinai Hospital, New York and Stony Wold Sanatorium \$25,000 each by the will of the late Dr. Benjamin Stern; Beckman Street and St. Vincent's hospitals \$500,000; New York Foundling Hospital \$50,000; and Beth Israel Hospital \$200,000, all of New York by the will of the late Conrad Hubert.

Pittsburgh Eye and Ear Hospital \$50,000 and Trudeau Sanatorium, Trudeau, N. Y. \$25,000 from the estate of the late Elizabeth W. Childs, Pittsburgh, following the death of a relative who is the immediate beneficiary. The remainder of her \$150,000 estate is to be held in trust for the Tuberculosis League of Pittsburgh.

Sydenham Hospital, New York \$3,000 from the estate of the late Cornelius Houth.

University of Cincinnati, \$12,500 as a gift from Mrs. David May to establish the David May fund in internal medicine in the college of medicine.

Jefferson Medical College, Philadelphia \$250,000 by the will of the late Alva B. Johnson who was chairman of the board of trustees for many years.

**Southeastern Surgeons' Meeting**—Dr. Charles Jefferson Miller, New Orleans, was chosen president-elect of the Southeastern Surgical Congress at its annual meeting in Jacksonville, Fla., March 11-13, and Dr. William D. Haggard, Nashville, Tenn., was installed as president. Dr. Carl C. Howard, Glasgow, Ky., was made vice president, and Dr. Benjamin T. Beasley, Atlanta, reelected secretary. The next session will be in New Orleans. Among speakers at the meeting were:

Dr. Chevalier Jackson, Philadelphia: Asphyxia: Methods for Its Prevention.

Dr. George W. Crile, Cleveland: Technique and End Results of the Surgical Treatment of Diabetes and of Polyglandular Disease.

Dr. Hugh Cabot, Rochester, Minn.: Management of the Incompletely Descended Testicle.

Dr. Walter C. Alvarez, Rochester, Minn.: Helpful Hints for Picking Out the Patient Who Would Be Worse After Operation.

Dr. Arthur E. Hertzler, Halstead, Kan.: Predicting the Type of Peritonitis That Will Develop from a Given Case of Appendicitis.

Dr. John F. Erdmann, New York: Injuries to the Common Duct with Consideration of Methods of Repair.

**Medical Bills in Congress—Changes in Status** S. 2214 has passed the Senate, conferring jurisdiction on the United States district courts over Osage Indian drug and liquor addicts. **Bills Introduced** H. J. Res. 248, introduced by Representative Gasque, South Carolina, proposes to create a United States Food Research Commission to carry into effect such studies as are necessary in order to determine the food values of the various articles used as foods in the several sections of the United States. H. R. 7684, introduced by Representative Terry, Arkansas, proposes to erect an addition to the existing Veterans' Administration facility at North Little Rock, Ark. H. R. 7485, introduced by Representative Johnson, Oklahoma, proposes to increase the efficiency of the Medical Department of the Regular Army by creating a Medical Administrative Corps. H. R. 7629 introduced by Representative Brooks, Pennsylvania, proposes to erect an addition to the existing Veterans' Administration facility at Aspinwall, Pa. H. R. 7651, introduced by Representative Kimball, Michigan, proposes to authorize the erection of an addition to the Veterans' Administration facility at Camp Custer, Mich. H. R. 7679, introduced by Representative Koppelman, Connecticut, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Newington, Conn. H. R. 7691 introduced by Representative Greever, Wyoming, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Cheyenne, Wyo. H. R. 7716 introduced by Representative Sanders, Louisiana, proposes to compensate those persons afflicted with leprosy who are patients isolated in the United States Marine Hospital at Carville, La. H. R. 7735 introduced by Representative Green, Florida, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Lake City, Fla.

**Society News**—The American Association for Thoracic Surgery will hold its eighteenth annual meeting in New York, June 3-5. Among speakers listed on a tentative program are Drs. Henry Norman Bethune, Montreal, on Operative Methods of Closure of Bronchopleural Pleurocutaneous and Bronchocutaneous Fistulas; William P. Herbert, Asheville, N. C., Tuberculous Empyema; Armistead C. Crump and Haig H. Kasabach, New York, Treatment of Carcinoma of the Esophagus by Combined X-Ray and Radium; Richard H. Overholt, Boston, Pneumonecomy for Carcinoma and Pulmonary Sup-

uration; and Edward J. O'Brien, Detroit, The Choice of Procedure.—The American Society of Clinical Laboratory Technicians will hold its third annual meeting at Haddon Hall, Atlantic City, N. J., June 10-12.—The American Association of Medical Milk Commissions will hold its annual meeting in Atlantic City, N. J., June 10-11.—The American Orthopaedic Association will hold its forty-ninth annual meeting in Philadelphia, June 5-8 under the presidency of Dr. DeForest P. Willard, Philadelphia. The program includes two symposiums: one on arthritis will be presented by Drs. Walter Bauer, Robert B. Osgood and Loring T. Swaim, Boston; Ralph Pemberton, Philadelphia; Joseph A. Freiberg, Cincinnati, and Robert W. Johnson, Baltimore. A fracture symposium will be given by Drs. Hiram Winnett Orr and James E. M. Thomson, Lincoln, Neb.; Robert D. Schrock, Omaha; James S. Speed, Memphis, Tenn.; Robert V. Funsten, University, Va.; and Kellogg Speed, Chicago.—The annual Alpha Omega Alpha dinner will be held during the annual session of the American Medical Association at the Hotel Ambassador, Atlantic City, N. J., Thursday evening, June 13, at \$2 per plate.—The alumni dinner of Rush Medical College (University of Chicago) will be held during the annual session of the American Medical Association at the Hotel Ambassador, Wednesday evening, June 12, at \$2 per plate.—Dr. Simeon Burt Wolbach, Boston, was elected president of the American Association of Pathologists and Bacteriologists at the annual meeting in New York, April 19, and Dr. Howard T. Karsner, Cleveland, secretary. Next year's meeting will be held in Boston.—Frank R. Lillie, Ph.D., dean of the division of biological sciences, University of Chicago, was elected president of the National Academy of Sciences at the annual session in Washington D. C., April 24.—The Academy of Physical Medicine will hold its annual meeting in Atlantic City, June 12-13, at the Hotel Claridge.

## Government Services

### Rural Health Service

Seventy-three per cent of the rural population in the United States is still without the form of health organization that is considered best adapted to rural areas, according to *Public Health Reports* in a review of rural health service for 1933. During this year there were fifty-five full time health units discontinued and only four established, giving a net loss of fifty-one units. Virginia suffered the greatest loss with the discontinuance of full time health work in nine counties, while Delaware led in the percentage of rural population under full time health service, all of its three counties having been provided with local full time health organization by the state. Of the states in which the local governmental units maintain the health organizations, with or without assistance from the state health department or other sources, Maryland had the highest percentage (97.5) of rural population under full time health service. Of the 530 counties, townships or districts with health service under local full time health officers, 491, or 92.6 per cent, were receiving financial assistance for the support of their health service from one or more of the following agencies: the state board of health, the U. S. Public Health Service, the Rockefeller Foundation, the American Red Cross, the American Women's Hospital Fund, the Rosenwald Fund, the Commonwealth Fund and the Milbank Memorial Fund.

### Vender of Cancer Cure Dies of Cancer

The U. S. Department of Agriculture announced that the government's case against Charles W. Mixer, self-styled cancer specialist of Hastings, Mich., on a charge of violating the federal food and drugs act, had been dismissed because of the defendant's death from cancer. Even during Mixer's last illness, his office force continued to sell his so-called cancer cure.

### Examination for Appointments in the Navy

An examination of candidates for appointment in the Medical Corps of the U. S. Navy will be held at the Naval Medical School, Washington D. C. and at the Naval Hospital, Mare Island, San Francisco, June 10. Candidates must be between 21 and 32 years old. They must also be graduates of schools listed as class A by the Council on Medical Education and Hospitals of the American Medical Association and must have completed a general internship of at least one year in a hospital accredited for internship by the American Medical Association. For further information address the Bureau of Medicine and Surgery, Navy Department, Washington D. C.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 6, 1935

#### The Struggle of the Osteopaths for Registration

At the inquiry on the osteopaths' bill in the house of lords, Sir William Jowitt, attorney for the British Medical Association, who addressed the committee, said that the number of persons in this country calling themselves osteopaths was estimated at between 2,000 and 3,000. Among them were 179 who claimed to be 'qualified' of whom some ninety-six had gone through the British School of Osteopathy and the other eighty-three had some American qualification and of these about half were Americans. According to Dr. Macdonald (the physician who practices osteopathy and gave evidence reported previously in THE JOURNAL) there was no reputable school of osteopathy in this country and therefore none fit to be recognized by the state. No osteopath who treated acute diseases had been called before the committee, and there was no evidence that any osteopath in England did. The function of education was to enable the student to think for himself, and it was a mistake to start him from a prejudiced point of view by telling him that he was never to use drugs. The right solution was to let students take their degrees and then work in any way they liked. The bill would do a grave public injury by duplicating machinery and setting up a second register.

Sir Henry Brackenbury, vice president of the British Medical Association and a member of the General Medical Council, said that there was now a movement by the council to place the whole of general biology in the premedical stage, so that the five years medical education would begin after the student had taken this, with physics and chemistry. The osteopaths' point of view was not whether a patient had bronchitis or pneumonia or gallstones but whether the basic cause of his disease was in the second or the seventh cervical vertebra. The doctor's diagnosis might or might not have something to do with the spinal column, but it was directed to form a picture as exact as possible of what was going on in the patient's body. To pick out a particular cult for registration would give a cachet of authority to theories unacceptable to almost the whole scientific world. It seemed to him inconceivable that the anatomists and physiologists who for 100 years have been investigating the structural and functional states of the body should have failed to observe the osteopathic lesion.

#### Sir Edward Sharpey-Schafer

Sir Edward Sharpey-Schafer, F.R.S., emeritus professor of physiology in the University of Edinburgh, has died in his eighty-fifth year. Born in London, he was educated at University College Hospital, where he was a pupil of the great anatomist and physiologist William Sharpey. In 1874 he became assistant professor of physiology to Burdon Sanderson, another great physiologist, who had succeeded Sharpey in the chair. In 1883 he became professor of physiology at University College and in 1899 at Edinburgh. He was invited to lecture at Johns Hopkins University and at Stanford University. His earlier work was mainly histologic. That on the structure of striped muscle, in which he used the wing muscle of insects to illustrate his view, has become classic. With Horsley he made some of the earlier researches on cerebral localization. With Oliver he showed the effects produced by intravenous injection of extracts of the adrenal medulla which led to the discovery of epinephrine and other hormones. Twenty-three years ago, in a remarkable presidential address to the British Association he maintained that life was no 'mysterious force' but was due to the action of physicochemical laws. He is best known to

the general public by his manual prone pressure method of artificial respiration. The physiologist Sir Leonard Hill in a tribute to him recently said that his contributions to physiologic science are stored in the libraries and utilized daily by research workers in extending frontiers that he did so much to advance. His most important books were "Essentials of Histology" and "The Endocrine Organs." He edited an "Advanced Textbook of Physiology," to which leading physiologists contributed. He started and edited, up to his retirement, the *Quarterly Journal of Experimental Physiology*.

#### Gas Dangers in Air Raids

In a lecture at the London headquarters of the British Red Cross Society, Major H. S. Blackmore, an expert on poison gas, said that the society was training a large body of voluntary workers to protect and aid the civil population in the event of war from the air. The safest shelter in the event of an air raid was an ordinary room rendered gas proof, on or about the first floor. People who rushed into underground tubes or dugouts would not be so safe as those who went quietly upstairs to the antigas sitting rooms, where they would remain until all danger was past. In the air raids there would be two distinct dangers—death or injury from high explosives and from gas. People who rushed underground to avoid explosive bombs would not be safe from gas, which was so heavy that it sank rapidly. A heavy cloud of poison gas tended to disperse 20 feet above the level of the ground. Danger from gas might still be present hours after an attack. Most rooms could be made gas proof by sticking brown paper round the cracks of doors and windows and over the entrance to chimneys. Two wet blankets could be hung over the entrance door, one on the inside and one on the outside.

The Red Cross is concentrating on training a large body of voluntary workers to cope with an emergency. Antigas drill is divided into three parts. 1. Workers in the streets will control crowds and deal with street casualties. 2. There will be Red Cross first aid stations and hospitals. 3. Decontamination brigades will clear away the gas from danger areas and decontaminate the clothes of casualties. It is held that every physician in the country should be trained to deal with gas casualties.

#### The Methods of a Medical Trade Union

In previous letters the Medical Practitioners Union, a body consisting of more than 5,000 physicians working on trade union lines, has been described. A question asked in parliament shows something of the methods adopted by the union. It appears that it is circularizing local authorities (some of which are under the control of socialist majorities and therefore likely to be sympathetic to it) requesting them to consider the recognition of the union and the insertion of advertisements for vacant medical appointments in its official weekly organ, called the *Medical World*. Sir Hilton Young, minister of health, replied that the law forbade any local or public authority to make it a condition of employment of any person that he should, or should not, be a member of a trade union.

#### Damages for Negligence Against an Osteopath

It is unfortunate for the osteopaths that, just at the time when they are attempting to convince parliament that they are worthy of recognition, heavy damages for negligence should be awarded against a well known osteopath, Captain Lowry, who lost his sight at the battle of Neuve Chapelle. He qualified as a masseur from St. Dunstan's (the institution established for the training of blinded soldiers) and he has practiced as an osteopath since 1925. A girl was taken to him for rheumatism. He scouted the diagnosis and said that she had a twisted intestine and a slight dislocation of the left hip. He manipulated the joint under an anesthetic and she was taken home in great

pain. She was found to be suffering from fracture of the neck of the femur, which was plated by a surgeon. Captain Lowry denied that anything untoward happened when he was manipulating the patient's limb or that he used violence. In his evidence he claimed great delicacy in his sense of touch, which he demonstrated by telling what card of a pack was placed in his hand by passing his fingers over the face. While the judge expressed admiration for his courage and success in taking up a new career after he had lost his sight in his country's service, the jury awarded \$7,500 damages to the girl.

## PARIS

(From Our Regular Correspondent)

March 29 1935

### Proposed Changes in Social Insurance Law

In a recent letter, mention was made of a deficit in the budget of the social insurance law. An effort is being made to correct the abuses and deficit in the form of a law submitted February 27 by Senator Edmond Cavillon, supported by 184 of his colleagues, which number constitutes a majority of the French senate.

The arguments in favor of changing the law are as follows. The economic crisis has begun to involve France, in spite of continued resistance to its effects. It has become imperative to reduce government expenditures to the minimum. This is especially applicable to the social insurance law, which since its introduction in 1930, has aroused much justified criticism and an unexpected lack of success. It is not the intention of the legislature to annul the law, which is based on the highest motives toward the amelioration of social conditions. Several efforts to annul the law or suspend it temporarily have been defeated. This would signify that, in principle, there is no opposition to such a law. Such an agreement as to the aims of social insurance, however, must not permit a government to omit every effort to simplify the law and to reduce the complicated machinery that has been necessary in carrying it out. Above all, it has become imperative to lighten the burden of expenditures, which the deficit in the budget of social insurance has compelled the government to pay. To recognize the fact that one has been wrong is not an evidence of weakness' is a quotation from an article by Milan in the *Revue politique et parlementaire* written in 1933 who is quoted further as saying "The law is badly thought out. Let us have the courage to recognize this and correct its faults."

Public opinion has demanded changes in the law, but only a few absolutely necessary ones have been made. The law is obligatory, but the question has arisen as to whether this principle of obligation is being respected. Even the government does not compel its employees to be insured. More than ten million people are subject to the law, but only five million industrial and 640,000 out of 1,000,000 of those in agricultural pursuits are paying their premiums. Whether respected or not the social insurance law has had some important financial consequences. From July 1 1930, to Oct. 31, 1934, the figures are as follows:

Premiums received from employers and employees	14 050 000 000 francs
Additional expenditure by the government in the form of subsidies and supplementary credits	3 500 000 000 francs

This is a burden for the government that cannot be well tolerated during the present economic crisis.

The outlay on the part of the government for the administration of the law alone (included in the figures) amounts to more than 100 million francs (six and a half million dollars). This figure corresponds only to a part of the outlay for social insurance. One must add an equal amount for the expenses of carrying out the law by the caisses or bureaus of collection and distribution of the premiums and benefits. In spite of every

effort to economize, the various offices in charge of the administration of the law complain of not having enough personnel.

A glaring defect in the law is that relating to old age insurance. The idea of the legislator was to permit a large number of older workers to retire and thus create jobs for younger persons. A large number of workers who were more than 65 years old when the law went into effect in July 1930 have been excluded from the benefits of the law and are not eligible for old age pensions.

The 185 senators who signed the petition to change the law conclude as follows:

"After so many demands for reform in the social insurance law we also add ours to change a law that has not been satisfactory to employers, employees or administrators of the law.

"The principal objective of such a reform is to simplify the law in such a manner as will increase the efficiency and decrease the expenditures.

"The law from a theoretical point of view is good but it should be made simpler, more practical, more humane and less costly."

### Students Appear Before Committee of Legislature

Representatives of the national and local student organizations presented their side of the agitation against foreign physicians, February 13, before the committee on hygiene of the chamber of deputies. The student organizations demanded the following:

Only French students who have completed their required courses and are eligible for state diplomas can act as substitutes for physicians. Such substitution shall be legalized by the local authorities. More careful investigation of the records of those who apply for naturalization shall be made by the police. The faculties of the medical schools have not been strict enough in accepting equivalents for the bachelor of arts degree, which is necessary for admission. No one shall be permitted to change the 'university diploma,' which does not entitle its holder to practice in France or its colonies, into a "state diploma," which does bestow the right to practice. No one shall be allowed to practice here unless naturalized ten years before graduation. Military service shall be obligatory for all such individuals.

### One Hundredth Anniversary of Death of Dupuytren

Exercises will be held April 7, in memory of the French surgeon Dupuytren. He died Feb. 7, 1835. Professors Cuneo and Carnot will preside at the meeting which will be held at the Hotel-Dieu, one of the oldest hospitals and the one in which the famous surgeon worked.

### The Franco-Mussulman Hospital in Paris

There are at present in Paris 50,000 natives of the French colonies, especially those in northern Africa. The government therefore decided to construct a hospital so as to give these natives the benefits of modern medicine and at the same time conform to their habits and religion. The new hospital, opened March 22, is situated in one of the suburbs of Paris. The surgical service is in charge of Dr. Maurice Thalhimer, an assistant of Professor Gosset and well qualified to fill the position.

### French Gynecologic Congress

This year's French Gynecologic Congress will be held June 8-10 at Salles-de-Bearn, a watering place specializing in gynecologic ailments. The honorary president is Dr. Doleris and the president is Professor Guyot of Bordeaux. The chief subject to be discussed is Genital hemorrhages excluding those due to pregnancy and tumors. The papers include those on the anatomy of the female genital tract, hemorrhages due to systemic and local causes and medical, physical therapeutic and surgical treatment of genital hemorrhages.



## BERLIN

(From Our Regular Correspondent)

March 4, 1935

## Disability Insurance in 1933

The president of the Reichs Versicherungsamt has just published a report dealing with disability insurance for the year 1933. Disability insurance is quite distinct from the ordinary health insurance, it provides insurance for invalids and the aged and the insured members have usually paid their premiums over a long period. As the president Dr. Schäffer, stated, the position of this insurance in the beginning of 1933 was very discouraging. By reason of the constantly diminishing fulfillment of the legal obligations encountered difficulties, so that assets of the disability insurance had to be liquidated at a heavy loss. The total expenditures for the application of the various therapeutic procedures and for cash benefits had to be restricted to 40,000,000 marks (\$16,000,000). Including the supplementary performances the carriers of disability insurance received in 1933 approximately 41,500,000 marks for the promotion of health, as compared with 51,500,000 marks in 1932. Actual therapeutic measures required the expenditure of about 29,000,000 marks, general measures 9,700,000 marks and care of orphans 155,000 marks while miscellaneous expenditures amounted to 2,600,000 marks. The report contains this statement. To what extent this enforced limitation of the therapeutic procedures will result in an exacerbation of health conditions among the insured members and in an increase of cases of disability cannot be determined as yet. The expenditure of the 29,000,000 marks sufficed to provide adequate and complete treatment for 89,118 persons affected with various diseases, 24,815 with tuberculosis (including lupus), 9,109 with venereal disorders and about 55,000 with other disorders which included some 21,000 with dental disease. Disorders affecting the nerves, the heart, the vascular system and

sure of disability insurance, included the granting of loans for public enterprises, for example, for the improvement of the bad housing situation or for the creation of healthy dwellings to lessen the dangers of infection. In the main, funds for the erection of small, moderately priced dwellings are lent to building and loan associations. Up to the end of 1933 a total of 337,700,000 marks (\$135,000,000) had been lent for such purposes. Also for the promotion of the general welfare, namely, for the construction of hospitals and homes for convalescents, therapeutic centers for persons of moderate means, homes for invalids, bath establishments for the masses, water systems, and the like, the carriers of disability insurance have always furnished funds, as far as they were able, the total of such expenditures amounting up to the end of 1933 to 560,000,000 marks (\$224,000,000).

## The Typhoid Epidemic in Children

Of 187 cases of typhoid that were treated in Königsberg, fifty occurred in children. Of this number, forty-one were treated in the Municipal Hospital. At a meeting of the Königsberg Medical Society, Dr. Rau discussed this series of cases. The number of cases of typhoid in children, as compared with the number of adults affected, was small, although the milk used was the apparent cause. This fact seems at first hard to understand, since young persons commonly drink much more milk than adults. These forty-one patients belonged to forty families with a total of ninety-three children. It appears therefore that in fifty-two children who likewise drank infected milk no infection developed. The course of the disease in these children was rather severe, whereas typhoid in children generally takes a mild course. Nine children were entirely unconscious for some time. High temperatures lasted, without complications, from six to eight weeks. The usual blood picture with leukopenia and aneosinophilia, was present in only a little better than half the patients (57 per cent). Hemorrhages, otitis purulenta and peritonitis occurred in only three cases. Only one case ended fatally. As a special therapeutic measure the children were given an ample mixed diet, to preserve their strength as long as possible. On the appearance of diarrhea, they were given crushed banana or crushed raw apple, together with the application of the usual measures. The results were good. Perforation of the intestine did not occur in a single case. There were, however, relapses in fifteen cases.

In the Rostock University Children's Clinic, according to the statements of Dr. Erben, the systematic application of the Widal test to all new entrants among the children made it possible to diagnose many cases of apparently nonspecific influenza like infections and intestinal catarrh as typhoid. But only an agglutination titer of at least 1:400 was found to be pathognomonic.

## The Probability of Multiple Births

A compilation of the multiple births occurring in Germany in the years 1901-1925 shows that, of the 42,107,657 births recorded in this period 531,541 were twin, 5,364 were triplet, and sixty-seven were quadruplet births. One group of quintuplets was born. In general, it is figured that one twin is born out of eighty children, one triplet out of about 6,400 and one quadruplet out of 500,000. A quintuplet birth occurs only once in fifty million births. With the exception of the recent report of the quintuplets in Canada, there are no reasonably authentic reports of quintuplets who all survived for any considerable time. The probability of multiple births can be reduced to a mathematical formula. The number of births to be expected may be expressed by the formula  $1/n^{x-1}$ ,  $n$  being the number of single births that occur in a given country in relation to a twin birth, while  $x$  shows the nature of the multiple birth (twins, triplets, quadruplets). For example, in Ger-

## Average Expenditures for Patients in 1932 and in 1933

Type of Disease	Cost per Case in 1932 Marks	Cost per Case in 1933 Marks
Pulmonary and laryngeal tuberculosis	874.37	1,202.02
Tuberculosis of bones and joints	1,286.30	1,069.75
Lupus	724.20	403.50
Venereal diseases	224.38	160.14
Rheumatism	347.74	311.30
Cancer	210.57	253.85
Other diseases	351.11	304.08

the digestive organs were much in evidence. The average expenditure for a patient with pulmonary or laryngeal tuberculosis was 753 marks, in the other diseases about 300 marks. As compared with 1932, the average expenditures were much lower, as may be seen from the table.

It is interesting that, of 121,798 patients supposedly with venereal disease, only about half (63,887) were actually affected. More than 40,000 presented themselves voluntarily for examination, which speaks well for the functioning of the consultation centers. Aside from the actual therapeutic procedures, the general measures for the prevention of premature disability among the insured or for the improvement of their health constitute an important field of endeavor, which includes the creation and support of therapeutic centers, welfare aid centers and the extension of welfare aid for therapeutic purposes to the uninsured or underinsured juveniles and to mothers with a large number of children. For these purposes nearly 10,000,000 marks was supplied in 1933 (11,700,000 marks in 1932). It was regrettable that retrenchment was necessary in the matter of welfare aid for children, only about 3,000,000 marks was available for this purpose. Finally, the health mea-



many  $n^{x-1}$  for triplets  $\approx 80^{3-1} = 80^2 = 6,400$  In determining the number of quadruplets  $n^{x-1} \approx 80^3 = 512,000$  In ascertaining the relation of the number of quintuplets to the total number of births the formula  $1/n^{x-1} = 1/80^4 \approx 1/40,960,000$  One obtains accordingly with these formulas figures that correspond to the actual conditions According to this formula, sextuplets might be expected once in three billion births

#### Prof Walter Spielmeyer

Prof Dr Walter Spielmeyer director of the Brain Institute of the Deutsche Forschungsanstalt für Psychiatrie in Munich died, February 6 at the age of 55 Spielmeyer carried further the work of the school of Nissl and von Alzheimer and during the past twenty years had been the unquestioned leader in anatomy of the brain He was regarded as the leading authority with respect to the only histologically recognizable anatomic changes in mental diseases infections and intoxications of the brain, the nervous system the medulla oblongata and the spinal cord His most important researches dealt with the changes due to paralysis He succeeded in helping to establish a pathologic anatomy of the psychoses a science that is already out of its infancy Many years elapsed before this branch of research gained recognition philosophical opinions were however, advanced to the effect that disorders of the intellect mind and psyche should be considered in the same manner as the disorders of the body He was able to complete the first volume of his textbook on the histopathology of the nervous system

#### ITALY

(From Our Regular Correspondent)

Feb 15 1935

#### Congress of the Neurosurgical Society

The Società radio-neuro chirurgica held recently its national congress in Milan, under the presidency of Professor Donati The chief topic on the program was 'Research Criteria in Disorders of the Neuraxis'

Professor Boschi dealt with the diagnosis of endocranial tumors

Professor Bertolotti the speaker on the radiologic side of the subject, based his presentation on his personal experience with a large series of cases Speaking of the ventricular system and of the subarachnoid spaces he stated that Dandy was able to demonstrate in experiments on internal hydrocephalus, that when there is an obstruction along the circulatory path of the cerebrospinal fluid the part of the system that lies above the obstruction becomes dilated This fundamental observation led Dandy to the discovery of two methods of gas insufflation spinal encephalography and direct ventriculography With regard to the technic of spinal encephalography the speaker holds that it should always be total and hence is not adapted to small insufflations One cannot however hope to procure the visualization of all the windings through which the cerebrospinal fluid circulates It is necessary to repeat the radiographic tests at intervals during the first twenty-four hours the stereoscopic examination is likewise valuable Encephalography is particularly useful in determining the effects of crano-encephalic traumas in which the phenomenon of the migratory ventricle and that of the unilateral internal hydrocephalus may be seen In case of tumors and when there are clinical symptoms of hypertension, the speaker thinks it is more advantageous to apply direct puncture of the ventricles In cases of jacksonian epilepsy encephalography is still the only means of reaching an early diagnosis of cerebral tumor It constitutes a valuable means of research also in the study of essential epilepsy The use of opaque substances such as iodized oil and thorium dioxide sol may give good results but their harmlessness has not yet been demonstrated The author concluded that collective

experience shows that the symptomatology of cerebral tumors is insufficient to establish an exact topographic diagnosis

Prof Raffaele Bastianelli, senator, to whom was assigned the surgical presentation, emphasized that, in disorders of the neuraxis, examination of the spinal fluid is highly important The fluid may be taken from the cisterna or through lumbar puncture, but only ventricular puncture, with visualization of the ventricles, enables one to ascertain accurately the condition of the brain To study exactly the conditions in the ventricles it is advisable to make a bilateral puncture at symmetrical points For the occipital puncture the speaker recommended the prone position

The average capacity of the ventricles is 25 cc, as measured by aspirated extractions The interventricular communication is revealed by injecting 2 cc. of indigo carmine into one of the ventricles and observing whether the colored fluid emerges on the other side In applying ventriculography a certain quantity of fluid is extracted and an equal quantity of air is slowly injected This is reabsorbed within three to five hours by the subarachnoid space, and after six to ten hours by the ventricles If the ventricular system is obstructed, the reabsorption of the air may possibly require several weeks

The injection of the air produces irritation of the ependyma and hence hypersecretion of the cerebrospinal fluid and increase of the intraventricular pressure Headache nausea and an increase of temperature of from 1 to 2 degrees occur A drowsy state is cause for alarm In case of tumors with hypertension and hydrocephalus the injection of air is dangerous But the observations of ventriculography are not probative unless there is obstruction of the downward flow of the cerebrospinal fluid or ventricular deformation There are some failures, but they are often the consequence of faulty technic On the whole, it may be said that with this method the possibility of diagnosis is from 70 to 90 per cent in case of tumors Ventriculography is especially indicated if there is an increase of the endocranial pressure for which no cause can be determined If there is no increase of pressure, encephalography is preferable, since the ventricles do not recover so readily and the quantity of air injected is less

Barré of Strasbourg stated that he regarded as true hypertension of the cerebrospinal fluid that which exceeds 50 mm of water in the supine position He explained the syndromes due to the vestibular paths—the cochlear, the pyramidal and the extrapyramidal Mascherpa of Milan spoke on the opaque substances to be used in ventriculography, stating that at present one is confined to the introduction of iodized oil in accordance with the Arce technic

Palmieri of Bologna emphasized that the use of contrast mediums in radiology should not cause ordinary craniography to be discarded The latter, however, gives only indirect signs, which require a more careful interpretation than the direct signs supplied by pneumography

#### Prof Carlo Lotti

Prof Carlo Lotti, occupant of the chair of special medical pathology at the University of Pisa has died at an early age He was a representative of the Florentine school and had been *aiuto* in clinical medicine under Professor Grocco, and later director of the Antirabic Institute He held then successively a chair in medical pathology at the universities of Sassari, Cagliari and Pisa Among his numerous publications, particular interest attaches to those on peritoneal infection the opsonins and the bacteriotropines, on recurring tuberculous meningitis and on favism Sixty publications by his pupils demonstrate the importance of his work as a teacher He collaborated in the compilation of the Italian Treatise on Internal Medicine, having prepared the chapter pertaining to the diseases of the peritoneum

## BELGIUM

(From Our Regular Correspondent)

March 6, 1935

## Government Supervision of Home Work

The government has passed a law providing for the supervision of home work. A commission has been appointed whose duty it will be to decide questions of wages and hygiene pertaining to home workers of both sexes. Within the present law, a home worker is a person performing work either in his own home or in some other place that is not assigned to him by his employer, provided he has no more than four assistants. The assistants of a domiciliary worker benefit from the present law, irrespective of the place in which they are employed. The commission—Comite national pour le travail a domicile—is composed of three industrialists, three workmen, and a person well versed in the economic and social sciences, who will be the chairman. The king chooses the members of the commission—the industrialists and the workmen—from the list of candidates presented by the professional organizations that best represent the employers and the workmen. The Comite national studies questions pertaining to the hygiene of these workers at the request of the communal administrations of the localities in which the workmen are engaged. Its conclusions are communicated to the minister of industry and are submitted by him to the Conseil superieur du travail and to the Conseil superieur de l'hygiene. A royal decree, at the suggestion of the minister of industry will convert, if it seems desirable, these conclusions into compulsory regulations.

## A New Physical Education Society

Under the chairmanship of Professor Spehl, the Societe medicale belge d'education physique et de sports has been created. At the opening session, Dr Brouha pointed out the increasing interest in problems of personal hygiene and the great need of scientifically trained directors. The group of physicians engaged in physical education will have to organize sport on a more scientific basis. The government saw the needs of the situation among the youth in our universities when it created two institutes of physical education at Ghent and at Liege which will be ready to function in 1935. But this action should be extended to all educational institutions, as is being done in central Europe, France and Italy. In any event, the medical control of physical education and of sports should remain in the hands of the physicians. A reform of instruction from this point of view is desirable, notably as regards a diminution of the lecture and recitation hours. It is to be hoped that the society will collaborate with the Commission superieure d'education physique and with similar international societies and participate in the various congresses, at which Belgium has never been represented. Mr Rene Ledet stated the purposes of the society, which will be chiefly to give proper guidance to the universities, the secondary schools and the societies in establishing relations with the medical societies in foreign countries, to defend the rights and outline the activities of the physicians in the practical organization of sport, and to take an interest in the organization of school programs.

## The Crusade Against Quackery

All countries are interested in the efforts being put forth to eradicate quackery, which is developing in all corners of the globe. At the meeting in Madrid of the Union internationale contre le peril venerien, Mr Schraenen of Brussels presented a paper dealing with the legislative measures of various countries to combat quackery in medicine which is an actual menace and is a hindrance in the crusade against venereal diseases. It is regrettable that some countries ignore officially the crusade

against charlatanry. The lack of interest manifested by certain legislators is due to legal and financial problems or to lack of appreciation of the great need. The forms of medical quackery vary. One type is organized by individuals who are not physicians and who have no professional qualities. Against this type the laws pertaining to the illegal practice of medicine may be invoked. Other types of charlatanry are organized by persons who have had a professional training (pharmacists, for example), or even by persons holding a medical diploma. That the charlatans without professional training are a public menace will be admitted without question. Forty-five countries, including the United States and Canada, have adopted legal measures for the suppression of charlatanry. The law most frequently invoked is that prohibiting the illegal practice of the art of healing. In Europe, the crusade against the illegal practice of medicine is the best organized in France, but the charlatan with a medical diploma is not reached by the law. In Spain, advertising by charlatans is suppressed by law. There are two types of legislation against charlatanry in Europe, that of Germany and that of Great Britain. But in Germany there is no law prohibiting the illegal practice of medicine. There are, however, legal provisions prohibiting charlatanry in the matter of venereal diseases. In other countries (Brazil, Australia, Canada and Cuba) laws prohibiting charlatanry have been promulgated, but they are not always well enforced.

## Center for the Instruction of Diabetic Patients

Rahier and van Themsche report, in the *Bruxelles medical* the organization of a therapeutic and prophylactic service for diabetic patients. As diabetes is widespread, the authors thought that therapeutic and prophylactic measures might be adopted against this disease the same as against venereal diseases. The benefits of this therapeutic organization will be felt by the people as a whole. As a result, diabetic patients will no longer constitute a heavy load for the health insurance societies, the patient receives proper training in caring for himself, and a periodic examination of patients under supervision is carried out. The authors hold that the capacity of diabetic persons scientifically supervised justifies their employment in occupations not requiring too intense muscular work. Diabetic persons no longer constitute "dead timber" in the labor market. They can perform the duties of an occupation that is not too fatiguing, provided they realize the importance of the role of insulin and of a well regulated diet and will follow strictly the prescriptions and the advice of their physicians.

## Marriages

- E DONALD ASSELIN, Nashua, N. H. to Miss Valeria Elizabeth Bergmann of New York, March 5  
 WILLIAM R. BEACH, JR., Hudson, N. C., to Miss Myrtle Elizabeth Poole of Stoneville, April 10  
 ROBERT R. SHAW, New York, to Miss Ruth Conser of Salem, Ohio, at Toccoa Falls, Ga., April 6  
 AMOS VASTINE PERSING, JR., Allenwood, Pa., to Miss Varissa Payne of Pittsburgh, March 21  
 JAMES EUGENE STROH, Seattle, to Miss Alyce Lorraine Lewis of Fresno, Calif., February 27  
 VIRGIL O. CHOATE, Galax, Va. to Miss Millie S. Gilbert, at Patrick Springs, April 18  
 THOMAS J. VAN ZANT to Miss Jane Amerman, both of Houston, Texas, March 5  
 DAVID PAINE, Worcester, Mass., to Miss Mary Page Teele of Marblehead, April 13  
 SAMUEL J. BURROWS, Chicago, to Miss Margaret Palmer of New York April 24  
 LEOPOLD ADLER to Miss Regina Silberstein both of Detroit, March 17

## Deaths

**Frank Swift Bourns** ☉ Seattle, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896, in 1896 professor of pathology and bacteriology, Southern Medical College, Atlanta, veteran of the Spanish-American War, president of the board of health of Manila, P I, in 1899, and commissioner of public health of the Philippines in 1902, chief medical inspector for the health department of Seattle in 1909, member of the Radiological Society of North America aged 68, on the staff of the Columbus Hospital, where he died March 17, of coronary sclerosis and acute myocarditis

**John Aloysius Reidy** ☉ Albuquerque N M, Jefferson Medical College of Philadelphia, 1903 also a dentist, fellow of the American College of Surgeons, formerly member of the city council and board of health, on the staffs of St Joseph Sanatorium and Hospital and the Southwestern Presbyterian Sanatorium, secretary-treasurer of the board of regents of the University of New Mexico from 1919 to 1926 aged 63, died, February 20, in Rochester, Minn, of carcinoma of the colon and bronchopneumonia

**George William Cale Jr**, Texarkana Texas St Louis College of Physicians and Surgeons 1887 fellow of the American College of Surgeons member of the State Medical Association of Texas, veteran of the Spanish-American War aged 68 chief surgeon and superintendent of St Louis Southwestern Hospital, Texarkana, Ark formerly on the staff of St Luke's Hospital, St Louis, where he died, March 24 of complications, following an operation for gastric ulcer

**James John Monahan**, Chicago College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1904, member of the Illinois State Medical Society, fellow of the American College of Surgeons clinical associate in orthopedic surgery, Loyola University School of Medicine, aged 58 on the staff of St Elizabeth's Hospital where he died, April 13, of coronary thrombosis

**Thomas Glendenning Hamilton**, Winnipeg, Manit, Canada Manitoba Medical College, Winnipeg, 1903 past president of the Manitoba Medical Association, fellow of the American College of Surgeons, formerly lecturer of clinical surgery at his alma mater, aged 61, on the staff of the Winnipeg General Hospital, where he died, April 7, of angina pectoris and coronary occlusion.

**Talbert Benson Hughes**, Jonesboro, Tenn Chattanooga Medical College, 1902, at one time member of the state legislature, for many years in the government service in charge of various hospitals in the Indian Service formerly head of the x ray department of the Veterans' Administration Facility Augusta Maine, aged 61, died March 21, of nephritis and arteriosclerosis

**Clarence Francis Moriarty**, Annapolis, Md Dalhousie University Faculty of Medicine Halifax, N S 1925 member of the Medical and Chirurgial Faculty of Maryland served during the World War formerly member of the state departments of health in Maryland, Virginia and the Philippines, aged 37, died, January 14, of glioma of the left temporoparietal lobe

**Joseph Raye Shuman** ☉ Los Angeles Gross Medical College, Denver, 1902 assistant clinical professor of medicine (pediatrics) University of Southern California School of Medicine member of the American Academy of Pediatrics, on the staff of the Children's Hospital aged 54 died March 9, in the Good Samaritan Hospital, of coronary thrombosis

**Luther Conklin Payne** ☉ Liberty, N Y, University of Buffalo School of Medicine, 1900 counselor of the Third District of the Medical Society of the State of New York, secretary of the Sullivan County Medical Society, for many years health officer of Liberty aged 57 died March 16, of influenza and pneumonia

**Frank Raynor de la Vergne** ☉ Fairbanks, Alaska Long Island College Hospital Brooklyn 1893 past president of the Alaska Territorial Medical Association, at various times mayor served during the World War, on the staff of St Joseph's Hospital, aged 68, died March 27, of diabetes mellitus

**Eli Lide Dawson**, Chickasha Okla University of Louisiana Medical Department New Orleans 1883 Jefferson Medical College of Philadelphia 1888 member of the Oklahoma State Medical Association city health officer on the staff of the Chickasha Hospital aged 79 died February 8

**John Wesley Cram** ☉ Colrain Mass University of Vermont College of Medicine Burlington 1888 past president of

the Franklin County Medical Society for many years secretary of the board of health of Colrain and member of the school board, aged 76, died, April 5, of pneumonia.

**Frank Riley Burton**, Barbourville, Ky, Lincoln Memorial University Medical Department, Knoxville, Tenn., 1911, member of the Kentucky State Medical Association, secretary of the Knox County Medical Society aged 52, died, March 12, of malignancy of the stomach and liver

**Jacob Nathaniel Rape**, Moss Point, Miss, Tulane University of Louisiana Medical Department, New Orleans, 1891, member of the Mississippi State Medical Association, secretary and past president of the Jackson County Medical Society aged 75, died, February 4

**George Morris Hall**, Brockton, Mass, Harvard University Medical School, Boston 1923, member of the Massachusetts Medical Society, served during the World War, aged 43, died suddenly, March 4 in the Boston Psychopathic Hospital, of cerebral edema

**Brendan William Murphy**, Bridgewater Mass, McGill University Faculty of Medicine, Montreal Que, Canada, 1923, served with the Canadian Army during the World War aged 39 died April 3, of hypertension, chronic myocarditis and nephritis

**Frederick E Sonnenfeld**, Chicago, Chicago Hospital College of Medicine 1917, member of the Illinois State Medical Society on the staff of the Roseland Community Hospital aged 47 died, April 12, in the Passavant Memorial Hospital, of uremia

**Charles H Johnson** ☉ Atchison, Kan, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895, on the staff of the Atchison Hospital, aged 65, died suddenly, April 3, of heart disease.

**Charles E Fish**, Wheatland Wyo, Drake University College of Medicine, Des Moines, 1907, member of the Wyoming State Medical Society, aged 55, died, February 11, in Denver of peritonitis and carcinoma of the bladder

**Karl William Schlegel** ☉ Milford Ill, University of Illinois College of Medicine, Chicago, 1932, aged 36, died, April 13, in the Lutheran Deaconess Home and Hospital, Chicago, of injuries received in an automobile accident

**Frank Thoburn Nason**, McKeesport, Pa, Western Pennsylvania Medical College Pittsburgh, 1889, Bellevue Hospital Medical College, New York, 1894, aged 68 died, April 4, of thrombosis of superior mesenteric vessels

**Manuel Winter Jackson**, Water Valley, Miss, Tulane University of Louisiana Medical Department New Orleans, 1900, member of the Mississippi State Medical Association, aged 70, died, March 9, of pneumonia

**John Webb Decker**, Lake City, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887 formerly village president, village clerk and coroner, aged 72, died, March 19, of myocarditis

**Robert C Droege**, Lakewood Ohio, Western Reserve University Medical Department, Cleveland 1897 member of the Ohio State Medical Association, aged 60, died suddenly, March 17, of coronary thrombosis

**Maurice A Bunce**, Philadelphia University of Pennsylvania Department of Medicine, Philadelphia, 1893, member of the Medical Society of the State of Pennsylvania, aged 61 died March 19, of heart disease.

**John Ross Jameson** ☉ Wooster, Ohio, Medico-Chirurgical College of Philadelphia, 1894, past president and secretary of the Wayne County Medical Society, aged 69 died, February 28 of bronchopneumonia

**James Harvey Cleaver**, Los Angeles University of Maryland School of Medicine, Baltimore 1880 formerly mayor of Council Bluffs, Iowa aged 78, died, February 7 in the California Lutheran Hospital

**Louis Lucien Rabouin** ☉ New Orleans Tulane University of Louisiana Medical Department New Orleans 1892, aged 68, died February 25, in the Touro Infirmary, of arteriosclerotic heart disease

**George Richard Sullivan**, Decatur Ala Shelby Medical College Nashville Tenn, 1859 member of the Medical Association of the State of Alabama, Confederate veteran, aged 97 died, February 14

**Robert C Newell**, Maywood Ill, State University of Iowa College of Homeopathic Medicine Iowa City 1879 aged 84 died April 7 in the Cook County Hospital, Chicago of chronic nephritis and uremia

**Simril McDowell Henderson**, Charlotte N C University of Maryland School of Medicine, Baltimore, 1894, aged 65, died April 12, in the Highsmith Hospital, Fayetteville, of cerebral hemorrhage

**Thomas K Jacobs Jr**, Lima Ohio Medical College of Ohio, Cincinnati 1880, aged 79, died, March 14, in the Lima Memorial Hospital, of arteriosclerosis, infection of the foot and myocarditis

**Benjamin Junius Cooke**, Indianapolis Meharry Medical Department of Central Tennessee College, Nashville, 1890, aged 71 died March 22 in the Community Hospital, of chronic myocarditis

**Wiley Moroni Cragun**, Ogden Utah, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1911, aged 50, died, February 18, of coronary thrombosis

**Henry Bohan Noble**, Howard, S D, Missouri Medical College St Louis 1882, for many years county health officer aged 86 died, January 10, in Manchester, Iowa, of coronary thrombosis

**Gebhard Joseph Long Jr**, Ramona, S D Rush Medical College Chicago 1909 member of the South Dakota State Medical Association, aged 49, died, February 22, of lobar pneumonia

**Glenn Robert Longnecker**, Washington C H Ohio Eclectic Medical College Cincinnati 1922 aged 43, died February 21, in the Veterans' Administration Facility Dayton, of pneumonia

**Emilie E Sullivan Rauch**, Belvidere, S D, Sioux City (Ia) College of Medicine, 1903, county health officer aged 71 died, January 31, of carcinoma of the cervix and myocarditis

**Charles Arthur Gardiner**, Sunset, La Tulane University of Louisiana Medical Department, New Orleans 1896 member of the Louisiana State Medical Society, aged 62, died, February 15

**Richard Nathan Mackey**, Clarks Summit, Pa, Medico-Chirurgical College of Philadelphia 1910, served during the World War, deputy coroner, aged 47, died, April 1, of pneumonia

**John Genar Ash**, Mount Sterling Ill Kentucky School of Medicine, Louisville 1896 member of the Illinois State Medical Society, aged 66, died, March 17, of lobar pneumonia

**Solomon Myers**, Boston Harvard University Medical School, Boston, 1900 member of the Massachusetts Medical Society, aged 62 died January 18, of coronary thrombosis

**Livingston Franklin Johnson**, Dillon S C, Jefferson Medical College of Philadelphia, 1905, aged 57, died, April 4, in the McLeod Infirmary, Florence, of coronary occlusion

**Carl August Dreiss**, Fort Worth, Texas, Ensworth Medical College, St Joseph, Mo, 1889, served during the World War aged 71, was found dead, March 20, of heart disease

**Samuel T Sealy**, Mounds, Ill Meharry Medical College Nashville, Tenn 1909 member of the Illinois State Medical Society aged 50, died, March 3, of cerebral hemorrhage

**William Peter Smith**, Troy, Mo Beaumont Hospital Medical College, St Louis, 1893, member of the Missouri State Medical Association, aged 64, died, February 8

**Peter James Parker**, San Diego, Calif, Jefferson Medical College of Philadelphia, 1871, member of the California Medical Association aged 89, died, March 15, of myocarditis

**Bert Martin Johnson**, Imola, Calif St Louis University School of Medicine, 1925, on the staff of the Napa State Hospital, aged 43, was found dead in bed, February 28

**Joseph Henry Cosgrove**, Duluth, Minn., University of Minnesota Medical School, Minneapolis, 1906, aged 55, died, February 7, of coronary occlusion and myocarditis

**William Sellman Welch**, Annapolis Md, College of Physicians and Surgeons Baltimore, 1885, formerly health officer of Annapolis, aged 81, died, February 11

**Charles Emerson Jones Jr**, Hartford, Conn, University and Bellevue Hospital Medical College, New York, 1909, aged 50 died, January 24, of coronary thrombosis

**William M Browder**, Gallion, Ala Jefferson Medical College of Philadelphia 1888 formerly state senator, aged 71, died suddenly, March 21, of heart disease

**Noble Butler Parvin**, Indianapolis, Jefferson Medical College of Philadelphia, 1891 aged 77 died, March 4, in the Methodist Hospital, of lobar pneumonia

**Charles W Schaub**, St Louis Missouri Medical College St Louis 1894 member of the Missouri State Medical Association aged 67 died, February 3

**Isidore Charles Eisenberg** ♂ New York University of Vermont College of Medicine, Burlington, 1891, aged 67, died, March 23, of coronary occlusion

**Benjamin Frank Ogden**, Clayton, N J, Medico Chirurgical College of Philadelphia 1905, aged 55, died, April 8 of pyemia following infection of the finger

**William H Nicholson**, Henderson, N C., University of Maryland School of Medicine, Baltimore, 1889, aged 70 died, April 8, of chronic nephritis

**John Whitman Joslin**, Johnstown, N Y, Albany (N Y) Medical College, 1891, for many years county coroner, aged 81, died, March 4, of carcinoma

**Leslie John Katonah** ♂ Flushing, N Y Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, 1924, aged 35, died, February 22

**Joseph Francis Piotrowski**, Cleveland, Ohio State University College of Homeopathic Medicine, Columbus, 1918, aged 40, died, February 1

**Alvin Charles Tanner** ♂ Minneapolis Rush Medical College, Chicago, 1910 aged 59, died, February 13, in the Minneapolis General Hospital

**Roy Farnsworth Hockett** ♂ Independence, Mo University of Kansas School of Medicine, Kansas City, 1927, aged 32 died, February 17

**William A Lynott**, Plymouth, Pa, Louisville (Ky) Medical College 1907, aged 55, died March 28, in Scranton, of coronary sclerosis

**Charles Luther Dreese**, Goshen, Ind Fort Wayne (Ind) College of Medicine, 1881, aged 86, died, March 27, of cerebral hemorrhage

**Elijah P Gibson** Louisville Ill Hospital College of Medicine Louisville Ky, 1878, aged 84 died, March 3 of myocarditis

**Eli Elias Carlton**, Ringgold, Texas, Kentucky School of Medicine, Louisville, 1897, aged 68, died, March 10, of nephritis

**George Everette Loverette**, Cincinnati, Leonard Medical School, Raleigh 1902, aged 65, died, February 8, of diabetes mellitus

**Harrison H Norris** Whitewater, Kan Eclectic Medical Institute, Cincinnati, 1885, aged 73, died, March 17, of heart disease

**John Julian Paul**, Georgetown Ont Canada, Trinity Medical College, Toronto 1885, aged 71, died, February 19, of heart disease

**Charles Albert Milton**, Dodge City, Kan. Rush Medical College Chicago, 1881, aged 82, died, March 2, of angina pectoris

**Raye S Everett**, Bay City, Mich, Cleveland University of Medicine and Surgery, 1895, aged 70, died, March 9, of heart disease

**John Henry Dangerfield**, Wheeling, W Va, Meharry Medical College, Nashville, 1925, aged 37, died, March 31, of uremia

**George E Orth**, Freeland, Mich, Michigan College of Medicine and Surgery, Detroit, 1904, aged 59, died, February 16

**Samuel James Farrell**, Holden, Alta, Canada Trinity Medical College, Toronto, Ont, 1900, aged 68, died, January 3

**Albert Ladislaw Kiraly**, Cleveland Eclectic Medical College of the City of New York, 1902, aged 58 died, February 6

**James Thornburg Turner**, La Follette, Tenn Tennessee Medical College, Knoxville, 1899, aged 76, died, February 13

**Michael Rokosz**, Rosebud, Mo, St Louis College of Physicians and Surgeons, 1918, aged 43, died, in February

**Joseph O Glenn**, Stroud Okla. Ensworth Medical College, St Joseph, Mo 1882, aged 75 died, February 9

**William H McMillan**, Erin, Tenn (licensed in Tennessee in 1889), aged 75, died recently, of bronchopneumonia

**William Collins Hanson**, Auburn, Ala., Atlanta Medical College, 1889, aged 69, died, February 4

## CORRECTION

**Obituary Notice**—The statement in the obituary notice in THE JOURNAL, April 13 that Dr Thomas Cook Stellwagen had been president of the American Association of Genito-Urinary Surgeons was erroneous Dr Stellwagen had not been president of this association

## Bureau of Investigation

### MISBRANDED "PATENT MEDICINES"

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product (2) the name of the manufacturer, shipper or consigner (3) the composition (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**Dennos Food**—Dennos Food Co Portland Ore Composition Essentially wheat flour bran and sugar For infant feeding indigestion heart burn flatulence insomnia ulcers etc Fraudulent therapeutic claims—[N J 21177 August 1934]

**Rayburn's Easy Antiseptic**—W S Rayburn & Sons Chicago Composition Essentially petrolatum with small amounts of benzaldehyde camphor and a coloring material For boils eczema cancer rheumatism etc Fraudulent therapeutic claims—[N J 21180 August 1934]

**Tacher's Diarrhoea Mixture**—Allied Drug Products Co Chattanooga Tenn Composition Essentially small amounts of plant drug extracts including tannin and inorganic material including an iron compound with large amounts of glycerin and water flavored with clove oil Fraudulent therapeutic claims—[N J 21182 August 1934]

**Grimes Ointment**—Grimes Ointment Co Los Angeles Composition Essentially volatile oils including camphor with reducing sugars such as honey and glycerin rosin and opium extract in an ointment base such as petrolatum and tallow For blood poison piles ulcers etc Fraudulent therapeutic claims—[N J 21183 August 1934]

**Kap Oil**—Kap Oil Co Broken Bow Neb Composition Essentially petrolatum with phenolic compounds menthol oil of wintergreen and a minute amount of a mydriatic alkaloid colored with a green dye For pneumonia influenza asthma etc Fraudulent therapeutic claims—[N J 21184 August 1934]

**Joy's Castoria**—Mills Sales Co New York City Composition Essentially extracts of plant drugs including a laxative with sugar glycerin alcohol and water For colic diarrhea worms etc Fraudulent therapeutic claims—[N J 21186 August 1934]

**Witter Water**—Witter Water Co Ukiah Calif Composition In each quart 177 grains of dissolved mineral matter consisting essentially of sodium, magnesium and calcium bicarbonates borax common salt and small amounts of other salts commonly present in ground water For acid stomach etc Fraudulent therapeutic claims—[N J 21188 August 1934]

**Thor's Vitamin Compound**—Thor Pharmacal Co Atlanta Ga Composition Tablets containing plant material including nux vomica and a laxative drug with compounds of iron and copper phenolphthalein and yeast. Worthless as a source of vitamin D For 'run-down condition etc. Fraudulent therapeutic claims—[N J 21189 August 1934]

**Andes Great Oil**—Crump Laboratories Louisville Ky Composition Essentially ammonia oils of red pepper cloves and eucalyptus with camphor traces of sodium carbonate and an iron compound alcohol (14.9 per cent by volume) and water For rheumatism backache pleurisy etc Fraudulent therapeutic claims—[N J 21191 August 1934]

**Fisher's Lung Balm and Household Ointment**—George L Fisher Superior Neb Composition Essentially volatile oils including eucalyptol incorporated in petrolatum For coughs catarrh croup tonsillitis etc Fraudulent therapeutic claims—[N J 21193 August 1934]

**Normalettes**—Health Laboratories Inc Long Beach Calif Composition Tablets containing ground plant material coated with calcium carbonate and sugar the Group 2 Normalettes containing in addition small portions of phenolphthalein and bile salts and the Group 3 Normalettes containing in addition a starch digestant charcoal and baking soda Fraudulent because the various Groups were represented as remedies for various diseases—[N J 21198 August 1934]

**Alfina Tea**—Health Laboratories Inc Long Beach Calif Composition Essentially milk sugar (97 per cent) and a small amount of plant material For normalizing the body Fraudulent therapeutic claims—[N J 21198 August 1934]

**Burbank Tea (Dried Alfalfa)**—California Vegetized Products Co Burbank Calif Composition Dried alfalfa For poor blood nervous disorders etc. Fraudulent therapeutic claims—[N J 21199 August 1934]

**Anticol**—Apex Laboratories Inc New York City Composition Essentially volatile oils (19 per cent) including menthol and lavender oils and approximately 79 per cent of alcohol A vaporous inhalant Misbranded because quantity or proportion of alcohol not declared on label—[N J 21204 August 1934]

**Morrell's Penetrating Oil**—Dick Dunn Drug Products Co St Louis Composition Essentially volatile oils including turpentine oil and eucalyptol For toothache earache cramps rheumatism etc Fraudulent therapeutic claims—[N J 21205 August 1934]

**Yob I Ana Dulce**—Dulce Laboratories Dallas Tex. Composition Essentially petrolatum with small amounts of volatile oils such as citronella and peppermint, and a rubefacient such as red pepper extract For sexual impotency Fraudulent therapeutic claims—[N J 21206 August 1934]

**Bromo Paper**—Diamond Mills Paper Co New York City Composition Essentially tissue paper impregnated with a small amount of mineral oil and a very small proportion of carbolic acid For hemorrhoids Fraudulent therapeutic claims—[N J 21208 August 1934]

**Eyetex**—Mills Sales Co New York City Composition Essentially table salt baking soda and borax with small amounts of thymol sodium benzoate sodium salicylate and hydrastine colored yellow For eye disorders Fraudulent therapeutic claims—[N J 21209 August 1934]

**Alberty's Calcitine**—Composition Tablets composed essentially of milk sugar with minute amounts of inorganic material including calcium salts phosphate sodium potassium iron magnesium and chlorine compounds Tonic Fraudulent therapeutic claims—[N J 21210 August 1934]

**Alberty's Lebra Organio Pellets (Formerly Liver Cell Salts)**—Composition Essentially milk sugar with small amount of inorganic material principally calcium salts with traces of sodium potassium iron, magnesium and chlorine compounds For malaria biliousness diabetes etc Fraudulent therapeutic claims—[N J 21210 August 1934]

**Catalyn**—Vitamin Products Co Milwaukee Composition Essentially plant material including wheat bran wheat starch glandular material including epinephrine, with milk sugar Cure all Fraudulent therapeutic claims—[N J 21213 August 1934]

**Abilena Crystals**—Abilena Co Abilene Kan Composition Essentially dried Glauber's salt with small quantities of epsom and common salt For radiant health constipation and its resultant effects Fraudulent therapeutic claims—[N J 21215 August 1934]

**Appo Capsules**—Hance Bros & White Inc Philadelphia Composition In each capsule a pellet containing extracts of plant drugs including aloin and a liquid containing oils such as savin and parsley For female disorders Fraudulent therapeutic claims—[N J 21217 August 1934]

**Golden Rheumatism Remedy**—C J McCormick Fort Worth Texas Composition Essentially an extract of a laxative plant drug small quantities of potassium iodide and a salicylate with alcohol (19 per cent) sugar and water Fraudulent therapeutic claims—[N J 21218 August 1934]

**Golden Blood Tonic**—C J McCormick Fort Worth Texas Composition Essentially potassium iodide iron strychnine a small quantity of quinine with such plant extracts as sarcaparilla and podophyllum and a laxative drug such as rhubarb Fraudulent therapeutic claims—[N J 21218 August 1934]

**Golden Cough Compound**—C J McCormick Fort Worth Texas Composition Essentially tar a trace of chloroform alcohol (4.4 per cent) and water Misbranded because label lacked declaration of quantity or proportion of alcohol present also fraudulent therapeutic claims—[N J 21218 August 1934]

**Golden Laxative Cold Tablets**—C J McCormick Fort Worth Texas Composition Essentially acetanilid quinine sulphate (1/40 grain per tablet) and plant extracts including red pepper and a laxative Fraudulent therapeutic claims—[N J 21218 August 1934]

**Alberty's Anti Diabetic Vegetable Compound**—Alberty Food Laboratories Hollywood Calif Composition Essentially powdered plant materials Fraudulent therapeutic claims—[N J 21220 August 1934]

**G C C Golden Chemical Compound**—International Chemical Co, Topeka Kan Composition Iron sulphate dissolved in water For diphtheritic and scarlet fever sore throat pyorrhea catarrh eczema erysipelas bleeding piles etc Fraudulent therapeutic claims—[N J 21222 August 1934]

**Carlitol Comp Tablets**—Raymer Pharmacal Co Philadelphia For indigestion etc Misbranded because of fraudulent therapeutic claims and because each tablet contained less than the 1/2 grain of salol represented—[N J 21223 August 1934]

**Edrolax**—Edros Natural Products Inc New York City Composition Essentially a mixture of mucilaginous seeds including psyllium with agar agar and caramel For constipation intestinal inflammation etc Fraudulent therapeutic claims—[N J 21226 August 1934]

**Wonder Crystals**—Wonder Crystals Product Co., Holdrege Neb Composition Essentially crystallized Glauber's salt Cure all Fraudulent therapeutic claims—[N J 21237 August 1934]

**Live On Tonic**—Live-On Medicine Co St Louis Composition Essentially rhubarb extract tar vinegar alcohol and sirup For coughs catarrh asthma etc Fraudulent therapeutic claims—[N J 21227 August 1934]

**Burbank Kelp**—Vegetable Products Corporation Burbank Calif Composition Essentially ground seaweed For nervousness rheumatism asthma anemia and digestive troubles Fraudulent therapeutic claims—[N J 21221 August 1934]

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

### INFECTION WITH TUBERCULOSIS

To the Editor—Where can I get the latest information on the following questions regarding tuberculosis? 1 Does the primary infection of tuberculosis increase the immunity of an individual to further exogenous infection with the bacillus of tuberculosis? 2 What is the length of life of the bacillus of tuberculosis under different conditions as in sunlight and in dark rooms? 3 Is there any age beyond which it is considered that an individual will not become infected with tuberculosis? Please omit name and address.

M D Wisconsin

ANSWER—1 There is good experimental evidence to show that the animal body after having been infected with small doses of tubercle bacilli or with those of low virulence, will later tolerate large doses of tubercle bacilli longer than the animal that has not been previously infected. This greater length of life has been attributed to immunity produced by the original infection (Kruse, A. K. *J. M. Research* 35:25 [Sept.] 1916; Willis, H. S. *Am. Rev. Tuberc.* 17:240 [March] 1928). From such work it was deduced that the child who became infected with tubercle bacilli and was not ill, developed immunity to tuberculosis, and it was this immunity which accounted for the extremely low morbidity and mortality from tuberculosis in children. Recent observations have shown, however, that when these so-called immunized children approach the period of puberty some of them fall ill from clinical tuberculosis and by the time they reach the age of 21 years approximately 10 per cent have developed tuberculosis in one of its clinical forms (Myers, J. A. and Harrington, F. E. *The Effect of Initial Tuberculous Infection on Subsequent Tuberculous Lesions* *THE JOURNAL*, Nov. 17 1934 p. 1530). In all probability as many more of the group who were infected in childhood will fall ill before they have reached the average length of life of the general population. Just how many of this 10 to 20 per cent of infected children who later fall ill develop their clinical tuberculosis through exogenous reinfection is not known. The fact is well established however that when tubercle bacilli escape in sufficient numbers from old primary foci and find lodgment on allergic tissues they are capable of producing disease. There is no evidence to show that such bacilli are any more likely to cause disease than those introduced into the bodies of sensitized persons from exogenous sources. Experimental workers (Burke, H. E. *Tr. Nat. Tuberc. A.* 29th Annual Meeting, 1933 p. 212) have proved that immunized animals develop a destructive form of disease when tubercle bacilli are introduced from exogenous sources. Therefore the primary infection with tuberculosis may produce some immunity to tubercle bacilli either from endogenous or from exogenous sources. Unfortunately, however, one cannot depend on this immunity since it is only the previously infected human beings, and those who should be immunized by such infection who actually develop chronic clinical tuberculosis.

2 The length of life of the tubercle bacillus outside the human body varies a great deal, depending on its exposure to direct sunlight. If in sputum and partially covered by dust, even though in places where there is abundant sunshine, the tubercle bacillus is adequately protected so that it may remain alive for many days. When exposed to the direct rays of the sun cultures of tubercle bacilli are rendered sterile in approximately two hours. When sputum is spread thinly on glass, only ten minutes of direct sunlight is required to kill them. Material containing tubercle bacilli placed on linen and woolen cloth and dried have lost their ability to infect animals after twenty-four to thirty hours of exposure to daylight. When one exposes tubercle bacilli to rays from the mercury quartz vapor lamp they lose their acid-fastness in a few minutes and are dead in ten minutes. When sputum containing tubercle bacilli is smeared thinly on cloth or glass and dried in a dim light in a cool place, they remain alive and virulent as long as four months. When bacilli are exposed to diffuse light, as in a house, they have been found virulent as long as thirty-nine days.

3 Apparently there is no age at which the individual will not become infected with tubercle bacilli. At one time it was believed that all initial infection occurred in childhood, perhaps it did. However with the reduction in the number of sources of tubercle bacilli through pasteurization of dairy products, slaughter of tuberculous animals, isolation, treatment, and education of tuberculous human beings the children of most communities no longer become contaminated in large numbers.

In fact there are many places in this country where from 75 to 90 per cent of the children enter the period of puberty without having been infected with tubercle bacilli. When some of these uninfected individuals later become exposed to tubercle bacilli, such as frequently occurs in students of nursing and medicine, they are seen to develop the first infection type of tuberculosis which is not essentially different from that which they would have developed if they had been infected in infancy or childhood (Myers, J. A. *Am. Rev. Tuberc.* 23:93 [July] 1933). There are cases on record of much older individuals who have become infected for the first time and who developed the characteristics of the first infection type of disease as seen in childhood. The reinfection type of tuberculosis whether from endogenous or exogenous sources can take place at any time in life. The best evidence to support this statement is the increased incidence of the reinfection type of tuberculosis in the human family as the decades advance; that is in the second decade of life there is far more clinical tuberculosis than in the first, there is more in the third decade than in the second and so on throughout the decades of life. After the age of 50 for the number of people living the incidence of clinical tuberculosis is higher than at any other age period in life. This fact has been established not only through surveys that include x-ray films and sputum examinations but also through postmortem studies.

### INJECTION TREATMENT FOR HERNIA

To the Editor—Is the treatment of hernia by injection of sclerosing solutions a sound procedure? This matter has been recalled to my attention through the recent promotion of Pina-Mestre's Solution proposed for that purpose.

M D Arkansas

ANSWER—Pina-Mestre's Solution, manufactured by Dr. E. Pina-Mestre of Barcelona, Spain, was declared not acceptable for inclusion in New and Nonofficial Remedies (*THE JOURNAL*, Feb. 1 1930, p. 339). At that time, however, it was known as *Hernial* (Inyecciones Proliferantes Obturadoras del Dr. E. Pina-Mestre). The formula was then stated to be as follows:

Each ampule contains approximately 98% of alcohol and the balance consists of the following ingredients expressed in percentages: 25% Krameria 16% Catechu 15% Rosa Canina 15% Rosa Centifolia 14% Vaccinium Myrtillus 15% Monesia.

The attempted cure of hernia by the application of John Hunter's theory of "adhesive inflammation" is not new nor original with Dr. Pina-Mestre. Injection of irritants of varying sorts into the inguinal canal was performed successfully almost a century ago by Velpeau.

The results obtained perhaps compared favorably at that time with those following surgical repair, but it must be remembered (1) that aseptic surgery was then unknown and (2) that infection of herniography wounds predisposes greatly to recurrence. The indiscriminate spreading of severely irritant substances throughout an area containing such delicate structures as the inguinal canal with the frequent presence in the sac of intestine, omentum, bladder, ovary or other abdominal viscera is most hazardous. Once the substance is injected, its distribution is beyond control. While dense scar formation might be eminently desirable at a given site, it might be equally objectionable in another area. For example, any substance that will produce adhesions in the inguinal canal around the hernia may produce adhesions in the peritoneal cavity, which is continuous with the hernial sac. Because this procedure is advocated for office use, the occurrence of perforation of the bowel with peritonitis, of some viscus, of the deep epigastric artery (in inguinal hernia) or even of the femoral artery itself (in femoral hernia) is particularly dangerous. It would be most difficult to effect ligation of either of these vessels in the office of the general practitioner. Yet such injury would constitute an urgent surgical emergency.

It may be said that after the recognized operations for hernia the normal anatomy of the region is somewhat altered but the result is practically as satisfactory, structurally and functionally, as the normal. The results produced by sclerosing solutions injected into this area would defy prediction and would undoubtedly produce more or less distortion of all immediately adjacent structures with perhaps sterility in the male and with no assurance that the hernia would be cured or even affected.

While there would appear to be no place at all for the injection treatment, it is possible that in the case of very aged individuals, or those whose physical state would contraindicate operation, there may occur isolated instances in which an attempt at treatment of this sort might be justified if the patient fully understands the dangers. Any common irritant would undoubtedly serve as well as Pina-Mestre's Solution and at a considerable saving (the price, to physicians of 60 cc of the preparation is \$20). It is probable though that, whenever



surgery is contraindicated, injection would also be unwise by reason of the possible occurrence of the previously noted complications, any one of which might require immediate operation on a poor-risk patient. For such individuals, a well fitted and frequently adjusted truss may prove satisfactory.

The large or unreducible hernias are the ones that are not always repaired satisfactorily, especially by the inexperienced surgeon, but these could never be safely relieved by injections.

In general, surgical repair by a well trained surgeon offers a satisfactory method for the treatment of hernia with a minimum of local tissue injury and little risk or discomfort.

#### TRINITROPHENOL (PICRIC ACID) METHOD FOR STAINING TUBERCLE BACILLI

To the Editor —I would appreciate the technic of Pottenger's dilution flotation picric acid method for examining specimens for tubercle bacilli.  
WALTER T SWINK M D Memphis Tenn

ANSWER.—The Pottenger dilution—flotation—trinitrophenol (picric acid) method for examining sputum for tubercle bacilli is performed in the following manner:

- 1 Collect the sputum for from twenty four to seventy-two hours
  - 2 Add an equal part of 0.5 per cent sodium hydroxide solution and then shake, preferably with a shaking machine, for from five to ten minutes. Shaking can also be done by hand.
  - 3 Digest in a water bath at 55 C for from thirty minutes to one hour.
  - 4 Pipet off and discard any insoluble residue that has settled to the bottom of the bottle.
  - 5 Add from 1 to 2 cc of a hydrocarbon (xylene, ligroine, benzene or gasoline). Fill with distilled water to about 200 cc. Shake for ten minutes.
  - 6 Allow the hydrocarbon to collect at the top of the bottle (from ten to twenty minutes).
  - 7 If the viscosity of the specimen is too high, remove the supernatant fluid by a sterile siphon, fill to 200 cc again with distilled water, and shake for five minutes.
  - 8 When the viscosity is practically that of water, the supernatant hydrocarbon layer is drawn up in a sterile pipet, which is pinched by inserting a cork, and allowed to remain in the vertical position until the liquid separates from the hydrocarbon layer (from five to ten minutes). The supernatant liquid is discarded and smears are made from the hydrocarbon layer. This is put on the slide and dried layer on layer to the desired thickness.
  - 9 Wash the smear in ether to remove traces of hydrocarbon and fat. Stain as usual. In decolorizing with acid alcohol do not allow more than twenty seconds exposure, as bacilli decolorize rapidly. Complete the decolorizing with from 5 to 10 per cent sodium sulphite if necessary. Counterstain with 1 per cent aqueous trinitrophenol solution.
- For proper films, from two to five large drops of the layer are necessary. The preparations are thin and clean and do not peel. Some rare purulent sputums require a dilution of 1 to 100 or more before the hydrocarbon layer forms distinctly.
- The foregoing method attempts to break up all clumps of bacilli so that they are distributed equally and singly throughout the specimen, and then concentrated in a small quantity. Thus they are much more apt to be found.
- Whereas the ordinary technic of staining smears of sputum is positive only with 100,000 or more bacilli per cubic centimeter (Dr H J Corper), this method is said to demonstrate tubercle bacilli in numbers as low as 1,000 in a twenty-four hour quantity of sputum. The method is about 200 times as sensitive as the ordinary sputum smear technic. It is about as accurate as guinea pig inoculation and can be carried out in about two hours. From 200 to 500 bacilli per cubic centimeter can be detected after a ten minute search of the smear.

#### URETHRITIS AND VESICULITIS AFTER GONORRHEA

To the Editor —Give treatment for a chronic though mild posterior urethritis and seminal vesiculitis following gonorrhea about five years before. It is stated by some that if the vesiculitis can be cured the posterior urethritis will cure spontaneously; others state that if the urethritis is cured the cure of the vesiculitis will follow of itself. Which view is correct or are both statements correct? Please omit name and address.

M D Texas

ANSWER.—The recognized treatment of chronic prostatitis and seminal vesiculitis following gonorrhea is routine massage of these organs and instillation of a mild solution (from 0.5 to 1 per cent) of silver nitrate. At the present time some are making direct injection of certain chemicals into the gland either transurethrally or transrectally. This method is still in the experimental state. There is no reason to believe the cor-

rectness of the statement "It is stated by some that if the vesiculitis can be cured the posterior urethritis will cure spontaneously, others state that if the urethritis is cured the cure of the vesiculitis will follow of itself."

#### SARCOMA OF ILEUM

To the Editor —Would you please tell me the frequency of sarcoma of the ileum particularly the terminal ileum. I have a case now in which I operated ten days ago for an acute surgical condition of the abdomen and found a large tumor of the terminal ileum which had broken through and formed a large colonic abscess outside the bowel. I resected and the report from the pathologist came back intermediate spindle cell sarcoma. The patient did not have a symptom until two days before the operation. Are these cases frequent? Have you any statistics on this condition? What is the percentage of recurrence? Please omit name.

M D Tennessee

ANSWER.—Sarcoma of the terminal ileum is an uncommon condition. On account of the uncertainty as to the precise histology and histogenesis of these lesions, the literature on this subject is indefinite. It is not clear from many of the reports in the literature as to whether one is dealing with lymphosarcoma, spindle cell sarcoma or myosarcoma. Lymphosarcoma is the most common of the three. The myosarcomas in this region usually arise in the submucosa of the appendix and cecum and frequently give rise to the clinical picture of acute appendicitis. Goldstein reports statistics from Prague in which thirteen intestinal sarcomas were observed over a period of fifteen years among 13,036 necropsies, representing an incidence of 0.1 per cent. The same author was able to collect 627 cases of intestinal sarcoma in the world literature. Three per cent located in the appendix. Spindle cell sarcomas constitute about 13 per cent of all types of intestinal sarcoma. Rankin states that patients operated on for intestinal sarcoma generally die within the first year although occasionally the disease can be controlled and some five-year cures are recorded.

#### EPIDIDYMITIS

To the Editor —What part does trauma play in the production of acute epididymitis in a person who gives no history of a gonorrheal infection either recently or in the past? Is acute epididymitis ever metastatic to a colibacillary, staphylococcal, streptococcal or pneumococcal infection? How frequently is tuberculosis the cause of an acute epididymitis in which there is no history of gonorrhea or trauma and is it possible in such a case that one of the organisms named could be the cause of the epididymitis instead of tuberculosis? Please omit name and address.

M D Pennsylvania

ANSWER.—Trauma may be the exciting cause of an acute nongonorrheal epididymitis in a person who gives no history of a gonorrheal infection. There are many infections of the epididymis, however, which are due to other organs and which reach the epididymis by extension along the vas deferens from the prostate and seminal vesicles. Acute epididymitis may be the site of a metastatic infection in a colibacillary, staphylococcal, streptococcal or pneumococcal infection, but if this occurs it is usually part of a general sepsis due to these organisms. Acute epididymitis may occur in tuberculosis of the epididymis and when it does it is usually an acute process engrafted on a preexisting tuberculosis. In other words, another example of a mixed infection. Any of the organisms named may cause this complication.

#### EFFECTS OF REMOVAL OF PROSTATE AND SEMINAL VESICLES

To the Editor —Will you please tell me the indications for and results from the removal of the prostate and seminal vesicles in a man aged 35? Is this ordinarily considered a formidable procedure and what would be the effects on the sex life of the individual? Please omit name and address.

M D Connecticut

ANSWER.—The only indication for this radical operation in a man aged 35 would be tuberculosis, and it is quite likely that a large percentage of good surgeons and urologists would not be inclined to do it. It is indeed a formidable procedure involving extensive dissection through the perineum. Young has devised an operation covering this procedure. The entire set of organs can be removed without opening the urinary tract.

The first effect on the patient would be to diminish considerably the seminal ejaculate, as the secretions from the prostate and vesicles would be absent, the psychic effect might be slight or considerable, depending on the personal equation and his reaction to the surgical procedure. Sexual ability might be altered slightly or greatly, again depending on the individual. Young says the operation is not dangerous to life even when nephrectomy is also necessary.



## NO MEDICAL TREATMENT OF CATARACT

*To the Editor*—At the age of 64 an opacity of the lens is forming in one of my eyes and has been under observation for a year or more making slow progress. An ophthalmologist has urged during this period daily use of a solution of ethylmorphine hydrochloride in water one or two drops in the eye nightly. He does not promise anything more than a hope that it will prove efficacious in clearing up the opacity but urges its continuance. I find that the slight inflammation of the conjunctiva that it causes is I think sufficient to make the instillation of the drug hardly worth while unless there is good reason to believe that good will result. I may say that I have but one eye with which I can read and unfortunately the opacity has affected that eye. One or two other ophthalmologists that I have asked about this seem to consider the use of ethylmorphine hydrochloride or glycerin in boric acid solution of very questionable value and I should much like to know what the consensus of competent authorities—if there is any general agreement in the matter—is with regard to this. I do not question the competence of the ophthalmologist but in view of the rather serious nature of the trouble and the not altogether pleasant nature of the irritation set up by the drug I should like to know what confidence in it other ophthalmologists have. Please omit name and address if published in THE JOURNAL.

M D New York

**ANSWER**—For the past few years a committee from the Section on Ophthalmology of the American Medical Association headed by Dr. Allen Greenwood of Boston has been investigating the so called medical treatment of cataract. The conclusion of the committee is that there is no known medical treatment that is of proved value. Individual ophthalmologists have reported cure or arrest of cataract with this or the other local or systemic treatment but none of these reports have been substantiated by others. In general it is not considered that the opacity of a lens can be influenced by the use of medicaments in the conjunctival sac.

## THERAPEUTICS OF CASCARA

*To the Editor*—1 Is the best method of taking cascara sagrada regularly that of using small doses three times a day after eating? 2 Is there any harm in taking five drops of the bitter tincture of cascara in this manner over a period of years (provided a patient is satisfied with this form of laxative and refuses to change)? What ill effects might be expected? 3 Is there any therapeutic advantage of the aromatic tincture of cascara over the bitter? Please omit name and address.

M D Pennsylvania

**ANSWER**—1 When cascara sagrada is taken regularly for the purpose of increasing the irritability of the bowel it is better given three times daily half an hour before meals than after meals, as it will then have an opportunity to act in greater concentration than when mixed and diluted with the large bulk of stomach contents after a meal.

2 The constant taking of any stimulant is theoretically objectionable on the ground of habituation and the consequent necessity of progressive increase of dosage. In practice this does not always happen. It is nevertheless well to attempt gradual and progressive reduction of dose. If this is impossible beyond a certain point, taking recourse to alternation with a succedaneum, such as aloes, is advisable.

3 The aromatic fluidextract of cascara sagrada is much more palatable than the bitter fluidextract. Unfortunately, it is also less efficient, possibly in a 1:4 ratio.

## NODULES ON JOINTS

*To the Editor*—I have under my care a man weighing about 200 pounds (90 Kg.), with hard nodular macules on the extensive surfaces of the elbows and knees. These vary in size up to as much as a centimeter in diameter. They are somewhat tender and painful on pressure. His physical examination is negative including a complete blood picture, urine analysis and examination of the teeth. The family history is negative. He is employed as a filling station attendant. Ordinary treatment has failed to give him any relief. Can you suggest a diagnosis and treatment?

M D Ohio

**ANSWER**—A macular formation is never nodular, having only two dimensions, so the query probably refers to a nodular formation. Nodules in the region of the knees and elbows may be due to various causes. Syphilis seems to have been ruled out in this case by negative blood examination. Certain arthritic conditions or gout may produce extra-articular nodules. Xanthomas are not always confined to tendons and their sheaths and may occur as extra-articular nodules. In rare instances, calcium is deposited in the superficial structures, but roentgen examination will disclose such formations. The most certain way to clear the diagnosis would be to perform a biopsy, removing one of the nodules and having it examined by a pathologist. Treatment must necessarily be based on the etiology.

## SENSITIVITY TO MORPHINE—INDICATION FOR PITRESSIN

*To the Editor*—When a patient seems to be sensitive to morphine sulphate as evidenced by itching after a dose is given and is sensitive to barbiturates just what drug or combination of drugs can be given for postoperative relief of pain? Also what contraindications are there for the use of pitressin postoperatively for gas distention, especially in appendectomies? Please omit name.

M D, Iowa.

**ANSWER**—Codeine might be tolerated, as well as acetanilid and acetylsalicylic acid. A combination of these three drugs as in the following prescription might be synergistic:

1 Codeine phosphate	0.50 Gm.
Acetanilid	1.00 Gm.
Acetylsalicylic acid	4.00 Gm.

M and divide into fifteen capsules

Label: One every hour until relieved or until three are taken then every two to four hours as required.

Pituitary might be of value in certain cases of adynamic ileus. It is contraindicated in intestinal obstruction, threatened perforation or the presence of a thin walled intraperitoneal abscess.

## PSORIASIS AND URINARY CALCULUS

*To the Editor*—I have a patient who suffers from psoriasis and who passed a ureteral calculus about one year ago. Is there any connection between the two ailments? Will you outline the present preventive measures to combat the recurrence of the calculus with emphasis on the diet? Kindly omit name.

M D Connecticut.

**ANSWER**—In all probability there is no connection between psoriasis and the development of stone in the urinary tract. The best preventive measures against recurrent calculus formation are:

- 1 The correction of any obstruction that may prevent good drainage from any part of the urinary tract.
- 2 Clearing up any infection.
- 3 Forcing of fluids.
- 4 Elimination of all foci of infection.

## SPASMODIC TORTICOLLIS

*To the Editor*—A man aged 42 who has been employed as a laborer in an ice-making plant for four years developed a spasmodic torticollis. Can the daily exposure of cold—zero temperature—be explained as causal in possibly producing this condition? Please omit name.

M D Illinois

**ANSWER**—True spasmodic torticollis is characterized by clonic spasm of the various muscles of the neck, especially the sternomastoid and trapezius. The cause is some lesion of the nervous supply of the muscles, probably in most cases cortical. We have found no instance in which daily exposure to cold was considered an etiologic factor in producing this condition. Acute wry neck or rheumatic torticollis may be produced in susceptible individuals as the result of exposure to a cold draft of air.

## VASECTOMY

*To the Editor*—In vasectomy should either or both ends of the cut vas be ligated and why? Please give accepted technic for the operation. Please omit name.

M D Colorado

**ANSWER**—In carrying out a vasectomy, both ends of the cut vas should be ligated, the lower end because testicular secretion would continue to be discharged from it and the upper end because it communicates directly with seminal vesicle and prostate and, should local infection occur, it might easily be carried to these organs. Again, if the ends are not tied they may grow together again.

**Technic**—Under infiltration anesthesia a small incision (15 cm in length) is made in the upper posterolateral wall of the scrotum, exposing the vas. Its sheath is dissected from it, a small section is removed and the cut ends are ligated and dropped back into the scrotum and the skin wound closed with one or two silk sutures.

## ATROPINE IN COUGHS

*To the Editor*—I have been prescribing atropine sulphate in cases of chronic coughs in doses of 1/400 grain (0.00065 Gm.) once or twice a day. I also use it in cases of nervousness. Is the drug habit forming? Would there be any untoward effects in using it over months—daily?

ALFRED JEFFERSON M D Omaha.

**ANSWER**—Atropine sulphate is not known to be habit forming and if it gives relief there is no objection to continuing it as long as desirable.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY** *Oral (Group A and Group B candidates)* New York June 10 Sec. Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** *Final oral and clinical examination (Group A and Group B candidates)* Atlantic City N J June 10-11 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** Philadelphia June 8 and New York June 10 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N J June 10 and St Louis Nov 19 Sec. Dr C A Aldrich 723 Elm St Winnetka Ill

**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** Philadelphia June 7-8 Sec Dr Walter Freeman 1726 Eye St NW Washington D C

**AMERICAN BOARD OF RADIOLOGY** San Francisco May 10-12 and Atlantic City N J June 8-10 Sec Dr Byrl R Kirklm Mayo Clinic Rochester Minn

**ARIZONA** *Basic Science* Tucson June 18 Sec Dr Robert L Nugent Science Hall, University of Arizona Tucson

**ARKANSAS** *Basic Science* Little Rock May 6 Sec Mr Louis E Gebauer 701 Main St Little Rock *Regular* Little Rock May 14 Sec. Dr A S Buchanan Prescott *Eclectic* Little Rock May 14 Sec Dr L L Marshall 820 W 14th St Little Rock

**CALIFORNIA** *Reciprocity* San Francisco May 15 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**DELAWARE** June 11-13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover

**FLORIDA** Jacksonville June 17-18 Sec Dr William M Rowlett P O Box 786 Tampa

**GEORGIA** Atlanta and Augusta June 11-12 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**INDIANA** Indianapolis June 18-20 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex, Indianapolis

**IOWA** Iowa City June 4-6 Dir. Division of Licensure and Registration Mr H W Grefe Capitol Bldg Des Moines

**KANSAS** Topeka June 18-19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned

**KENTUCKY** Louisville June 5-7 Sec State Board of Health Dr A T McCormack 532 W Main St Louisville

**MARYLAND** *Regular* Baltimore June 18-21 Sec Dr John T O'Mara, 1211 Cathedral St Baltimore *Homopathic* Baltimore June 11-12 Sec Dr John A Evans 612 W 40th St Baltimore

**MICHIGAN** Ann Arbor June 11 Sec Board of Registration in Medicine, Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

**MISSOURI** St. Louis, June 12-14 State Health Commissioner Dr E T McLaugh State Capitol Bldg Jefferson City

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24-26 and Sept 16-18 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** *Basic Science* Omaha May 7-8 *Medical* Omaha June 11-12 Dir Bureau of Examining Boards Mrs Clark Perkins State House, Lincoln

**NEVADA** Carson City May 6 Sec Dr Edward E Hamer Carson City

**NEW JERSEY** Trenton June 18-19 Sec Dr James J McGuire 28 W State St Trenton

**NORTH CAROLINA** Raleigh June 10 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh

**OHIO** Columbus June 4-7 Sec State Medical Board Dr H M Platter, 21 W Broad St Columbus

**OKLAHOMA** Oklahoma City June 5-6 Sec Dr J M Byrum Mammoth Bldg Shawnee

**OREGON** *Basic Science* Portland May 18 Sec Mr Charles D Byrne University of Oregon Eugene

**TEXAS** Austin June 18-20 Sec Dr T J Crowe 918 19-20 Mercantile Bldg Dallas

**VIRGINIA** Richmond June 19-21 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

**WISCONSIN** *Basic Science* Milwaukee June 1 Sec Prof Robert N Bauer, 3414 W Wisconsin Ave Milwaukee

**WYOMING** Cheyenne May 20 Act Sec Dr G M Anderson Capitol Bldg Cheyenne

### Illinois January Examination

The Illinois Department of Registration and Education reports the written and practical examination held in Chicago Jan. 22-24 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifty candidates were examined, 49 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Chicago Medical School (1933) 77 (1934) 77 80 80 84 85 (1935) 77 79 79 81		(1932)	81
Loyola University School of Medicine (1934) 85 86 87		(1934)	82
Northwestern University Medical School 85 85 86 86 * 87 88		(1934)	82
Rush Medical College 82 83 84 85 85 * 86 88 89		(1934)	81
School of Medicine of the Division of the Biological Sciences (1932) 85 (1934) 80 83		(1934)	83

University of Illinois College of Medicine (1934) 78 80, 81 82 82, 83 83 83 * 84 84 84 * 88	(1933)	80 †
Harvard University Medical School (1933)		80
University of Minnesota Medical School (1933)		83
School	FAILED	Year Grad
Creighton University School of Medicine (1933)		(1933)

Twenty-nine physicians passed the practical examination held in Chicago, January 24, for reciprocity and endorsement applicants. The following schools were represented:

School	PASSED	Year Grad	Reciprocity with
Yale University School of Medicine (1928)		(1928)	Maryland D C
Howard University College of Medicine (1921)*		(1921)*	
(1933) Kansas			
Rush Medical College (1930) *	(1930) *	(1932)	Minnesota
(1934)* Pennsylvania			
University of Illinois College of Medicine (1934)*	(1934)*		Indiana
Michigan			
Indiana University School of Medicine (1931) *	(1931) *	(1932)*	Indiana Ohio
College of Physicians and Surgeons of Baltimore (1914)		(1914)	
Johns Hopkins University School of Medicine (1931)		(1931)	Maryland
University of Michigan Medical School (1927)		(1927)	
(1932) (1933)* Michigan			
University of Minnesota Medical School (1929),	(1929),	(1931)	Minnesota
St Louis University School of Medicine (1929)		(1929)	Penn
Creighton University School of Medicine (1933)		(1933)	Nebraska
University of Nebraska College of Medicine (1928)		(1928)	Nebraska
Western Reserve University School of Medicine (1927)*		(1927)*	Ohio
University of Oklahoma School of Medicine (1932)*		(1932)*	Penn
School	PASSED	Year Endorsement Grad of	
Loyola University School of Medicine (1934)		(1934)	N B M Ex
Northwestern University Medical School (1934) (1934)*	(1934) *	(1931) *	N B M Ex
Harvard University Medical School (1931) *	(1931) *	(1933)*	N B M Ex
St Louis University School of Medicine (1927)		(1927)	N B M Ex

\* License has not been issued

† This applicant has completed the four year medical course and will receive the M D degree on completion of internship

## Book Notices

**The Problem of Mental Disorder. A Study Undertaken by the Committee on Psychiatric Investigations. National Research Council. Members of the Committee: Madison Bentley, Chairman, Sage Professor of Psychology, Cornell University; and E V Cowdry, Professor of Cytology, Washington University. This study was supported by a grant from the Carnegie Corporation. Cloth Price \$4. Pp 388. New York & London: McGraw Hill Book Company Inc 1934.**

Knowledge of mental disorders is extremely imperfect and the treatment of those who have mental disorders is correspondingly unsatisfactory. The authors attempt to take stock of the usable knowledge actually at hand and to discover how well the wide field of science, divested of professional and philosophic tradition, may supply new knowledge and new instruments of research. Five psychiatric points of view are presented by representative men in the various schools and branches of psychiatry: the clinical, the medical, the neurologic, the psychobiologic and the psychoanalytic. The supporting sciences to which the editors look with hope, are surveyed under the titles: problems in cerebral anatomy and physiology; electrophysiology of the brain; electrical measurement of activities in nerve and muscle; neurocytology; certain aspects of the chemistry and metabolism of the brain; neuropathology of the brain; the origin, plan and operational modes of the nervous system; factors of neural integration and neural disorder; general biology and genetics; human constitution; endocrinology; the pathogenesis of neurocytotropic virus diseases; nutrition; pharmacology; general and experimental psychology; clinical psychology and the psychoneuroses; comparative psychopathology of infrahuman primates; psychotic symptoms and social backgrounds; cultural anthropology; and education. The volume is thus a collection of some twenty-five essays by so many authors. The plan of presenting the problem is commendable but almost too large for inclusion in a single volume, and the reader is annoyed by the sudden shifts, starts and stops, for there is lacking the cohesion necessary to supply anything like unity. The style is spotty. A few of the essays are marred by the weight of the thoughts or the ponderosity of the diction; it is difficult to say which. The brevity of the more excellent essays is disappointing and frequently the stimulus to collateral reading is deflected by the absence of references. All told, there is much extremely valuable information enough to make one humble, and a little to make one hopeful. The book, if read in its entirety, will be appreciated.

**The Popular Practice of Fraud** By T Swann Harding Cloth Price \$2.50 Pp 376 New York London & Toronto Longmans Green & Company 1935

This book of Mr Harding's covers much the same field as, and is a foil for, "100,000,000 Guinea Pigs" by Kallet and Schlunk of Consumers' Research. The authors of both books are about as highly critical of the medical profession as they are of each other. Mr Harding, in another place, has expressed the opinion that the American Medical Association is 'not a scientific body, but a well-unionized trade guild determined to protect its own incompetent members and to increase the income of its supporters.' While in his present book Mr Harding is not quite so virulent against the American Medical Association, nevertheless this book, like "100,000,000 Guinea Pigs," details innumerable frauds, practically all of them of a medical character, and the material is based almost exclusively on the investigations made, paid for and published by the much damned American Medical Association!

*The Popular Practice of Fraud* is a book of 376 pages whose material could easily have been brought within the scope of 100 pages. It is endlessly repetitious. There is no index—which might have made it a convenient book of reference—and one wonders if the omission is intentional, certainly an index would have emphasized its repetitious character. Each chapter contains many bibliographic references which the careless reader may not turn to. Such references, being designated simply by numbers in the body of the text fail to bring home to the casual reader how impossible it would have been for Mr Harding to write his book had the American Medical Association not done the enormous amount of work on medical frauds that it has in the past thirty years.

Unlike Messrs Kallet and Schlunk Mr Harding does not criticize the federal officials whose duty it is to protect the public against fraud in medical and other fields. For this he is to be complimented for the tirades against the Food and Drug Administration officials in "100,000,000 Guinea Pigs" were as undeserved as they were unfair.

Here and there Mr Harding gives qualified and begrudging praise to the American Medical Association and its work. After criticizing the Council on Pharmacy and Chemistry for accepting certain products—which as further knowledge was developed, the Council later rejected—Mr Harding says "It is not contended that the Council can always be right. It is merely claimed that it operates under the somewhat onerous handicap of a considerable economic bias." Elsewhere he says, in dealing with the same general subject "In general, acceptance by the councils of the American Medical Association is on a basis of scientific merit. There are notable and inexcusable exceptions but no such agency, Government or otherwise, can be perfect so long as human nature remains about what it is."

Toward the exploiters of the various frauds with which he deals, Mr Harding's attitude is one of tolerance. He is apparently convinced that these persons are more sinned against than sinning and that their defections are due not so much to guile as to an imperfect economic system. This system, he says, "is subject periodically to catastrophic crises which render so many individuals and businesses insecure that fraud increases by leaps and bounds as efforts are made to survive the depression." He has no suggestion for another system and, indeed, questions whether it would not be a fact that "any other seemingly ideal system would almost certainly be accompanied by its own peculiar kind of imperfections."

In the closing chapter, entitled "The Future of Fraud," he states that "ruthless producers compete for suckers in a closed market, attacking with all the modern weapons of psychology, a public that completely lacks the elements of intelligent sales resistance." He then gives as an instance the case of "Listerine," and points out that the president of the Lambert Pharmaceutical Company has explained that when his company spent practically nothing for advertising, it earned only \$115,000 annually, but that when, in 1930, it spent approximately \$5,000,000 in advertising its net earnings after paying taxes, were considerably over \$7,000,000. Mr Harding refers further to the various advertising claims made for Listerine as an alleged panacea for dandruff, halitosis and what-have-you and closes his references to this product by stating that when the

Listerine people decided to put out a tooth paste under the same name, the Listerine flavor had to be changed because the public would not accept it. Mr Harding's reaction to the Listerine exploitation is "There is nothing heinous about it at all. The Company was merely doing what it felt compelled to do in a closely competitive profit economy, where the public must be sold ever more goods. The selling is somewhat easier if people can be induced to believe that they are ill or that they can be protected from serious ailments by certain simple proprietaries."

We would not imply that the present book is not a valuable one. It is like Kallet and Schlunk's "100,000,000 Guinea Pigs," it contains much valuable information and being written in an easy, racy style, will do much to awaken that large part of the public that Mr Harding says "completely lacks the elements of intelligent sales resistance." And such an awakening is sadly needed. The pity is that the author, while finding the medical profession so necessary for furnishing him with most of the scientific data that his book contains, should feel constrained to belabor that profession so drastically. We believe that even Mr Harding would admit that no other social group in the American scene has made such efforts to protect the public against fraud as is comparable with the work carried out at the expense of the organized medical profession of the United States in the medical field. Moreover, any honest judge of the medical profession of this country would admit that no other articulate group has ever been more critical of its own shortcomings or more ready to admit error when error has been committed.

**Lehrbuch der Urologie und der chirurgischen Krankheiten der männlichen Geschlechtsorgane** Von Professor Dr. Hans Wildbolz, chirurgischer Chefarzt am Inselspital in Bern. Second edition. Paper. Price 64 marks. Pp 610 with 218 illustrations. Berlin Julius Springer 1934.

This excellent work first appeared in 1924 after ten years it has been brought down to date in the present edition. Urology always in evolution, is here presented in its latest aspect. The author, with the authority which his long and extensive experience gives him, has depicted his subject in a fully rounded and complete manner. As in the previous edition the divisions of the volume are devoted to general and special urologic subjects. Extensive attention has been paid to methods of examination, but for the most part the author omits theoretical discussions in order to make his treatise a practical work for the specialist as well as for the general practitioner. As a surgeon he was writing especially for surgeons, however, quite properly, a chapter on nephritis has been included. A discussion of gonorrhea and nongonorrheal urethritis also is noted. Wildbolz has merely touched on the new technique of transurethral prostatic resection. His own technique of perineal prostatectomy is fully described. The volume is clearly and coherently written and contains nothing but matter of importance. The references to the work of others are scanty and brief, but from the author's own rich fund of experience ample data are brought forth. The volume is well edited and beautifully printed. The illustrations are satisfactory. It can be recommended heartily as one of the best books on the subject in any language.

**Anatomy for Dental Students. Systemic and Practical** By Six Teachers. Edited by E. P. Stibbe F.R.C.S. Senior Demonstrator in Anatomy London Hospital Medical School. Cloth. Price \$6. Pp 429 with 216 illustrations. Baltimore William Wood & Company 1934.

The character of this book is clearly expressed in the first two sentences of the preface. "The purpose of this book is to present to dental students and practitioners as much of the subject of human anatomy as is necessary for their licentiate examinations and for reference after qualifying. It is often found impracticable in medical schools to provide completely separate courses for dental students in the ancillary subjects with the result that it is necessary for them laboriously to abstract from lectures and books those parts of the subject that are necessary to them, and even then they cannot be quite confident that they have covered just the right ground. This book frankly puts the book on the basis of a quiz compend to enable the student with the least effort and the least profit, to encounter successfully licensing examinations. This point of view is of questionable soundness. If a dental student should study fundamental medical sciences at all he should study them

from exactly the same point of view as the medical student. If a dentist is responsible for the diseases of the mouth, as an internist is responsible for the diseases of the liver, he requires the same basic training. The text covers well the limited scope of the book. Osteology is confined to the skull, the vertebral column and the bones of the limbs. One might ask at once "Why the bones of the limbs?" The study of joints is limited to the temporomandibular joint, the joints of the cervical spine and the joints of the clavicle. The only justification for this choice must be that the licensing examination in England is limited to these. The text is clearly written and, in view of its limitations, quite satisfactory. The author follows the classic error in describing the anterior belly of the digastric as the depressor of the mandible. The book is a limited presentation of a great subject from a limited point of view. For ready reference it is probably of considerable value.

Oto rhino laryngologie du médecin praticien. Par le Dr Georges Laurens oto rhino laryngologiste de l'Hôpital Saint Joseph. Sixth edition. Paper. Price 42 francs. Pp 533 with 587 illustrations. Paris. Masson & Cie 1934.

This is everything that a textbook for students and practitioners should be. The author never loses sight of the fact that he is not talking to the specialist. His attitude is that of the teacher who realizes that his reader wants facts and these he presents clearly and graphically. He takes nothing for granted but goes into minute details bearing on the fundamentals. The drawings accompanying the text cover every essential point from the manipulation of the head mirror to the minutiae of therapeutic procedures. A wealth of information is compressed within the pages in such a manner that the reader must be impressed with what the author believes he should know. Among the topics that are ordinarily given but little space in the average manual one finds deafness, tinnitus, vertigo, otalgia, epistaxis, differential diagnosis of dyspnea, tracheotomy, vaccine therapy, dysphagia, and differential diagnosis of ulcerative lesions of the throat. The only criticism that might be offered is the omission of such topics as neutropenia and mononucleosis, petrositis and the use of contrast mediums in the diagnosis of sinus disease. The inclusion of these would have made the volume practically perfect.

The Adolescent in the Family. A Study of Personality Development in the Home Environment. Report of the Subcommittee on the Function of Home Activities in the Education of the Child. E. W. Burgess, Ph.D. Chairman. White House Conference on Child Health and Protection. Cloth. Price \$3. Pp 473. New York & London. D. Appleton Century Company 1934.

Unlike many committee reports, this is not only a valuable collection of actual material but a readable report. Many of the facts established by the extensive surveys on which the report is based were known or generally suspected, but it is worth while to have them thus substantiated and assembled for the information of those whose work brings them in contact, and not infrequently in conflict, with the adolescent. On the whole, the American home seems not to deserve the severe condemnation so often meted out to it, on the other hand, there are many ways in which it could be bettered. Perhaps the most interesting of the conclusions from the report is the one which shows that the rural home, though externally appearing most solidly self contained, may in fact be less so than the city home which superficially gives the impression of being little if at all integrated as far as family life is concerned. The home seems to be of value to the adolescent practically without regard to its socio economic status, the deciding factors appear to be human relationships within the home. Neither does it appear that the only child is commonly believed, necessarily suffers in personality development solely by reason of being the only child, quite the contrary may be the result. It all depends on the parents. The section of the report dealing with health is the least satisfactory. The authors in every section but this one have shown a commendable caution about letting their conclusions run away with their data but when it comes to health they naively present unverified data collected from children about the frequency of bathing and of brushing the teeth and ask the reader to accept them as criteria of the general health situation in the homes. An attempt is made to show a correlation between regularity in brushing the teeth and personality adjustment which would seem to be carrying the fetish of health habits to a new high in ridiculousness.

The section on health is so out of harmony with the general excellence of the book as a whole that one is tempted to do a little correlating of one's own and note that only two physicians were members of the subcommittee that sponsors this study. With this one exception, however, and in spite of it the book should be valuable to all who work with the adolescent—teachers, parents, social workers, ministers and leaders in youth movements. The recommendations of the subcommittee will be difficult to carry out, embodying as they do a number of suggestions for more parent education with respect to management of the child, and especially with respect to sex education, which is pointed out as the most glaring weakness of the modern American home.

La viruela y su profilaxia en Guatemala. Apuntes compilados por el Doctor Luis Galtan para presentarlos al segundo Congreso Centroamericano de Ciencias Médicas, que se reunirá en San José de Costa Rica en el mes de octubre de 1934. Paper. Pp 69 with illustrations. Guatemala. C. A. 1934.

Severe epidemics of variola have been recorded in medical annals of Guatemala during the last 300 years. From 1879 to 1881 smallpox swept over the entire republic, and in 1883 obligatory vaccination for all inhabitants of Guatemala was decreed. Vaccination is under the control of a sanitary commission. Since the institution of vaccination, the morbidity and mortality rate has decreased constantly and consistently. At the present time variola occurs only in sporadic form, and the actual number of persons suffering from this dread disease is small. These experiences are quite like those of other countries where widespread vaccination is the rule.

## Miscellany

### THE PRACTITIONER'S RESPONSIBILITY WHEN FUGITIVES ATTEMPT TO CONCEAL IDENTITY BY MEANS OF SURGERY

J. EDGAR HOOVER

Director, Federal Bureau of Investigation U. S. Department of Justice  
WASHINGTON, D. C.

A postmortem examination of the body of John Dillinger disclosed that efforts had been made to alter the pattern appearing on the bulbs of his fingers, and that operations had been performed on his face in an effort to obscure his identity. That the effort to alter his facial appearance had proved unsuccessful was demonstrated when special agents of the Federal Bureau of Investigation, United States Department of Justice, recognized him instantly and brought his career to a close on encountering armed resistance from him at Chicago on July 22, 1934. That the attempt to mutilate his fingerprints was equally unsuccessful was shown by the fact that the bureau's fingerprint experts found 300 characteristics remaining in these patterns whereby Dillinger's identity could be conclusively established.

The attempts of Dillinger and other fugitives to change their fingerprints were occasioned by the knowledge that as long as telltale patterns remained on the tips of their fingers they could not hope to avoid the consequences of prior acts merely by adopting new aliases and changing their bases of operation. They realized that, no matter where they fled, the files of the Federal Bureau of Investigation would pursue them. How potent a force these files are may be judged by the fact that they contain almost 5,000,000 fingerprint records contributed by approximately 8,000 police agencies. An average of 2,800 fingerprint cards are added daily, almost half being of individuals shown by the records to have had a previous criminal history.

As a result of the increased use of fingerprint identification in the last decade, fugitives who in an earlier era after arrest on suspicion, might have been released because of the inability of the authorities to establish their true identity are now held

and turned over to the jurisdiction where they are wanted. Obviously, if some method could be devised whereby criminals could frustrate fingerprint evidence, they would subscribe to it eagerly.

It is not surprising, therefore, that criminals seek to enlist the aid of members of the medical profession whose knowledge and skill might enable them to obscure fingerprints and alter facial appearance. Although the attempt failed in Dillinger's case, and the physician who performed the operations was prosecuted, there is little reason to believe that the criminal element will relinquish the hope of utilizing the services of physicians and surgeons to conceal their identity.

Just what are a criminal's chances of successfully obliterating his identity through a resort to surgery? In the case of fingerprint mutilation while there may exist some difference of opinion as to the extent of the scars left as a result of such operations, the consensus of surgical experts seems to be that there would be definite delimitations in all cases. It is also evident that, when skin from other portions of the body is grafted to the finger tips, the ridge formations are different from those which customarily appear on the bulbs. The discovery by a police official of such a distinctly abnormal pattern would instantly place the official on guard and whether he could effect an immediate identification or not there is no doubt that the prisoner would be held in custody pending the determination of his identity.

The same consequences could be expected from burning or mangling the fingerprints. Of course, if the burns were less than third degree, the pattern temporarily effaced would again push itself to the surface. Assuming that rigorous treatment had destroyed all prints, the prisoner would invite the unremitting activity of police officials to determine who he was. In short, to tamper with the natural ridge formations of the finger tips would merely serve to obstruct and not to defeat identification.

No legitimate purpose can be imagined to account for a patient's application to a surgeon to have his fingerprints changed. To a law-abiding citizen it is a matter of indifference what pattern his prints follow. It is apparent, therefore, that the practitioner who undertakes to alter fingerprint patterns is lending himself to an attempt to defeat justice and violating the high ethical standards of the profession.

The position of the plastic surgeon consulted for changes in facial characteristics is somewhat different, in view of the fact that the patient may well be actuated by proper motives. The urge to improve on nature's handiwork is a common one, and many an upright citizen has been driven by the jeers of his fellow men to resort to surgery in the hope of achieving a more pleasing physiognomy. And whereas there is futility in fingerprint distortion, plastic surgery is capable of a marked degree of success in changing an individual's appearance, notwithstanding the failure of Dillinger's surgeon.

The resort to plastic surgery by the criminal element has, however, imposed definite responsibilities on the profession. With due consideration for the confidential relationship between doctor and patient, the surgeon should not permit himself to be used to further the ulterior motives of criminals seeking to evade apprehension. It has become increasingly incumbent on the plastic surgeon to scrutinize carefully the motives of patients in consulting him. The slight additional burden which this may impose is greatly outweighed by the public interest involved. And if the surgeon experiences the slightest misgiving in a specific instance, he should not become a party to the operation. Certainly, persons having legitimate motives for resorting to plastic surgery will not be greatly inconvenienced in properly identifying themselves.

It is of course evident that the most skilled and ethical practitioners will not further the aims of the criminal element.

Unfortunately, every profession has within it individuals who do not do credit to it and with whom the ethical members of the profession are at war. In any case falling within the jurisdiction of the Federal Bureau of Investigation, it promises full cooperation with the efforts of the medical profession to maintain high standards and will conduct vigorous investigation with the view to the prosecution of irresponsible practitioners who have assisted in altering the appearance of patients whose fugitive status is apparent.

## Medicolegal

**Contracts in Restraint of Medical Practice**—The defendant sold to the plaintiff all of his office equipment, medical business and fixtures, including the good will of the business, and agreed that he would not for a period of five years thereafter open offices within the counties of Sutter or Yuba, California, for general or special practice of medicine or surgery. Within the time limit named, the defendant did open an office in the city of Marysville, county of Sutter, for the practice of medicine and surgery. In this action, the plaintiff sought to restrain the defendant from continuing in his practice contrary to his agreement. The trial court gave judgment for the plaintiff and the defendant appealed to the district court of appeal, third district, California.

The defendant admitted all the allegations of the complaint but claimed that his agreement not to practice was void under section 1673 of the Code of California. That section, and section 1674, pertain to contracts in restraint of trade, and read as follows:

1673 Every contract by which any one is restrained from exercising a lawful profession, trade, or business of any kind otherwise than is provided by the next two sections is to that extent void.

1674 One who sells a good will of a business may agree with the buyer to refrain from carrying on a similar business within a specified county, city or a part thereof so long as the buyer or any person deriving title to the good will from him, carries on a like business therein.

The defendant conceded that the word "business" in a general sense is broad enough to include any activity for profit or gain and therefore would include a profession, but contended that the legislature in stating the general rule in section 1673, *supra*, referred to "profession, trade, or business," whereas the exception as set forth in section 1674, *supra*, deliberately limited its effect to "business." However, said the district court of appeal, the Supreme Court of California in the case of *Ragsdale v. Nagle*, 106 Calif. 332, 39 P. 628, had the very same question before it and there held adversely to the defendant's contention. The court in that case said:

Section 1674 of the Civil Code says that one who sells the good will of a business may agree with the buyer to refrain from carrying on a similar business. It is now claimed that abstracting is not a business but a profession or trade and that therefore the provisions of the Code do not apply to the present case. It is sufficient to say the section is broad enough to bring the present case within its scope.

On the authority of the *Ragsdale* case, the district court of appeal affirmed the judgment in favor of the plaintiff—*Crutchett v. Lacton (Calif.)*, 33 P. (2d) 839.

**Workmen's Compensation Acts Gonorrheal Ophthalmia Not Compensable**—The defendant in error, Elizabeth Hosafros, was employed in a cigar factory. She contracted gonorrheal ophthalmia, necessitating the removal of an eye. She attributed the infection to certain rags furnished by the employer, which were used by employees to wipe their hands and faces. After the industrial commission had denied her claim for compensation, she filed suit in the court of common pleas, where a verdict was rendered in her favor. The industrial commission carried the case to the court of appeals of Ohio, Hancock county.

There is no evidence, said the court, of any traumatic injury sustained by the employee. The undisputed testimony was to the effect that gonorrheal infection of the character under consideration is transmitted by direct contact of the secretion containing the germs with the mucous membrane of the eye. There

was no evidence that such infection is occasioned by or follows as a result of physical injury. As the disease from which the employee suffered was not occasioned by, or followed as a result of, a physical injury, it was not an injury within the meaning of the term as used in the workmen's compensation act of Ohio. Even if the infection had constituted an injury within the meaning of the compensation act, continued the court, the evidence failed to show that the employee contracted gonorrhea in the course of her employment. The evidence did show that the employee was not infected with gonococci elsewhere than in the eye. The court of appeals, therefore, held that the employee was not entitled to participate in the workmen's compensation fund, and the judgment of the trial court was reversed and judgment for the industrial commission entered.—*Industrial Commission of Ohio v Hosafros (Ohio)* 191 N E 832

**Harrison Narcotic Act Administration of Narcotics as Constituting a Sale**—The defendant-physician was indicted for a violation of the Harrison Narcotic Act to which indictment he demurred. In overruling the demurrer, the United States district court, W D Washington, N D, stated that from the facts incorporated in the indictment, which facts were not set forth in the printed report of the case the conclusion was inevitable that the relationship between the defendant and the recipient of the morphine was essentially that of seller and buyer rather than physician and patient. The recipient of the morphine procured and intended to procure that narcotic rather than the services of a physician, and, although the defendant was a physician, he not in the course of his professional practice nor in good faith nor for legitimate medicinal purposes, dispensed the morphine rather than legitimate professional services to the recipient. The indictment, continued the court, negatived the fact that the recipient may have been a patient of the defendant physician in the ordinary course of his medical practice. It was morphine that the recipient wanted and that the defendant was willing to dispense, rather than medical or professional attendance. Even though the morphine was in liquid form and its possession was changed from the defendant to the recipient by means of a hypodermic, it was none the less morphine that the defendant was delivering and the recipient was receiving, rather than essentially professional services. This transaction, concluded the court, comprised all essentials of a "sale" of the morphine.—*United States v Ratigan* 7 Fed Supp 491

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 10 14 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Academy of Pediatrics New York, June 7 8 Dr Clifford G Grullee 636 Church Street Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City N J June 10 Dr Loring T Swaim 372 Marlborough Street, Boston Secretary
- American Association for Thoracic Surgery New York, June 3 5 Dr Duff S Allen 3720 Washington Boulevard St Louis Secretary
- American Association of Genito-Urinary Surgeons White Sulphur Springs W Va June 6-8 Dr Henry L Sanford 1621 Euclid Avenue Cleveland Secretary
- American Association of Medical Milk Commissions Atlantic City N J June 10 11 Dr Harris Moak 360 Park Place Brooklyn N Y Secretary
- American Association of the History of Medicine Atlantic City N J May 6 Dr Edward J G Beardaley 1919 Spruce Street Philadelphia Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Longwood Drive Boston Secretary
- American Child Health Association Iowa City June 19 22 Dr Philip Van Ingen 50 West 50th Street, New York, Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C Wright 1601 35th Street N W Washington D C Secretary
- American Gastro-Enterological Association Atlantic City N J June 10 11 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Hot Springs Va May 27 29 Dr Otto H Schwarz 630 South Kingshighway Boulevard St Louis Secretary
- American Heart Association Atlantic City N J June 11 Dr Irl C Riggins 50 West 50th Street, New York Executive Secretary
- American Laryngological Association Toronto, Canada May 29-31 Dr William V Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto Canada June 3 5 Dr Robert L Loughran Sharon Conn Secretary
- American Neurological Association Montreal Canada June 3 5 Dr Henry Alsop Riley 117 East 72d Street New York, Secretary
- American Ophthalmological Society Hot Springs Va June 5 7 Dr J Milton Griscom 2213 Walnut Street, Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5 8 Dr Ralph K Ghorrmley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Toronto Canada May 27 29 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiotherapy Association Atlantic City N J June 11 12 Miss Louise Jetter 17 East Styles Avenue Collingswood N J Secretary
- American Proctologic Society Atlantic City N J June 10 11 Dr Frank G Runyon 1361 Perkiomen Avenue Reading Pa Secretary
- American Psychiatric Association Washington D C May 13 17 Dr William C Sandy State Education Building Harrisburg Pa Secretary
- American Radium Society Atlantic City N J June 10 11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society for Clinical Investigation Atlantic City May 6 Dr H L Blumgart 330 Brookline Avenue Boston Secretary
- American Society of Clinical Pathologists Atlantic City N J June 7 9 Dr A S Giordano 531 North Main Street South Bend Ind Secretary
- American Surgical Association Boston June 6 8 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City N J June 7-8 Dr Oscar B Hunter 1835 Eye Street NW Washington D C Secretary
- American Urological Association San Francisco, June 25 28 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary
- Associated Anesthetists of the United States and Canada Atlantic City N J June 10 12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10 11 Dr Warren T Vaughan 808 Professional Building Richmond Va Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10-11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- Association of American Physicians, Atlantic City May 7 8 Dr James H Means Massachusetts General Hospital Boston Secretary
- California Medical Association Yosemite May 13 16 Dr F C Varnshuis 450 Sutter Street San Francisco Secretary
- Conference of State and Provincial Health Authorities of North America Atlantic City N J June 15 Dr A J Chesley State Department of Health St Paul Secretary
- Connecticut State Medical Society New Haven May 22 23 Dr C W Comfort Jr 27 Elm Street, New Haven Secretary
- Florida Medical Association Ocala May 13 15 Dr Shaler Richardson 111 West Adams Street, Jacksonville Secretary
- Georgia Medical Association of Atlanta May 7 10 Dr Allen H Bunce 139 Forrest Avenue N E Atlanta Secretary
- Illinois State Medical Society Rockford May 21 23 Dr Harold M Camp Lahl Building Monmouth, Secretary
- Iowa State Medical Society Davenport May 8-10 Dr Robert L Parker 3510 Sixth Avenue Des Moines Secretary
- Kansas Medical Society Salina May 8 10 Mr Clarence Munns Stormont Building Topeka Executive Secretary
- Maine Medical Association York Harbor June 23 25 Miss Rebekah Gardner 22 Arsenal Street Portland Secretary
- Massachusetts Medical Society Boston June 3 5 Dr Alexander S Begg 8 The Fenway Boston Acting Secretary
- Medical Library Association Rochester N Y June 17 19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9 11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24 26 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary
- Mississippi State Medical Association Biloxi May 14 16 Dr T M Dye McWilliams Building Clarksdale Secretary
- Missouri State Medical Association, Excelsior Springs, May 6-9 Dr E J Goodwin 634 North Grand Boulevard St Louis Secretary
- National Association of Private Psychiatric Hospitals Washington D C June 1 Dr James M O'Neill St Vincent's Retreat Harrison N Y Secretary
- National Tuberculosis Association Saranac Lake N Y June 24 27 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- Nebraska State Medical Association Omaha May 14-16 Dr R B Adams Center McKinley Building Lincoln Secretary
- New Hampshire Medical Society Manchester May 7 8 Dr Carleton R Metcalf 5 South State Street Concord Secretary
- New Mexico Medical Society Albuquerque May 22 24 Dr L B Cohenour 219 West Central Avenue Albuquerque Secretary
- New York Medical Society of the State of Albany May 13 15 Dr Daniel S Dougherty 2 East 103d Street New York, Secretary
- North Carolina, Medical Society of the State of Pinehurst May 6-8 Dr L B McBrayer Southern Pines Secretary
- North Dakota State Medical Association Minot May 27 28 Dr Albert W Skelsey 20½ Broadway Fargo Secretary
- Oklahoma State Medical Association, Oklahoma City May 13 15 Dr L S Willour 203 Ainsworth Building McAlester Secretary
- Pacific Northwest Medical Association Spokane Wash June 27 29 Dr C W Countryman 407 Riverside Avenue Spokane Wash Secretary
- Rhode Island Medical Society Providence June 6 Dr J W Leech 167 Angell Street Providence Secretary
- Society for the Study of Asthma and Allied Conditions Atlantic City N J, June 10 11 Dr W C Spain 116 East 53d Street New York Secretary
- Society of Surgeons of New Jersey Atlantic City May 15 Dr Walter B Mount 21 Plymouth Street Montclair Secretary
- South Dakota State Medical Association Pierre May 13 15 Dr John F D Cook Langford Secretary
- Texas State Medical Association of Dallas May 13 16 Dr Holman Taylor 208 Medical Arts Building Fort Worth Secretary
- West Virginia State Medical Association Wheeling May 6-8 Mr Joe W Savage Public Library Building Charleston Executive Secretary



## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk ( ) are abstracted below.

### American Heart Journal, St. Louis

10: 287-424 (Feb.) 1935

Localization of Cardiac Infarcts According to Component Ventricular Muscles. Jane Sands Robb, J. G. F. Hiss and R. C. Robb. Syracuse, N. Y.—p. 287.

Nonpenetrating Wounds of Heart. Clinical and Experimental Study. E. F. Bright and C. S. Beck. Cleveland.—p. 293.

Mechanism of Pain Production in Angina Pectoris. I. N. Katz. Chicago.—p. 322.

\*Pathology of Coronary Sclerosis. T. Leary. Boston.—p. 328.

Coronary Spasm as Possible Factor in Producing Sudden Death. T. Leary. Boston.—p. 338.

\*Inversion of T Wave in Lead I or II of Electrocardiogram in Young Individuals with Neurocirculatory Asthenia with Thyrotoxicosis in Relation to Certain Infections and Following Paroxysmal Ventricular Tachycardia. A. Graybiel and P. D. White. Boston.—p. 345.

Arteriolar Lesions of Skeletal Muscle in Hypertension. R. W. Scott, D. P. Secor and A. A. Hill. Cleveland.—p. 355.

\*Circulatory Studies on Case of Arteriovenous Aneurysm. J. McGuire. Cincinnati.—p. 360.

Clinical and Pathologic Study of Coronary Sclerosis. Its Incidence in Hypertension and Angina Pectoris. F. R. Nuzum, A. H. Elliot and R. D. Evans. Santa Barbara, Calif.—p. 367.

Congenital Complete Heart Block with Labile Ventricular Rate. Case. H. D. Levine. Boston.—p. 376.

**Pathology of Coronary Sclerosis.**—Leary selected the material for his investigation from early lesions or from patients who had "dropped dead." This has permitted the study of the primary process uncomplicated by secondary reactions. The studies demonstrate that the standard lesion in coronary sclerosis is atherosclerosis and that the lesions arise from the entrance of lipoids into the subendothelial layer of the intima and their phagocytosis by cells that the author refers to as lipid cells. In the young the presence of these lipid cells stimulates growth of fibrous tissue. As a result, the standard picture in coronary disease in the young is fibrosis narrowing the lumen of the artery. Death is usually due to thrombosis. In the old the presence of lipid cells does not stimulate fibrosis. The cells accumulate in large masses, the nutrition of which becomes inadequate. Necrosis and autolysis result in liquefaction of the cell masses, and atheromatous "abscesses" result. Death is usually due to the rupture of an atheromatous "abscess" into the lumen. It is possible to reproduce the lesions of coronary sclerosis in experimental animals by feeding the lipid cholesterol, which makes up most of the lipid contents of atherosclerotic lesions. The lesions, natural and experimental, are primarily intimal and lipid. Lesions of the elastica and media are secondary. Inflammatory reactions are late phenomena following necrosis and are not an essential part of the picture. Atherosclerosis is a disease due to disturbances in the cholesterol metabolism and belongs with the other metabolic diseases, diabetes (carbohydrates), gout (purines) and obesity (fats).

**Inversion of the T Wave.**—In the course of routine electrocardiography, Graybiel and White occasionally observed inversion of the T wave in leads I or II of the electrocardiogram in persons who had shown no other clear evidence of heart disease. Because inversion of the T wave has been closely associated with serious myocardial disease, any exceptions deserve attention. Observations on neurocirculatory asthenia, a syndrome in which significant inversion of the T wave has not been reported heretofore, are described by the authors. The group consists of seven patients, three men and four women, with an average age of 24½ years. In not a single case was organic disease of any description found on repeated examination. The chief subjective symptoms were similar in all patients

and were induced by abnormally small effort. All complained of palpitation, six were easily fatigued, five complained of dyspnea and five suffered pain or ache in the region of the heart. All but two complained of nervousness, dizziness, faintness and excessive sweating were less common complaints. The size of the heart was not abnormal in a single instance. Heart rates were uniformly rapid and averaged 112 in the initial electrocardiograms. Murmurs were not heard in four, and an inconsequential systolic murmur was detected in three. The blood pressures of the patients were normal, as were the Wassermann reactions and basal metabolic rate determinations. At the time of the initial examination the electrocardiogram in each instance showed an upright T wave in lead I and an inverted T wave in leads II and III. No other electrocardiographic abnormalities were found. At the time of the last examination one patient was entirely well, five showed improvement, while one remained unchanged. None had developed organic disease, and the cardiac manifestations as observed clinically were not significantly altered except for the slower rates. Final electrocardiograms showed an upright T wave in leads I and II and an inverted T wave in lead III in each instance. This change in lead II was not associated with significant changes in the P or QRS waves. The heart rates, measured from the electrocardiograms, varied from 75 to 100, and the average was now 88. The authors also present four cases of thyrotoxicosis, five of infection, two of paroxysmal ventricular tachycardia and five miscellaneous cases in which an inversion of the T wave was observed but was not associated with usual known causes.

**Circulatory Studies of Arteriovenous Aneurysm.**—McGuire points out that the establishment of a large arteriovenous communication between the popliteal artery and vein in a healthy young man was accompanied by (1) an increase in systolic and a decrease in diastolic blood pressure levels, (2) cardiac and aortic dilatation and the symptoms of myocardial insufficiency, (3) dilatation and atrophy of the artery proximal to the arteriovenous communication and hypertrophy of the vein in the area contiguous to the fistula, an arterial aneurysm opposite the fistula, and (4) evidence of peripheral vascular malnutrition below the fistula, i. e. edema, ulceration of the skin, superficial varicosities, decrease in surface temperature and decreased pulsation of the dorsalis pedis and posterior tibial arteries. Digital occlusion of the fistulous communication produced (1) bradycardia and an immediate elevation of the diastolic and systolic arterial pressure, (2) definite elevation of the systemic venous pressure, i. e., antecubital vein, and (3) slight decrease in the size of the heart as seen fluoroscopically. Operative extirpation of the arteriovenous fistula caused (1) the disappearance of symptoms of myocardial insufficiency, (2) a marked decrease in the size of the heart, (3) after the initial rise a gradual drop in the systolic and a permanent rise in the diastolic arterial blood pressure to normal levels, and (4) diminution of peripheral edema in the affected leg, healing of the ulcers on the leg and the appearance of adequate arterial circulation in the foot.

### American J. Digestive Diseases and Nutrition, Chicago

1: 829-906 (Feb.) 1935

Anemia Following Operations on the Stomach. H. R. Hartman and G. B. Eusterman. Rochester, Minn.—p. 829.

Results of Fat Tolerance Tests and Blood Sugar Estimations Performed on Patients Affected with Peptic Ulcer. Discussion of Factors Possible in Etiology of Peptic Ulcer. M. A. Schnitker and E. S. Emery, Jr. Boston.—p. 834.

An Instance of Gelatinous Carcinoma of Duodenum. J. A. Wilson and J. F. Noble. St. Paul.—p. 840.

Applied Physiology of Gastrointestinal Innervation. Certain Selected Topics. A. C. Ivy. Chicago.—p. 845.

Effect of Mechanical Stimulation of Duodenum, Colon and Stomach on Cerebral Circulation and Intracranial Pressure. J. Vandolah and L. A. Crandall, Jr. Chicago.—p. 853.

Growth of Diabetic Children. H. J. John. Cleveland.—p. 855.

Nutritional and Digestive System Aspects of Pernicious Anemia. Part I. L. G. Zervas. Indianapolis and B. S. Cornell. Fort Wayne, Ind.—p. 857.

Medical Aspects of Peptic Ulcer with Especial Reference to Diagnosis and Treatment. A. F. Chase. New York.—p. 866.

Diseases of the Pancreas Especially Acute Pancreatitis and Its Treatment. J. Douglas. New York.—p. 871.

Malignancies of the Colon with Especial Reference to Those of the Rectal Zone. J. F. Erdmann. New York.—p. 881.



## American J Obstetrics and Gynecology, St. Louis

29: 155-308 (Feb) 1935

- \*New Active Principle in Ergot and Its Effect on Uterine Motility Preliminary Report M E Davis F L Adair G Rogers M S Kharasch and R R Legault Chicago—p 155
- \*Consideration of Surgical Menopause After Hysterectomy and Occurrence of Cancer in Stump Following Subtotal Hysterectomy N R Kretschmar and S Gardiner Ann Arbor Mich—p 168
- Coexistence of Uterine Myoma and Fundal Carcinoma E J Oesterlin and R S Cron Milwaukee—p 176
- \*Amenorrhea Associated with Bilateral Polycystic Ovaries I F Stein and M L Leventhal, Chicago—p 181
- Outcome of Pregnancy Complicated by Uterine Fibromyoma R D Mussey and R S Hardwick Rochester Minn—p 192
- Use of Lutein Hormone Progesterin in Threatened and Habitual Abortion L Krohn F H Falls and J E Lackner Chicago—p 198
- Study of Nembutal and Scopolamine for Relief of Pain in Five Hundred Deliveries C E Galloway and P H Smith Evanston Ill—p 207
- Foot Drop Complicating the Puerperium H S Morgan and J E M Thomson Lincoln Neb—p 216
- Colpocleisis in Treatment of Uterine and Vaginal Prolapse W Rubovits and S Litt Chicago—p 222
- Third Stage of Labor Relationship of Blood Loss to Preceding Labor Pains L A Calkins Kansas City Kan—p 231
- Value and Limitation of Roentgen Rays in Obstetrics J R Reinberger and P B Russel Jr Memphis Tenn—p 235
- \*Parametrial Fixation (Manchester Operation) for Prolapse of Uterus R T Frank New York—p 240
- Correlation of Uterine and Ovarian Cycles Olive Swezy Berkeley Calif—p 246
- Split Pelvis in Pregnancy L L Mackenzie New York—p 255
- Suppurative Mastitis as Complication of Pregnancy and Puerperium A L Dippel Baltimore and R A Johnston Houston Texas—p 258
- Dystocia Following Intra Uterine Use of Radium H F Kane Washington D C—p 264
- Abnormal Development of Vagina and Genito Urinary Tract J L McKelvey and J S Baxter Baltimore—p 267
- \*Ergot and Ergotamine Tartrate in Puerperal Prophylaxis M G Der Brucke, Brooklyn—p 272
- Dystocia Due to Dilatation of Fetal Urinary Bladder J E. Savage Baltimore—p 276
- Ruptured Pregnancy in Closed Rudimentary Horn of a Bicornate Uterus External Migrations of Spermatozoa Urinary Suppression Following Transfusion C A Gordon Brooklyn—p 279
- Vaginitis Emphysematosa C J Marshall and V W Bergstrom Binghamton N Y—p 282
- Uterus Bicornis Unicornis Hematometra in One Horn A Jacoby New York—p 286
- Device for Rupture of Membranes I G Wiltrout Oslo Minn—p 288

**New Active Principle in Ergot**—Believing the commonly accepted idea that the physiologic activity of ergot resided in its alkaloids Davis and his associates further separated the crude extract into an alkaloidal and a nonalkaloidal fraction. The residue that was almost free of alkaloids was exceedingly active when tested on the human uterus. The new active principle in its present form is agreeable and palatable. The dose is exceedingly small and may be dissolved in 3 cc or less of fluid. It produces no gastro intestinal or other undesirable symptoms in doses several times that required. It does not affect the pulse or blood pressure. When given orally the response is usually obtained in from six to fifteen minutes. Thus far the new principle has been tested on more than 100 postpartum patients in whom kymographic tracings of uterine activity were made for a period of three or four hours. The uterine motility initiated persists for three or four hours. It is characterized by marked and persistent uterine tone and frequent uterine contractions. The curve is one that may be characterized as a good ergot reaction. The usual methods of biologic assay were used to control the physiologic activity present in the new active principle. The best method of biologic assay for this new active principle is on the human postpartum uterus and on the postpartum uterus of the dog. The method of inserting a hydrostatic rubber bag for the study of uterine motility is entirely feasible in both cases.

**Surgical Menopause After Hysterectomy**—From a review of 2042 hysterectomies of various types Kretschmar and Gardiner observed that hysterectomy with ovarian conservation in women 36 years of age or less was followed by menopausal symptoms before 40 years of age in 57.5 and 58.3 per cent for subtotal and total hysterectomy respectively. The greater delay in the occurrence of hot flashes after subtotal hysterectomy would suggest some endocrine function for the retained uterine tissue. Their study indicates that complete removal of all ovarian tissue hastens the onset but does not

shorten the duration of symptoms of the surgical menopause. The high incidence of menopausal symptoms following operations for pelvic inflammation would suggest that conservatism in this condition is unwise, if ovarian tissue showing degenerative changes is to be retained. The onset of the surgical menopause should not presuppose a decrease in or cessation of sexual activity, since 57 per cent of the patients who developed hot flashes showed either an increase or no change in their libido. A review of 1,022 patients with cervical cancer indicates that the condition occurs in the cervical stump after subtotal hysterectomy for benign causes in 176 per cent of cases. In 416 patients with previous subtotal hysterectomy who replied to a questionnaire one proved case of cervical cancer and five probable cases were found, an incidence of 1.44 per cent.

**Amenorrhea Associated with Polycystic Ovaries**—Stein and Leventhal report seven cases in which amenorrhea was associated with the presence of bilateral polycystic ovaries. Bilateral polycystic ovaries are most likely the result of hormone influences and not of inflammatory change. The diagnosis of ovarian pathologic changes is greatly facilitated by the use of pneumoerentgenography. The treatment of the amenorrhea with estrogenic hormone proved unsatisfactory. Surgical treatment consisting of wedge resection of the cystic cortex of the ovaries, was successful in completely restoring physiologic function. Menstruation in every instance became normal and remained so during the period of observation. Pregnancy followed in two instances. It is the authors' belief that a mechanical crowding of the cortex by the cysts interferes with the progress of the normal graafian follicles to the surface of the ovary. This mechanical factor may account for the symptoms of amenorrhea and sterility. Recurrence of the polycystic change in the ovary was not found in the follow-up examinations of any of the patients.

**Ergot and Ergotamine Tartrate in Puerperal Prophylaxis**—In a series of 169 consecutive parturients delivered under the same conditions, Der Brucke found that many had a mild elevation of temperature, not high enough to be put in the accepted morbidity group yet of sufficient persistence to make one realize that all was not quite well. In the group with the greatest number of cases of elevated temperature (53.15 per cent, the control group), lochia rubra persisted beyond normal duration, there was some form of lochia present at the time of discharge, and involution had not progressed as well in the multiparas as in the primiparas. The administration of ergot and more particularly its alkaloid, ergotamine tartrate prophylactically, hastened involution, lessened lochia rubra and checked lochial discharge by the tenth day.

## American Journal of Public Health, New York

25: 109-238 (Feb) 1935

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- Diphtheria Immunization Campaign in Austria G Poch and C A Leach New York—p 113
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- Nutrition and Health and Price of Milk J A Toley New York—p 197
- Pipets for Use in Routine Sterility Tests W E Bunney Lansing Mich—p 207

## Am J Roentgenol &amp; Rad Therapy, Springfield, Ill

33 149-292 (Feb.) 1935

- Preoperative Irradiation of Cortical Renal Tumors C A Waters  
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- Historical and Practical Consideration of Pycnographic Mediums A F  
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- Aneurysm of Renal Artery Case Report M B Wesson and C C  
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- Tuberculous Lung Following Thoracoplasty from Roentgenographic  
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- Further Observations on Roentgen Treatment of Pituitary Tumors  
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- Factors Influencing Decomposition of Iodides by Roentgen and Gamma  
Rays Helen Quincy Woodard New York—p 227
- Relation Between Roentgen and Erythema Dose C C Lauritsen  
Pasadena Calif—p 235
- The Radiologist and the Hospital G W Crier Pittsburgh—p 237

**Roentgen Study of Pulmonary Ventilation**—Since Fray wished to correlate the dimensions of the lung fields with the clinical determinations of pulmonary capacity requiring maximal ventilatory response of the individual, he selected maximal expiration and inspiration as the most desirable phases of respiration for roentgen study. He found a high degree of correlation between the area of the lung fields at maximal inspiration and the vital capacity of a person. This correlation has been improved by the use of the quantitative roentgenologic chest volume which is obtained by multiplying the area of the lung fields at maximal inspiration by the thickness of the chest obtained by external measurements. Since the percental relationships of the subdivisions of the total capacity are constant the normal values of all the capacities may be predicted for any subject through the use of a regression formula. Comparison of the observed values of pulmonary capacity and its subdivisions with the predicted gives a reliable index of the degree of impairment in pulmonary ventilation the total variation in normal cases being less than 15 per cent. A fairly constant ratio has been found between the area of the lung field at maximal expiration and the area at maximal inspiration in normal persons. Restricted chest expansion is indicated by ratios varying by more than 7 per cent (men). These correlative tests have been found to be of value in differentiating those with disturbed pulmonary ventilation from the normal group.

## Archives of Internal Medicine, Chicago

55: 173-348 (Feb.) 1935

- \*Relationship Between Rheumatic and Subacute Bacterial Endocarditis  
W C Von Glahn and A M Pappenheimer New York—p 173
- \*Sternal Marrow Aspirated During Life Cytology in Health and in  
Disease R H Young Chicago and E F Osgood Portland Ore  
—p 186
- Effect of Light Muscular Training on Patients with Heart Disease  
Rheumatic Heart Disease Changes at Rest and During Exercise  
S H Proger and C Korth Boston—p 204
- Copper and Iron in Human Blood A Sachs V E Levine Omaha  
and A A Fabian New York—p 227
- \*Reaction (pH) and Carbon Dioxide Content of Venous Plasma in Per-  
nicious Anemia C P Emerson Jr and O M Helmer Indianapolis  
—p 254
- Diets Low in Calories Containing Varying Amounts of Protein Their  
Effect on Loss in Weight and on Metabolic Rate in Obese Patients  
R W Keeton and Dorothy Dickson Bone, Chicago—p 262
- Peptic Ulcer Nature and Treatment Based on Study of Fourteen  
Hundred and Thirty Five Cases E S Emery Jr and R T Monroe,  
Boston—p 271
- Transverse Diameter of Heart in Patients with Hypertension with  
Clinical Measurements Checked by Postmortem Studies F R Nuzum  
and A H Elliot Santa Barbara Calif—p 293

**Relationship Between Rheumatic and Subacute Bacterial Endocarditis**—Von Glahn and Pappenheimer express the view that, in persons who have had rheumatism active rheumatic vegetations are a necessary and practically constant prerequisite for the implantation of the bacteria. They base this conclusion on the following evidence: 1 Vegetations histologically identical with those in rheumatic endocarditis and not

containing bacteria are found (1) on the same valve as the bacterial vegetations, (2) on other valves on which there are no vegetations containing bacteria and (3) on the auricular wall. 2 Aschoff bodies in the myocardium that are taken to indicate active rheumatic disease are found in practically the same proportion of cases of subacute bacterial endocarditis as of uncomplicated rheumatic cardiac disease. 3 Types of bacterial endocarditis other than that due to nonhemolytic streptococci may be engrafted on active rheumatic vegetations. This is a cogent argument against the view that the two types of lesions are a response of different intensity to the same infective agent, unless current views as to the histologic specificity of the rheumatic reaction are dispensed with. The authors do not claim that all cases of bacterial infection of the valves are the result of implantation on unhealed rheumatic lesions nor do they wish to deny the possibility that infection of the valve in cases of general sepsis may occur through the blood vessels of the valves. They have in their records several cases in which an acute interstitial valvulitis was unaccompanied by vegetations, indicating that the infection had reached the substance of the valve through the coronary circulation.

**Sternal Marrow Aspirated During Life**—Using a technic similar to Arunkin's Young and Osgood studied the marrow of twenty-eight healthy men and twenty-six patients. With the patient lying on his back, with his chest elevated by a pillow beneath his shoulders, the region of the sternomanubrial junction is prepared with iodine and alcohol. The skin, the subcutaneous tissues and the periosteum of the region are infiltrated with procaine hydrochloride. With an 18 gage spinal puncture needle from 3 to 4 cm in length, the sternomanubrial junction is entered in the midline at an angle of about 60 degrees to the surface of the chest. The needle is depressed to an angle of about 30 degrees and is forced not more than 1.5 cm into the marrow cavity of the body of the sternum. If much resistance is encountered the needle is rotated while pressure is maintained to facilitate penetration. The stylet is then removed and with a 2 cc Luer syringe 1 or 2 cc of marrow is aspirated. If no marrow appears after strong aspiration, the stylet is replaced, the needle is inserted a little deeper and aspiration is done. The aspirated material, which looks like blood is transferred into a 4 by ½ inch (10 by 1.25 cm.) test tube containing from 2 to 4 mg of powdered potassium oxalate and shaken well to ensure mixing. The stylet is then replaced, the needle is withdrawn and the puncture wound is sealed with collodion. The oxalated marrow can be used for any type of hematologic examination that can be done on oxalated blood. Differential, peroxidase and reticulocyte counts were made on the oxalated marrow and on oxalated venous blood taken at about the same time. The results of the studies of the venous blood and sternal marrow of twenty-eight healthy male medical students show that the range of variation in the differential cell counts of the marrow was little greater than that of the blood. The results of studies of the marrow and blood in twenty-six cases representing fifteen different disorders of the blood and blood-forming organs are summarized. Study of the sternal marrow established the diagnosis of aplastic anemia and subleukemic monocytic leukemia, and it aided in the differential diagnosis of Banti's disease from Gaucher's disease, of anemia of congenital syphilis from aplastic anemia and aleukemic leukemia, and of multiple myeloma from a metastatic malignant process. Other problems that may be solved by this method are suggested.

**Carbon Dioxide Content of Venous Plasma in Pernicious Anemia**—Emerson and Helmer determined the hydrogen ion concentration and the carbon dioxide content of the venous plasma in twenty-nine patients with pernicious anemia and in sixteen normal persons. The results suggest that the condition of the acid base equilibrium in pernicious anemia is independent of the clinical status and is essentially normal although there is an apparent tendency toward alkalosis at a deficit of alkali. Of possible significance is the variation of the pH over a range that was twice as broad in the patients with pernicious anemia as in the series of normal subjects. The daily administration of from 6 to 10 cc of a 10 per cent solution of hydrochloric acid produced no appreciable changes in the acid-base equilibrium of the blood in the patients with pernicious anemia.

## Archives of Surgery, Chicago

30: 371 556 (March) 1935

- Significance of Anaerobic Organisms in Peritonitis Due to Liver Autolysis Bacteriologic Study of Peritoneal Exudates H M Trusler J R Reeves and H E Martin Indianapolis—p 371
- \*Development and Treatment of Peptic Ulcer Experimental Study F R Harper Rochester Minn—p 394
- Lymphosarcoma Clinical Pathologic and Radiotherapeutic Study Report of Thirty Cases M Cutler Chicago—p 405
- \*Neurofibroma of Ureter Report of Case with Operation and Recovery A Ravich Brooklyn—p 442
- Cholecystogastrostomy and Hepatitis Experimental Study A Gentile Newport News Va—p 449
- Experimental Studies on Pulmonary Suppuration J J Longacre and L G Herrmann Cincinnati—p 476
- Mesenteric Lymphadenitis Simulating Acute Appendicitis Quantitative Study of Size of Normal Mesenteric Lymph Nodes C H Mead Duluth Minn—p 492
- Clinical Use of Plastic Pyloroduodenostomy in Chronic Duodenal Ulcer G L McWhorter Chicago—p 528
- \*Staphylococcal Empyema and Pyopneumothorax Pathogenesis Pathology Symptoms and Treatment H Neuhoef and M Berck New York—p 543

**Development and Treatment of Peptic Ulcer**—Harper submits a method for producing an experimental peptic ulcer in a loop of intestine forming a fistula from an isolated gastric pouch to the abdominal wall. An ulcer formed in each of the dogs in which the fundus of the stomach was used in making the pouch. A combination of three factors was responsible for the development of these ulcers: the chemical and the mechanical factor and the factor of mucosal susceptibility. The chemical action of the gastric secretion was of prime importance. The increasing vulnerability of the intestinal mucosa to the formation of ulcer as the distance from the stomach increased was demonstrated. The mechanical factor probably played a part, for the ulcer developed at a point where the gastric secretion was held constantly in contact with the exposed intestinal mucosa. It was found that an ulcer in an isolated gastric pouch has the same effect in causing loss of appetite, vomiting and loss of weight as does an ulcer in the main gastro-intestinal tract. A preparation consisting of an emulsion of gelatin, acacia, olive oil and lecithin, introduced into the pouch twice daily, was effective in the healing of these experimental ulcers and prevented their formation. The pathologic changes that occurred in the healing of the ulcers were found to be similar to the changes that occur in peptic ulcers in man. The method of treatment brought out the fact that an ulcer will heal in about three weeks if its surface is adequately protected from the gastric secretion. The emulsion used in treating the ulcers has been considered only from the experimental point of view, and the authors draw no conclusion regarding its possible clinical application.

**Neurofibroma of the Ureter**—Ravich reports a case of neurofibroma of the ureter in which correct preoperative diagnosis of the tumor was made by means of a walled catheter and by a retrograde pyelogram. The erroneous impression of a concomitant pelvic tumor was created by the pelvic outline which showed an irregular mass in the lower portion of the renal pelvis. The case demonstrates the futility of the present day tendency among many physicians to depend entirely on intravenous pyelography for the diagnosis of all pathologic conditions of the urinary tract. There was freedom from symptoms until a short time before the operation in spite of the fact that the large tumor had been gradually increasing its encroachment on the ureteral lumen, with destruction of the kidney parenchyma. The success of early operation is apparent. The patient was alive and well in January 1934 when last heard from. The author states that the general practitioner should be as suspicious of vague urologic conditions as he is of a pathologic condition in the breast. It is only through early diagnosis and treatment that satisfactory results can be hoped for.

**Staphylococcal Empyema and Pyopneumothorax**—Neuhoef and Berck believe that there are distinctive features in the pathogenesis, development and treatment of staphylococcal pulmonopleural suppuration. They describe the lesion in the form of empyema or pyopneumothorax as an entity and attempt to show that its consideration as such leads to more clearly defined therapeutic measures. The staphylococcus is the cause

of the great majority of suppurative pleural infections in infants. The pulmonary lesion from which the staphylococcal pleural infection is derived is usually an abscess of the lung. The invasion of the pleura is by rupture of the abscess in the majority of cases. A staphylococcal abscess of the lung with its complicating pleural infection is a metastatic lesion. The solitary abscess is analogous in origin and in pathologic process to carbuncle of the kidney and can be termed carbuncle of the lung. The authors describe four clinical groups: sacculated empyema, sacculated pyopneumothorax, total or subtotal empyema with or without mediastinal tension and total or subtotal pyopneumothorax with or without mediastinal tension. Communications with bronchi are present in the majority of cases in each group. The first two varieties, termed the adult type, present distinguishing pathologic features but are not distinctive clinically. The third and fourth varieties, termed the childhood type, are characterized by severe mechanical disturbances if there is tension on and shift of the mediastinum. The lesion requiring relief most urgently occurs with early rupture of the abscess of the lung in infants or in young children. The treatment of the adult type, rarely urgent, is by complete opening of the empyema through a liberal incision. The underlying abscess of the lung may require drainage. Urgent treatment is often imperative for the childhood type employing closed drainage.

## Iowa State Medical Society Journal, Des Moines

25 59 114 (Feb) 1935

- Cardiac Insufficiency in Obese Individuals H L Smith and F A Wilhus Rochester, Minn—p 59
- Arthritis General Considerations J C Parsons Creston—p 61
- Id Eye Ear Nose and Throat Aspect of Arthritis J-K von Laekum Cedar Rapids—p 65
- Id Orthopedic Phase of Arthritis A F O'Donoghue Sioux City—p 68
- Colles Fracture D N Gibson Des Moines—p 76
- Congenital Heart Disease O N Gleason Fort Dodge—p 79
- Strabismus J B Naltzger Sioux City—p 80
- Papillary Cystadenoma of Ovary C W Ellyson, Waterloo—p 87
- Traumatic Rupture of Kidney L A West Des Moines—p 90
- Submucous Lipoma of Cecum Report of Case A M Gordon, Des Moines—p 92

## Journal of Clinical Investigation, New York

14 143 292 (March) 1935

- Plasma Fatty Acids After Adrenalin Injection in Normal Subjects and in Patients with Liver Disease Prognostic Significance C M Jones and Josephine W Fish Boston—p 143
- Experimental Production of Loss of Hematopoietic Elements of Gastric Secretion and of Liver in Swine with Achlorhydria and Anemia D K Miller and C P Rhoads New York—p 153
- \*Applicability of Rebreathing Method for Determining Mixed Venous Carbon Dioxide in Cases of Chronic Pulmonary Disease D W Richards Jr A Courmand and Natalie A Bryan New York—p 173
- Cardiac Output in Relation to Unilateral Pneumothorax in Man A Courmand Natalie A Bryan and D W Richards Jr New York—p 181
- Cytologic Studies on Rheumatic Fever II Cells of Rheumatic Exudates C McEwen New York—p 190
- \*Exchanges of Water Electrolytes and Heat During Phenylethylhydantoin Sickness F V Rockwell Rochester N Y—p 202
- Observations on Calcium and Phosphorus Metabolism in Case of Acromegaly Showing Marked Osteoporosis W de M Scriven and A H Bryan Montreal—p 212
- Metabolic Criteria of Hyperparathyroidism Note C L Robbins and D M Kydd New Haven Conn—p 220
- \*Hemolytic Antibodies for Sheep and Ox Erythrocytes in Infectious Mononucleosis G H Bailey and S Raffel Baltimore—p 228
- Studies in Serum Electrolytes IV Change in Total Quantity and Osmolal Concentration of Glucose and Chloride in Serum After Ingestion of Glucose by Diabetic Patients F W Sunderman and E S Williams Philadelphia—p 245
- Water and Base Balance of Body P H Lavielles L M D Esopo and H E Harrison New Haven Conn—p 251
- Changes in Distribution of Body Water Accompanying Increase and Decrease in Extracellular Electrolyte D C Darrow and H Yarnet New Haven Conn—p 266
- \*Occurrence of Antifibrinolytic Properties in Blood of Patients with Acute Hemolytic Streptococcal Infections W S Tillett Baltimore—p 276
- Duroziez's Sign in Normal Subjects and in Patients with Arterial Hypertension with Especial Reference to Its Relation to Capillary Pulsation and Forward Flow of Blood During Diastole S Brown and B Alexander Boston—p 285

**Venous Carbon Dioxide in Pulmonary Disease**—Richards and his associates investigated the applicability of the method of rebreathing for determining carbon dioxide tensions of the oxygenated mixed venous blood in certain cases

of pulmonary disease. The method required the demonstration of the same "plateau" levels of carbon dioxide tension in successive rebreathing experiments, when the initial carbon dioxide tensions of the mixtures in the rebreathing bag in the separate experiments varied by several millimeters, and the demonstration of equilibrium between carbon dioxide tension in the samples of expired air (during rebreathing) and the carbon dioxide tension in the simultaneously drawn arterial blood. They found that the method gave satisfactory results in two cases of unilateral artificial pneumothorax and doubtful results in two cases of spontaneous pneumothorax with positive pleural pressures, and was unreliable in a case of advanced bilateral tuberculosis, a case of pulmonary fibrosis with dyspnea and two cases of advanced pulmonary emphysema. By the technique that the authors describe they can determine in a given case whether the method of rebreathing is applicable or not.

**Phenylethylhydantoin Sickness**—Rockwell made a controlled study of phenylethylhydantoin sickness in the hope that it might indicate how general are the changes in metabolism during fever and allergic states. He observed that in phenylethylhydantoin sickness, as in serum sickness, a temporary retention of water then of sodium and chloride, then of potassium occurred in the order stated. During the fever there was a slight tendency toward acidosis, as evidenced by a study of the acid-base equilibrium of the urine. At no time during the reaction did there appear any sign of alkalosis. The rate of oxygen consumption was increased in proportion to the height of the fever. The fuel for the increased heat production was not protein. The fever was relieved by an increase in the heat lost through the channels of radiation, conduction and convection.

**Hemolytic Antibodies for Sheep Erythrocytes in Infectious Mononucleosis**—Briley and Raffel state that the hemolytic and hemagglutinative antibodies for sheep and ox red cells found in the serums of cases of infectious mononucleosis are not heterophil or Forssman antibodies but are probably the specific response to an antigen having a factor in common with a thermostable component of sheep and ox erythrocytes, a certain strain of *Bacillus Welchii* and possibly horse kidney. These antibodies have the power not only to hemolyze and agglutinate sheep red cells but also to hemolyze and to some extent agglutinate ox red corpuscles, although these immune bodies are not isophil in nature since they are absorbed from the serum by boiled ox and sheep corpuscles. Ox erythrocytes have a broader antigenic relationship to the antibodies of infectious mononucleosis than sheep erythrocytes. The antibodies are probably not found in normal human serum but are rather a specific response associated only with infectious mononucleosis. These antibodies were not absorbed from the serum by any of the organisms cultivated from the upper respiratory tract of patients with the disease. Blood cultures made from cases of infectious mononucleosis were negative, although the injection into rabbits of such cultures containing the blood elements of a patient caused the production of a serum with a high hemolytic titer for sheep cells. The antibodies in infectious mononucleosis and the thermostable antigen in ox and sheep cells that combine with and neutralize them have unique properties of specificity. The primary titration of a serum with fresh sheep erythrocytes, followed by absorption of the antibodies with boiled ox red cells and then retitration of the absorbed serum with fresh sheep corpuscles, provides a specific diagnostic method for the disease.

**Acute Hemolytic Streptococcus Infections**—Tillet points out that a specific antiserum directed against the fibrin dissolving action of hemolytic streptococci was demonstrable in the blood of approximately 75 per cent of patients who recovered from acute streptococcal infections. The fibrin clot from the blood of patients who died of the infection was in no instance capable of inhibiting the bacterial fibrinolytic action. The antifibrinolytic response was demonstrable at the approximate time of recovery in some patients and was not detected in others until the second to the fourth week of convalescence. Generally the specific response appeared during the course of erysipelas earlier than it did following acute streptococcal infections of the upper respiratory tract. Twenty-eight patients

developed an antifibrinolytic resistance. All of them completely recovered and their convalescence was not interrupted by a reactivation of the infection. Seventeen patients failed to acquire humoral antifibrinolytic properties. In seven of these the disease was self-limiting and convalescence was uneventful. Of the remaining ten, seven died and three had prolonged illnesses due to exacerbations of active streptococcal infection. In the few cases of active rheumatic fever and acute nephritis that were studied, antifibrinolytic resistance was usually present. The response did not differ in its development from that which occurred in cases of acute streptococcal infection without the visceral disturbances of rheumatic fever or acute nephritis.

## Journal of Comparative Neurology, Philadelphia

GI 1190 (Feb 15) 1935

Studies of Living Nerves. III. Phenomena of Nerve Irritation and Recovery, Degeneration and Repair. C. C. Speidel, Charlottesville, Va.—p. 1

Development of Motor Nuclei of the Hindbrain of the Chick, Gallus Domesticus. L. B. Eckardt and R. Elliott, Columbus, Ohio.—p. 83.

Histologic Analysis of Nissl Pattern and Nissl Substance of Nerve Cells. L. Einarsen, Copenhagen, Denmark.—p. 101

Experimental Innervation of Muscles by Central Ends of Afferent Nerves (Establishment of One Neuron Connection Between Receptor and Effector Organ) with Functional Tests. P. Weiss, Chicago.—p. 135

Effects of Ultracentrifuging the Spinal Ganglion Cells of the Rat, with Especial Reference to Nissl Bodies. H. W. Beams and R. L. King, Iowa City.—p. 175

## Journal of Nervous and Mental Disease, New York

81 245-372 (March) 1935

Study of Syringomyelia and Formation of Cavities in Spinal Cord. F. S. Tauber and O. R. Langworthy, Baltimore.—p. 245

\*Clinical Spectroscopy. Spectrometric Analysis of Biopsy Specimens Obtained from Cases of Plumbism and Workmen in Daily Contact with Lead Paints. L. E. Gaul and A. H. Staud, New York.—p. 265

Relation Between Mental Level and Syphilis in Juvenile Delinquents (Boys). Report of Case of Juvenile General Paralysis of Insane. M. Molitch and A. K. Eccles, Jamesburg, N. J.—p. 276

Certain Problems of Schizophrenia in Light of Cerebral Pathology. G. Bychowski, Warsaw, Poland.—p. 280

Treatment of Spasmodic Torticollis with Especial Reference to Psychotherapy. Report of Case. J. C. Yaskin, Philadelphia.—p. 299

**Clinical Spectroscopy**—Gaul and Staud observed that the ultimate chemical and cellular disposition of lead in the body determines the distribution, localization and excretion. Its absorption may be either slowly accumulative or massive in character; the latter precipitating the signs and symptoms of an acute lead intoxication. It is the quantity of lead retained by the differentiated and undifferentiated mesodermic derivatives that causes the disabling sequels of plumbism. In the presence of a lowering *pH* or acidosis, the solubility of the retained lead is affected. This change in solubility will act like the unsheathing of a two edged sword, producing the signs and symptoms of acute lead poisoning the severity of which will depend on the quantity of lead present and the degree of acidosis. In plumbism, signs and symptoms of excretion include all signs and symptoms referable to the mouth and the gastrointestinal, respiratory and genito-urinary tracts, and in retention all signs and symptoms referable to the central and peripheral nervous system and the muscular and skeletal systems. The excretion of lead is a favorable response. A plus designation is suitable for indicating the quantity or degree of lead retention. A biospectrometric analysis of cadaver biopsy specimens showed the lead line increasing in density in proportion to the age, with a mean lead retention of one plus. A biospectrometric analysis of six cases of plumbism showed a lead line the density of which indicated a three to four plus retention. A biospectrometric analysis of workmen in contact with lead showed a lead line the density of which indicated a one plus retention in 40 per cent of the group, a two plus in 28 per cent, a three plus in 12 per cent and a four plus in 20 per cent. A dermal biopsy specimen gives an accurate status of the quantity or degree of lead retention, whereas the blood specimen gives a false value for the degree of lead retention. The quantity of lead excreted in the urine and feces gives no indication of the quantity or degree of lead retention. The presence of basophilic stippling cannot be accepted as a diagnostic criterion or as a pathognomonic sign of plumbism.

## Journal of Nutrition, Philadelphia

9 119 260 (Feb 10) 1935

- Vitamin G Content of Home Canned Tomato Juice C T Poe and Esther L Gambill Boulder Colo—p 119  
Further Studies on Effect of Cod Liver Oil on Thyroid Gland T C Sherwood and W G Luckner Lexington Ky—p 123  
Effects of Long Continued Cholesterol Feeding in Rats W M Sperry and V A Stoyanoff New York—p 131  
Effect of Diet on Liver Cholesterol in Chickens W M Sperry and V A Stoyanoff New York—p 157  
Vitamins A, D and B in Oysters Effect of Cooking on Vitamins A and B Dorothy V Whipple Philadelphia—p 163  
Mineral Exchanges of Man IV Variations in Mineral Content of Diets with Constant Raw Weight Formula S H Bassett and Helen E Van Aistine Rochester, N Y—p 175  
Relation of Manganese to Congenital Debility Amy I Daniels and Gladys J Everson Iowa City—p 191  
Respiratory Metabolism Studies in Hyperinsulinism Following Ingestion of Glucose I M Rabinowitch and A F Fowler with technical assistance of M Mountford and P Holroyde Montreal—p 205  
Human Calorimetry I Semiautomatic Respiration Calorimeter J R Murlin and A C Burton Rochester N Y—p 233

## Journal of Thoracic Surgery, St. Louis

4 223 334 (Feb.) 1935

- Primary Carcinoma of Lung Case Report Four Years After Lobectomy C I Allen Detroit—p 224  
Total Removal of Right Lung for Bronchiectasis E Windsberg Providence R I—p 231  
Report of Chest Tumor Registry W D Andrus New York—p 236  
\*Pleural Poudrage New Technique for Deliberate Production of Pleural Adhesions as Preliminary to Lobectomy N Bethune Montreal—p 251  
Incidence of Hiatus Hernia in Pregnant Women and Its Significance L G Rigler and J B Eneboe Minneapolis—p 262  
Changes in Venous Pressure After Thoracoplasty Its Significance in Relation to Extent of Rib Removal R H Overholt and L S Pilcher 2d Boston—p 269  
Critical Study of Some Unsatisfactory Results from Thoracoplasty Operations W A Hudson Detroit—p 281  
Experience with Pneumococcal Infection B P Potter Secaucus N J—p 288  
Liquid Levels and Other Liquid Surfaces in Pleural Effusions Study of Their Dynamics J Kaunitz New York—p 300  
\*Cardiospasm Due to Diaphragmatic Gastric Hernia with Ulcer Report of Case Operative Procedure M Einhorn D Stetten and W H Stewart New York—p 310  
Effect of Pulmonary Disease on Blood Gas Content I Effect on Plasma Carbon Dioxide Combining Power E F Butler and Dorothy Fairbanks Elmhurst N Y—p 316  
Improved Thoracoscope with Electrodes for Division of Intrapleural Adhesions J A Moore Asheville N C—p 324  
Automatic Hilar Ligature for Lobectomy D Carr Memphis Tenn—p 327

**Pleural Poudrage**—Bethune believes that selective pleural symphysis without fluid formation can be produced as a preliminary to intrathoracic surgical operations such as lobectomy by using a fine commercial talc powder consisting of a 0.5 per cent iodized talc sterilized in the autoclave and introduced under local anesthesia in the sixth or seventh space scapular line through a thoracoscopic cannula with an air-tight valve. The pleura is inspected. The thoracoscope is taken out and the author's return air powder blower is inserted through the same cannula. Half a dozen puffs are given and then the thoracoscope is again inserted. This is repeated as often as necessary to cover the surface of the upper lobe. If the mediastinum is to be covered a longer cannula is used than the regular one, which projects only 0.5 cm beyond the tip of the thoracoscopic cannula. When the lung is covered so as to resemble a cake sprinkled with confectioners' sugar, the blower is detached and the air is completely aspirated. To make sure that all the air is aspirated, roentgen examination is indicated. If a line of pneumothorax is seen on the roentgenogram more than 0.5 cm in width this air must be extracted the same day. If less than this it may be left. Ten months has passed since operation was performed in the first of the author's five clinical cases and up to the present he has no reason to believe that ill effects are to be expected from the presence of this insoluble powder between the two pleural surfaces.

**Cardiospasm Due to Diaphragmatic Gastric Hernia with Ulcer**—Einhorn and his associates cite a case of cardiospasm that shows the great importance of a thorough roentgen examination for establishing the diagnosis and the value of surgery to effect a cure. The prominent symptoms of dysphagia of but short duration (three or four months) the absence of the swallowing sound at times alternating with its

delayed appearance at other times, and the constant presence of resistance to the passage of a bougie at about 15 inches from the teeth indicated cardiospasm probably due to a beginning neoplasm of the stomach. The duodenal bucket string test showing that there was no real stricture at the cardia or pylorus favored the same diagnosis. For this reason, duodenal alimentation had been instituted and the patient was greatly relieved temporarily. Bearing in mind the possibility of malignant changes the authors decided on another roentgen examination. This time roentgenograms revealed a diaphragmatic hernia as the probable cause of the cardiospasm. Etiologically a trauma (the lifting of a barrel) was probably the cause of the hernia. Surgery was successful and the patient thus far is apparently cured.

## Kansas Medical Society Journal, Topeka

36 45-88 (Feb.) 1935

- Cancer of the Rectum J L Jelks, Memphis, Tenn—p 45  
Changing Concept of Heart Disease J M Porter Concordia—p 50  
Gonorrheal Infections in the Female C V Black Pratt—p 56  
Value of Tuberculin Test C Hall Topeka—p 60  
Dermoid Cyst of Ovary W Cox Wichita—p 62

## Medical Annals of District of Columbia

4 29 62 (Feb.) 1935

- Evipal Soluble Unique Anesthetic for Intravenous Use N C Suraci Washington—p 29  
Gastric Syphilis F L Biscoe Hines Ill—p 34  
Elliott Heat Treatment in Pelvic Infections A A Preece Washington—p 38  
Medical Education and Hospitals in Greece C J Demas Washington—p 42  
Basal Cell Epithelioma of Larynx with Apparent Recovery D S Knowlton Washington—p 46

## Michigan State M Society Journal, Grand Rapids

34 139 196 (March) 1935

- Preoperative and Postoperative Treatment of the Toxic Thyroid Patient E C Cutler Boston—p 139  
Every Physician a Health Teacher W E Collins Kalamazoo—p 145  
Excessive Cigarette Smoking in Women and Its Effect on Their Reproductive Efficiency A M Campbell Grand Rapids—p 146  
Intermittent Duodenal Obstruction J K Bell Detroit—p 151  
Conservative Repair of Pelvic Prolapse E G Krieg Detroit—p 156  
\*Discussion of Value of Various Prophylactic Measures in Prevention of Common Colds P H Long Baltimore—p 157  
Solid Teratoma of Ovary Case Report Susanne Munro Sanderson Detroit—p 166  
Fetal Hypoglycemia Due to Hyperinsulinism W H Gordon Detroit—p 167  
Metaphen Dermatitis Report of Two Cases G H Belote and D Marshall Ann Arbor—p 172

**Prevention of Common Colds**—Long discusses the value of various prophylactics that have been used for the prevention of the common cold. He has endeavored to determine the true part played by bacteria in the course of colds. He demonstrated that two main types of cellular response are found in the nasal secretions from patients with colds. One is characterized by an early predominance of phagocytic and epithelial cells in the secretions while in the other type polymorphonuclear neutrophilic leukocytes predominate from the beginning of the infection. Seven first day specimens of nasal secretions showed a predominance of polymorphonuclear neutrophilic leukocytes and four were practically free from bacteria when cultures were taken on blood agar plates while three contained thousands of microorganisms. Of eight first day samples of nasal secretions in which monocytes and epithelial cells predominated five showed an abundance of organisms and three were practically sterile. It is evident that on the first day of colds it is not possible to correlate the presence or absence of bacteria with a polymorphonuclear neutrophilic leukocyte response. As streptococci, staphylococci and pneumococci were the organisms generally found in these secretions this lack of correlation assumes added importance. After the fourth day the polymorphonuclear neutrophilic leukocytes averaged 90 per cent of the total cells present in the nasal secretions. Nevertheless a scanty bacterial growth was obtained from eighteen of sixty-five specimens examined in the late stages of these colds. The puriform character of the nasal secretions in the advanced stages of colds is not dependent on the presence of numbers of bacteria. The lack of correlation between the bacterial content and cellular response of the nasal secretions is

considered to be evidence of a lack of pathogeny on the part of these bacteria in the course of colds. Therefore it may be assumed that these organisms are present in the nasal secretions because these secretions constitute a medium favorable for bacterial growth. If true, the failure of bacterial vaccines to modify the severity or duration of uncomplicated colds can be easily understood.

### Military Surgeon, Washington, D C

76: 113 172 (March) 1935

- History of Medical and Domiciliary Care of Veterans G F Ijams and P B Matz—p 113  
 \*Typhoid Fever in the Vaccinated H C Coburn Jr I R Ostrander and J O Gillespie—p 133  
 Medical Practice in Zambouanga G E Horrocks—p 138

**Typhoid in Vaccinated Patients**—Coburn and his associates observed thirty nine cases of typhoid among vaccinated or partly vaccinated persons, from the study of which they conclude that 1 Typhoid vaccination furnishes relative, but not absolute protection against typhoid 2 The incidence of typhoid in the vaccinated depends on the size of the dose of organisms swallowed Their patients had undoubtedly ingested massive doses 3 In the presence of suggestive symptoms typhoid should be considered even though the patient has been vaccinated 4 Agglutination and protection from vaccination do not necessarily parallel each other A positive Widal reaction may have diagnostic value even in a vaccinated person 5 There is little or no difference clinically between typhoid in the vaccinated and the nonvaccinated 6 Mortality may be lower in the vaccinated especially in the recently vaccinated but variations in virulence in different epidemics must not be overlooked 7 A high incidence of relapses may be associated with high caloric feeding

### Minnesota Medicine, St Paul

18: 65 130 (Feb) 1935

- Hyperparathyroidism J F Borg St Paul—p 65  
 Present Status of Our Knowledge of Adrenal Gland M H Hoffman St Paul—p 66  
 Clinical Application of Ovarian Follicular Hormone I F Hawkinson Brainerd—p 69  
 Suprarenal Cortical Hormone E C Kendall Rochester—p 71  
 Basophilic Adenoma of Pituitary Gland H L Ulrich Minneapolis—p 73  
 Fractures of Lower End of Radius C A Reed Minneapolis—p 78  
 Fractures of Carpal Navicular Bone W H Cole and C A Williamson St Paul—p 81  
 Malunited Fracture of Lower End of Radius (Colles Fracture) Treated by Osteotomy H W Meyerding and I M Overton Rochester—p 84  
 Acute Fractures of Spine C C Chatterton St Paul—p 88  
 Treatment of Fresh Fractures of Hip M O Henry Minneapolis—p 91  
 Treatment of Nonunion Fracture of Hip E T Evans Minneapolis—p 93  
 Fractures of Shaft of Tibia and Fibula J H Moe Minneapolis—p 94  
 Intra Articular Fractures of Ankle Resulting from Indirect Violence V L Hart Minneapolis—p 97  
 The Broken Nose Some Simple Rules for Management of Recent Fractures of Nasal Bones in General Practice V J Schwartz Minneapolis—p 101  
 Disturbance in Function of Parathyroid Glands of Children R I J Kennedy Rochester—p 107

### New York State Journal of Medicine, New York

35: 193 238 (March 1) 1935

- Will America Copy Germany's Mistakes? Results of a Half a Century's Practice of Social Insurance in the Land of Its Inception G Hartz Berlin Germany—p 195  
 \*Observations on Arsphenamine Dermatitis with Especial Reference to the Reliability of the Patch Test J W Jordan and E D Osborne Buffalo—p 210  
 Finding Tubercle Bacilli J S Woolley Iosco—p 217

**Arsphenamine Dermatitis**—Jordan and Osborne state that the patch test is not a reliable guide to further treatment with the arsphenamines following recovery from an arsphenamine dermatitis Patch tests may be negative or only slightly positive when cutaneous intolerance to the further intravenous administration of the drugs exists Severe vesicular forms of dermatitis following the intravenous administration of the arsphenamines appear to represent true allergic reactions to the arsphenamines or to products of their metabolism Further treatment is usually contraindicated Mild erythematous and erythematopapular forms of arsphenamine dermatitis do not

appear to represent true allergy to the arsphenamines or products of their metabolism and usually do not contraindicate further treatment with these drugs On the basis of their observations and those of others, the authors suggest that patch tests with the arsphenamines may induce a state of cutaneous allergy where none existed previously They believe that, in the present state of knowledge, the only safe method of determining whether further arsphenamines can be tolerated following a mild arsphenamine dermatitis is by the intravenous administration of small gradually ascending doses of arsphenamine

### Public Health Reports, Washington, D C

50: 281 322 (March 1) 1935

- Purpose and Function of School Health Records E E Kleinschmidt—p 281

### West Virginia Medical Journal, Charleston

31: 97 144 (March) 1935

- Some of the Newer Methods for Diagnosis and Treatment of Cancer I C Cohn Baltimore—p 97  
 Pulmonary Tuberculosis R D Roller Charleston—p 107  
 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis G F Grisinger Charleston—p 106  
 The Physician and Literature B R Tucker Richmond Va—p 110  
 \*Dextrose Its Use in Heart Disease E Podolsky Brooklyn—p 115  
 Exsufflation Anesthesia Preliminary Report P J McNeil, Charleston—p 120  
 Foreign Body in Middle Metatarsal Bone C R Kessel, Ripley—p 123  
 Perineal Hernia Case Report W W Strange Huntington—p 125

**Use of Dextrose in Heart Disease**—Podolsky says that dextrose has two definite modes of action on the heart The first is its angiotrophic action, which is of particular value in angina pectoris and coronary sclerosis The second is that the administration of large amounts of sugar permits of glycogen storage both in skeletal and in heart muscles Intravenous injections of dextrose can be given safely and with little reaction if proper precautions are observed The strength of the solutions used varies from 5 to 50 per cent The amounts given may vary from 5 cc per kilogram of body weight in the case of concentrated solutions to 20 cc per kilogram in the case of more dilute solutions Intramuscular injections of dextrose may be given with safety by observing the same precautions as with intravenous technic Subcutaneous injections of 10 per cent may be given with safety In the experience of Rimbraud Balmes and Anselme Martin, dextrose-insulin therapy has yielded excellent results in cases of cardiac failure particularly in the reduction of edema and the relief of subjective symptoms Left ventricular insufficiency is generally influenced favorably under insulin-dextrose treatment, with an improvement in the quality of the auscultated sounds Dextrose-insulin therapy is most likely to succeed in the early stages of cardiac insufficiency before gross anatomic changes have been suffered by the myocardium Insulin acts directly on the nutrition of the myocardium and also produces an equilibrium of the two functions of glycolysis and glycogenesis Insulin-dextrose therapy in heart disease is not wholly free from danger Quite a few cases of stenocardial pain following the administration of insulin have been reported particularly in patients suffering from arteriosclerosis Occasionally coronary occlusion may follow as a result of insulin therapy In a heart already impoverished by coronary disease, the injudicious use of insulin alone metabolizes too much glycogen, an element of great importance in myocardial tissue metabolism, and leads to further physiologic imbalance The most unfavorable results with dextrose-insulin therapy occur most often in diabetic patients, in whom the heart is already adjusted to high sugar levels The introduction of insulin therapy suddenly reduces this level with resultant cardiac pain Dextrose is also not to be thought of as a heart remedy in these cases Expert mental evidence shows that the heart muscle gives up its glycogen with great difficulty, and yet this change is influenced to a great degree by quite a few endocrine substances, particularly epinephrine thyroxine solution of pituitary and insulin While these substances may produce only minor changes in a normal heart, they may bring about rather undesirable alterations in a heart that is diseased This may be the case in diabetes as well as in arteriosclerosis It is desirable to make a thorough examination of the patient before dextrose or dextrose-insulin treatment is instituted in heart disease.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

10 160 (Feb.) 1935

Actinomycosis in Childhood. Clinical Study and Review. R. W. B. Ellis.—p. 1.

Incidence of Various Types of Pneumococci in Infections Other Than Pneumonia. R. W. Fairbrother.—p. 25.

\*Papular Urticaria (Lichen Urticatus). B. C. Tate.—p. 27.

Obsessive Compulsive States in Childhood and Their Treatment. Muriel Barton Hall.—p. 49.

**Papular Urticaria**—Tate concludes that papular urticaria is a definite and distinct syndrome, separable from urticaria and from Hebra's prurigo. It is a manifestation of allergy and a disorder of the first four years of life. It is aggravated by heat and by a diet containing too much carbohydrate. Digestive disorders, teething and mild febrile disturbances probably predispose to papular urticaria, but such conditions are of minor importance in its etiology. Rickets plays no part. There is no satisfactory evidence of any underlying diathesis. The exciting agent is not a food but something connected with the patients' home environment; its precise nature however remains obscure. It is not bedding or clothes but it can be carried on these articles. It is not vermin animal size, or an antigen derived from human beings or domestic animals. Sensitivity to house dust has not been definitely excluded. Many children suffer from transient attacks of papular urticaria and recover without treatment, an important fact that must always be borne in mind in any attempt to estimate the value of a particular remedy. Treatment is tested by the chronic cases and only too frequently it proves far from satisfactory. The admission of the patients to a hospital always brings relief, and in the author's cases, although relapse occurred when they returned home the symptoms were much less severe than before. This seems to be by far the most valuable therapeutic measure in all those severe and persistent cases in which the general health suffers from the continual irritation and loss of sleep.

## British Journal of Experimental Pathology, London

16:1108 (Feb.) 1935

Calibration of Graded Collodion Membranes. W. J. Elford and J. D. Ferry.—p. 1.

\*Species Immunity to Pneumococcus. D. Harley.—p. 14.

\*Streptococcus Complement Fixation Reaction in Rheumatic Diseases. A. Beck and F. Coste.—p. 20.

\*Action of Acetone and of Ketone Bodies Present in Diabetic Blood on Heart. M. V. Bagoury.—p. 25.

Methemoglobin Production Test for Assaying Antianemic Potencies of Liver Extracts. W. Deutsch and J. F. Wilkinson.—p. 33.

Further Evidence That Mammals Cannot Acclimatize to Ten Per Cent Oxygen or Twenty Thousand Feet Altitude. J. A. Campbell.—p. 39.

Some Observations on Structure and Functions of Lymphatics. Their Behavior in Local Edema. B. D. Pullinger and H. W. Florey.—p. 49.

Estimation of Size of Fowl Tumor Virus by Filtration Through Graded Membranes. W. J. Elford and C. H. Andrews.—p. 61.

Copper Content of Blood in Pregnancy. S. L. Tompsett and D. F. Anderson.—p. 67.

Mechanism of Immunity to Filtrable Viruses. I. Des Virus Combine with Protective Substance in Immune Serum in Absence of Tissue? A. B. Sabin.—p. 70.

Id. II. Fate of Virus in System Consisting of Susceptible Tissue, Immune Serum and Virus and Role of Tissue in Mechanism of Immunity. A. B. Sabin.—p. 84.

Relationship Between Complement and Opsonin of Normal Serum. J. Gordon and F. C. Thompson.—p. 101.

**Species Immunity to Pneumococcus**—The experiments of Harley demonstrate that when solutions of pneumococcus type specific antigens (prepared by allowing pneumococci to undergo partial autolysis in acid sodium chloride or by extracting the organisms with dilute acid at 60°C.) are rendered alkaline and incubated at 37°C. the immunizing properties of the solution for mice are altered. The injection of pneumococcus type-specific antigen solutions or of heat-killed vaccines in mice produces an immunity only to the homologous type of organism. The injection in mice of solutions of type specific antigen solutions that have been made alkaline and incubated at 37°C. produces an immunity not only to the homologous type of organism but also to the heterologous types. It seems probable that this change of antigenic properties is due to an alteration in structure of the type-specific antigen possibly of the nature

of a hydrolysis. The author states that the foregoing experiments confirm the work of Day that pneumococcus species antigen preparations produce in mice an immunity to virulent pneumococci generally.

**Streptococcus Complement Fixation Reaction in Rheumatic Diseases**—Beck and Coste made complement fixation tests on seventy-nine serums from rheumatic patients and on fifty-three control serums. A number of the former group gave positive reactions with streptococcus lipid antigens and failed to react with lipid antigens of other bacteria or with tuberculous and syphilitic lipid antigens. Examinations of the control serums showed that tuberculous serums and serums of pregnancy often react with streptococcus lipid antigens. Therefore in assessing the significance of positive streptococcus reactions these conditions must be excluded. The positive reaction with a streptococcus antigen has been observed only in cases of rheumatic disease in which clinically a connection with streptococcal infection was probable. But even in these cases, and also in acute streptococcal infections (scarlet fever, erysipelas) the proportion of positive reactions is not high (seven positive reactions out of forty-four rheumatic serums). The authors think that the sensitiveness of the reaction is not yet optimal and they are now trying to increase it. If this can be done it may be possible to determine whether rheumatic disease is of streptococcus or other origin.

**Action of Acetone and of Ketone Bodies on the Heart**

—Bagoury compares the action of acetone, of beta-oxibutyric acid and of diacetic acid on the heart muscle and on the coronary circulation. The substances to be tested were administered singly or together in various proportions, and in some experiments the concentration of the blood sugar was raised in order to imitate the diabetic conditions. The ketone bodies and the sugar were used in concentrations reported to be present in mild and severe forms of diabetes, and also in concentrations considerably above those found in human diabetes. Acetone and diacetic acid produce a weakening of the heart as evidenced by cardiac dilatation and rise of the venous and pulmonary pressures. The toxicity of diacetic acid is from about fifteen to twenty times greater than that of acetone. The minimal effective concentration of diacetic acid is from 2 to 3 mg. per hundred cubic centimeters and that of acetone from 25 to 40 mg. The weakening effect of acetone remains unchanged so long as the acetone remains in the circulation. When the blood is replaced by acetone-free blood, the heart recovers completely. The cardiac dilatation produced by small doses of diacetic acid tends to disappear spontaneously. Beta-oxibutyric acid has no specific action on the heart up to concentrations of 1 per cent. Its effects are entirely accounted for by the change in the acid-base equilibrium that the acid produces in the blood. The three ketone bodies produce an increase in the coronary flow of the blood. This effect is, however, negligible unless the concentration of these substances in the blood is high.

## British Journal of Radiology, London

8 137 200 (March) 1935

Clinical Radiology of Digestive Mucosa. Seventeenth Sylvanus Thompson Memorial Lecture. H. H. Berg.—p. 137.

\ Rays and Coarse Structure of Materials. The Fifteenth Mackenzie Davidson Memorial Lecture. W. H. Bragg.—p. 144.

Dosage in Radiation Therapy. R. Paterson.—p. 155.

Canalization of Neutrons. I. T. A. Chalmers.—p. 163.

Cholecystography. B. R. Kirklin.—p. 170.

\*Luminescent Properties of Zinc Sulphide in Relation to \ Rays. L. Levy and D. W. West.—p. 184.

**Luminescent Properties of Zinc Sulphide in Relation to X-Rays**—Levy and West point out that the fluorescent and phosphorescent effects of zinc sulphide when stimulated by many types of radiations are in most cases more intense than similar phenomena displayed by any other known substance. Zinc sulphide has never found practical application in roentgenography owing to the phosphorescence that heretofore has always accompanied the fluorescent phenomena. Entirely new types of zinc sulphide have recently been developed, which exhibit intense fluorescent effects without any phosphorescence. The application of these substances to roentgenography has resulted in considerable improvements in fluorescent screens for visual purposes and also in intensifying screens, special varieties of which have found application in roentgen cinematography.



raphy The response of these new fluorescent substances toward the softer radiations is greater than that shown by the substances previously in use This enables roentgenographic work to be carried out with advantage at a lower kilovoltage than that which was formerly employed The new zinc sulphide intensifying screens have also found application in reducing the long exposures heretofore required for roentgen spectroscopy The exposure is reduced in certain cases to one twentieth of the normal value The latent image of roentgen exposure can be stored in the phosphorescent type of zinc sulphide and rendered visible to the eye for subsequent examination

### British Medical Journal, London

1: 345 400 (Feb 23) 1935

- Sterility Due to Ovarian Dysfunction T N A Jesscoate—p 345  
Surgical Treatment of Bronchiectasis A G Bryce—p 350  
Atheroma of Coronary Artery and Myocardial Fibrosis J Grant and J H Miller—p 353  
Carcinoma of Suprarenal Cortex Associated with Hypertension A Lyall—p 354  
\*Basophil Adenoma of the Pituitary Gland with Renal Changes H G Close—p 356  
Chronic Disseminated Pulmonary Tuberculosis with Erythema Nodosum Case S Deaner—p 357

**Basophil Adenoma of the Pituitary with Renal Changes**—Close cites the case of a basophil adenoma of the pituitary in a male identified by necropsy Apart from the high blood pressure there was no reason to suspect either the syndrome or the pituitary lesion and the finding of the basophil adenoma was accidental The case is unlike the others of basophil adenoma so far recorded in that the kidney was markedly affected by chronic glomerulonephritis But there was no evidence to suggest that the association of the chronic glomerulonephritis with the basophil adenoma or with the malignant hypertension was other than fortuitous Liability to sepsis was exemplified in the present case The patient had had many sore throats in the last eight years of his life, and at the postmortem examination the foul condition of the tonsils was a striking feature The author does not consider abnormal the absence of cells in the posterior lobe of the pituitary in spite of Cushing's recent attempts to attribute the raised blood pressure to the secretion of these cells The author states that if a large series of pituitaries are examined it will be found that the invasion of the posterior lobe by cells growing out from the pars intermedia is comparatively common particularly in middle aged subjects, and that marked invasion of the posterior lobe may also be seen in the pituitaries of persons whose blood pressures have been normal for at least several months before death

### Edinburgh Medical Journal

42 101 204 (March) 1935

- Tuberculosis of Central Nervous System Followed by Apparent Clinical Recovery Agnes R Macgregor, H J R Kirkpatrick and W S Craig—p 101  
Acute Pneumonic Phthisis Report on Three Cases in Which Treatment by Artificial Pneumothorax Was Attempted W A Horne—p 103  
Musings in the Garden Fifty Years Association with Tubercle Bacillus R Philip—p 106  
School Medical History of Persons Who Develop Pulmonary Tuberculosis in Young Adult Life E Watt and P L M Kinslay—p 125  
Meningeal Tuberculosis W Brown—p 126  
Id Seasonal Age and Sex Incidence I M Cracken—p 131  
\*Id Bacteriology and Pathology Agnes R Macgregor H J R Kirkpatrick and W S Craig—p 138  
Cerebrospinal Fluid in Tuberculous Meningitis J G Clark—p 146  
Meningeal Tuberculosis as Terminal Feature in Pulmonary Tuberculosis C Cameron—p 154  
\*Renal Tuberculosis I Histopathology and Pathogenesis D Band—p 162  
Id II Bacteriologic Characteristics of Tubercle Bacilli J M Alston and A S Griffith—p 175  
Id III Tubercle Bacilluria and Its Significance W T Munro—p 177  
Ninth Conference of the International Union Against Tuberculosis Warsaw Sept 4 to 6 1934 A F Hewat—p 184

**Meningeal Tuberculosis**—Macgregor and her associates give the following tentative conclusions regarding meningeal tuberculosis 1 Tubercle bacilli may be present in the cerebrospinal fluid in the absence of diffuse tuberculous meningitis 2 Diffuse tuberculous meningitis is usually the result of infection of the subarachnoid space from a pre-existent localized focus in the brain or meninges, not a direct result of primary tuber-

culosis 3 Such localized foci result from infection of the central nervous system by numbers of tubercle bacilli, too small to produce diffuse meningitis, taking place during periods of bacillemia 4 Such limited infections, giving rise to localized lesions, sometimes occasion clinical manifestations of a pathologic process within the central nervous system, which may be transient and from which clinical recovery may be complete at least for a time

**Renal Tuberculosis**—Band states that the earliest tuberculous lesions of the kidney are epithelioid and mononuclear tubercles They are found in relation to the glomeruli of the renal cortex These primary or minor tuberculous lesions of the kidney are bilateral Many of them heal The presence of tubercle bacilli in the urine withdrawn from the renal pelvis means a tuberculous focus in the kidney Early tuberculous follicles may become encysted and fail to discharge infected debris to the tubules, i e, remain closed As a rule, caseating foci ultimately ulcerate to the tubules The collecting tubules converge at the apex of the pyramid, which is thus liable to infection by direct spread from foci in the corticomedullary zone and by tubular extension A lesion is open when it communicates with the renal pelvis either directly or through the tubules The presence of open cortical lesions can be diagnosed clinically when tubercle bacilli and pus cells are found in the renal urine and changes in the pyelographic outline of the renal pelvis and calices are absent The later stage of confluence of follicles and ulceration at the papilla leads to the pyelographic changes and the clinical syndrome of tuberculous disease of the kidney

### International Journal of Psycho-Analysis, London

16 1 130 (Jan) 1935

- Psychologic Compensations of Analyst Barbara Low—p 1  
Anthropology Its Forms and Motives F Boehm—p 9  
Psychoanalysis of Asocial Children and Adolescents Melitta Schmelberg—p 22  
Process of Introjection in Melancholia K Marui—p 49  
Agoraphobia and Its Relation to Hysterical Attacks and to Trauma F Weiss—p 59

### Journal of Anatomy, London

69 153 296 (Jan) 1935

- Nest Cells of Human Pituitary and of Mammalian Pituitary in General Preliminary Note J H Gray—p 153  
Diagnostic Application of Our Knowledge of Normal Variability of Cutaneous Nerve Areas Exemplified by Median and Ulnar Nerves I M Thompson—p 159  
Composition and Distribution of Vascular Nerves in Extremities H H Woollard and G Weddell—p 165  
Vital Staining of Nervous System I Factors in Vital Staining of Neurons L S King—p 177  
Uncrossed Lateral Pyramidal Tract in Higher Primates J F Fulton and D Sheehan—p 181  
Pulmonic Alveolar Vents C C Macklin—p 188  
Distribution of Palmar Aponeurosis in Relation to Dupuytren's Contraction of Thumb W F Harper—p 193  
Topography of Unpaired Visceral Branches of Abdominal Aorta R George—p 196  
Hair Tracts of Australian Aboriginal J H Gray—p 206  
Cranio-metric Memoirs VI Comparative Study of Inter-temporal and Inter-angular Dimensions of Frontal Bone J Cameron—p 226  
General Pattern of Arrangement of Cranial Roofing Bones in Fishes E P Allis Jr—p 233

### Lancet, London

1: 361-418 (Feb 16) 1935

- Development of Liver Therapy in Pernicious Anemia G R Muir—p 361  
Schick Immunity and Diphtheria Infection E A Underwood—p 364  
\*Treatment of Parathyroid Tetany D Campbell—p 369  
\*Basophil Adenoma of Pituitary Body Report of Case W G A Swan and G E Stephenson—p 372  
Treatment of Undulant Fever J E Debono—p 374  
Nature of Filtrable Tumor Exciting Agent in Avian Sarcomas J C G Ledingham and W E Gye—p 376  
\*Secondary Marble Bones F P Weber—p 377

**Treatment of Parathyroid Tetany**—Campbell reports two cases of parathyroid tetany in which there was complete achlorhydria No examination of the gastric juice had been made before operation, so that it is impossible to say whether this achlorhydria was a result of the removal of the parathyroids The severity of the symptoms depended not only on the actual content of the serum calcium but on slight shifts in the level The symptoms seen for example when the serum

calcium was 7 mg per hundred cubic centimeters and rising from a lower level were often much less than those exhibited when the serum calcium was between 8 and 9 mg and falling. The author asserts that a good method of treatment is to present continuously to the intestine a large amount of calcium in the form of calcium chloride (150 grains, or 9.75 Gm daily). This may be all that is required. But in cases in which this is not effective, and especially if achlorhydria is present, from 50 to 100 cc of third normal hydrochloric acid should be given to increase the absorption of calcium. The acid is added to milk in the proportion of 1/20, when a curdled acid-tasting mixture is formed, which is pleasant enough to take.

**Basophil Adenoma of the Pituitary Body**—Swan and Stephenson describe the case of a woman aged 30, who for four years had suffered from abdominal obesity, hirsutism and long periods of amenorrhea. The blood pressure was raised. Death occurred suddenly during an attack of pain probably renal colic nine days after a copious hematemesis. At necropsy the principal macroscopic changes were obesity, calculous pyonephrosis, cholelithiasis, acute gastric ulcer and enlargement of the anterior lobe of the pituitary body. Microscopically nearly the whole of the anterior lobe of the pituitary body consisted of an adenoma of the basophilic cells. The adrenals showed hypertrophy of the cortex. Renal changes were slight. There was evidence of osteoporosis.

**Secondary Marble Bones**—Weber designates as osteoplastic reaction the profuse dissemination into the bones in some cases of primary prostatic carcinoma. The bones become infiltrated by millions of minute metastases, mostly smaller than military, many consisting of only a few cancer cells at the time of the patient's death. In such cases the disseminated cancer cells may excite a remarkable osteoplastic reaction, which causes the infiltrated bones to increase in density (carcinomatous osteosclerosis) by formation of new bone and deposition of bone salts. Roentgen examination in extreme examples shows the medullary cavity to be more or less obliterated and from this point of view he suggests that the condition may be termed secondary or carcinomatous marble bones in contradistinction to primary marble bones—a developmental abnormality also called osteopetrosis or the Albers-Schönberg disease. He explains the cause of the remarkable osteoplastic reaction in the infiltrated bones in the following manner. The prostatic epithelium, if transplanted, would probably exert an osteogenic influence similar to that which has been experimentally demonstrated in the transplanted epithelium of the urinary bladder, ureter and renal pelvis by Huggins and others. It is generally recognized that cancer cells often retain some of the vital qualities peculiar to the cells from which they arise and it is not too much to suppose that the cancer cells in some cases of primary prostatic carcinoma still retain osteogenic properties—sufficient to give rise to hyperplastic osteosclerosis in the bones which they infiltrate. This would account for the fact that a hyperplastic osteosclerosis occurs far less frequently in association with cancerous metastases in bone from sources other than a prostatic carcinoma.

### Medical Journal of Australia, Sydney

1 133 164 (Feb 2) 1935

Homogeneous X Radiation in Biologic Experiments C E Eddy — p 133

Diagnosis and Treatment of Intracranial Tumors E Murphy — p 139

Treatment of Intracranial Tumors N G Sutton — p 142

1 165 196 (Feb 9) 1935

Management of Breech Presentations R M Allan — p 165

Pulmonary Embolism G F S Davies — p 171

Hepatic Cirrhosis with Splenomegaly in Children W S Laurie — p 178

Appendicitis at Provincial Hospital K Ross — p 179

### Homogeneous X Radiation in Biologic Experiments

—According to Eddy, since the intensity in any small wavelength range is always only a small portion of the total intensity of the X-ray beam it is inevitable that any method of selecting a narrow band of wavelengths must give a beam of feeble intensity. It is desirable, therefore to use X-ray tubes especially designed to operate continuously with large currents. When the wavelength range required includes the characteristic lines of an element it is an advantage if possible to use that element

as the target material. If the wavelength range is to be selected by means of a crystal, special care should be taken to exclude scattered radiation from the selecting slit, and the voltage should not exceed that necessary to excite second order radiation. If, in order to obtain beams of greater intensity wide slits are used, the wavelength range of the selected beam is increased considerably. The only satisfactory method of determining the homogeneity of such a beam is by analysis with a suitably designed crystal spectrograph. If the filtration method of selecting a wavelength range is adopted, the necessary filter thickness can be calculated readily. The value of the voltage to be used should also be carefully selected in relation to the filter thickness, as the use of too high a voltage for any given filter thickness seriously affects the homogeneity of the beam. If a narrow range of wavelengths is to be used for biologic experiments in which a specific action with wavelength is suspected, it appears desirable that the actual range of wavelengths as well as the distribution of energy within that range should be determined. The success of a physical-biologic experiment can depend only on the success with which both the physical and the biologic portions have been planned.

### Practitioner, London

134 249 384 (March) 1935

Diagnosis of Anemias A E Gow — p 249

Value and Interpretation of Blood Counts with Notes on Technique L E H Whitby — p 262

\*Treatment of Pernicious Anemia J F Wilkinson — p 272

Agranulocytic Angina Note J F Wilkinson — p 283

Anemia in Pregnancy D T Davies — p 290

Anemias of Infancy and Childhood L G Parsons and W C Smallwood — p 298

\*Anemia Associated with Splenomegaly in Childhood R W B Ellis — p 317

Indications and Technique for Blood Transfusion F A Knott — p 331

Cheiropophylaxis H C Semon — p 347

Differential Diagnosis of Graves Disease C S D Don — p 352

Favorite Prescriptions III Pharmacopoeia of Royal Infirmary of Edinburgh J D Comrie — p 360

**Treatment of Pernicious Anemia**—Wilkinson points out that the fundamental principles underlying the successful treatment of pernicious anemia imply the realization that the condition is a permanent deficiency disease requiring adequate replacement therapy for life. Treatment consists in the administration of one or more of the antianemic factors present in the stomach or liver, but they must be given in sufficiently large amount to maintain a normal blood picture and clinical condition. This can succeed only if therapeutically active preparations are used. The progress of the patient must be controlled by regular blood counts at least every three or six months, and the dose of antianemic treatment increased or decreased accordingly. If there are any signs or symptoms however slight, of involvement of the nervous system, the treatment must be continued in full doses without relaxation. The prognosis in uncomplicated cases of pernicious anemia is good provided these points are borne in mind and adequate treatment with an active preparation is taken for the rest of the patient's life.

### Anemia Associated with Splenomegaly in Childhood

—According to Ellis, the investigation of an infant or child suffering from anemia and splenomegaly will first necessitate the exclusion of a generalized infection. A clinical diagnosis of congenital syphilis or military tuberculosis will be confirmed by the Wassermann reaction or the Mantoux test, although the latter may be negative in the terminal stages of a generalized infection. A history and temperature suggestive of septicemia should call for a blood culture and, whenever the diseases are endemic infantile malaria or kala azar should be suspected in any doubtful case and the blood or material from a splenic puncture should be examined for parasites. In any severe anemia whether primary or secondary transfusion may be required to save life and will frequently hasten recovery in the milder cases. Splenectomy is indicated in acholuric family jaundice in Banti's disease and in splenic anemia when the platelets are reduced and in severe anemia secondary to hemorrhagic purpura (thrombocytopenic purpura). In general, iron may be expected to benefit only those cases of anemia which form the great majority in childhood and in which there is an iron deficiency although recent work suggests that some benefit may be obtained from iron therapy in true splenic anemia.

## Paris Medical

1: 165 180 (Feb. 23) 1935

- Masked Form of Tonsillar Chancre Bilateral Pseudophlegmonous Angina P Halbron and H P Klotz —p 165
- \*Frequency of Tuberculous Antecedents in Patients with Chronic Progressive Polyarthritides F Coste P Charmant and Viet —p 166
- Intravenous Carbon Injections in Acute Barbiturate Intoxication B Ménétrel —p 169
- Röntgenologic Examination of Lung R Benda H Mollard and R Le Canuet —p 174
- Adie's Disease and Syphilitic Chorioretinitis P Harvier and C Boudin —p 177

**Tuberculous Antecedents in Polyarthritides**—Coste and his co-workers studied the antecedents of 184 patients suffering from polyarthritides and 329 nontuberculous patients in order to determine the percentages of each exposed to the tubercle bacillus. They were classified in three groups: (1) subjects definitely exposed to personal or familial tuberculosis or having lived in prolonged tuberculous contact, (2) those for whom these conditions perhaps existed and (3) those without tuberculous antecedents. Of the 184 polyarthritic patients 30.6 per cent were in the first group, 25.7 in the second and 44.2 in the third. Of the 329 other nontuberculous patients 12.1 per cent were in the first group, 10.6 in the second and 77.2 in the third. There was thus a significantly higher percentage of polyarthritic patients exposed to tuberculosis than of the other patients. Although the number of patients was small the authors believe that these observations should stimulate further studies of the possible relationship between tuberculosis and chronic polyarthritides.

## Presse Medicale, Paris

43: 281 296 (Feb. 20) 1935

- \*Place of Phlebitis in Early Spontaneous Postoperative Evisceration J Ducuing —p 281
- \*Prophylaxis of Accidents Due to Neosarsphenamine J Benech —p 283
- Serous Meningitis of Poliomyelitis and Tuberculous Meningitis B Tassovatz —p 285

**Phlebitis in Postoperative Evisceration**—Ducuing reports five cases of postoperative evisceration occurring relatively soon after the operation. In four of these phlebitis had taken place. In three the preceding phlebitis of the pelvic abdominal region had produced distention of the abdomen and urinary difficulties. The mechanism of evisceration in these cases is easy to explain on the basis of increased and constant traction on the sutures closing the abdominal wall. He does not believe that phlebitis is by any means the only cause of postoperative evisceration but feels that it is often more than coincidental.

**Prophylaxis of Accidents Due to Neosarsphenamine**—The frequent toxic effects caused by the administration of neosarsphenamine induced Benech to investigate preventive methods. He prepared ampules containing 5 cc of a 4 per cent solution of aminoacetic acid as a diluent. One ampule suffices for doses of neosarsphenamine up to 0.75 Gm and two ampules are used for larger doses. In one period of three months he treated twenty women more or less intolerant to the arsphenamines. One hundred and eight injections were given with this product. In sixteen cases the results were entirely and in four partially satisfactory. The explanation for these good results is still uncertain. It is possible that a solution of an amino acid is merely a better solvent than distilled water. Perhaps aminoacetic acid has a stimulating action on the nutritive function of the liver. The author believes that this is the most likely explanation. It is also possible that aminoacetic acid acts directly on the metal and reduces its toxic properties. Whatever the explanation it is certain that the results are good.

## Pohclimico, Rome

42: 129 196 (March 1) 1935 Medical Section

- Biology of Megakaryocytes Surviving in Vitro Action of Splenic Venous Blood M Torrioli and V Puddu —p 129
- Dextrose Contents of Saliva A Luisada —p 133
- \*Hemorrhagic Syndromes and Anemic Conditions in True Chronic Uremia A Gualdi —p 136
- \*Mechanism of Action of Autohemotherapy in Cerebral Hemorrhage G Rabboni and S E Gurrieri —p 153
- Primary Sarcoma of Stomach Cases F Guccione —p 168

**Hemorrhagic Syndromes and Anemia in True Chronic Uremia**—Gualdi studied the pathogenesis of the hemorrhagic syndromes and grave anemia in true chronic uremia. The toxic

stage of true chronic uremia is characterized by humoral changes of a physicochemical nature, which originate essentially in the complete insufficiency of the kidney and partially in the insufficiency of the liver and cause, on the one hand, functional and histologic alterations of the bone marrow resulting in the development of grave anemia and, on the other, diffuse lesions of the capillaries resulting in the production of the hemorrhagic diathesis. The statement of the author is confirmed by clinical observations. Grave anemia and either cutaneous or mucous hemorrhages were seen in patients suffering from true chronic uremia secondary to renal insufficiency and did not appear in patients suffering from grave renal diseases but without true chronic uremia.

**Autohemotherapy in Cerebral Hemorrhage**—Rabboni and Gurrieri determined the hemolytic power of the blood serum of sixteen hemiplegic patients before and after autohemotherapy. The presence of hemolysins and hemo agglutinins before autohemotherapy in more than one third of the samples of serums and the appearance or increase of the same substances after autohemotherapy in about half the samples of the same serums led the author to believe that the mechanism of action of autohemotherapy in cerebral hemorrhage is of an immunobiological nature. The blood, on being re injected, acts as a globular antigen resulting in the formation or the increase of hemolytic antibodies that reinforce the spontaneous globular lysis in the cerebral hemorrhagic foci and accelerate the reabsorption of the hemorrhage. It causes also humoral colloid modifications by which the equilibrium of the cerebral circulation is reestablished. A relation between the intensity of the hemolysis and the results of the treatment is not clear, although it seems to exist between the intensity of hemo-agglutinins and the results of the treatment. In the course of their studies the authors had the opportunity of confirming the reports of Colella and Pizzillo on the satisfactory results of autohemotherapy in hemiplegia even in those forms that represent late results of cerebral hemorrhage. Seven hemiplegic patients out of a group of twelve who received the complete treatment long after the apoplectic attack occurred showed satisfactory results.

## Riforma Medica, Naples

51: 197 236 (Feb. 9) 1935

- Biologic Action of Short Waves Action on Ferments G Izar and P Moretti —p 199
- \*Use of Alcoholic Extract of Urine in Biologic Diagnosis of Cancer C Negri —p 200
- Tuberculous Poisons in Etiology of Rickets F Figari and L Sironi —p 205
- Chronic Gastritis C Benedetti —p 210
- Phlebitis and Postoperative Embolism and Their Prophylaxis. A Parini —p 223

**Extract of Urine and the Diagnosis of Cancer**—Negri applied the biologic urine test of Aron for the diagnosis of cancer in ten patients. The test consists in adding in a large flask a quantity of freshly passed urine from suspected patients to three times its volume of 95 per cent alcohol. After shaking a precipitate forms and settles slowly. After the sedimentation is completed the supernatant fluid is decanted. The remaining material is centrifugated. The precipitate is suspended in from 5 to 10 cc. of physiologic solution of sodium chloride for each hundred cubic centimeters of urine and the suspension is violently shaken for a long time. After filtration the active principle is found in the filtrate, to which is added a few drops of a 3 per cent solution of trisecol and which is kept in the refrigerator. The filtrate is injected subcutaneously in rabbits weighing from 1,500 to 2,000 Gm. It is advisable to administer to the animals the solution of the precipitate corresponding to from 750 to 1,000 cc of urine. The injections are repeated for two or three days at least. Necropsy is performed two days after the last injection. The adrenals of the rabbits treated are removed, dissected and fixed for several hours in Zenker's solution formalized 7-100. Sections from 5 to 6 microns in thickness are cut and stained with an erythrosin stain. The author's results do not confirm those of Aron. According to the latter the reaction is positive when the spongocytes of the fasciculated zone of the adrenal cortex lose their lipid granulations and are stained so that the normally clear fasciculated zone becomes obscure, not one of the author's positive cases gave these results. The fasciculated

zone always presented a normal aspect with the cellular nucleus visible and finely reticulated protoplasm, vacuolated as much in rabbits treated with urine from cancerous patients as in the controls. The numerous histologic sections made of the hypophysis did not demonstrate the presence of pathologic processes in any of the animals. The only alteration that the author found in the reticular zone of the adrenal cortex was a degenerative process of the cells. This condition was established by seven of eight specimens of urine from patients with malignant disease. The author concludes that the injection of urinary extract according to Aron cannot be used as a means of excluding or confirming the possible presence of a malignant disease. The histologic changes that the treatment produces in the adrenal cortex are not sufficiently marked. The tests did not show any change in the fasciculated area but rather a degenerative process of cellular elements of the cortical reticular zone.

### Archiv für klinische Chirurgie, Berlin

181: 479-598 (Feb 20) 1935 Partial Index

- \*Pain Conducting Cutaneous Nerves as Cause of Neuralgia in Amputation Stump. A. G. Molotkoff—p. 515
- Operative Treatment of Tuberculous Foci in Vicinity of a Joint Particularly of Neck of Femur. K. E. Herlyn—p. 523
- Experimental Ulcer in Fastigium Stomach. N. A. Bogoras—p. 554
- Struma of Accessory Glomus Caroticum. F. Roessing—p. 571
- \*Total and Subtotal Thyroidectomy in Treatment of Heart Diseases and of Angina Pectoris. G. Bankoff—p. 590

**Neuralgia of Amputation Stump**—The concept that neuralgias of the amputation stump are due principally to a neuroma of the larger nerve trunks such as the sciatic, median ulnar or radial, is not borne out by Molotkoff's investigations. The fact that the pains frequently appear shortly after the amputation as well as the inability to relieve them by the various operations so far proposed including chordotomy precludes the plausibility of a neuroma. The author sees the cause of pain in the severance of the terminals of the pain conducting cutaneous nerves. The origin of the pain is to be found in the disturbance of the relationship between the pain conducting nerves on the one side and touch and temperature fibers on the other. Following an amputation there may exist two kinds of painful sensations: those projected in the missing portion of the limb and those localized in the stump. The author found that severing the obturator nerve just below the obturator canal relieves the pain projected to the internal malleolus, the inner aspect of the foot, the sole and the big toe, as well as the local pain affecting the mesial aspect of a stump of the thigh or the leg. For the pain projected to the external malleolus, the external aspect of the foot, the little toe and the lateral aspect of the sole as well as for the pain localized to the outer aspect of the amputation scar, the author recommends sectioning the nervus cutaneus femoris lateralis. Severance of the nervus cutaneus antibrachii lateralis is advised for phantom pains of the amputated thumb, index and middle finger.

**Thyroidectomy in Treatment of Heart Diseases**—Bankoff reports the results of total and subtotal thyroidectomy in two groups of patients. In the first group of twenty belonged older patients with advanced heart disease, angina pectoris and evidences of circulatory stasis. They were submitted to a total thyroidectomy. The basal metabolic rate in these patients was as a rule from 15 to 25 per cent above normal. Following the operation the basal metabolic rate fell to from 5 to 20 per cent below the normal; the pulse became slower; the blood pressure came down to normal and the attacks of angina pectoris did not return. In the second group were ten patients ranging in age from 19 to 30 who suffered from neurasthenia, tachycardia and an increased basal metabolic rate without however any signs of thyrotoxicosis or organic heart disease. The patients of this group were submitted to subtotal thyroidectomy. There were no deaths in either group. The patients with decompensated hearts showed marked improvement. There was disappearance of dyspnea, palpitations and edema. The patients of the second group were cured of their symptoms. The author recommends total thyroidectomy for cardiac patients in whom all medical therapy has failed to bring about an improvement. He recommends subtotal thyroidectomy for patients in whom medical treatment has failed to relieve tachycardia associated with neurasthenia and tremor.

### Klinische Wochenschrift, Berlin

14: 329-360 (March 9) 1935 Partial Index

- \*Isolation of a Pseudospirochete from Circulating Blood in Disorder Resembling Recurrent Fever. H. Scholer—p. 333
- Vitamin C in Urine of Healthy Persons and of Patients. W. von Drigalski—p. 338
- \*Observations on Antagonistic Action of Simple or Febrile Herpes in Acute and Chronic Infectious Diseases. O. Naegeli—p. 341
- Determination of Blood Sugar According to Credehues and Seifert. H. Rosenger—p. 343
- Serologic Properties of Milk Lipoids. Y. Hiro—p. 344

**Pseudospirochete in Blood in Disorder Resembling Recurrent Fever**—Scholer relates the history of a man aged 64, whose disorder developed suddenly with severe headaches, fever, piercing pains in the epigastrium and in the umbilical region and vomiting. On the sixth day diarrhea set in but constipation followed hospitalization. Agglutination with three typhoid strains gave negative results. A swelling of the right leg developed, but the member was not sensitive to pressure and there were no signs of thrombosis. This swelling recurred. There were also recurrences of fever and of collapse-like conditions. The patient recovered in about two months. The case was diagnosed as severe general infection without primary lesion. Symptoms worthy of attention were irregular course of the temperature, a tendency to tachycardiac paroxysms, intercurrent pulmonary infiltration and pleurisy. The administration of arsphenamine was followed by rapid improvement. The first dose was followed by a strong reaction similar to that resulting from the administration of arsphenamine in recurrent fever. The author describes the isolation of the causal microorganism. Cultures were possible under aerobic and anaerobic conditions in well buffered, fluid mediums that contain protein or tissues. The organism is gram negative and readily stainable with the Giemsa stain. After the intraperitoneal introduction of the culture material in various species of animals, the organism appears in the blood or in the cerebrospinal fluid after various lengths of time. The author cites reports from the literature in which unusual types of spirochetes were discovered and emphasizes the necessity of making cultures in fluid mediums and of observing those cultures for a long time. He also stresses the favorable therapeutic action of neoarsphenamine in cases of general infection.

**Antagonistic Action of Simple Herpes in Infectious Diseases**—Naegeli made observations which convinced him that the activated herpes virus plays an important part in the action of fever therapy of dementia paralytica. He observed rapid therapeutic effects when in the course of fever therapy a noticeable attack of herpes appeared. In a small number of patients in whom herpes did not appear during malarial therapy and in whom the effects of the therapy were negative, the transmission of herpes and the subsequent activation with fever therapy resulted in an improvement of the clinical picture. Statistics indicate that infections of the cerebrospinal fluid are less frequent in patients with herpes than in patients without herpes. Moreover, in countries in which syphilis is frequent but in which malaria is endemic and herpes rather frequent, late syphilis is almost absent in spite of the inadequate treatment of early syphilis. Tabes and dementia paralytica are more frequent in men than in women whereas in women there is a greater incidence of herpetic manifestations. Herpes although comparatively harmless for human subjects, may cause fatal encephalitis in rabbits. Thus it is possible that the herpes virus is capable of destroying spirochetes. The author thinks that the remissions and cures of dementia paralytica are not the result of the malaria because its action is regional, as only the spirochetes in the brain are killed and not those in the skin and in the internal organs. Although the cerebrospinal fluid may become seronegative malarial therapy does not change a positive blood Wassermann reaction into a negative one. Moreover, results similar to those obtained with malarial therapy can be produced with recurrent fever, with rat bite fever and even with coli-vaccine. In this connection he points out that the endogenous administration of coli-vaccine results in attacks of herpes more often than the administration of any other vaccine. The author believes that infection and fever production are only indirect therapeutic factors, in that they activate the herpes virus which exists in the latent stage in many human beings.

**Medizinische Klinik, Berlin**

31: 301-332 (March 8) 1935 Partial Index

- Colloidochemical Problems in Medicine K. Hinsberg—p. 301  
 \*Large Respiratory Minute Volume with Especial Consideration of Cause of Poisoning with Acetylsalicylic Acid A. Sylla—p. 314  
 Evacuation and Irrigation in Pleural Exudates in Artificial Pneumothorax E. Kornitzer—p. 318

**Large Respiratory Minute Volume**—Sylla states that an enlarged respiratory minute volume is frequently observed during rest. In many cases with slight increases, the cause is to be found in hyperventilation developing as the result of psychic or motor unrest. This hyperventilation leads to an increase of the carbon dioxide elimination by the respiratory air and of the respiratory quotient above 1. If hyperventilation persists for a longer period, blood alkalosis (respiration) results. Slight increases of the respiratory exchange in hyperventilation, characterized by a large respiratory minute volume and by an increased respiratory equivalent (above 35) are caused by the enlargement of the respiratory quotient and by the greater effort caused by the hyperventilation. In the determination of the basal metabolism it is therefore advisable to calculate also the respiratory minute volume and the respiratory quotient the more so since the additional effort is slight. Unusually large respiratory minute volumes with great respiratory quotients are observed in severe acidoses of the blood (uremia and hepatic and diabetic comas). In cases of poisoning deviations are observed. The author demonstrates in several cases that as the result of a central irritation, a large respiratory minute volume may develop without an increased respiratory quotient and that on the other hand, in spite of a severe acidosis of the blood there may be no hyperventilation probably because the irritability of the respiratory center has been reduced. The respiratory minute volume is generally considerably larger when air is inhaled than when pure oxygen is inhaled. The respiratory quotient shows the corresponding behavior. The opposite behavior is observed in lesions of the respiratory center.

**Monatsschrift für Kinderheilkunde, Berlin**

61: 241-320 (Feb. 22) 1935 Partial Index

- Hormone Regulation of Blood Sugar in Nurlings H. Schonfeld—p. 241  
 \*Pathogenesis of Erythema Nodosum Annemarie Goldberg-Curth—p. 249  
 Poisoning During Childhood H. Tünger—p. 268  
 Evaluation of Diphtheria Antitoxin in Serum and Vaccination Experiments with Concentrated and Purified Form of Formal Toxoid H. Holzappel—p. 280

**Pathogenesis of Erythema Nodosum**—Goldberg-Curth shows that true idiopathic erythema nodosum is a cutaneous reaction to an infection the pathogenic organism of which is as yet unknown. Symptomatic erythema nodosum may develop in the course of nearly every infectious disease and is a cutaneous reaction to toxic substances. During childhood the majority of cases of erythema nodosum are closely related to a tuberculous process quite frequently to a primary tuberculous process. Erythema nodosum in tuberculous children does not necessarily imply an unfavorable prognosis. Tubercle bacilli are frequently demonstrable in the fluid obtained from gastric irrigation of these children. The detection of bacilli in the blood or the cultivation of bacilli from erythema nodules are not definite proof of the tuberculous nature of the skin disorder. Quite often it is possible to detect a source of infection in the environment of the patient, and occasionally several cases are seen in one family. Clinical and roentgenologic signs of pulmonary tuberculosis are quite frequent in the course of erythema nodosum, but signs of extrathoracic tuberculosis are rather rare. During the stage of prodromal fever there is frequently a change in the formerly negative tuberculin reaction. Prophylactic vaccination with BCG apparently can prevent the appearance of erythema nodosum as well as of a positive tuberculin reaction, in spite of a strong source of infection. The author thinks that all forms of erythema nodosum are indications of a change in the allergic condition of the organism. She rejects the true tuberculous nature of the disorder but admits that cases which present the clinical aspects of erythema nodosum and the pathologic histologic aspects of the tuberculi although rare do occur. The assumption that erythema nodosum is caused by a tuberculous filtrable ultravirus has not been proved as yet. It appears that the polymorph erythemas are closely related to

erythema nodosum, for here too the eruption of erythema is accompanied by fluctuations of the allergy in tuberculous patients. The high incidence of erythema nodosum in the nordic countries permits the assumption of a racial predisposition (in blood persons). Moreover, this predisposition may explain also the greater incidence during childhood.

**Munchener medizinische Wochenschrift, Munich**

82: 325-364 (Feb. 28) 1935 Partial Index

- Allergic Gastro-Intestinal Disturbances K. Hermann—p. 327  
 Treatment of Cystitis W. Grossmann—p. 329  
 Significance of Trichomonas vaginalis as Cause of Parient Colitis and of Nonspecific Urethritis in Men Balkow—p. 331  
 Shortcomings in Asepsis O. Maier—p. 332  
 Chronic Intestinal Disturbances and Amebic Infections O. Fischer—p. 336

**Chronic Intestinal Disturbances and Amebic Infections**—Fischer gives the history of a man who, during the war contracted malaria and paratyphoid. The intestinal disturbances never ceased completely. The disorder was never completely clarified until the patient was subjected to a thorough examination in an institute for tropical diseases. Amebas were discovered in the stool. The dysenteric symptoms yielded quickly to treatment. The author emphasizes that, if patients who at one time have been in the tropics have chronic complaints, it is absolutely necessary that they be subjected to a thorough examination by a physician who is familiar with tropical diseases.

**Wiener Archiv für innere Medizin, Vienna**

26: 161-320 (Feb. 20) 1935 Partial Index

- Morphologic and Functional Roentgenologic Aspects of Gastro-Intestinal Tract in Pernicious Anemia R. Pape—p. 161  
 \*Ovarian Cycle and Carbohydrate Metabolism Course of Glycemic Reaction Following Dextrose Tolerance Test During Normal Cycle J. Bloch and A. Bergel—p. 233  
 Respiratory Chemistry and Mechanism of Asthmatic Patients in High Altitude Climate and During Changes to Different Altitudes E. Wittkower and R. Wolfer—p. 241  
 Ossification of Iliolumbar Ligament V. Miller—p. 259  
 \*Ovarian Cycle and Carbohydrate Metabolism Galactose Tolerance J. Bloch and A. Bergel—p. 267  
 Thyroid and Circulation F. Kisch—p. 297

**Glycemic Reaction During Menstrual Cycle**—Bloch and Bergel show that during the premenstrual and the menstrual period of women with a normal cycle the glycemic reaction, following a dextrose tolerance test, is different from that observed during the interval. This difference in the glycemic reaction is neither the result of menstrual impairment of the hepatic parenchyma nor caused by abnormal resorptive conditions in the gastro-intestinal tract but is the manifestation of an increased irritability of the autonomic nervous system. The menstrual changes in the glycemic reaction consist in an increased hyperglycemia, an earlier maximal increase, a noticeable hypoglycemic phase and occasionally the formation of a second peak. These abnormalities of the menstrual glycemic reaction are found especially in women with sympathetic disharmony, in whom menstruation is frequently accompanied by alimentary glycosuria.

**Ossification of Iliolumbar Ligament**—Miller agrees with Lowman and Steindler, who consider anomalies in the taxing or in the static mechanical factors the most important causes of the calcification or ossification of the iliolumbar ligament. Moreover, it seems that inflammatory processes are an etiologic factor, but it cannot be definitely determined whether in this case the ossification is likewise a static one that effects immobilization of the joint or relieves the joint. To what extent anomalies of formation are involved cannot be estimated as yet, but this possibility cannot be entirely disregarded. This theory, which considers the ossification primarily a reparative process, makes an operative intervention on the ligament seem undesirable in the majority of cases.

**Ovarian Cycle and Galactose Tolerance**—Bloch and Bergel describe their studies on galactose assimilation during the ovarian cycle. They found that it was increased during the premenstrual and the menstrual periods. They show that this increase is not caused by a direct hepatotropic action of the ovarian hormone but is rather the manifestation of a condition of the neurosympathetic and hormone systems that prevails during these phases of the ovarian cycle.

**Wiener klinische Wochenschrift, Vienna**

48 257 288 (March 1) 1935 Partial Index

- Prophylaxis in Obstetrics V Hies—p 266  
\*Relations Between Schick Test, Antitoxin Titer and Susceptibility to Diphtheria C N Leach and G Pösch—p 271  
Radical Treatment of Varicose Veins L Moszkowicz—p 274  
\*Treatment of Traumatic Wounds and Their Sequels H Kunz—p 274

**Schick Test and Susceptibility to Diphtheria**—Leach and Pösch point out that Schick and Michiels maintained that a negative Schick test indicates an antitoxin titer of not less than 0.03 antitoxin unit for each cubic centimeter of serum. Later the lower limit of protective action, the so-called Schick threshold, was placed at 0.02 and then at 0.01 antitoxin unit for each cubic centimeter of serum. However, it was found that a negative Schick test does not exclude the possibility of contracting diphtheria. In studies on 4,800 children the authors found that seven children with a negative Schick test developed diphtheria. They further report studies on 215 children. Not only were these children subjected to Schick tests but their blood was carefully examined for its antitoxin content. It was found that in 13.6 per cent of those with a negative Schick test the antitoxin content of the blood was below the minimum required for protection. The authors conclude that the negative Schick test is not entirely reliable as regards the susceptibility for diphtheria as well as the antitoxin content but they think that a positive Schick test indicates definitely a susceptibility for diphtheria.

**Treatment of Traumatic Wounds**—After discussing wound excision according to Friedrich, Kunz evaluates the seroprophylaxis of tetanus and says that it is not necessary in every open wound. He maintains that the danger of tetanus is slight in industrial injuries, particularly in those occurring in the metal industry. In severe street accidents, however, seroprophylaxis is necessary, and it is advisable to protect the patient also against gas gangrene, although the prophylaxis of the latter does not always preclude its development. With regard to wound infection, the author says that the old surgical methods (incision and drainage) are still the most widely used. However, in some clinics the incision with the electric knife is now employed only for certain types of wounds. Open wound treatment in combination with continuous irrigation or with the water bed is found effective particularly in serious wounds of the region of the pelvis. The cod liver oil bandage according to Löhr is used with good success in the treatment of large infected wound cavities and of tissue defects. In the treatment of pyogenic general infections, early and repeated blood transfusions are the most effective method. The author emphasizes that the opinion of the uselessness of serotherapy of manifest tetanus is incorrect and he advises intensive treatment. Intravenous, intramuscular and intraspinal injections of serum should be given several days in succession. Serotherapy is likewise advisable in gas gangrene.

**Zeitschrift für experimentelle Medizin, Berlin**

95 645 804 (Feb 20) 1935 Partial Index

- Change of Pulse Energy with Advancing Age J Mosonyi and G Berency—p 666  
Connection Between Carbon Dioxide Content of Blood and Formation of Hydrochloric Acid in Stomach J Mosonyi, L Gunther and J Petrányi—p 670  
\*Influence of Small Doses of Parathyroid Extract on Magnesium in Organism M Coppo and M Pisa—p 675  
Modification of Respiration of Liver of Rats by Serum of Healthy and Diseased Persons Attempts to Characterize Serum of Tuberculous Patients in Metabolic Test B Walther—p 682  
\*Modification of Antibody Concentration by Specific Desensitization in Pollen Allergy G Albus—p 703  
\*Spleen and Water Exchange R Tislowitz—p 704

**Influence of Small Doses of Parathyroid Extract on Magnesium**—Coppo and Pisa described studies on the magnesium in rats treated with small doses of parathyroid extract which produce a noticeable reduction in the magnesium content of the organism. An analysis of the values in the different rats disclosed that the only animal in which the ash residue revealed no increase in calcium lacked also a reduction in the magnesium content. Moreover the magnesium content showed the greatest decrease in cases in which the calcium values showed the greatest increase. A survey of all these observations discloses that even small amounts of parathyroid extract

produce changes in the mineral constituents: an increase in the calcium and a reduction in the magnesium content. The authors conclude that their analyses furnish an important contribution to the theory that assumes a direct relation between the function of the parathyroids and the biochemistry of magnesium.

**Desensitization in Pollen Allergy**—Albus points out that the specific desensitization of hay fever patients by means of pollen extract has proved of practical value, but that the objective proof of its action is still lacking. It was his aim to furnish this proof. He mentions two theories that have been advanced to explain the mode of action of desensitization and then describes studies proving clearly that the treatment with pollen extracts exerts a noticeable influence on the reactions of the sensitized organism, in that it neutralizes the antibodies lodged in the cells and thus effects a reduction in the antibody values. He thinks that his studies prove the second of the two theories, according to which the antigen (pollen extract) reaches the cellular antibodies in subthreshold value and neutralizes them so to speak, which becomes manifest in a reduction of the antibodies. If now allergen enters again, it finds no reactive counterpart, there is no antigen-antibody reaction and allergic manifestations do not develop. Thus the practicability of the active desensitization has been proved objectively.

**The Spleen and Water Exchange**—Tislowitz describes studies demonstrating that spleen extracts increase the water storage of the tissues, reduce the circulating quantity of water and inhibit diuresis. He maintains that the spleen is important in the mechanism of the water exchange not only as a depot organ but also because it is a part of the reticulo-endothelial system. He says that further investigations will have to prove whether the reticulo-endothelial system has a mechanical storage action or whether the reaction of the vessels (similar to the blockage of the hepatic veins) plays a more important part.

**Zentralblatt für Gynäkologie, Leipzig**

59 481 544 (March 2) 1935 Partial Index

- \*New Transperitoneal Operation for Juxtavesical Ureteral Calculi in Women O Kneise—p 483  
Artificial Formation of Sphincter in Urinary Incontinence in Women (Plastic Operation on Pyramidal Fascia of Bladder) N P Werhatzky—p 489  
Transvesical Diaphanoscopy H Hellendall—p 505

**Operation for Juxtavesical Ureteral Calculi**—Kneise points out that juxtavesical ureteral calculi can be removed by lumbo-abdominal, extraperitoneal ureterolithotomy and by the vaginal route. He thinks that the vaginal method is inadvisable in the majority of cases and that in cases in which the extraperitoneal operation involves too many difficulties (particularly in stout women) only the transperitoneal method remains. The latter method has certain disadvantages. One is the danger of peritoneal infection in case an infection exists; however, the author does not consider this danger grave. Another shortcoming is that in cases in which the juxtavesical calculus is from 4 to 5 cm away from the bladder the uterine adnexa of the involved side are in the way, and some surgeons resort to their extirpation. The author considers this unjustified and describes a method by which he removed a ureteral calculus that was wedged in 4 cm away from the ureteral ostium. He opens the abdomen in the median line or by a suprasymphysial transverse incision. Then he grasps with a strong clamp the round ligament of the side on which the calculus is located and draws the uterus upward and outward. Thus the anterior portion of Douglas' pouch is exposed and occasionally the stone can be felt. Then the vesical peritoneum is opened and the bladder is pushed downward. The peritoneum is pushed aside from the ureter and gradually the stone is reached. The site at which the uterine vessels cross the ureter comes into the operative field. They are not doubly severed but are pushed upward, so that they disappear under the round ligament and the peritoneum. Thus the only vessel that remains in the operative field is the superior vesical artery. If the calculus is large and can be felt it is unnecessary to remove much of the ureter from its surrounding connective tissue. Before the ureter is opened the pelvis is slightly more elevated, and careful tamponade is done. Then the ureter is incised, the calculus removed, the patency of the ureter verified and the wound sutured. The author says that the operation presents no difficulties for any



one familiar with Wertheim's operation. He emphasizes that the operation is intended only for the juxtavesical concretions that are not more than 4 or 5 cm removed from the vesical ostium.

### Klinicheskaya Meditsina, Moscow

13 158 (Jan.) 1935 Partial Index

- \*Determination of Velocity of Circulation in Functional Diagnosis of Circulation. A. N. Berinskaya and T. I. Meerzon—p. 70
- Carotid Reflex of Hering in Pulmonary Tuberculosis. I. G. Gavrilman—p. 76
- Cardiac Stasis in Roentgenologic Demonstration. A. A. Corodetskiy—p. 84
- Effect of Sulphur on Animal Organism and on Hematopoietic System. M. Ya. Tronn—p. 91
- \*Parenteral Administration of Extract of Convallaria Root. B. F. Votchal and Ts. Ya. Kogan—p. 114

**Velocity of Circulation**—Berinskaya and Meerzon studied the velocity of circulation in 162 patients utilizing Leschke's method which consists of a rapid injection in the cubital vein of from 0.6 to 1 cc of a 50 per cent solution of calcium chloride. This is followed in a few seconds by a sensation of heat felt, as a rule first in the tongue and next in the throat, perineum, chest, abdomen, hands and feet. In a group of healthy persons and in patients presenting no involvement of the cardiovascular system the velocity of circulation varied from ten to fifteen seconds the average being 11.5. In a group having compensated cardiovascular lesions the velocity of circulation was from ten to seventeen seconds the average being 12.2. In a group of patients with signs of decompensation the velocity of circulation varied from thirteen to forty-four seconds giving an average of 20.1. The authors conclude that circulatory insufficiency results in slowing of the velocity of circulation and that the greater the decompensation the more pronounced the slowing. Marked slowing of velocity has a bad prognostic significance. Acceleration of the velocity following any therapeutic procedure denotes its effectiveness and suggests a favorable prognosis. The authors point out the following disadvantages of Leschke's method: irritation of the endothelial lining of the vessel by the highly concentrated calcium chloride solution; necessity for rapid injection into the vein which may lead to paravenous spilling and necrosis and possibility of thrombosis.

**Parenteral Administration of Extract of Convallaria Root**—Votchal and Kogan report their results with parenteral administration of a new fluid extract of the root of *Convallaria majalis* in twenty-six patients having decompensated hearts. They state that, although it is almost without any effect when given by mouth, it possesses all the effects of the digitalis group when administered parenterally. Its more rapid effect, shorter duration than that of digitalis, pronounced negative chronotropic effect and insignificant cumulation bring it closer to strophanthin. The same care in dosage must be exercised when giving it as with strophanthin because of rapidly developing signs of intoxication in case of an overdose. While evanescent, the symptoms are those of involvement of the path of conduction of the heart beat and may lead to ventricular fibrillation. The authors recommend hypodermic administration. The maximal dose is 40 frog units. They state that in some of their cases its diuretic effect was greater than that of digitalis or strophanthin. In addition, it has a soothing effect approaching that of a hypnotic state. Because of these properties, it is suggested as a substitute for strophanthin.

### Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

70 1073 1196 (March 16) 1935

- Psychic Disturbances in Weil's Disease. L. Bouman—p. 1078
- Multiple Extragenital Primary Lesions. H. J. T. Hiemcke—p. 1085
- \*Dissociated Skin Reaction. H. D. Boer and F. J. H. Van Deinsse—p. 1094
- Palpable Differences in Rheumatic Muscular Pains and Manual Massage. C. M. Beukers—p. 1103
- Digital Fracture. K. A. Rombach—p. 1112

**Dissociated Skin Reaction**—Boer and Van Deinsse report the clinical and bacteriologic observations on a child aged 8, presenting a dissociated skin reaction. The patient was completely insensitive to human and bovine tuberculin, even in strong concentrations (1:100) injected intradermally. When an intradermal injection of 0.1 cc of a culture filtrate of tubercle bacilli sterilized by heat was administered the patient showed

a marked positive reaction. The citrated blood of the patient cultivated on a Besredka medium gave three times a culture of acid and alcohol resisting strains which were not transferable by inoculation or pathogenic to guinea pigs. Injections of the patient's sputum in guinea-pigs did not occasion tuberculosis in the animals, when, however, the same guinea pigs were later given two injections weekly of an acetone extract of tubercle bacilli, permanent tuberculous lesions appeared. The authors isolated from these lesions several tubercle bacilli cultures with special characteristics similar to those described by Valtis and Van Deinsse (*Compt. rend. Soc. de biol.* 113 847, 1933) and found by these authors in guinea pigs infected with filtrates and treated with acetone extract.

### Finska Lakaresallskapetets Handlingar, Helsingfors

77 170 (Jan.) 1935

- Endo-Urethral Prostatic Resection. L. J. Lindstrom—p. 32
- \*Two More Unusual Complications in Delivery. J. Meyer—p. 46
- Sight Exercises in Crossed Amblyopia and Their Result. S. Stearns—p. 51

**Two Unusual Complications in Delivery**—In a secundipara in whom deep episiotomy was done at the first delivery, the head pressed strongly against the perineum and during a powerful bearing down pain was expelled through the perineum, the body following easily. In a primipara the rectovaginal septum was ruptured during a strong bearing down pain after the buttock had shown itself at the vulva, and the entire right leg of the child appeared through the anal opening. Delivery was spontaneous. The anal sphincter was intact. The place of rupture in the perineum was passable for three fingers. Meyer ascribes the rupture to the unfavorable position of the right leg of the fetus which in the breech presentation had exerted an unequal pressure on the rectovaginal septum during the bearing down pains.

### Hospitalstidende, Copenhagen

78 169 196 (Feb. 12) 1935

- Fulminant Tonsillopulmonary Toxemia in Infancy. L. Heerup—p. 169
- \*Concentration Index of Urea and Its Significance in Surgery. E. W. Gøthgen—p. 181

**Fulminant Tonsillopulmonary Toxemia in Infancy**—Heerup treats of a violent, acute, sporadic or nosocomial infection usually fatal within twenty-four hours, in children less than 18 months of age who have in most cases had several catarrhal infections. Clinically, he says, a septic, hyperpyretic picture without demonstrable focal disorders is seen. Patho-anatomically there is a mild tonsillopharyngitis and a hyperemic edematous change in the lungs. On bacteriologic necropsy (systematic bacteriologic excision of specimens in sterile necropsy with the organs in situ), tonsils and lungs show massive growth of staphylococci, streptococci and pneumococci. In theoretical explanation the author considers the possibility of increased virulence of the microbes resulting from infection transmitted from child to child or (and?) an allergic pulmonary edema due to sensitization with diffuse spread of microbes in the lung tissue, and a violent resorption of toxin from the tonsils and lungs.

**Concentration Index of Urea and Its Significance in Surgery**—Gøthgen considers this index a better indication of the immediate condition after operation than that afforded by determination of the blood urea alone. Proper evaluation of the results calls for repeated examinations. The urea concentration index is the relation of the grams per hundred cubic centimeters of urea in the urine to the grams per hundred cubic centimeters of urea in the blood. In bed patients with normal kidneys the index is about 50. With small diuresis and marked urea formation it may rise to more than 100. Values below 30 are seen only when the diuresis is extremely high. The author finds that after operation there are in patients with previously normal kidneys (1) normal urea in the blood and index of more than 100 in the first period or (2) slightly increased urea in the blood and index between from 50 to 100 indicating a complication, or index of less than 30, pointing to a more serious complication and grave prognosis if the index continues low, or (3) marked increase in the urea in the blood with low index often below 10, showing a grave, often irreparable complication and extremely grave prognosis.



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## PAINLESS JAUNDICE

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The adequate presentation of the subject of jaundice would require a book rather than a short article. I will therefore not attempt, even in outline, to cover the whole subject. Rather as a practical clinician addressing fellow clinicians I will limit myself to one type of jaundice. It is the type in which prompt diagnosis and correct treatment are of the greatest importance. It is also the group in which mistakes are most commonly made. I refer to the jaundice of adults coming on without pain or with relatively little pain. This includes about one third of all cases of jaundice.

Why is painless jaundice in adults particularly important? Because it is vital that as soon as possible the essential decision should be made whether the patient is suffering from a surgical or a medical disease. The decision as to which particular variety of surgical or medical jaundice is of little importance compared to the decision as to whether the case is surgical or medical.

### CLASSIFICATION

In practice the newer classification of jaundice introduced by Rich based on recent researches on the mechanism of jaundice is of less value than the older and simpler classification of McNee,<sup>1</sup> because the latter corresponds to the decision that the clinician is called on to make. McNee divides all jaundice into (1) hemolytic, (2) toxic infectious and (3) obstructive. For the present purposes medical jaundice includes the first two groups, hemolytic and toxic infectious. Obstructive is practically synonymous with surgical jaundice, whether the obstruction is due to stone, carcinoma, stricture or external pressure by a variety of other causes. (This does not imply that all cases of obstruction are cases for immediate operation.)

In the present discussion the subject of hemolytic jaundice will be omitted altogether for the reason that the condition presents so many peculiar features that, when adequate study has been made, the diagnosis is usually easy. It seldom enters into the question of differential diagnosis.

### DIAGNOSIS

In the great majority (from 70 to 80 per cent) of cases of jaundice, diagnosis is made without difficulty at the bedside on the basis of the clinical history. The

difficulty is in the other 20 to 30 per cent of the cases and is due to the well known tendency of all clinical pictures to vary within wide limits. The pain of hepatic degeneration, usually mild or absent, may be severe. Conversely, partial or complete obstruction of the common duct by stone ordinarily very painful, occasionally is painless. While it is true that most jaundice in older persons is obstructive, nevertheless acute degeneration can occur at any age, occasional cases of stone in very young persons are encountered. In this as in most other fields of medicine the word "never" can be used only in the Gilbertian sense. "What never?—Well hardly ever." It is in this sense that the word "painless" in my title should be interpreted.

Unfortunately there is at present no clinical or laboratory method of distinguishing partial or complete obstruction of the bile duct from partial or complete suppression of bile. In each case one has to weigh numerous pieces of evidence in favor of the one or the other diagnosis. A very precise and full history is perhaps more important than anything else. It must be remembered in considering carcinoma involving the bile ducts that gallstones are found in almost a third of the cases, so that a previous history suggestive of cholelithiasis or cholecystitis does not weigh against the diagnosis of new growth. The history of the appearance of the stools is very important. In hepatic jaundice they are white or clay colored for only a short time or for irregular periods. Persistence of such feces over a long period of time points to obstruction by a new growth. The recent occurrence of arthritis or urticaria is somewhat in favor of toxic hepatitis. All the various toxic substances that can be taken or administered must be kept in mind and must be inquired for. Most important of these are arsphenamine, cinchophen, poison mushrooms, carbon tetrachloride (carbena and the like), chloroform, tribrom-ethanol phenylhydrazine, trinitrotoluene, phosphorus. As some of these, and a great many of the rarer chemicals that can cause hepatic degeneration are used in industry, the question of the patient's occupation is important.

Compared with the history, the physical examination of the patient usually contributes relatively little to the diagnosis. The most important positive finding, perhaps, when it occurs, is the well known Courvoisier gallbladder. It is felt almost exclusively in obstruction due to carcinoma of the head of the pancreas or common bile duct. However it is by no means found in all such cases. In fact, it is found in only a little more than half of them. And on rare occasions a similar easily palpable gallbladder may be found in obstruction due to stone. I have seen one such case myself. Nevertheless the Courvoisier gallbladder should always be searched for and evaluated in diagnosis. It has been suggested that when it is searched for and not found

From the Medical Service Mount Sinai Hospital.  
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<sup>1</sup> Rolleston H D and McNee J W. Diseases of the Liver Gall bladder and Bile Ducts ed 3 London Macmillan Company 1929 p 568.

<sup>2</sup> The present discussion is based on an analysis of 100 consecutive cases of jaundice personally observed in the past year. No attempt is made at statistical treatment as this would require a larger series.

large doses of some sedative should be given to produce complete abdominal relaxation. I am not entirely sure of the wisdom of this plan, because in a case that might turn out to be one of toxic degeneration of the liver a large dose of any drug should be given only with great caution. One of the difficulties with the Courvoisier gallbladder is that a tongue-like extension of one of the lobes of the liver sometimes feels so much like the gallbladder as to deceive all observers.

The palpatory features of the liver, whether large or small, firm or soft, smooth or irregular, usually help little in making the differential diagnosis. Distinctly palpable nodules, of course, often point to metastatic carcinoma, which, by involving bile ducts, may become the cause of obstructive jaundice. A palpable mass either in the abdomen or in the pelvis must invariably be sought in an effort to rule out primary new growth of the gastro-intestinal tract. A palpable spleen is very suggestive of hepatic degeneration.

Other features of the examination such as the intensity of the jaundice and its character, whether yellow, green or blackish, are of no practical value. The occurrence of itching likewise does not in the least help to differentiate between obstructive and hepatic jaundice.

#### PHYSIOLOGY OF THE LIVER

In recent years, interest in the fundamental physiology of the liver has been intense. New clinical and laboratory tests have been learned which are collectively of great value in making the special differential diagnosis that interests the physician. However, it must be said at the start that every one of the tests so far introduced occasionally fails the clinician in a critical situation. Also, many of the procedures useful in the study of liver and biliary tract disease without jaundice cannot be applied in the presence of jaundice. Among these last may be included x-ray visualization of the gallbladder and liver function tests by the dye injection methods and by the bilirubin loading method. I shall mention only those of the newer tests which I have found to be of practical value.

The most ancient and simple and, all in all, one of the most important examinations is that of the patient's stools, to determine whether or not any bile is entering the intestinal tract. What is really tested for, of course, is not bile pigment as such but urobilin, the brown pigment of the stool produced by the action of intestinal bacteria on bilirubin. There are several extremely simple clinical tests for this pigment. The mercuric chloride test does not require extraction but takes time, the test for fluorescence after the addition of zinc salts can be done in a few minutes on an alcohol extract of a small fragment of feces. When the stool is gray or distinctly white, the urobilin test is nearly always negative. When it is brown or at least yellowish, the urobilin test is nearly always positive. The examination of the stool should form part of the physical examination of the patient at the first and all subsequent visits. If the patient has not saved a specimen of the stool for the doctor to examine it is nearly always possible to obtain a few particles for inspection by inserting the finger into the rectum.

The second way of answering the same question of whether any bile is entering the intestine is by means of duodenal drainage. This, when successful, has the advantage that the test is somewhat more direct than the examination of the stool. Mere traces of bile pigment are easily recognized by their color in the duodenal contents. When the result is negative, unless fluor-

oscopy has been done on the patient with the duodenal tube in place, one is never sure that the tube actually reached the duodenum. However, drainage that was previously strongly acid and then becomes distinctly alkaline is usually sufficient evidence on this point. The one advantage of the stool examination as compared with the examination of the duodenal contents is that it can easily be repeated every day, while such frequent repetition of duodenal drainage is not only exhausting to the patient but in cases of liver degeneration actually dangerous on account of the temporary starvation involved.

A third way of checking up on the question of whether any bile is entering the intestinal canal is by daily examination of the urine for urobilinogen or urobilin. Complete absence of these substances indicates total acholia of the stools.

The frequent, if possible daily, determination of the question whether any bile or none is entering the gastro-intestinal tract is of particular importance. The mere single determination of the total absence of bile is of little significance. It is only the persistent and total absence of bile over a period of six or seven days or more that is significant. This occurrence is the rule in cases of malignant obstruction of the bile duct, there is an occasional exception, due to secondary ulceration. Persistent acholia rarely occurs in other forms of jaundice. In obstruction by stone and in suppression due to hepatic degeneration, transient absence of bile occurs. But obstruction due to stone is only rarely complete. Usually a little bile does enter the intestine, and the detection of this little is the chief advantage of duodenal drainage. Total absence of bile is common enough in hepatic degeneration and may occur even in instances, such as those of catarrhal jaundice, which run a mild course. However, it is nearly always transient, seldom lasting more than from one to three days (except perhaps in the terminal stages of acute yellow atrophy of the liver).

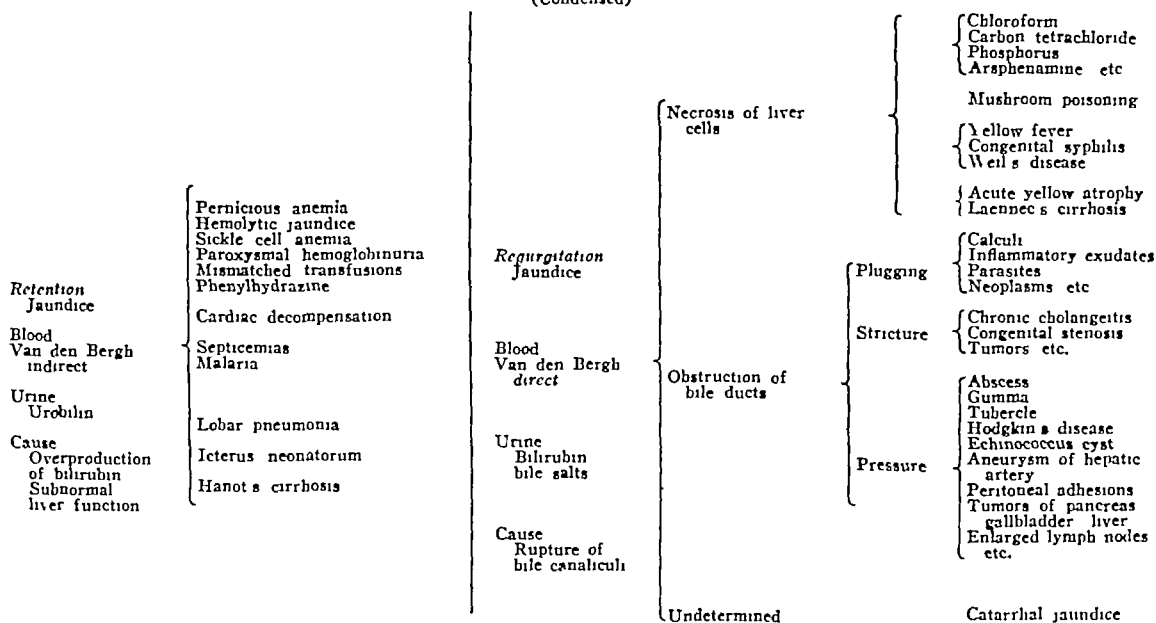
Other features of the examination of the duodenal contents, such as the finding of numerous cholesterol crystals, calcium bilirubinate precipitate, pus cells or bacteria, may occasionally count in the balance in favor of cholelithiasis or of cholangitis but are of relatively difficult interpretation and must be evaluated with considerable caution.

The next clinical test is one which, like the foregoing, should be repeated, if not daily, at least very frequently. It is the determination of the amount of bilirubin in the blood serum or plasma. I say advisedly the amount of bilirubin because the mere determination of the character of the bilirubin, that is, whether the van den Bergh reaction is direct or indirect, is (since consideration of hemolytic jaundice is purposely being excluded) of no value in differentiation, both obstructive jaundice and hepatic jaundice produce the direct van den Bergh reaction.

I will deviate for a few moments from the strictly practical plan of the present paper in order to point out the real value and importance of the determination of whether blood serum gives the direct van den Bergh reaction or only the indirect. There seems to be current the idea that this determination is of very great diagnostic value. It is not—or is only rarely so. But the study of this reaction has come to be of enormous significance in understanding the mechanism of jaundice in different diseases. For it has been quite well established that that bilirubin which gives the indirect reaction only is bilirubin which has been produced by

The determination of the icterus index of Meulengracht<sup>4</sup> is really nothing but finding out how many times it is necessary to dilute the given sample of serum until its color matches that of a standard 1:10,000 potassium bichromate solution. The standard is permanent, and for approximately correct results an elaborate colorimeter is not essential. The determi-

(Condensed)



For the determination of the level of blood bilirubin and even more important of the variation of this level from day to day and from week to week, the icterus index is more accurate than the van den Bergh test. For this reason and on account of its simplicity it is to be preferred. The important practical point for the technic of the icterus index is that the blood serum or plasma must be collected without hemolysis. The normal figure for the icterus index is 5.

In determining the amount of bilirubin in the blood, two different methods are employed. The first, the quantitative van den Bergh test, is done by precipitating the serum proteins with alcohol then developing the

The van den Bergh test as a quantitative method is preferred by some to the icterus index, and the two methods do not always correspond. Thus, since 0.5 mg of bilirubin by the van den Bergh method usually corresponds to an icterus index of 5, 1.5 mg should correspond to an icterus index of 15. (This, parenthetically, is the concentration at which clinical jaundice usually begins to appear.) Three milligrams by the van den Bergh method should correspond to an icterus index of 30, 30 mg to an icterus index of 300, and so on. These exactly parallel figures however are not generally found. Elton<sup>5</sup> has shown the discrepancy to be due not only to the loss of bilirubin in the precipitation of the van den Bergh method but also partly to the fact that bilirubin, which gives the indirect reaction, gives less of the yellow color than direct reacting bilirubin.

Experience with more than a hundred cases has convinced me that in following the course of mild or slight jaundice and especially in detecting so called

growth is more likely to lie between 150 and 250. What characterizes the bilirubinemia of cancerous obstruction is its relative constancy from day to day. It gradually reaches a fairly high level and then stays at about the same level. The high figures from hepatitis tend to be reached more quickly and then either to commence to show recession or fluctuation or to progress to a rapidly fatal issue. In the range of what may be called moderate grades of jaundice, indexes of from 20 to 200 (2 to 20 mg), neither the height of the jaundice nor the character of the curve is of any really differential value.

#### CHOLESTEROL AND CHOLESTEROL ESTERS

Of equal importance with the determination of blood bilirubin perhaps indeed of greater differential value is the determination of the cholesterol of the blood plasma. It is remarkable that the most fundamental clinical facts concerning it known today were discovered in 1862 by Austin Flint<sup>6</sup>. Seventy-two years ago Flint demonstrated that cholesterol is removed from the blood and excreted by the liver in the bile. He showed by chemical analyses of blood that in jaundice due to obstruction of the bile ducts the percentage of cholesterol in the blood increases, while in other forms of jaundice and particularly in acute catarrhal jaundice, this does not occur. In his enthusiasm over his new observations Austin Flint exclaimed "What the discovery of urea has done for diseases which come under the head of uremia the discovery of the function of cholesterol may do for the obscure diseases which may hereafter be classified under the head of cholesteremia." The reason that these important facts were not used by clinicians until recently was that methods such as those now available for the determination of blood cholesterol on small amounts of blood had not yet been developed.

The normal blood cholesterol is about 200 mg per hundred cubic centimeters of blood. With complete obstruction of the bile ducts the level increases greatly, to from 300 to 400 mg or more, and usually remains high until late in the disease, when nutrition fails badly. In partial or intermittent obstruction, as in cases of calculus the increase in blood cholesterol is usually moderate in degree, from 250 to 300 mg. In the various forms of liver degeneration there is usually no increase or only a moderate increase in the very early stage and again in convalescence. In severe liver degenerations there is frequently marked decrease, and this has considerable prognostic importance. I shall refrain in the present clinical discussion from an explanation of these facts because recent physiologic discovery, especially the work of Sperry who showed that about two thirds of the cholesterol of the stool is excreted by the intestine has completely upset the simple conceptions which prevailed until a few years ago. The clinical facts, however, are well established and distinctly useful.

There are a few other causes of increased blood cholesterol besides obstructive jaundice. Of these, the important ones to remember are uncontrolled diabetes and nephrosis.

Aside from the behavior of the total cholesterol of the blood, a new diagnostic criterion of considerable value has been introduced in recent years in the determination of the cholesterol esters of the blood plasma. Since cholesterol is an alcohol, it enters into combination with the higher fatty acids such as palmitic stearic and

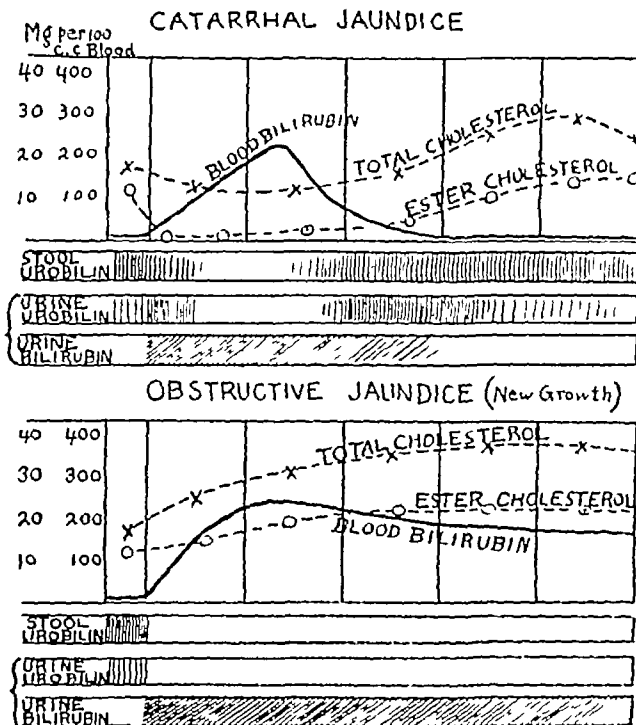


Chart 1.—The difference in behavior of blood cholesterol and cholesterol esters and of urine and fecal urobilin in toxic and obstructive types of jaundice.

latent jaundice, the quantitative van den Bergh method is inaccurate and misleading as compared with the icterus index. If clinicians will look at the blood serum themselves instead of merely accepting a laboratory report, they will easily convince themselves of this.

With regard to the level of blood bilirubin, there are two points to observe, the height to which accumulation of bilirubin in the blood goes and the persistence with which it stays there. Unfortunately, the evidence on neither point is conclusive in separating obstructive from intrahepatic jaundice. Nevertheless when added to other evidence it is of some value. While extremely high icterus index figures 200 or 300 or over can occur both in acute degeneration of the liver and in complete bile duct obstruction by a malignant condition, the highest figures, indexes over 300, usually occur in cases of liver degeneration. An obstruction from a malignant

6 Flint Austin. A new Excretory Function of the Liver, J Am M Sc October 1862

oleic acids to form cholesterol esters. This mechanism probably plays an important role in the absorption of fats from the intestine and in the transportation of fat in the blood. The liver is capable of forming esters by combining cholesterol and fatty acids. The liver also contains an esterase capable of breaking up this combination of fatty acids and cholesterol, this is believed to be responsible for the fact that only cholesterol as such and not cholesterol ester is excreted in the bile. Normally from two thirds to three fourths of the cholesterol of the plasma is in the form of cholesterol esters.

In obstruction of the bile ducts, along with the increase in the total blood cholesterol, there is a parallel although not quite so great an increase in the percentage of cholesterol esters in the blood. In all forms of hepatic degeneration the tendency is for the proportion of cholesterol esters to fall. In mild cases this drop in proportion of cholesterol esters may be only to around 40 per cent. In severe cases the esters often completely disappear or are within the lowest range, under 20 per cent, in which accurate determination by clinical methods now available cannot be made. As the determination of cholesterol esters is rather a delicate one, in which error is easily made, a diagnosis should not be based on a single determination but the analysis should always be repeated and all analyses should be done in duplicate. In the presence of jaundice the persistent absence of cholesterol esters from the blood is grave prognostic evidence, pointing toward serious damage of the liver parenchyma. It is of special value in enabling one to make the correct prognosis early in those occasional cases which commence mildly like simple catarrhal jaundice but which go on ultimately to death from acute yellow atrophy of the liver. Before the introduction of the cholesterol ester determination there was no way of detecting these cases and the physician was usually surprised by the sudden onset of cholemia in what had appeared to be a harmless disease. The return of the cholesterol ester after its absence usually indicates the beginning of recovery. In the late stages of obstructive jaundice when extensive liver degeneration often supervenes to close the scene there may also be a drop in the percentage of cholesterol esters.

While the physiologic explanation of these phenomena is at present very much in doubt, the tendency for the percentage of blood esters to drop in liver degeneration discovered by Thannhauser<sup>7</sup> has been well established as a clinical fact by Epstein<sup>8</sup>.

How much reliance can be placed on cholesterol and cholesterol esters in the diagnosis between obstruction and liver degeneration? They can never be used as a single and specific mode of differentiation in any individual instance. The results always have to be interpreted in the light of the clinical features of the case, when they disagree with these they may lead to doubt but cannot lead to diagnosis. Borderline figures such as 250 for total cholesterol and 40 per cent for cholesterol esters often leave one uncertain. An exceptional case of hepatic degeneration may show high figures. But, on the whole, these determinations are of greater value than any other single test for differentiation. It is always to be remembered that the single estimation must be interpreted with caution and that what is important is rather the tendency in repeated

examinations either for the total cholesterol and cholesterol esters to go up or, on the other hand, for the total cholesterol to diminish (or at least not increase) and the ester fraction to drop disproportionately.

#### THE GALACTOSE TOLERANCE TEST

Of the numerous so-called liver function tests that have been introduced in the hope that they would be of value in recognizing hepatic degeneration, few have stood the test of clinical trial. In spite of its limitations, perhaps the best is the galactose tolerance test. The levulose test is possibly equally specific for the liver but has the disadvantage that urine excretion cannot be depended on and that a blood sugar curve has to be made. The galactose tolerance test depends on the facts that one of the functions of the liver is to convert galactose into glycogen (and ultimately into dextrose) and that the kidney has practically no threshold for galactose, so that as long as it is circulating in the blood some of it is excreted in the urine. In normal individuals Bauer<sup>9</sup> determined that when 40 Gm is

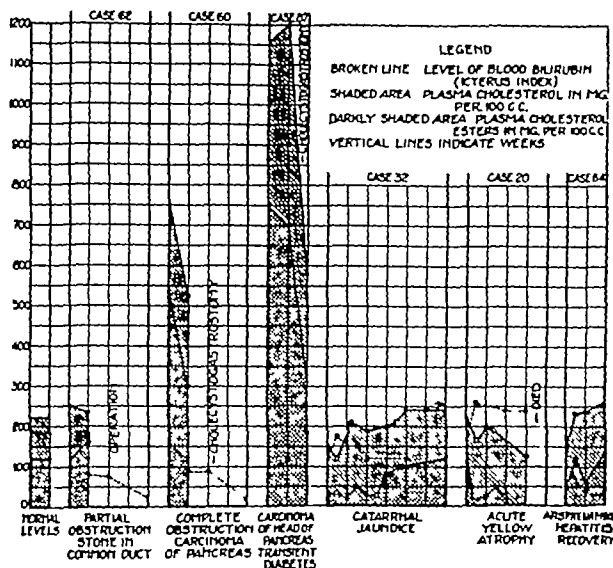


Chart 2.—The relationship of blood bilirubin and cholesterol and cholesterol esters

taken into the empty stomach the liver handles it rapidly enough so that only a small amount, usually less than 1 Gm but always less than 3 Gm is excreted in the urine in the following five hours. In liver degeneration usually amounts larger than 3 Gm are excreted. In obstructive jaundice, as a rule, the behavior of the liver is normal in this regard, although in later stages, when the liver cells undergo severe degeneration, the galactose test may also be positive.

As compared with the reports in the literature, my experience with the galactose test is somewhat disappointing. It frequently fails in cases of undoubted liver degeneration. On the other hand, when diabetes can be ruled out, a positive galactose test usually means hepatic degeneration. The excretion of very large amounts, from 6 to 7 Gm or more, is rather conclusive. But the amount is not necessarily a good guide as to the severity of the degeneration. In doubtful cases the test must be repeated. The practical objection to the galactose test is that galactose is rather expensive. The determination of galactose in the urine is done exactly like the quantitative determination for dextrose. The

<sup>7</sup> Thannhauser S J and Schaber H. Klin Wchnschr 5: 252 (Feb 12) 1926.

<sup>8</sup> Epstein E. Z. The Cholesterol Partition of the Blood Plasma in Parenchymatous Diseases of the Liver. Arch Int Med 47: 82 (Jan) 1931.

only modification is that, because of the greater reducing power of galactose, it is necessary to multiply the result by 0.7

#### TYROSINE

Since the recent studies of Lichtman<sup>10</sup> on the significance of tyrosinuria, the detection and estimation of tyrosine in the urine has become of more value in the recognition of liver degeneration than it formerly was. The new test depends on the fact that tyrosinase, a vegetable enzyme derived most conveniently from the potato, is capable of specifically oxidizing tyrosine to produce a dark brown pigment melanin, which lends itself readily to colorimetric estimation. The reaction takes only a few hours as compared with days needed by the former method of detecting tyrosine. It is enormously more delicate than the old methods. It is sensitive enough to detect traces of tyrosine liberated in any autolytic process in the body, such as, for example, breaking down new growths. In jaundice, when tyrosine is present in small amounts in the urine it suggests subacute liver degeneration or a malignant growth. Large amounts are of grave prognostic significance, pointing to acute liver autolysis. With the new method the finding of small amounts of tyrosine is not necessarily of bad prognostic significance, it may occur in cases of catarrhal jaundice. Positive tests have turned out to have considerable diagnostic value. Negative tests mean little.

#### THE X-RAYS IN DIAGNOSIS

The judicious use of x-rays is of the greatest importance in the diagnosis of silent jaundice. The flat plate of the abdomen, the so-called scout plate, should never be omitted in doubtful cases. It occasionally shows the presence of calcified gallstones.

Among the most difficult cases of painless jaundice in which to make a diagnosis are those of metastatic new growth producing obstruction, partial or complete, by involvement of bile ducts in the hilus or in the liver itself. The diagnosis is usually made only if the primary growth is found, this depends, as a rule, on careful gastro-intestinal studies, especially roentgenograms. The diagnosis is important because this is the one type of obstructive jaundice in which operation is almost always contraindicated. Gastro-intestinal roentgenograms should therefore never be omitted in doubtful cases of jaundice.

#### SURGICAL JAUNDICE

The management of jaundice cases is dependent entirely on the diagnosis. It would be inappropriate for me to discuss the surgical treatment. The medical man, however, should remember the importance of operating on obstructive jaundice early, if possible within the first two weeks after the onset of obstruction. When one waits too long the damage to general nutrition and especially the increased hemorrhagic diathesis make the outlook for surgical success very much poorer.

In spite of the best available diagnostic efforts there are cases of obstructive jaundice in which the diagnosis before operation is uncertain. In many of these the situation is as follows. The preponderance of evidence points to carcinoma of the head of the pancreas or bile ducts, but obstruction by a calculus blocking the bile duct cannot be entirely ruled out. In these cases it is important to explore early. Though the majority of them turn out to be carcinoma even in these there is often the possibility of palliation with relief of the

jaundice for a year or more, by the performance of an anastomosis between the gallbladder and the stomach.

Before turning to the medical management I wish to say a few words about the hemorrhagic diathesis. This is, of course, of greatest interest to the surgeons because postoperative hemorrhage is the commonest cause of death after operations in jaundice patients. The subject is at present in a very unsatisfactory state because no one has as yet discovered the real mechanism of the hemorrhagic tendency in jaundice. In spite of the enormous amount of research that has been done on the subject there is as yet no single test or combination of tests which will tell beforehand whether a given jaundice patient is likely to bleed after operation or not. In fact, the clinical features of the case help much more in forming this opinion than do any tests. In general, patients with prolonged jaundice (three weeks or more) or with very intense jaundice are more likely to bleed. But this is a rule to which there are many exceptions. Actually, the tendency to bleed depends rather on the extent of liver parenchyma damage than on the jaundice itself. The physical examination of the patient for evidence of bleeding, such as ecchymoses and petechiae, is particularly significant. The production of small ecchymoses by pinching the skin or the production of petechiae at the elbow by the application of a tourniquet (blood pressure cuff) is of serious prognosis. The tests for coagulation time, bleeding time, percentage of fibrinogen in the blood plasma, blood platelets, and shortened sedimentation time of the red blood cells are all of significance as pointing to a hemorrhagic tendency when they give clear cut positive indications. But normal tests in the presence of jaundice are no guaranty of safety.

Preservation of the hepatic parenchyma is the important thing in prevention of hemorrhage. Stress should be laid on rapid diagnosis, early operation and protective diet, such as will be described for the non-operative (hepatic) jaundice cases. Of the many other measures that have been introduced, those which have best stood the test of clinical experience are intravenous dextrose injections, intravenous calcium gluconate injections and blood transfusion. It is important in cases in which hemorrhage is to be feared that these measures be carried out not merely before but especially for a considerable period, perhaps up to two weeks, after operation, as late hemorrhage is a frequent cause of death.

#### MEDICAL MANAGEMENT

The medical management of jaundice consists essentially of the protection of the liver and the reduction of its metabolic work to the necessary minimum. On account of the multitudinous vital functions of the liver this is an extremely difficult task. Physicians are only commencing to learn the fundamental principles of it. In the selection of the diet the point on which at present there is almost universal agreement is the value of a high carbohydrate diet. This was gradually introduced after the early work of Whipple, Opie and others showed that livers that contained an abundance of glycogen were far less susceptible to certain toxic agents than livers poor in glycogen. Clinical experience with the high carbohydrate diet has been good. As the result of observing over a period of years cases of yellow atrophy of the liver which came to autopsy, Dr Klemperer has come to the conclusion that since the introduction of carbohydrate forcing the type of cases which end fatally has changed considerably. The patients die at a much later date in the course of the

<sup>10</sup> Lichtman, S. S. and Sobotka, Harry J. *Biol. Chem.* 85:261 (Dec.) 1929. Lichtman, S. S. *Origin and Significance of Tyrosinuria in Disease of the Liver*. *Arch. Int. Med.* 53: 680 (May) 1934.

disease, assuming a subacute rather than an acute type, and they show less complete destruction of the liver parenchyma and much more effort at regeneration than was the case formerly.

The jaundiced patient should receive from 300 to 500 Gm of carbohydrate a day. A considerable part of this should be in the most easily assimilable forms of carbohydrate, such as fruit juices, lactose and dextrose. In most cases there is no reason to believe that digestion by the pancreas is impaired, hence the use of starchy foods is permissible. In cases due to obstruction near the papilla of Vater, the access of pancreatic juice to the duodenum is interrupted and starchy foods should be avoided. In diabetes it is known that insulin favors the deposit of glycogen in the liver, and it has been proposed to administer insulin along with the high carbohydrate diet in jaundice. But except in diabetes there is no good clinical or experimental evidence that this has any advantage, and there are some reasons to think that it may actually do harm.

In patients who do not take their food well or in whom there is reason to believe that absorption is poor, daily intravenous injections of large amounts of dextrose should be carried out. Recently because it is believed that the chemical work of converting lactic acid into glycogen is easier than converting dextrose to glycogen, it has been proposed that 1 per cent sodium lactate be given intravenously for this purpose. This has not yet received enough clinical trial.

Next to the general adoption of the high carbohydrate diet, the avoidance of fat in the diet has become almost universally accepted. The reasons for this are both clinical and experimental. The large amount of fat in the stools of jaundiced patients is evidence that the patient is not absorbing it and that therefore if the fat in the diet does no harm it certainly does no good. Experimentally it has been shown by numerous workers that the presence of a large percentage of fat in the liver cells increases susceptibility to many toxic agents. For these reasons it is desirable to cut the fat in the patient's diet down to the minimum necessary to make the patient's food palatable. In jaundice, most of the fat ingested is not absorbed and is therefore harmless. It is to be regarded rather as something useless. Hence it is not necessary to go to the extreme of refusing the patient all butter, cream and eggs. The important thing is the maintenance of the nutrition of the patient, and if small amounts of these fats are necessary in order to enable the patient to take enough of the more important foods they should be allowed. I stress this point because I have occasionally seen patients put on so one-sided a diet that they were practically in a state of voluntary starvation.

A very large part of the liver's work is concerned with protein metabolism. The liver should be spared as much of this work as possible by the administration of just the minimal amount of protein that the body nutrition requires. This is from 0.7 to 1.0 Gm of protein per kilogram of body weight daily. For an average individual this is generally about 40 to 50 Gm of protein in twenty-four hours. There is probably a difference between proteins. On account of the experimental toxic state that is produced by the administration of meat in dogs with damaged livers there is a suspicion that meat may be harmful in cases of degenerated liver and it should be given sparingly. Preference should be given to proteins derived from vegetable sources, as, for example leguminous foods and to milk, cheese and egg white.

The liver uses the amino acid glycine as a detoxicating agent, coupling it with other substances as in the familiar coupling of glycine with benzoic acid which is then excreted by the kidneys as hippuric acid. It has been suggested that the administration of extra amounts of proteins containing an abundance of glycine (such as gelatin) will help the work of the liver. This seems particularly plausible since the recent work of Quick,<sup>11</sup> who has shown that the ability of the liver to perform this protective synthesis is limited by the amount of glycine available. Gelatin is of course an imperfect food lacking certain other essential amino acids. It should therefore not be depended on for too large a proportion of the patient's nitrogen quota but rather a number of grams, perhaps from 5 to 10 Gm, of gelatin a day should be administered to the patient either as part of his food in the shape of sweetened desserts or in powdered form simply as a medicine.

As the object of treatment is to lighten the enormous metabolic labors of the liver, it goes almost without saying that complete rest, mental and physical, is part of the treatment. Drugs seldom play any role in therapy. The liver is the chief chemical detoxicating organ of the body, and drugs only add to the burden of its activities. The course of cathartic treatment with calomel, Carlsbad salt or epsom salt, which was formerly thought essential, probably does not accomplish anything and is likely to interfere with the patient's nutrition. The same may be said of duodenal lavage with magnesium sulphate, a form of therapy that has been advocated by many. It is a rather exhausting form of treatment and interferes with the patient's nutrition. If the papilla of Vater is unobstructed the patient does not need it, as his food will probably act as a sufficient stimulant to cause the emptying of the gallbladder.

The administration of bile salts and other cholagogues has often been advocated. Recently there has been a good deal of doubt about the value of this also. If the liver is suffering from an acute degeneration and the burden of normal secretory activity is too great, it is hard to see how the stimulation of secretion can help. The use of diuretics in acute nephritis has been given up. On the other hand, if obstruction of bile ducts is causing back pressure and thus injuring liver parenchyma it would seem that an increase of bile secretion would only increase the damage. The claims for cholagogues are based chiefly on cases of catarrhal jaundice, which improved rapidly after their administration but as cases of catarrhal jaundice do this so often without any treatment, the observations are not very conclusive. Views have changed largely as the result of better knowledge of the pathologic changes of catarrhal jaundice and its relation to acute yellow atrophy. In the days when it was thought that all catarrhal jaundice was due to mucus obstructing the bile ducts, it seemed logical to try to increase secretion in order to overcome the obstruction. Now from the work of Eppinger,<sup>12</sup> Klemperer<sup>13</sup> and others it is known that most cases of catarrhal jaundice are merely milder forms of acute hepatic degenerations. It is therefore not thought that the stimulation of secretion is of any importance, but rather that the protection of the damaged liver parenchyma is the vital thing.

11 Quick A. J. *Am J N Sc* 185 630 (May) 1933

12 Eppinger H. *Wien klin Wchnschr* 21 480 1908

13 Klemperer P. Killian J. A., and Heyd C. G. *The Pathology of Icterus Catarrhalis*. *Arch Path* 2 631 (Nov) 1926



## CONCLUSIONS

1 The important diagnosis is between medical and surgical jaundice

2 There is no sure method of distinguishing obstruction from suppression of bile (liver cell injury)

3 Determining whether the van den Berg reaction is direct or indirect does not help

4 The icterus index is preferred to the quantitative van den Bergh test for following the curve of bilirubinemia

5 Extremely high blood bilirubin most commonly occurs in hepatic degeneration

6 High percentages of blood cholesterol and cholesterol esters point to obstruction, but on rare occasions they may occur in hepatic degeneration

7 Low percentage of cholesterol esters points to hepatic degeneration. But a normal or even an elevated percentage does not rule out degeneration

8 A positive galactose tolerance test indicates hepatic degeneration. A normal test does not exclude degeneration

9 In jaundice, tyrosine in the urine points to liver degeneration or malignancy. Large amounts point to acute liver autolysis. Its absence has little significance

10 In every doubtful case roentgen examinations should be made, particularly of the gastro-intestinal tract. Gallbladder visualization is of little or no use

11 In surgical jaundice, early operation is important

12 In medical jaundice, protection of liver parenchyma by a suitable diet (and dextrose injections when needed) is the essential thing

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## ECONOMICAL INTRAVENOUS THERAPY

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A safe, inexpensive, readily prepared and instantly available supply of fluid for intravenous injection is a necessity in every hospital. The problem of establishing such a supply in the Peter Bent Brigham Hospital led to the consideration of the difficulties encountered in other hospitals and the investigation of the available commercial solutions. Since this form of therapy is usually an emergency measure, it is essential to have a source of supply over which the hospital has complete control. Use of a container from which fluid can be administered directly prevents delay, decreases the chance of contamination and centers the responsibility for administration of the infusion. The cost of an intravenous technic that has proved successful as judged by the abolition of reaction, availability to the clinician and economy for the hospital has not been reported.

Deleterious physiologic disturbances, ranging from mere elevation of temperature to chills, cyanosis, diarrhea, nausea, vomiting, collapse and even death, following intravenous infusions of saline solution are due to impure water. Various investigators<sup>1</sup> have considered

as the cause of such reactions individual susceptibility, impurities from chemicals, rubber and glassware, the velocity of injection, and the volume, temperature and hydrogen ion concentration of the solution given. The work of Wechselmann,<sup>2</sup> Seibert<sup>3</sup> and Rademaker<sup>4</sup> established impure water as the chief etiologic agent. Studies conducted in the Peter Bent Brigham Hospital on patients with an adequate cardiac mechanism confirm their observations. Divers concentrations of dextrose in physiologic quantities, ranging from 2 per cent to 25 per cent solutions of dextrose in isotonic saline solution and from 6 per cent to 50 per cent aqueous solutions of dextrose, were administered to patients with no untoward reactions. One liter quantities of 10 per cent dextrose solution were given in ten minutes at temperatures ranging from 20 to 44 C without reaction. As a result, the volume, velocity of injection, temperature and composition of intravenous infusions are left entirely to the discretion of the clinician.

During the year beginning July 1933, 971 consecutive intravenous injections of saline solution, or dextrose in saline solution, were given without an untoward reaction.

A supply of intravenous fluid of good quality can be maintained only by the constant efforts of a responsible person. In this hospital, isotonic saline solution and the apparatus for its administration are prepared in a central supply room by one graduate nurse, supervised by a member of the resident staff. Fresh, singly distilled water<sup>5</sup> is used and a technic aiming at a chemically pure, sterile product is stressed.

## DISTILLATION OF WATER

Distilled water of good quality, evidenced by Carter's test,<sup>6</sup> can be produced in a still constructed to comply with Rademaker's specifications.<sup>4b</sup> In this hospital an old still, which had frequently produced contaminated water, was redesigned at small cost. The reconstructed still, which embodies a steam-heated generator of the continuous type produces steam from city water at atmospheric pressure. The generator is equipped with a deconcentrating tube of 20 per cent capacity (Severinghaus<sup>7</sup>), adequate traps for the prevention of entrainment, and a gas outlet of sufficient size to release approximately 10 per cent of the vapor. The rate of boiling is controlled to keep foaming at a minimum. The steam is reduced in a vertical, water-cooled tinned condenser. The condenser and storage tanks are sterilized daily by live steam and washed by distilling into waste for fifteen minutes prior to collecting the distillate.

## PREPARATION OF SOLUTIONS

The glassware used in preparing the solutions is washed with hot soapy water and rinsed with tap water. It is then filled with a cleaning fluid composed of 10 per cent potassium dichromate in sulphuric acid (10 per cent) and allowed to stand for at least twelve hours, after which the fluid is poured off and the glassware rinsed thoroughly with eight successive small

1 Muller P. T. Ueber den Bakteriengehalt des in Apotheken erhältlichen destillierten Wassers. München med. Wchnschr. 58:2739, 1911. Stokes, J. H. and Busman G. J. Tubing as a Cause of Reactions to Intravenous Injection. J. A. M. A. 74:1013 (April 10) 1920. Keith N. M. Intravenous Medication. *ibid.* 83:1517 (Nov. 16) 1929. Titus Paul. An Apparatus for Regulating the Rate of Flow and Temperature of Intravenous Injections of Dextrose and Other Solutions. *ibid.* 81:471 (Aug. 18) 1928. Titus Paul and Dodds P. The Common Causes and Prevention of Reactions Following Intravenous Injection of Dextrose Solution. *Am. J. Obst. & Gynec.* 14:181 (Aug.) 1927. Perkins A. H. Preventing Dangerous Reactions in Intravenous Therapy. *Modern Hosp.* 38:69 (Feb.) 1932. Committee on Maintenance. New Method of Preparing Solutions for Intravenous Use. *ibid.* 42:98 (Jan.) 1934.

2 Wechselmann. Neuere Erfahrungen über intravenöse Salvarsan Injektionen ohne Reaktionserscheinungen. München med. Wchnschr. 58:1510 1911.

3 Seibert Florence B. The Cause of Many Febrile Reactions Following Intravenous Therapy. *Am. J. Physiol.* 71:621 (Feb.) 1925.

4 (a) Rademaker Lee. The Cause and Elimination of Reactions After Intravenous Infusion. *Ann. Surg.* 92:195 (Aug.) 1930. (b) Reactions After Intravenous Therapy. *Surg. Gynec. & Obst.* 56:956 (May) 1933.

5 Elser, W. J. and Stillman R. G. The Fetish of Triply Distilled Water. *J. A. M. A.* 100:1326 (April 29) 1933.

6 Carter E. B. A Proposed Chemical Test for Pyrogen in Distilled Water for Intravenous Injection. *J. Lab. & Clin. Med.* 16:289 (Dec.) 1930.

7 Severinghaus cited by Rademaker.<sup>4b</sup>

quantities of distilled water. The glassware is then inverted to drain and must be used within two hours or re-cleaned.

Isotonic saline solution is prepared by adding distilled water to 255 Gm of sodium chloride, previously weighed out in a clean flask, until a net weight of 1192 Gm has been reached. The flask is stoppered with a

Both saline and dextrose solutions may be kept at room temperature indefinitely. With planning, however, no solution need be more than thirty days old.

#### PREPARATION OF APPARATUS FOR INTRA- VENOUS INJECTION

To prevent contamination of nonpyrogenic intravenous fluid, the utmost cleanliness of the inside of the tubing, syringes and needles is essential. New rubber tubing and stoppers are treated by a modification of Stokes's<sup>1</sup> technic, being soaked in a 10 per cent

TABLE 1—Cost of Part and Source

No of Part	Description of Part	Price
1	Pyrex flasks 1000 cc	\$0.35 each
2	Pyrex flasks 2000 cc	0.51 each
3	Split ring bracket	0.41 each
3	Stopper stazon HR4 no 7	3.00 dozen
3	Stopper stazon HR4 no 8	8.50 dozen
4	Stopper stazon HR4 style E no 7	3.00 dozen
4	Stopper stazon HR4 style L no 8	3.50 dozen
	(Granite Specialties Co., California)	
5	Glass connector	0.02 each
6	Glass capillary valve	0.02 each
7	Needles nos 19 and 20 by 1 1/4 inches	2.25 dozen
8	Hoffman clamp	0.23 each
9	Kaufmann syringe	2.06 each
10	Rubber tubing no 700 F	0.10 foot
	(Becton Dickinson & Co.)	
11	Aluminum pan	0.03 each
12	Sterilizing cover	0.25 each
	Screw-cap bottles	0.025 each
	Filter paper (Whatall Tatum Co.) 13 inch	0.92 per 100
	Jena fritted glass filter 17G4	5.20 each
	Dextrose O P anhydrous	0.25 pound
	Sodium chloride, reagent quality	0.40 pound
	Merck's and Mallinckrodt's contain least particles late matter	
	Paper flask hoods	1.20 10 gross



Fig 1—Apparatus for intravenous injection in which the fluid is administered directly from the original container

clean rubber stopper and shaken until solution is attained. This stock solution is filtered directly into a 300 cc buret through a Jena fritted glass filter. Twenty-five cubic centimeters of the crystal clear filtrate, containing 6.4 Gm of sodium chloride, is added to approximately 600 cc of distilled water in a graduated cylinder and the volume adjusted to 770 cc. The contents of the cylinder are then poured directly into a 1 liter flask without filtering. The 2 liter flask is filled by diluting 50 cc of the stock solution to 1520 cc. A clean rubber stopper is held in place loosely by a paper flask hood secured with a rubber band. After the flask has been sterilized for twenty minutes at 250 F the rubber stopper is pushed into the mouth of the flask, the paper hood removed and the skirt of the stopper turned down, giving a permanent sterile seal.

The dextrose solution is made by adding chemically pure anhydrous dextrose slowly, with constant stirring to boiling distilled water in a granite-ware container kept especially for this purpose. The solution is diluted with distilled water to produce a 50 per cent solution which is doubly filtered into 50 cc screw-cap bottles the filtrate being returned to the funnel until a crystal clear liquid is obtained. The bottles are capped and autoclaved for fifteen minutes at 250 F.

solution of sodium hydroxide for twenty-four hours, rinsed thoroughly in running tap water and boiled in a 1 per cent solution of hydrochloric acid for one hour. The process is completed by rinsing with distilled water until the rinse water tests neutral to litmus paper, and by drying with the aid of suction. Care must be taken that the solutions run through the tubing continually, otherwise the inner surface, which comes in contact with the intravenous fluid, will not be properly cleaned.

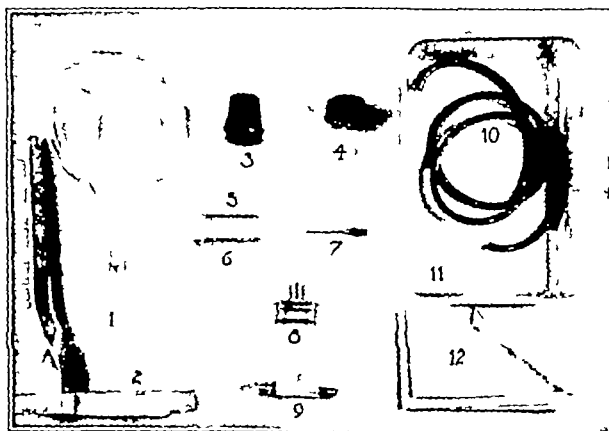


Fig 2—The parts of the apparatus their cost and source when one particular brand is desirable is given in table 1

After use the apparatus is washed with cold water and returned to the supply room where it is cleansed immediately prior to sterilization. All the parts are separated and washed thoroughly with hot soapy water and rinsed in cold tap water for thirty minutes. The inside of the parts must be thoroughly cleaned. The capillary valves and stoppers are wrapped in a single layer of gauze and boiled with the tubing in a 0.5 per

cent solution of sodium hydroxide for forty-five minutes, the alkali running through the tubing continually during the boiling. After the parts are allowed to cool in the solution, the stoppers and valves are rinsed six times with distilled water and distilled water is run through the tubing for thirty minutes. Everything is dried thoroughly on a clean, dust-free sheet with the aid of suction. The Kaufmann syringes and needles are washed in hot soapy water and rinsed thoroughly in distilled water, then dried with acetone and suction. The sets are assembled as illustrated in figure 1, the needles being placed in a 10 by 75 mm test tube plugged with loose cotton. This equipment is placed in

cost \$0.162 each when Kaufmann syringes were used. The substitution of simple glass adapters in place of the syringes would reduce breakage so that sets would cost \$0.095 each, a saving of 41 per cent. These costs were possible even though the monthly demand varied from twenty-nine sets and thirty-eight liters of saline solution to 157 sets and 164 liters of saline solution. Sterile dextrose solution, in 25 Gm bottles, cost \$0.025 each for 5,184 units. The percentage cost charged against labor and supplies is listed in table 2.

The comparative cost of commercial and hospital-made solutions is brought out in table 3, based on charges in Boston.

TABLE 2—Percentage of Costs

Item	Per Cent of Cost
Labor of graduate nurse	40.8
Breakage of needles and syringes	21.5
Chemicals	19.2
Breakage of glassware	1.0
Deterioration of rubber	1.5
Miscellaneous	2.5

a clean aluminum pan wrapped in a double-thickness muslin sterilizing cover and then autoclaved for fifteen minutes at 250 F. If the sets are not used within fourteen days they are considered dirty and reclaimed. Much extra work may be avoided by using the sets in rotation.

#### COST OF INTRAVENOUS THERAPY

An investigation of the cost of the system just outlined has been carried on during the last thirteen months. All items of expense including labor, chemicals, deterioration of rubber and breakage of glassware, have been considered, with the exception of the cost of distillation, sterilization and depreciation of stable equipment. Since the still and autoclaves are run continuously to provide distilled water and sterile goods for the remainder of the hospital it is felt that these items might be considered a negligible expense. The accounting system in use in the hospital does not consider the depreciation of small articles of equipment, their cost being charged only when replacement is required. At the end of the thirteen months period all the equipment was inspected and appropriate charges made for the replacement of worn articles, so that a fair maintenance cost has been established.

TABLE 3—Comparison of the Cost of Hospital-Made and Commercial Solutions

Solution	Hospital Made \$0.0-9	Commercial Cost (1/2 Gross Lots) \$0.49	Per Cent Saved
Isotonic saline solution 1,000 cc.			81.5
10 per cent dextrose in saline solution, 1,000 cc.	0.172	1.21	85.7
50 per cent dextrose 50 cc.	0.025	0.20	87.5
Cost of new sterile intravenous tube and needle set (glass adapter type)	1.07	2.60	58.8
Cost of reclaiming and sterilizing sets	0.063		

The cost of the original equipment and its source, when one particular brand has been found more desirable, is given in table 1. The average cost of 1,123 injections, including the cost of preparing the saline solution and of cleansing and maintaining the equipment was \$0.266 each. The average quantity of saline solution used was 1,150 cc, the extremes being 200 cc and 40,000 cc. The isotonic saline solution itself cost \$0.089 per liter. The cost of a 1 liter infusion of 10 per cent dextrose, including solution and apparatus, was \$0.335. Cleaning the apparatus for injection, breakage and deterioration of rubber for 1,123 units

#### SUMMARY

A technic for the preparation of safe instantly available intravenous fluid administered from the original container and prepared under the complete control of the hospital resulted in a net saving of from 81 to 87 per cent over comparable commercial solutions, with \$0.266 as the average cost of 1,123 intravenous injections of saline solution. The cost of 1 liter of isotonic saline solution was \$0.089 and of 1 liter of 10 per cent dextrose in saline solution was \$0.172.

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#### PURPURA AS A SYMPTOM IN PEDIATRIC PRACTICE

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That purpura is a symptom of diverse causation was appreciated since its first description. In 1735 Werlhof recognized a singular disease picture among a large number of diseases characterized by purpura and called it morbus maculosus haemorrhagicus. Today the disease is known as purpura haemorrhagica, Werlhof's disease, or essential thrombocytopenic purpura. It is a chronic intermittent constitutional condition, characterized by the occurrence of purpura or mucous membrane hemorrhages in previously healthy persons without any apparent cause. The disease as it is recognized today is certainly different clinically from that which Werlhof described. His case was an acute manifestation, occurring in a girl at the time of puberty. Werlhof's original description was as follows:

A grown, strong girl recently got severe nasal hemorrhages at the time of menstruation without known cause. There flowed bright colored but foul smelling blood and at the same time a bloody sputum with thick, very dark blood. At the same time there appeared on the arm spots, partly black, partly violet, blue or purple-red, as one often sees them in malignant smallpox. The rapid loss of strength and the fact that I recognized this as a rare disease with hemorrhages, well known to me forbade a venesection. The hemorrhages from the nose and mouth continued without stopping. The fainting spells and the cold extremities associated with a weak and rapid pulse, demanded an effective intervention, especially since the number of spots multiplied and the whole region of both eyes, the nose and the skin of the mouth and chin were covered with a livid black color. Generally the nasal hemorrhages stopped, the flow of saliva diminished and stopped on the following day, the fainting spells did not return. The spots daily took on a more reddish and then a pale color and disappeared on the seventh day, at which time the pulse had also again reached its normal rate. The strength returned in step with the recovery, even though menstruation did not come at the regular time.

Today the chronic intermittent form is considered the prototype of Werlhof's disease. I greatly doubt

whether the acute form belongs here. The individual attacks in this disease, however, have a great similarity to the disease described by Werlhof. Many years later Willan (1808) described a case of purpura occurring in a woman, aged 36. There was a course of abdominal colic, vomiting and bloody diarrhea, painful and swollen joints and a variety of skin lesions, including purpura, urticarial wheals and angioneurotic edema. Other cases presenting this syndrome in part or in its entirety were reported by other investigators, who also differentiated it from Werlhof's disease. In 1832 Schönlein emphasized this clinical picture under the name of *peliosis rheumatica*, stressed the joint symptoms, and warned against confusing it with Werlhof's disease.

Henoch's report in 1874 revived the interest in this syndrome by elucidating the gastro-intestinal complications. He, too, distinguished such cases from those reported by Werlhof but doubted its rheumatic etiology. At a later date he noted the presence of hematuria and described the complete clinical picture as it is known today. Henoch also recognized purpura complicating infectious diseases and endocarditis, as witnessed by his admonition "you should therefore never fail to examine the heart in febrile purpura." His conception regarding the pathogenesis of other types of purpura is also interesting. In discussing the group which develop independently of a febrile general disease or endocarditis he says

Unfortunately we know nothing of the nature of these morbid conditions, or even of the anatomic causes of the numerous hemorrhages. The old view that it is due to a vice in the composition of the blood can be proved neither by chemical nor by microscopic examination. Nor has the former theory of diminished coagulability of the fibrin been confirmed, and it was therefore natural that the small blood vessels should be held responsible. As the hemorrhage could occur from rupture of the vessels as well as from migration of the red globules through their walls, abnormal friability of the latter was thought of, and, in fact microscopic changes of the small arteries and capillaries which are calculated to produce such a result, have been described by various investigators. Although the occurrence of these changes cannot be denied I think that they can be taken into consideration in severe and fatal cases alone. If we remember how suddenly *morbus maculosus* sometimes develops and how quickly it may disappear, the assumption of any considerable structural changes in the vessels is hardly allowable in such cases and this very fact proves that we have to deal with various conditions in this disease. The severe form depends perhaps on the changes in the small vessels, while in milder cases we may think of a vasomotor neurosis, which gives rise to stasis of blood rupture of the walls of the vessels or migration of red blood globules from paralytic dilatation of the smallest vessels. The complication with slight edema in a series of cases also favors this hypothesis.

These views are interesting with respect to the later advances and might easily be mistaken for a contemporary discussion of purpura. Subsequently writers reported cases representing purpura as a symptom and eventually two schools of thought arose.

1 Those who believed that all purpuric diseases were members of one group and were merely clinical variants of the same hemorrhagic diathesis and belonged together etiologically.

2 Those who believed that the various types of purpura were distinct entities.

In 1881 Brohm reported two cases of Werlhof's disease in which the cells now known as platelets were diminished, and this was correlated with purpuric manifestations. His observation however failed to excite any interest. Two years later Kraus of Brohm's clinic called attention to Brohm's observation and reem-

phasized the possible correlation between platelets and purpura. The diminution in platelets was then stressed as the most characteristic manifestation in Werlhof's disease, although even at this early date Denys, a Belgian pathologist, pointed out that thrombopenia is only a symptom and occurred in other diseases besides Werlhof's disease. However, the subject had just been removed from a period of rationalization and the platelet hypothesis was looked on as a step toward the solution of the etiology of purpura. When Duke published his work in 1910-1912, the importance of thrombopenia in purpuric diseases received another impetus. Duke emphasized that when platelets reached a low level the bleeding time was increased, and that this was an important mechanism in Werlhof's disease.

Clinicians began to recognize other diseases associated with thrombopenia, but in such cases the reduction of platelets appeared to be secondary to the original disease. Classifications of purpura then arose which were based on whether thrombopenia was primary or secondary, or whether platelet involvement was present or not. Werlhof's disease was characterized as essential thrombopenia, and the other diseases associated with purpura and a reduction of platelets were spoken of as symptomatic thrombopenic purpura. Conditions like the Schönlein-Henoch syndrome were described as symptomatic nonthrombopenic purpura.

Within recent years, however, the mechanism of purpura has been subjected to closer scrutiny. One is no longer satisfied to speak of all cases of purpura as hemorrhagic diathesis but attempts to understand the various purpuric conditions by applying anatomic and physiologic methods. Unfortunately, it can hardly be stated that these methods have been entirely successful, but while they have obvious limitations as a means of causal analysis they give an insight in the mechanism by which symptoms may be evolved. These facts considered in the light of sound clinical observation and careful pathologic study have yielded information leading closer to rational thinking on the subject. It is now generally agreed that the two most important factors concerned with the production of purpura are alteration in the number and possibly the function of the blood platelets and changes in function and structure of the blood vessels.

#### BLOOD PLATELETS IN PURPURA

It is generally accepted that the blood platelets are the third formed element of the blood and that they reach the circulation by a process of budding off from the megakaryocyte in the bone marrow. They are capable of liberating a thromboplastic substance when they rupture, and this property is important in thrombus formation and clotting. Normally they are present in the circulating blood in amounts varying from 250,000 to 400,000 per cubic millimeter or about one platelet for every fifteen or twenty red cells. When they reach a very low level the bleeding time is increased, there is deficient clot retraction and stasis or trauma may produce capillary hemorrhages. Because of these facts, thrombopenia is used as one explanation for the development of purpura. The following are some of the premises on which this idea is based.

1 The closure of a bleeding wound occurs by means of a platelet thrombus.

2 Experimentally one can associate purpuric manifestations following platelet reduction.

3 Clinically one often finds the platelets reduced in certain diseases that have purpuric or hemorrhagic manifestations.

The question arises: How intimate is the relationship between deficiency of the platelets and the tendency to purpura and hemorrhage? In most of the work in which platelets have been reduced, experimental agents have been used which also affect the endothelium of the blood vessels (diphtheria toxin, benzene and beef serum). On the other hand, when agents or methods have been used to affect only the platelets, no purpura has been produced. Bedson's experiments illustrate this point vividly. Bedson was able to prepare an anti-platelet serum injection of which resulted in complete absence of platelets yet no purpura or hemorrhage resulted. But if subsequently a second serum was injected, designed to act on the endothelium of the vessels, purpura and spontaneous hemorrhages were noted. Other investigators have corroborated this by using other methods to reduce platelets and like Bedson's experience some other factor besides thrombopenia was found to be necessary.

There are also numerous clinical observations that question the absolute relationship of thrombopenia and purpura. I have observed spontaneous hemorrhages and purpura when the platelet count was high and no hemorrhages and purpura when the platelet count was low. Also there is a decided lack of agreement between bleeding time and platelet count. If one takes the bleeding time in various parts of the body with the same puncture technique when platelets are reduced, one will usually obtain figures that vary within wide limits. Were the bleeding time solely dependent on platelet reduction, this would be a difficult phenomenon to interpret. Numerous examples illustrating this point can be cited.

Finally, the results following splenectomy in Werlhof's disease have led to the premise that thrombopenia is the cause of the symptoms. Splenectomy was first advised because Kaznelson believed that the spleen was removing excessive numbers of platelets from circulation while others felt that the spleen exerted a myelotoxic influence and depressed the platelets at the site of their formation. There is absolutely no reliable proof for either premise in spite of the well known beneficial effects of splenectomy in cases of Werlhof's disease. Platelet counts on the blood from the splenic artery and splenic vein are often cited to prove the thrombocytolytic action of the spleen in Werlhof's disease. The same values may be obtained in individuals without Werlhof's disease. And, finally, there is the fact that the level of the platelet count, after splenectomy does not always parallel the clinical improvement. While there is a rise in platelets immediately after the operation the platelet count may again go down to the preoperative level and yet the patient often remains symptom free. Bedson has come to the conclusion, as a result of his experimental studies, that the blood vessels of spleen-extirpated animals present a particular resistance. This experimental work on the effect of resistance of blood vessels following splenectomy is promising but also needs further study.

The apparent conflicting data that I have briefly summarized force the assumption of some other factor besides thrombopenia in order to explain spontaneous purpura and hemorrhage. The facts appear to be that platelets have a protective action against the spontaneous occurrence of purpura and hemorrhage but their absence is not the direct cause for such bleeding. The primary cause must be another factor. When this

factor is absent hemorrhage will not occur whether platelets are reduced or not. When this factor is present, the function of platelets is to act as a protection and condition the severity of the bleeding. This may be achieved partly or completely. The vascular factor will fulfil this role, but one must not go too far in looking at thrombopenia as a secondary matter. The regularity with which thrombopenia is found in Werlhof's disease and other diseases associated with purpura indicates that thrombopenia is probably as important a symptom as capillary alteration. The connection between capillary damage and thrombopenia may be reciprocal and the symptoms may follow a common insult.

The insults that may lead to purpura and hemorrhage are so numerous and their effects so diverse that one can say nothing uniform at the present time regarding their pathogenesis. All are familiar with the conventional classifications of purpura, so that it will not be necessary to discuss that here. No classification, however, seems to exhaust the possibilities of nature. In those diseases in which purpura is obviously symptomatic of vascular injury or bone marrow damage, the pathogenesis is understandable. Therefore I do not believe it will be necessary to discuss the purpuric symptoms following scurvy, infectious diseases, toxic agents, endocrine disorders, diseases of the blood forming organs, and cachectic states. In these conditions purpura is a well recognized manifestation and its genesis can be traced. Eliminating Werlhof's disease from the discussion leaves the Henoch-Schönlein syndrome.

#### THE HENOCH-SCHÖNLEIN SYNDROME

In my opinion this condition appears in pediatric practice more frequently than is recognized and its clinical manifestations are so diverse that there is failure to get a comprehensive grasp of the basic mechanism at work. Its diversity may be due to the fact that etiologically one is not dealing with a disease unit. There is fair clinical evidence that the syndrome is conditioned by the constitution and reaction of the organism and that the same functional or anatomic changes are not always produced in every case. To speak of this group as anaphylactoid purpura or capillary toxicosis is to ignore its variable clinical picture. Undoubtedly many cases are found in allergic individuals or in those in whom capillary toxicosis may be surmised but the etiology is by no means uniform.

The occurrence of the purpura in this syndrome is merely as a facultative symptom and it does not represent the essential part of the underlying pathologic condition. In Werlhof's disease the purpura and mucous membrane hemorrhage dominate the clinical picture and the patient appears to be well except for this. If symptoms develop in patients with Werlhof's disease they are attributable to the location of the purpura or hemorrhage or to the anemia developing from blood loss. On the other hand, the patient with the Schönlein-Henoch syndrome may or may not have purpura with every attack, and definite visceral manifestation not related directly to purpura ushers in an attack. This was appreciated quite early in the history of this syndrome but because of our propensity for classification the Schönlein-Henoch syndrome has always been dominated by its most variable symptom, purpura. Variation in the type of cutaneous changes and variability of the visceral manifestations occur

often enough in individual cases to justify the assumption that in such cases one is dealing with some general process and not with a static dysfunction

There is enough experimental and clinical evidence of this disturbance to warrant a broader clinical perspective and not the mere grouping under the classification of nonthrombopenic purpura. Henoch, in his first descriptions, as already noted, called attention to the possibility of a vasomotor neurosis underlying the change, and Sir William Osler grouped such cases under the title of "Visceral Complications of the Erythema Group." From the years 1895 to 1914 Osler published a series of papers calling attention to the fact that various skin lesions of the erythema multiforme group occur in association with general disturbances and that the exact form of skin lesion or visceral manifestation may vary from time to time in the same individual.

In Werlhof's disease the main cause of the purpura and hemorrhage seemed to be assigned to a coordinated dysfunction of platelets and a local vascular factor. This cannot be postulated for the present group under discussion. Platelet counts are normal, as are the bleeding time and clot retraction. The formed elements and plasma constituents concerned with the clotting process appear to be normal in every respect. The underlying cause in this group appears to reside in the small vessels, resulting in a focal change. Comparable symptoms appear after the ingestion of certain food in allergic individuals or after the injection of serum or the ingestion of drugs to which the patient may have an idiosyncrasy, but there is no justification for speaking for the entire group as anaphylactoid.

Similarly in the usual classifications there is a tendency to pick out cases with like features and group them as clinical entities, such as Schönlein's purpura when associated with joint symptoms, and as Henoch's purpura when associated with gastro-intestinal symptoms. However, if one carefully studies such cases one will see that attacks will recur with such a variation in skin lesions and visceral manifestations so as to overthrow completely the grouping to which the first attack was assigned.

Henry Christian stated the problem exactly when he wrote

It seems to me that the subject is somewhat clarified by looking on all of these patients as having a common focal disturbance that allows for various types of exudation giving skin lesions of different appearance depending on the relative proportions of serum, red cells, white cells and tissue reaction and visceral lesions of different sorts depending on the site and character of the visceral vascular lesion. This conception would explain the varying skin lesions, now with arthritic symptoms now with abdominal pain, and now with hematuria etc. in all sorts of combinations.

The mechanism of the symptoms is usually assigned to vascular dilatation and exudation sequelae of serum or formed elements. Thus intestinal colic is explained on the basis of exudation of serum or blood in the bowel wall. Operation has been performed in cases showing such changes as acute surgical emergencies and the foregoing conditions have been found. Incidentally, one often reads of the necessity of differentiating such cases from intussusception but intussusception may occur in such cases and should be treated as an acute surgical emergency when classic signs are present. Serous exudate in the knee joints is used to explain the arthralgia and pains in the legs.

#### VASCULAR DILATATION AND CAPILLARY PERMEABILITY

The question naturally arises, What objective evidence is there for vascular dilatation and how are vascular dilatation and increased permeability brought about? Müller observed that the skin capillaries in cases of the Schönlein-Henoch syndrome are dilated, lengthened and distorted. This is not found in Werlhof's disease. Frank believes that the condition is a transudative-exudative diathesis with a facultative hemorrhagic character, and purpura in the Henoch-Schönlein syndrome is only a secondary manifestation, which develops in a primary erythematous or urticarial lesion. The basis of the clinical manifestations, whether in the skin, gastro-intestinal tract, kidneys or joints, is an alteration of capillary function, which may produce all the transitional stages between hyperemia, edema, purpura and a true inflammatory response. Clinically, all transitions are seen from melena to a true colitis, from albuminuria and hematuria to a true hemorrhagic nephritis, and from arthralgia to a true serous involvement of the knee joint.

Regarding the mechanism of vascular dilatation and changed permeability, the experiments of Dale and Laidlaw are illuminating. These investigators injected a cat intravenously with histamine and produced capillary changes analogous to those seen clinically in the Schönlein-Henoch syndrome. They were therefore of the opinion that histamine produces a condition resembling traumatic or anaphylactic shock, with marked accumulation of blood in the peripheral capillaries and increased viscosity of the blood due to leakage of the plasma from the capillaries into the tissues. If the vessel permeability is carried still farther, diapedesis of cellular elements may take place. Serum sickness, as well as histamine injection also presents points of similarity to the clinical picture of the Schönlein-Henoch syndrome. Cases of food allergy presenting a comparable picture have been seen by many clinicians and in spite of negative skin tests often the removal of certain articles from the diet results in a relief of symptoms. Glanzmann concludes that the Schönlein-Henoch syndrome is an anaphylactic phenomenon on the basis of such data, but it is his opinion that the initiating factor is a foreign protein derived from bacterial infection. The introduction of this foreign protein causes the liberation of an anaphylatoxin, which acts as a capillary poison by affecting the vasomotor mechanism.

Unquestionably there are instances of purpura that fit the experimental and clinical facts I have just mentioned, but such a sweeping generalization for all cases presenting the Schönlein-Henoch syndrome seems ungrounded in fact. It seems more reasonable to assume that since a derangement in the vascular permeability is the underlying dysfunction, anything which can produce this derangement can call forth the syndrome in some or all of its phases. It is my belief, however, that the present account of the pathogenesis is only part of the story. It is true that patients with purpura of this type do show capillary changes like those described by Müller, during their attacks, and many of the clinical manifestations are associated with vascular dilatation and increased permeability. Yet these changes do not explain the early symptoms presented by patients with the Schönlein-Henoch syndrome.

While there is ample evidence of vascular dilatation and increased permeability of the vessels in the fully developed case, the question should naturally arise as

to how such changes are initiated. To ignore this question is to miss a very important clinical aspect of the patient and a very important mechanism by which many if not all the symptoms may be produced. I do not mean to imply, however, that this very complex clinical picture is as simple as I shall outline it. The human body has at its command such a variety of reactions that in many instances standardized descriptions are merely half truths. If, however, one studies the patient and then his symptoms, one is more likely to understand his illness.

Often these children are pale in appearance and yet one is surprised when one examines the hemoglobin content of their blood. They are seldom markedly anemic and the implication is that the pallor is of angiospastic origin. At another time such a patient may be flushed and appear plethoric. Minor disturbances of one sort or another characterize this group, varying from complaints related to the gastro-intestinal tract to vague pains in the legs and headaches, symptoms that are seemingly intangible and common in every household. How much of this falls within the normal is not known. When however such symptoms increase in frequency and magnitude they begin to be a source of concern to the parents who, if economic conditions permit, consult their physicians. A routine examination usually fails to establish definitely the underlying cause of the complaints although the parents seldom leave the office without some definite advice which the physician did not learn as a result of his scientific training. Such patients are seldom seen in institutions or dispensaries of charity clinics early in their life history. They are seen only when the symptoms persist long enough to produce a definite dysfunction. One of the clinical manifestations may be the Schönlein-Henoch syndrome but more often the symptomatology remains obscure with indefinite disabilities, vague pains and transient symptoms which are referred to various organs. These individuals range from the pole of normality and organic well being through periods when there is subjective perception of organic discomfort and objectively demonstrable disease.

In the average case the basic mechanism is difficult to surmise. The disease is usually of short duration and the patients are seldom brought in early. The self-limited character of the attacks further adds to the difficulty. It is only when such attacks recur or persist that one can get some idea of the underlying mechanism. The onset is usually characterized by headache, dizziness, anorexia, lassitude and pains in the legs or abdomen. At this time no exudative features are present but, instead if one looks at the skin capillaries by means of a capillary microscope one will usually find them contracted in spasm. Later, however, varying from a few hours to a day, the classic picture of the syndrome develops.

It is customary to regard the blood supply to tissues as uniformly adequate unless gross pathologic disturbances exist. The assumption is made that in all normal individuals all tissues are adequately supplied. Clinically, the possibility of regional or organ inadequacy of vascular function is seldom considered unless the clinical manifestations are obvious, as in Raynaud's disease or related disturbances. As a matter of fact, variation in oxygen supply is probably one of the most common events and dysfunction or inadequacy of the mechanism that has to do with oxygen supply is probably fundamentally related to a large number of clinical symptoms.

This phase of the subject is involved and, in order to obtain an accurate picture of what is constantly going on, a large number of reactions must be assessed. However, there is reason to believe that consideration of the functional and organic changes of the capillaries in various parts of the body will lead to the focal point of the whole problem. The normal rhythm of blood supply to the tissues is maintained by stimuli derived from tissue metabolism, the vasomotor mechanism, and endocrine secretions. When this rhythm is altered and there are periods of prolonged vasoconstriction and tissue anoxia, the subsequent phase of correction by vasodilatation may be attended by symptoms. Eugene Landis of Philadelphia has recently shown, however, that capillary dilatation is not accompanied by increased permeability, as measured by protein loss, unless there is oxygen lack. Thus, in spite of the theoretical stretching of the walls of the smaller vessels, permeability does not definitely change until the endothelium is altered.

#### PERMEABILITY OF ENDOTHELIUM

The agents that alter the endothelium may be as varied as the etiologic factors that invoke the Schönlein-Henoch syndrome. Whether the endothelium will be functionally altered or structurally changed appears to be a matter of degree with which the various agents act and the state of the endothelium at the time the various factors are operative. Likewise, whether increased permeability will result directly by primary endothelial damage or secondarily through the mechanism of anoxia will depend on the intensity of the stimulus and the resistance of the endothelium. The previous state of the endothelium probably plays an important role in conditioning the response. Thus, Tidy quotes a case in which an elastic bandage was advised for a pain in the knee. Subsequently purpuric manifestations developed in every part of the skin surface except under the area of skin covered by the elastic bandage.

In general, the factors concerned with the permeability of the endothelium may be enumerated as follows:

1 *Hereditary Factors*—It has often been observed that the same stimulus applied to a group of normal individuals will result in many types of responses with regard to endothelial permeability. There is also a distinct tendency of members of the same family to show similar reactions.

2 *Environmental Factors*—It would be of interest to know the incidence of the Schönlein-Henoch syndrome according to geographic distribution, as there is a distinct tendency for patients to have their attacks in the spring, fall and winter months. Whether the changes are conditioned by meteorological influences, presence or absence of adequate exposure to ultraviolet rays, or other factors inherent in a given environment is not known definitely. William Petersen, however, has shown a definite correlation between permeability and meteorological changes in his recent monograph on "The Patient and the Weather."

3 *Allergic Factors*—These may be hereditary or acquired. The hereditary group is exemplified by the allergic individuals who respond with symptoms of increased permeability to substances ingested or applied externally. Thus there is definite evidence of the familial incidence of allergy to food and drugs. Likewise the individual may acquire allergy, as for example by repeated injection of horse serum, and react in the same manner.

4 *Vasomotor Factors*—The fact that many allergic reactions cannot be passively transferred indicates that

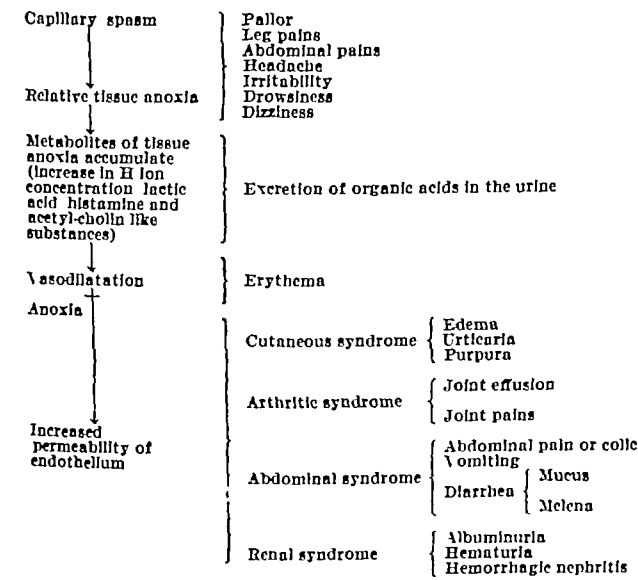


changes in permeability may be initiated through the mediation of the vasomotor system. This is represented by those individuals with dermatographism, angioneurotic edemas and allergy to cold, heat and sunlight.

**5 Endocrine Factors**—While very little is accurately known of these factors, the increased permeability during the menstrual cycle is familiar. Edema, urticaria and purpura are often observed. Likewise, the increase in permeability in hyperthyroidism and the decrease in hypothyroidism has been demonstrated. Petersen has shown that the blister time is decreased in hyperthyroidism and increased in hypothyroidism. Both conditions may be returned to normal values by appropriate treatment.

**6 Hygienic and Dietary Factors**—The effect of fatigue on permeability is well known, as are the effects of malnutrition. Since the discovery of the chemical nature of vitamin C it is now possible to measure quantitatively the amount of deficiency required to produce endothelial alteration. Recent work indicates that when the amount of cevitamic acid excreted in the urine drops below 4 mg. in twenty-four hours, permeability of the endothelium is increased and this can be definitely demonstrated by the capillary fragility test.

**7 Oxygen Lack**—Whether tissue anoxia is produced by general or local factors, the permeability of the endothelium is usually altered. The two factors may be at work simultaneously or they may function independently. Anoxemia resulting from severe anemia, stasis and other factors may reduce the amount of oxygen that is supplied to the endothelial cells. Capillary spasm is an important local factor in the production of tissue anoxia. The spasm may result from the effect of toxic agents, alkalosis, disturbed ionic balance resulting from either an increased potassium or sodium or decreased calcium or magnesium content of the serum, and vasomotor imbalance resulting in unduly prolonged vasoconstriction.



While probably all the factors mentioned may play a part in the etiology in the Schönlein-Henoch syndrome, the sequence of events may be graphically presented, as above, as one possible mechanism by which the classic clinical picture may be evolved.

The rapidity with which some changes in the permeability occur seems to point to the possibility that

capillary spasm with resultant anoxia is not always a necessary stage and that direct endothelial damage may sometimes be the underlying mechanism. In other words, each case must be carefully studied if a comprehensive understanding of the pathogenesis is to be obtained.

In this discussion I have attempted to present the subject of purpura as a symptom in the practice of pediatrics. The more carefully one studies patients with purpura, the more one realizes that only a broad clinical perspective will lead to an understanding of its diverse causation and pathogenesis. While one of the most tragic things in medicine is the slaying of a beautiful theory by an ugly fact, it is justifiable "homicide," for, after all, facts are the basis for rational thinking.

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## THE SYNDROME OF THE ANTERIOR CHOROIDAL ARTERY

### REPORT OF A CASE

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The syndrome of the anterior choroidal artery consists of a hemiplegia, hemianesthesia and hemianopia contralateral to the side of the lesion in the central nervous system. The syndrome is quite rare, and reports in the literature, especially in the English literature, are meager. Abbie<sup>1</sup> has reported a case from the service of Dr. Ivy McKenzie and has contributed excellent anatomic studies on the distribution of the vessel. Proved cases of occlusion of the anterior choroidal artery have also been reported by Kolisko<sup>2</sup> (two cases), Ley,<sup>3</sup> Schuff-Wertheimer<sup>4</sup> and Poppi.<sup>5</sup> No anatomic studies were made in the case reported by Austregesilo and Borges Fortes.<sup>6</sup>

The areas of the brain supplied by the anterior choroidal artery have been investigated by Beevor,<sup>7</sup> Fox,<sup>8</sup> Abbie<sup>9</sup> and others. The artery arises directly from the intracranial portion of the internal carotid artery lateral to the origin of the posterior communicating artery and medial to the origin of the middle cerebral artery. It crosses beneath the optic tract medially and in its posterior course sends branches through the optic tract into the internal capsular region and branches laterally to the amygdaloid nucleus and to the choroid plexus in the temporal horn of the lateral ventricle. The terminal branches pass posteriorly to the region of the lateral geniculate body. Here they join

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1 Abbie, A. A. The Blood Supply of the Lateral Geniculate Body with a Note on the Morphology of the Choroidal Arteries. *J. Anat.* 67: 491-521 (July) 1933.

2 Kolisko, A. Ueber die Beziehung der Arteria choroidea anterior zum hinteren Schenkel der inneren Kapsel des Gehirnes. *Wienna* 1891.

3 Ley, J. Contribution à l'étude du ramollissement cérébral. *J. de neur.* et de psychiat. 32: 785 (Nov.) 895 (Dec.) 1932.

4 Schuff-Wertheimer, S. Les syndromes hémianopsiques dans le ramollissement cérébral. *these de Paris* Doct. 1926.

5 Poppi, Umberto. La sindrome anatomo-clinica conseguente a lesione dell'arteria choroidea anteriore. *Riv. di neur.* 1: 466-475 (Dec.) 1928.

6 Austregesilo, A. and Borges Fortes, A. Syndrome de l'artere choroïdienne antérieure. *Rev. sud-am. de med. et de chir.* 4: 93-100 (Feb.) 1933.

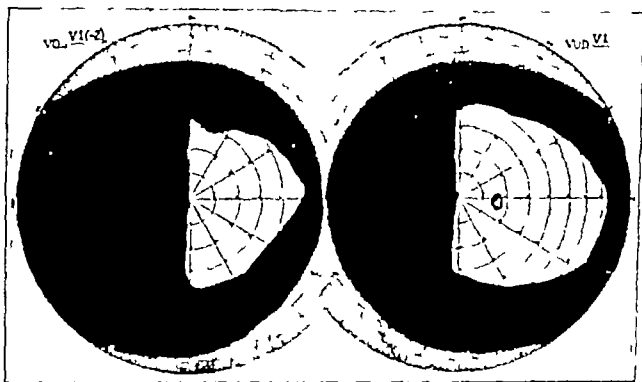
7 Beevor, C. E. The Cerebral Arterial Supply. *Brain* 30: 403-425, 1907.

8 Fox, Charles. cited in a review of his school by Walter Misch. *Zentralbl. f. d. ges. Neurol. u. Psychiat.* 53: 673-691 (Sept. 15) 1929.

9 Abbie, A. A. The Clinical Significance of the Anterior Choroidal Artery. *Brain* 56: 233-246 (Sept.) 1933.

branches from the posterior choroidal and the posterior cerebral arteries. Abbie has emphasized that the terminal field of supply is not only the least affected by anatomic variations but also of the greatest clinical importance. This terminal field of distribution includes the posterior two thirds of the posterior limb of the internal capsule, most of the globus pallidus, the lateral aspect of the external geniculate body, the beginning of the optic radiations and the middle third of the crus cerebri. It is easily understood from this distribution that the involvement of the posterior portion of the internal capsule can, if damaged, produce contralateral hemiplegia and hemianesthesia. Likewise the involvement of the optic radiations and lateral geniculate body accounts for the hemianopia to the opposite side. The rest of the field of distribution is overlapped by other vessels and does not affect structures that give rise to clinical symptoms. A pathologic process of any type that causes an occlusion of the vessel giving rise to an ischemic softening in the terminal field offers the ideal mode of production of the syndrome. It may occur as a part of a spontaneous subarachnoid hemorrhage in a young person illustrated by the following case.

**History**—J. S., a schoolboy, aged 17 years, admitted to the Cleveland City Hospital Aug. 16, 1933, because of paralysis of



Restriction of the visual fields with a homonymous hemianopia to the left. A 2 mm. white disk was used as a test object.

the left side, had been seized with a sudden severe cutting pain in the right eye two days before, while playing ball in the street. The pain was so severe that he had to lie down on the grass. In a few moments he went home, a short distance, and on arrival noticed that the left arm was weak. After lying down for about an hour he attempted to walk but fell to the floor because of weakness of the left leg. On attempting further activity he became dizzy, nauseated and unconscious for a short time. This was followed by projectile vomiting. The family physician was called and on examination discovered a left hemiplegia and hemianesthesia. He sent the patient to the hospital.

There was no history of any severe illnesses. At the age of 2 years the patient fell out of a second story window but made an uneventful recovery in a local hospital. When he was 10 years old a sudden severe pain developed in the right eye similar to that in the present illness. This was followed by severe headache but no other symptoms, and recovery occurred in a few days. Eight weeks before the present illness he received a hard fall from his bicycle and struck his face over the right malar bone. After this he had a severe headache but no pain in the eye.

The family history was essentially unimportant.

**Physical Examination**—The patient was well developed and nourished but was obviously very sick. He appeared apathetic and moderately drowsy. He complained of a severe headache and pain in the right eye. The neck was rigid with evident signs of meningeal irritation. The temperature varied between

39 C (102.2 F.) and 40 C (104 F.). Physical changes exclusive of the central nervous system were not remarkable. The left arm and leg were very weak, and there was a left supra-nuclear type of facial palsy. The tendon reflexes on the left side were in shock and abdominal or cremasteric reflexes on that side could not be obtained. Plantar flexion was weak when the left sole was stroked, but the Babinski sign was not present. The pupils reacted to light and there was no choking of the optic disks. A left homonymous hemianopia was present. Sensation of the left half of the body was diminished to light touch and pain. The blood pressure was 110 systolic, 65 diastolic, and the pulse was 56 per minute. A lumbar puncture revealed a uniformly bloody fluid on two occasions, but the fluid was under no increased pressure. The blood Wassermann reaction was negative and the urine was normal.

**Course in the Hospital**—The temperature curve subsided to normal in an irregular fashion in ten days. The patient began to improve in a few days after entering the hospital, and a more complete neurologic examination was made on the seventh hospital day. The tendon reflexes on the left had become hyperactive, and there was an ankle clonus. The abdominal and cremasteric reflexes were absent. The extremities showed less weakness but a little rigidity on the left. The left arm was ataxic. The Babinski sign was not present. Examination of the cranial nerves revealed the following observations. The left pupil was larger than the right (Behr's sign in hemianopia). The pupils were round and regular and reacted well to light. Accommodation was weak in the right eye. The optic disks appeared normal. There was no palsy of the extrinsic ocular muscles. The left homonymous hemianopia was unchanged. There was a region surrounding the right eye in the distribution of the first branch of the trigeminal nerve that was hyperesthetic to pin prick and light touch. The supranuclear palsy of the left facial musculature was unchanged. There was no alteration of the hemihypesthesia of the left side.

There was a gradual return of strength of the left arm and leg, the arm showing more recovery than the leg. Pain in the right eye persisted for two weeks. At the time the patient was discharged from the hospital one month after admission, the hemianopia and hemihypesthesia were unchanged.

**Subsequent Examinations**—The neurologic examination was repeated three, six and ten months after the onset of illness. There has been no change in the manifestations for the past four months so that the residual changes may be briefly cited. The hemianopia is complete for all test objects and has been unchanged for six months. The medial side of the left optic disk shows a moderate degree of pallor. The left pupil still is larger than the right but reacts well to light and in accommodation. The left arm and leg show practically normal motor power, although the tendon reflexes are quite brisk and the left cremasteric and abdominal reflexes are still absent. The facial weakness has disappeared. The patient drags the left foot slightly in walking. Plantar flexion on the left is weak and a fleeting Babinski sign is present at times. The left half of the body shows only a slight hypesthesia but this is present to all qualities of sensation especially in the left leg. A disagreeable painful overresponse is obtained by pin prick stimulation of the sole of the left foot.

#### COMMENT

The spontaneous subarachnoid hemorrhage gave rise to the syndrome that was present shortly after the onset of the illness as well as to the fever and signs of meningeal irritation. The pain in the right eye was probably due to the irritating effect of the blood in the subarachnoid space on the ophthalmic branch of the trigeminal nerve. It is interesting that pain in the right eye followed by headache had occurred seven years previously but had not been followed by other symptoms. This may be interpreted as evidence of leakage from a defect in the vessel wall, which gave rise to the present symptoms. Collier<sup>10</sup> has recently emphasized that subarachnoid hemorrhages occurring in young sub-

10. Collier, James. Cerebral Hemorrhage Due to Causes Other Than Arteriosclerosis. *Brit. M. J.* 2: 519 (Sept. 19) 1931.

jects free from hypertension and other vascular diseases are usually due to the rupture of small "berry" aneurysmal defects in the wall of the small cerebral vessels. These defects are prone to occur where the vessels branch. They ordinarily produce no symptoms unless they adhere to nerves or other structures or unless they clot, calcify or rupture. They have a tendency to rupture slightly, leak slowly and then heal, only to rupture again and give rise to recurrent symptoms. The anatomic studies of Beitzke,<sup>11</sup> Marburg,<sup>12</sup> Tuthill<sup>13</sup> and many others tend to support these views.

The question of the relationship of trauma, which occurred two and one half months before the cerebral insult, is of doubtful significance. Eck<sup>14</sup> is of the opinion that trauma may produce defects in the blood vessel wall which later become multiple aneurysms. He thinks that these rupture and are the basis of late apoplexy after trauma. If the interval between trauma and hemorrhage is more than three months, the traumatic origin of the hemorrhage is unlikely, according to Harbitz.<sup>15</sup>

The clinical picture in simple occlusion of the anterior choroidal artery is variable, depending on the site of occlusion. When hemorrhage occurs, as in this case, the analysis is even more complex, because of the factors that pressure, ischemia and edema play in the process. The clinical facts indicate that the maximum damage was done in the region of the lateral geniculate body and the area in which the optic radiations begin. The area of the most posterior portion of the internal capsule was involved in the process to a lesser extent. Although it is conceivable that any of the small tributaries from the posterior cerebral artery or the anterior choroidal artery which penetrate the lateral geniculate body could be the source of the hemorrhage, the most reasonable explanation of the clinical picture would be to assume that a rupture of the anterior choroidal artery itself occurred near the anterior pole of the lateral geniculate body. Here some of the branches that penetrate into the internal capsule would be spared since they branch off farther anteriorly, yet a part of the posterior limb of the internal capsule and the lateral geniculate body would be deprived of blood. The infiltration of blood into the subarachnoid space could produce an irritating effect on the ophthalmic branch of the fifth nerve and thus explain the entire clinical picture.

Another question that arises is whether this symptom picture could be produced by lesions resulting from the occlusion of other cerebral vessels. The studies of Charles Foix<sup>8</sup> and his school show that hemianopia due to a lesion of the right sylvian artery is accompanied by a monoplegia of the arm or a hemiplegia predominating in the arm. The hemianopia is of a lower quadrant type. A total sylvian artery occlusion is fatal in a short time. On the other hand, a lesion from an occlusion of the posterior cerebral artery produces an upper quadrant hemianopia with an associated thalamic syndrome. A light form of hemiplegia and cerebellar signs may also occur, according to Poppi.<sup>5</sup> We believe

that this case fits more into the picture of the syndrome of the anterior choroidal artery than into the other syndromes mentioned. In cases in which no anatomic studies are possible, a better descriptive clinical term would be the geniculocapsular syndrome.

#### SUMMARY

1 The syndrome of the anterior choroidal artery consists of a hemiplegia, hemianesthesia and hemianopia contralateral to the side of the lesion in the central nervous system. The syndrome is very rare.

2 In this case the syndrome followed a spontaneous subarachnoid hemorrhage in a 17 year old boy.  
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## RETROPOSITION OF THE TRANSVERSE COLON

### REPORT OF TWO CASES

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Abnormal position of the intestinal tract is the result of some disturbance of migration, rotation, descent or fixation during embryonic life. Relatively slight variations in the different stages of development of the intestine result in such developmental anomalies as migratory colon, excessive mobility of the colon, dolichocolon, torsion of the colon or its mesentery or both, common mesentery, and congenital fissure of the mesentery. Important contributions on abnormalities of the colon have been reported by Cruveilhier,<sup>1</sup> Toldt,<sup>2</sup> Curschmann,<sup>3</sup> Morestin,<sup>4</sup> Tandler,<sup>5</sup> Koch,<sup>6</sup> Roud,<sup>7</sup> de Quervain,<sup>8</sup> Keene,<sup>9</sup> Gerlach,<sup>10</sup> McConnell and Hardman,<sup>11</sup> Hecker, Grunwald and Kuhlmann,<sup>12</sup> del Campo,<sup>13</sup> Agrifoglio<sup>14</sup> and Pendergrass.<sup>15</sup> In most of these cases the transverse colon is in normal position but has some defect or torsion of the mesentery. It may be very short or have exaggerated sinuosity. Lack of fixation of the mesentery and torsion from bands or adhesions may result in abnormal positions of the cecum or of the ascending, transverse or descending colon, or it may cause volvulus of a segment of the small or large intestine or both.

Perhaps the rarest of all developmental anomalies of the colon is retroposition of the transverse colon due to inverted rotation of the midgut during the tenth week of embryonic life. In the few cases assembled from the literature the transverse colon dips back into a tunnel behind the duodenum and superior mesenteric artery. Some constriction through torsion of the mesentery or pressure on the transverse colon then causes intestinal obstruction. The cecum and ascending colon become markedly dilated, and in some cases complicated by common mesentery the ileum is also strangulated in

11 Beitzke H. Ueber Hirnarterienaneurysmen als Quelle der apoplektischen Hirnblutungen. Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) 87: 272-284 (June 27) 1931.

12 Marburg O. Zur Frage der Haemorrhagica cerebri bei jugendlichen Menschen und deren differentialdiagnose. Deutsche Zeitschr. f. Nervenh. 105: 22-34 1928.

13 Tuthill C. R. The Elastic Layer in the Cerebral Vessels. Arch. Neurol. & Psychiat. 26: 268-278 (Aug.) 1931.

14 Eck H. Beitrag zur Lehre der traumatischen Spätaoplexie. Virchows Arch. f. path. Anat. 284: 67-83 1932.

15 Harbitz F. Ueber traumatische Hirnblutungen abstr. Zentralbl. f. d. ge. Neurol. u. Psychiat. 61: 258 1932.

1. Cruveilhier Jean discussed by Bovero A. Ann. Fac. de med. de São Paulo 2: 21 1927.

2. Toldt W. Denkschr. d. k. Akad. d. Wissensch. 56, 1889.

3. Curschmann Heinrich. Deutsches Arch. f. klin. Med. 53: 1 1894.

4. Morestin Hippolyte. Bull. de la soc. anat. de Paris 71: 34 1896.

5. Tandler J. Wien. klin. Wchnschr. 10: 212 1897.

6. Koch Walter. Deut. Arch. f. Chir. 50: 1 1898.

7. Roud A. Biblog. anat. 6: 41 209 1898.

8. de Quervain F. Arch. f. klin. Chir. 65: 2 256 1901.

9. Keene F. E. Tr. Coll. Phys. Philadelphia 33: 33 1911.

10. Gerlach W. Zeitschr. f. Anat. u. Entwicklungsgesch. 66: 580 1922.

11. McConnell A. A. and Hardman T. G. Brit. J. Surg. 10: 532 (April) 1923.

12. Hecker Paul, Grunwald Eugene and Kuhlmann Jacques. Rev. de chir. 64: 661 1926.

13. del Campo J. C. Ann. Fac. de med. Montevideo 14: 161 (Feb.) 1929.

14. Agrifoglio N. Arch. ed. atti d. Soc. ital. di chir. 36: 1070 1930.

15. Pendergrass R. C. Am. J. Surg. 17: 111 (July) 1932.

folds of mesentery. In two cases in which death was caused by cancer and tuberculosis, retroposition of the colon was discovered at autopsy.

To understand this congenital anomaly it is necessary to review briefly the early embryologic development of the intestinal tract. In a 5 mm embryo the digestive tract consists of a tube, closed at both ends and attached to the dorsal part of the mesentery, which extends from one end of the embryo to the other. With growth of the embryo, changes in the intestine are marked. By the time the embryo is 9 or 10 mm in length the liver has grown so large that it diminishes the available abdominal space and the intestinal loop is extruded into the root or coelom of the umbilical cord, forming a physiologic umbilical hernia. At this stage, when the embryo is from 5 to 10 weeks old, the first rotation takes place in the gut. While it lies extra-abdominally, the caudal limb lies to the left of the

the upper limb of the U is pushed transversely by the small intestine below and the stomach and liver above. The cecum returns last. As this enterocolic loop reenters the abdominal cavity it undergoes torsion of 270 degrees anticlockwise about the axis of the superior mesenteric artery.<sup>10</sup> The final arrangement of the intestine in the abdomen is seen in figure 1 B, taken from Toldt.<sup>20</sup>

Eleven cases of retroposition of the transverse colon found in the literature are listed in the accompanying table. The deep position of the transverse colon is due to error of the second-stage rotation of the midgut when the embryo is about 40 mm in length. Lewis<sup>21</sup> says

In order to produce the anomaly in question, the rotation must have occurred in the reverse direction, that is, with the hands of the clock, so that the large intestine crossed the small intestine on the right side of the body.

#### Retroposition of Transverse Colon \*

Case	Author	Date	Sex	Age	Condition	Duration of Symptoms	When Diagnosed	Other Anomalies	End Result and Comment
1	Tscherning (quoted by Fekhorn and reported by Black) Nord med Ark 17: p 1853 (Germany)	1883	♂	56	Ileus	?	Autopsy	Common mesentery	Died in 19 days
2	Hausmann <sup>24</sup> (Germany)	1900	♂	22	Intestinal stasis	9 months	Operation	Common mesentery	Died in 2 days of peritonitis
3	Bastianelli P Pollicinleo 11: 56 1904 (Italy)	1904	♀	40	Intestinal stasis	Years	Cecostomy	Fissure in mesocolon	Recovered in 10 days
4	Elliot Smith G I Annt & Physiol 41: 23, 1901 (Calro) Case reported in 1900 referred to by Bovero	1906	♀	?	?	?	Autopsy	Retroposition of colon from cecum to splenic flexure	
5	Strchl <sup>25</sup> (Germany)	1908	♀	12	Stasis Ileus	8 days	Cecostomy	No hepatic flexure	Died in 8 hours of strangulated ileum
6	Black <sup>26</sup> (Illinois)	1914	♀	48	Constipation	Years	Resection of cecum, anas tomosis	Torsion of colon	Died in 3 days of cerebral embolism
7	Borchgrevink I Norsk Mag f Ingevidensk 7- 613 1916 (Nor way)	1916	♂	47	Carcinoma of pylorus	1 year	Bilroth II for cancer	No gastrocolic ligament	Died in 41 days
8	Hunter I Brit Med J 1: 800 1922 (London)	1922	♀	7 day infant	Distention constipation	Since birth (breach)	Autopsy	Common mesentery	Died in 7 days of obstruction
9	Dott <sup>19</sup> (Edinburgh)	1923	♂	63	Stasis obstruc tion	1 week	Removal of cecum and ascending colon	Common mesentery	Died in 3 days of gangrene of intestine one attack, 10 years previously recovery without operation
10	Bovero <sup>1</sup> (South America)	1927	♂ Negro	24	† Pulmonary tuberculosis	?	Autopsy		Died of tuberculosis, retrogastric colon found at autopsy
11	Vigi <sup>2</sup> (Italy)	1927	♀	60	Intestinal stasis	19 years	Autopsy	Common mesentery	Died strangulated ileum peritonitis

Vigi reports that Broman studied retroposition of the transverse colon in a human embryo of three months. He uses Strchl's case by way of illustration however. In his Normale und abnormale Entwicklung des Menschen. Bionel in a thesis on the subject of retroposition of the colon published in Lusanne 1910 reports a case and refers to one found at autopsy by a fellow surgeon Monti.

cephalic limb and the small intestine assumes a position below and to the left of the colon. The colon assumes an inverted-U shape and lies opposite the midline of the posterior abdominal wall<sup>16</sup> (figure 1 A).

The second stage of rotation, which is the important time when the midgut loop is returned to the abdomen, occurs at the tenth week. The return of the intestine to the abdominal cavity is due to a fall of intra-abdominal pressure owing to the increase of space within the abdomen, the extra-abdominal pressure pushes back the contents of the sac.<sup>17</sup> Or, according to Broman,<sup>18</sup> the intestine is gradually sucked back into the abdominal cavity when it has grown sufficiently large. The intestine does not return *en masse*. The proximal limb returns first and occupies the lower part of the abdomen below the liver. Thus the small intestine passes to the left below the colon and mesenteric vessels. The colon retains its inverted-U shape but

The reversed rotation clockwise through an arc of 90 degrees brings about an inverted relationship between duodenum and transverse colon, in such a way that the transverse colon becomes situated behind the superior mesenteric artery and the duodenum lies anterior to it.

Figure 2 A shows the primary loop of a human embryo, 2 B the loop rotated normally anticlockwise, and 2 C the abnormal rotation clockwise, which results later in retroposition of the transverse colon.

This condition is not incompatible with life, but at any time, through some cause, there may be compression of the transverse colon from the duodenum or from the superior mesenteric artery. The rise in tension on the mesentery increases the likelihood of pressure on a segment of the colon, especially in cases in which the complication of common mesentery is present. Other predisposing factors are variation in the length of the segments of the colon, absence of flexure,

16 Bailey F R and Miller, A M. Textbook of Embryology ed 4 New York William Wood & Co. 1923 p 305.  
17 Bardeen C R. Am J Anat 16: 427 (Sept 14) 1914.  
18 Broman J. Normale und abnormale Entwicklung des Menschen Wiesbaden J F Bergmann 1911 p 380.

19 Dott N M. Brit J Surg 11: 251 (Oct.) 1923.  
20 Toldt Carl. An Atlas of Human Anatomy New York, Macmillan Company 2: 451 1926.  
21 Lewis, quoted by Black C E. Tr West. S A 24 95 96 (Minn) 1915.

abnormally long mesentery, congenital malformation of the mesentery, constricting bands, adhesions, and the like Vig<sup>22</sup> believes that cases of retroposition of the transverse colon which are not complicated by a common mesentery do not readily present the possibility of complete intestinal obstruction

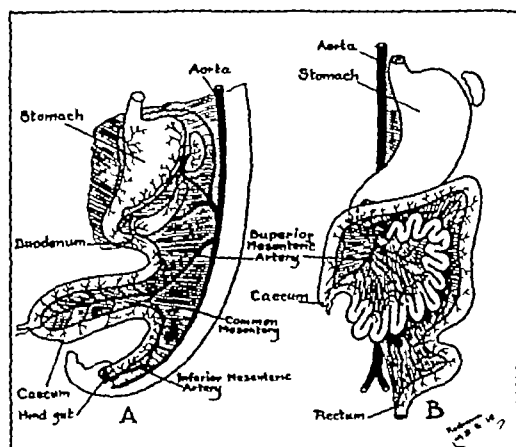


Fig 1—A the colon of which the cecum is shown as the lower arm projects forward with the small intestine in the form of an inverted U B the form ultimately taken by the intestine

The report of the following two cases and six others from the literature with illustrations demonstrate the appearance of the viscera and the factors that finally produced acute intestinal obstruction

CASE 1—G L, a married woman aged 45, was admitted to the hospital complaining of severe abdominal colic. She presented a history of intestinal stasis lasting over an indefinite period. There was obstinate constipation, so that she depended almost entirely on enemas for evacuation of the bowel. Two days prior to admission, while traveling she was seized with an attack of colicky abdominal pain, which grew progressively worse. No results were obtained with enemas and the patient was referred to the hospital for operation.

On admission she was suffering from severe abdominal pain. She was nauseated and unable to evacuate the bowel. Her temperature was 98 F, the pulse 74, and respiration rate 22. Symptoms and signs were limited to the abdomen, which was

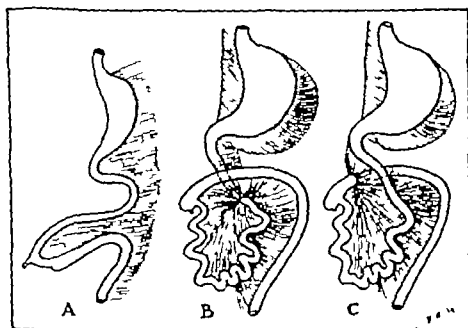


Fig 2—A primary gastro-intestinal loop of a human embryo B anticlockwise rotation of this loop C abnormal rotation of the intestine clockwise which results in retroposition of the transverse colon

distended, tense and tympanitic. There was generalized tenderness more marked in the right lower quadrant. Peristalsis was audible. Examination of other regions revealed no disturbances.

Though the conditions presented were those indicating an acute surgical condition of the abdomen, in view of the localized tenderness my associates and I thought that we were dealing

with a diseased appendix which had perforated and that the intestinal obstruction was secondary to the inflammatory process.

Under ether anesthesia the abdomen was opened by a right rectus incision. A large viscus was first encountered which proved to be an enormously distended proximal colon. The appendix was normal. The cecum and ascending colon were freely movable but greatly ballooned. The transverse colon was seen to disappear in a tunnel behind the mesentery, and anterior to it were the duodenum and superior mesenteric artery. There was complete obstruction of the transverse colon at its middle and a torsion of the mesentery. From this point the remainder of the colon was completely collapsed (figure 3).

The cecum was needled and suction was applied. By these measures considerable reduction was accomplished. The cecum was then withdrawn extraperitoneally and sutured into the wound but not opened.

In view of the obstruction having its origin in the transverse colon a careful examination was made of the entire lower bowel in search of a neoplasm, but none was found. The gallbladder and ducts were normal and free from adhesions.

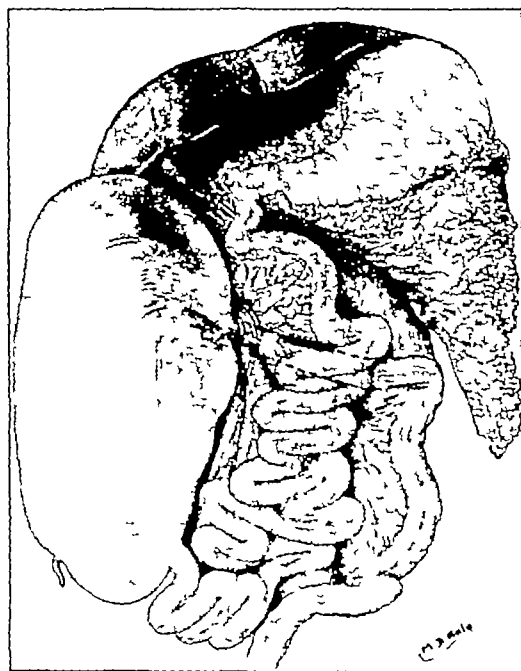


Fig 3—Disappearance of the transverse colon as it tunnels the mesentery of the small intestine

The duodenal loop was fully developed. The superior mesenteric artery ran a normal course. The chief points in the picture were an enormously distended cecum, ascending colon, and first portion of the transverse colon to the point of obstruction posteriorly. The remainder of the large intestine was completely collapsed. The torsion of the bowel was corrected and the opening through which the transverse colon passed was enlarged by manual dilation relieving the constriction.

The patient made a good recovery from the operation. The high abdominal distention disappeared, and she took fluids well and complained of only slight abdominal colicky pain. She vomited at rare intervals and the vomitus was not fecal. At first, enemas gave good fecal results and by July 9 normal daily bowel movements were established. July 12, extraperitoneal reduction of the cecum was done and the wound sutured.

There was no recurrence of symptoms or signs of obstruction and the patient left the hospital, July 24, twenty-five days after admission.

CASE 2—E. B. a woman aged 49, single, was admitted to the Truesdale Hospital, March 7, 1915, for the removal of a large tumor of pelvic origin which proved to be an adenocarcinoma of the left ovary. There was secondary invasion of the descending colon involving about 5 inches (12.7 cm) of its

length. The colon was resected from the pelvic brim up to within a few inches of the splenic flexure, leaving a colostomy.

One year later an anastomosis was made between the cecum and the rectum to reestablish the normal outlet of the colon. This was followed by a resection of the ascending and transverse colon. At this operation it was found that the colon passed posteriorly behind the mesentery of the small intestine. It was necessary to pass the left half of the transverse colon through a tunnel posteriorly in order to remove it.

Thus we observed incidentally a retrodisplaced transverse colon that had caused no symptoms.

Figure 4 shows different illustrations of retroposition of the transverse colon selected from case reports.

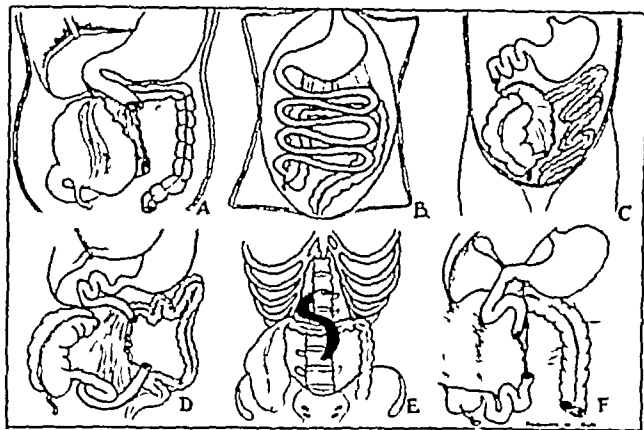


Fig. 4—A. Black's case. Enormously dilated cecum and obstruction at midtransverse colon from a twist in a direction that looked as though the cecum had turned forward from right to left through an arc of 180 degrees. The ileum passed behind the cecum and entered on the right. The duodenum passed in front of the transverse colon.

B. Bastianelli's case. At operation loops of small intestine were found distended and constricted by the edges of a fissure of the mesocolon and by the transverse colon. The mesentery of the transverse colon was abnormally short and lay very close to the vertebral column.

C. Tscherning's case. The condition was discovered at autopsy. A distended cecum was found between the umbilicus and the symphysis. The contents of the cecum could not be forced into the ascending colon until the small intestine was removed from the abdominal cavity. Then the cecum went back to its normal position in the right iliac fossa. The duodenum was adherent to the posterior abdominal wall. The colon was in retroposition and the cecum and ascending colon were freely movable to the right of the mesentery. There was a common mesentery of ileum and ascending colon. The root of the mesentery was adherent to the posterior abdominal wall as well as below the colon so that the colon bored through the base of the mesentery. No special transverse colon could be made out. There was, however, a transverse bend of the ascending colon at the point at which it passed through the mesentery.

D. Strehl's case. When laparotomy was done congested discolored coils of small intestine gushed out. The transverse colon without developing a hepatic flexure had passed under a bridge of mesentery of the ileum in front of the spine and had become strangulated. The transverse colon was retrogastric and its sinuous course could not be changed by traction. The mesentery was attached to the spine just beneath the opening through which the colon passed. The colon had no hepatic flexure.

E. Hausmann's case. At operation the cecum was found high and greatly distended. The ascending colon and ileum had a common mesentery. The transverse colon lay very deep behind the duodenum without a free mesentery and was bound down to the posterior abdominal wall. It was impossible to put back the cecum and ascending colon in their normal positions or to move the transverse colon from its retroposition.

F. Vign's case. At autopsy loops of badly discolored ileum were found strangulated by mesentery. The ascending colon dipped back into a tunnel and was extraperitoneal, bound down by a parietocolic veil. To trace the course of the ascending and transverse colon it was necessary to incise this membrane and pass by the duodenum and superior mesenteric artery. The transverse colon passed through the mesentery, reappeared at the left of the median line and forming the splenic flexure finally continued its normal course to join the sigmoid.

These cases of retroposition of the transverse colon are to be differentiated from cases of torsion on the peduncle of mesentery with ensuing volvulus of the segment of large intestine or, in rare instances, of the entire small intestine as well. Volvulus occurs after development is complete, as a result of torsion of the mesentery. The intestine can be restored to its normal position through detorsion anticlockwise as in Kallio's<sup>23</sup>

two cases and in Caporale's<sup>24</sup> case of so-called chronic torsion of the transverse colon. In the latter, rotation of the stomach was also present. Several cases of volvulus result in a position of colon and small intestine almost identical with those of true retroposition, as in Boyd's<sup>25</sup> case. The explanation given is that a loop of small intestine got behind the free ascending and transverse colon from below, rose through the dorsal mesogastrium behind the stomach and pulled after it all the rest of the small intestine and free part of the colon. This produced an intertwining of the stomach and intestine and volvulus of the small intestine and free part of the colon, so that the transverse colon came to lie dorsally from the root of the mesentery and the duodenum.

Some cases are hard to diagnose. Hausmann's<sup>6</sup> case is still in doubt, possibly because his explanation of the retroposition of the transverse colon is that the umbilical loop first underwent torsion anticlockwise, but the ascending limb as it grew turned behind the duodenum. Eckehorn<sup>27</sup> and Strehl<sup>28</sup> say, therefore, that only through a volvulus could the limb change its course. Black<sup>29</sup> however, classifies it as a case of true retroposition, which is probably the correct interpretation.

It is apparent from end results in the table that, when acute intestinal obstruction occurs, surgical intervention is imperative. The patient's condition, however, contra-indicates radical measures, such as an anastomosis or resection until the patient has recovered from the acute obstruction. Preliminary cecostomy can be done with less risk and after normal evacuation of the bowels has been established further surgical measures may be undertaken to relieve constriction and correct torsion of the bowel or mesentery. In all cases treated by radical operation the prognosis is discouraging.

151 Rock Street

24	Caporale L.	Boll. e mem. Soc. piemontese di chir.	2:183 (Feb. 6) 1932
25	Boyd F. N.	Lancet	2:8 1897
26	Hausmann F.	Zentralbl. f. Chir.	27:19 (Jan. 6) 1900
27	Eckehorn G.	Arch. f. klin. Chir.	72:572 1904
28	Strehl H.	Arch. f. klin. Chir.	87:8 1908
29	Black C. E.	Tr. West. S. A.	24:87 (May) 1915

**So-Called New Diseases**—We have no reliable evidence of the existence of infantile paralysis in epidemic form before 1840, and it seems likely that if a disease of such striking characteristics had existed in epidemic form it would have found its way into the seventeenth and eighteenth century literature. In regard to encephalitis (*culpa dictu*, sleeping sickness), it is equally difficult to find reliable evidence of its existence before the eighteenth century. In 1712 Bierner studied an epidemic in Tübingen which was popularly known as sleeping sickness, because it was accompanied by somnolence and brain symptoms. The 'coma somnolentum' observed by le Pecque de la Cloture in 1769 was similar and, like the disease of 1917, was associated with influenza. Ozanam mentions a condition of like nature occurring in Germany in the last decade of the eighteenth century, in Lyons in 1800 and in Milan in 1802. After this time no reliable evidence of any disease of this kind can be found until 1917. In that year, synchronous with the first considerable outbreak of influenza, a group of encephalitis cases occurred in Vienna. Soon after that others appeared in France, Great Britain and Algeria, then during the latter half of 1918 cases were seen in North America, and by May 1919 had been reported from twenty states—the largest number from Illinois, New York, Louisiana and Tennessee. To all intents and purposes, this was a new disease to our generation, and up to the present time the virus of this form (lethargic encephalitis) has never been successfully transferred to animals—Zinsser, Hans. Rats, Lice and History, Boston: Little Brown & Co. 1935.

THE EFFECT OF CEVITAMIC ACID  
INJECTIONS ON CAPILLARY  
RESISTANCE

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AND

HOLLIS RUSSELL, M.D.

VALHALLA, N. Y.

Relative fragility of skin capillaries is a common condition<sup>1</sup>. It may be found in individuals of all ages who are otherwise free of signs or symptoms of scurvy. Nevertheless, increase in the antiscorbutic value of the diet of such individuals increases their capillary resistance. This borderline nutritional disorder has been called subclinical scurvy, and a general experience with experimental nutritional diseases suggests that other slight deviations from health are probably present in such persons. The condition is therefore deserving of study. The influence of cevitic acid on this condition forms the basis of the present report.

## METHOD

The cevitic acid used was Cebione Merck & Co. The product was assayed against a standard iodine solution by Harris's method<sup>2</sup> and found to be pure within the limits of error of the method. The acid was

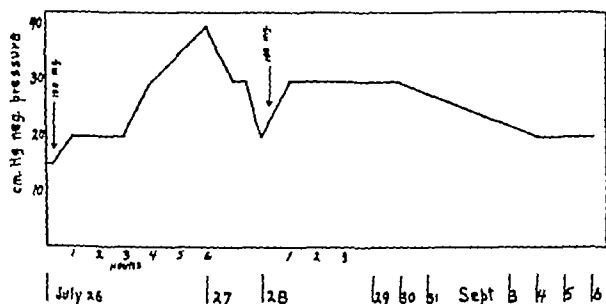


Chart 1—Effect of two injections of cevitic acid on the capillary resistance of a young woman during a period of twelve days

administered intravenously, 100 mg being dissolved in at least 10 cc of distilled water and injected slowly. No reactions have occurred. Since the acid deteriorates rapidly once the ampule is opened, the injections were made as soon as the solution was prepared.

The capillary resistance was measured with our own resistometer. The instrument has recently been improved through an automatic valve and the use of a smaller pump. The cup size was identical with that previously used. The outer surface of the arm was tested, and the cup was applied for one minute. Capillary resistance is expressed as the least negative pressure required to produce macroscopic petechiae.

## RESULTS

Fourteen residents of the local county home who were found to have reduced capillary resistance were first tested. In all but three cases, 100 mg of cevitic acid was injected. In the three exceptions, 50 mg was used. These persons were all up and about, but many were old and feeble. All of them showed a marked and prompt response in capillary resistance which persisted for at least twenty-four hours.

From the laboratories of Crosslands Hospital  
1 Dalldorf, Gilbert A. Sensitive Test for Subclinical Scurvy in Man. *Am. J. Dis. Child.* 40:794-802 (Oct.) 1933  
2 Birch, T. W., Harris, L. J. and Ray, S. N. A Microchemical Method for the Determination of Hexuronic Acid in Foodstuffs. *Biochem. J.* 27:590 (No. 2) 1933

Of ten other county home residents, four were found to have fragile capillaries, and these likewise responded promptly to cevitic acid. In this group the average capillary resistance before injection was 24 cm of mercury negative pressure. After injection the average rose to 35 cm. The former value we have come to associate with groups on diets poor in fresh fruits and vegetables, the latter value is the normal for well fed groups.

## REPORT OF CASES

In order to illustrate more clearly the influence of cevitic acid on capillary resistance, the following cases are reported in greater detail.

G. T., a woman, aged 19, sent into the hospital from the hematologic clinic had hypochromic anemia, and her history

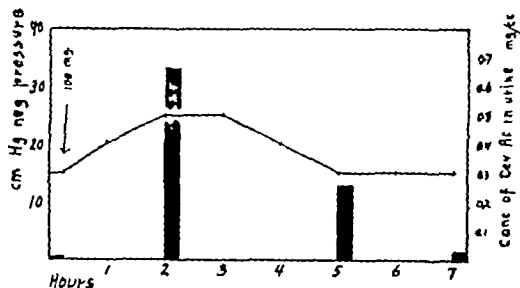


Chart 2—Effect of a single injection of cevitic acid on the capillary resistance of a boy during a period of seven hours. The concentration of cevitic acid in the urine on four occasions also is shown.

showed that her diet had been limited in fruits and vegetables. Her capillary resistance was 15 cm of mercury on each of several days. She was given 100 mg of cevitic acid intravenously. Forty-five minutes later the resistance was 20 cm of mercury. Four hours after the injection it was 30 cm of mercury. Chart 1 shows the effect of this and a subsequent injection of the acid over a period of eleven days.

Patients 2 and 3 were boys, aged 8 and 10 years, who were residents of the orthopedic pavilion. One was being treated for congenitally dislocated hips and the other for postpoliomyelitis paralysis. One had been in the hospital for two months and the other for four months. Their diets had contained ample amounts of antiscorbutic foods, since the average capillary resistance for the entire ward was nearly 35 cm of mercury.

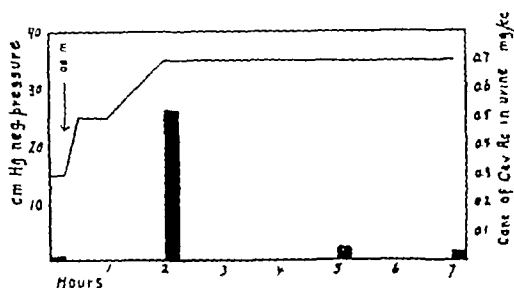


Chart 3—Effect of a single injection of cevitic acid on the capillary resistance of a boy during a period of seven hours. The concentration of cevitic acid in the urine on four occasions also is shown.

Each had had 4 ounces (120 cc) of fruit juices a day for the entire period of his stay in the hospital, in addition to the usual diet. Both had eaten well. Neither had any disorder other than the defects they were being treated for.

Both boys nevertheless, showed many petechiae at 15 cm of mercury partial vacuum. Each was given 100 mg of the acid. Each responded promptly within an hour. The entire records are given in charts 2 and 3. The urine output of cevitic acid is likewise shown. The total output of acid was 85 and 74 mg respectively within seven hours. As the charts show the increased output was the result of increased concentration of the acid. The urine volume was not conspicuously affected.

The boys were tested on two occasions. The cevitic acid output during the second test was 58 and 39 mg of cevitic acid during a five hour period.



## COMMENT

It is evident from these results that cevitamic acid promptly increases the resistance of the skin capillaries to rupture. The prolonged effect of the injections shows the action to be a specific one of the cevitamic acid and not an immediate reaction to acid as such.

The last two cases suggest that individual requirements of antiscorbutic foods vary or that absorption or utilization may be affected. Since the acid is readily oxidized, it may be that these two boys destroyed cevitamic acid in their stomachs before it was absorbed. This matter requires further examination.

The results we have secured are identical with those reported by one of us four years ago as occurring in scorbutic guinea-pigs following the injection of neutralized orange juice<sup>3</sup>; they are similar to but more rapid than the effect in both guinea-pigs and children of feeding large amounts of antiscorbutic foodstuffs.

The results further substantiate our observation that the common condition of capillary fragility represents a mild form of scurvy, a "subclinical scorbutus."

## CONCLUSIONS

The parenteral injection of cevitamic acid has a prompt and prolonged effect on the capillary resistance of individuals whose capillaries are fragile owing to dietary inadequacy or faulty absorption of cevitamic acid.

## Clinical Notes, Suggestions and New Instruments

### A SPLINTER OF WOOD LODGED IN THE URINARY BLADDER

JAY J. CRANE, M.D., AND E. E. MOODY, M.D., LOS ANGELES

R. B., a boy, aged 7½ years, while playing, July 1, 1934, fell from a garage roof, lighting astride a picket fence. Examination revealed a laceration 1 cm. long on the inner aspect of

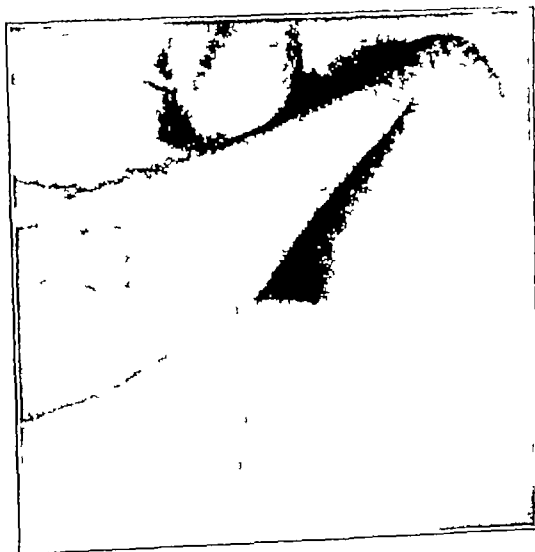


Fig. 1—The point at which the splinter of wood pierced the inner aspect of the thigh.

the upper third of the left thigh, through which a probe was passed, but no foreign body was found. During the first four days the only symptom complained of was a dull ache over the bladder area, which gradually disappeared. A few red

blood cells were found in the urine immediately after the accident and continued to be present during this period. By the end of the second week pus was found in the urine, accompanied by a tickling sensation in the urethra during the act of micturition. The laceration now was entirely healed, and it was thought safe to allow the patient to go to a boys' camp, where he could be under observation. Here he engaged in the usual camp activities. Frequent urinalyses during a period of four weeks showed pus cells and an occasional red blood cell to be constantly present but unaccompanied by subjective symptoms.

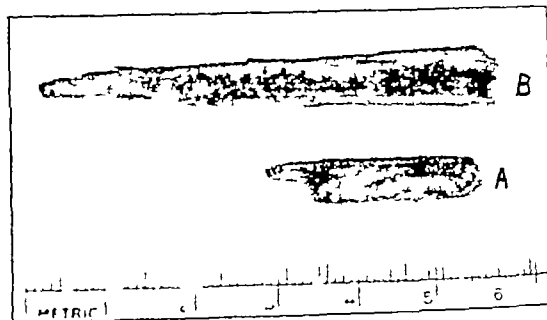


Fig. 2—Splinters of wood after removal from bladder. A the smaller piece passed spontaneously through the urethra to the external meatus, where it was extracted. B the larger piece was removed from the bladder through a cystoscope.

July 30 he was returned from the boys' camp because of difficulty and pain on urinating, in conjunction with a swelling of the penis, which appeared very suddenly the same morning.

Examination on the latter date revealed the penis to be swollen and discolored as the result of the evident local disturbance of blood supply caused by the swelling. The picture as a whole was not unlike a penile abscess. Urine was voided with difficulty but there was little discomfort except on voiding. Because the patient would not permit us to palpate the penis, a general anesthetic was given, at which time a piece of wood 35 cm. by 0.5 cm. was readily palpated, lodged in the pendulous urethra. By manipulation the splinter was removed, followed by the ability to urinate freely. Roentgenograms revealed a second and larger piece of wood 6 cm. by 0.5 cm. to be resting crosswise in the pelvis. Several smaller splinters were visualized in the soft tissues in the leg. The fragments of wood cast only the faintest shadow in the roent-

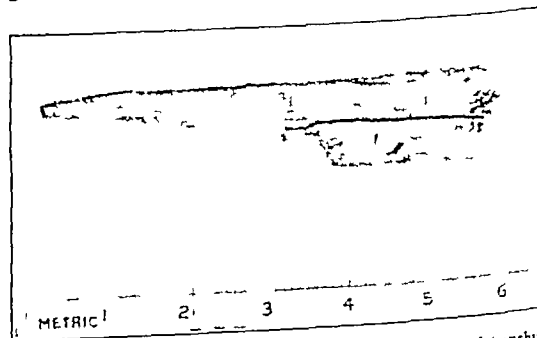


Fig. 3—Reconstructed pieces of wood showing their relationship as they passed into the bladder.

genogram. Since the patient was symptom free, six days was allowed to elapse before a cystoscopic examination was made, at which time the larger fragment was visualized lying free in the bladder (one end was pointed and the other end blunt) in the bladder (one end was pointed and the other end blunt). A reddened area on the left lateral wall of the bladder indicated the point of entrance of the wood. Through an 18 French panendoscopic sheath, which passed readily, the sharp point was grasped with a pair of foreign body extractors and pulled into the sheath. By retaining a firm grasp on the splinter the sheath was removed, followed by the splinter. Recovery was uneventful.

<sup>3</sup> Dalldorf, Gilbert. A Criterion of Hemorrhagic Diathesis in Experimental Scurvy. *J. Exper. Med.* 53: 289-297 (Feb.) 1931.

During the next three months several smaller pin-sized fragments were passed. November 14, a cystoscopic examination revealed a normal bladder and no evidence of remaining pieces. The reddened area on the left lateral wall of the bladder was entirely healed.

It is apparent that the splinter of wood was driven up the inner aspect of the left thigh through the obturator foramen and into the bladder, where the fragment split and the shorter piece attempted to pass spontaneously, being caught by the normally constricted external urethral orifice. No evidence of urinary extravasation or hemorrhage occurred at any time.

1921 Wilshire Boulevard

## Special Article

### THE MANAGEMENT OF PREECLAMPTIC TOXEMIA AND ECLAMPSIA

A REPORT OF THE AMERICAN COMMITTEE ON  
MATERNAL WELFARE

Eclampsia, and the forms of toxemia associated with it, cause, annually, about 30 per cent of the approximately 15,000 maternal deaths in this country. There are many of the women who survive the convulsions and acute stages, or who recover from severe, non-convulsive forms of toxemia and have permanent vascular or renal injuries which impair their health and shorten their lives.

The American Committee on Maternal Welfare<sup>1</sup> is intensely interested in being of any possible assistance in lessening this morbidity and mortality and to this end has prepared this brief article on the treatment of the nonconvulsive forms of toxemia of pregnancy (preeclampsia) and of the convulsive types (eclampsia).

The question of the exact terminology of these forms of toxemia is not of great moment. The term "preeclamptic toxemia" is used in the title chiefly because it is probably familiar to more physicians than any other term used to define toxemia of late pregnancy, and because it conveys the idea that the toxemia may proceed from the nonconvulsive or preeclamptic stage into the stage of convulsion or eclampsia. There will be no discussion in this article of the etiology of these forms of hypertensive toxemia, nor is it intended to describe the pathologic aspects of the disease. Rather, this statement is concerned with practical measures which are of proved value in prophylaxis and treatment.

It is well to state at the beginning that the toxemia of late pregnancy is a nonsurgical condition which should be treated by medical measures in the vast majority of cases. Careful investigation of the causes of maternal deaths throughout this country has shown that the maternal death rate is more than 20 per cent in many localities following cesarean section or other operative measures for eclampsia. Maternal mortality is reported to be about 5 per cent in series of cases in which treatment is primarily by medical measures. This is particularly true if medical treatment is carried out consistently before measures are used to terminate pregnancy.

PERMANENT INJURIES OR DEATHS ATTRIBUTED TO  
THE NONCONVULSIVE AND CONVULSIVE FORMS  
OF TOXEMIA OF LATE PREGNANCY ARE  
LARGELY PREVENTABLE

In large measure, the cardiorenal and vascular injuries and deaths attributed to severe, nonconvulsive toxemia and to its convulsive culmination, eclampsia, constitute preventable diseases. Prevention rests on careful observation and management of pregnancy, to which the term "antepartum care" has been applied. The incidence of nonconvulsive or preeclamptic toxemia is apparently lowered by means of systematic application of some of the simple principles of prenatal care, which will be described later, and most cases of toxemia are discovered before the appearance of alarming symptoms, which may progress to eclampsia and convulsions.

A number of observers have reported series of cases in which adequate antepartum care has been given and in which the occurrence of eclampsia is appreciably less than it is in series composed of like numbers of pregnant women who lacked such care.

#### EARLY SIGNS OF PREECLAMPTIC TOXEMIA

Three instruments available to any physician who is caring for any pregnant woman are the apparatus for determining blood pressure, scales for weighing the patient, and the test tube, which is used as a routine for detecting and estimating roughly the amount of albumin in the urine. There is almost invariably a slight but distinct rise in both systolic and diastolic blood pressures several weeks before any appreciable amount of albumin can be detected in the urine of a woman who has incipient, nonconvulsive toxemia. It has also been shown that women who do not gain, during pregnancy, more than 20 to 25 pounds (9 to 11 Kg) over and above their normal weight are rarely subject to the development of severe toxemia. These statements rest on proved evidence.

#### ESSENTIAL MEASURES FOR THE DETECTION AND MANAGEMENT OF TOXEMIA OF LATE PREGNANCY

At the first prenatal visit the reasons for proper elimination and diet are explained to the patient. She is instructed to eat a general diet, including a requisite amount of foods containing protein and the vitamins, and a reduced amount of the weight-producing foods, fats and carbohydrates, to drink at least 3 pints of water daily and to use salt sparingly. Some physicians urge removal of foci of infection as a prophylactic measure. Every two to four weeks, if possible, from the third month of gestation to the seventh, and from then on at least every two weeks, the pregnant woman visits the office of her physician. At each visit a record is made of her blood pressure, weight and results of urinalysis. If the woman's blood pressure has risen from her usual normal of about 120 mm of mercury systolic and 80 diastolic, or less to 135 systolic and 90 diastolic or more, the physician has suggestive evidence of incipient toxemia, and this evidence is not to be ignored. If a continued rise in blood pressure is verified by further readings, the physical activities and diet of the patient are limited, free bowel movements are induced by saline cathartics, and sedatives may be used particularly if the patient is tense, apprehensive or not sleeping well. Bromides, 15 grains (1 Gm) or phenobarbital one-half to three-fourths grain (0.032 to 0.05 Gm), three times a day, or other mild sedatives, lessen the nervous tension of the patient and tend to lessen arterial spasm.

<sup>1</sup> The members of the committee are: Drs. Fred L. Adair, Chicago chairman; George W. Kosmak, New York, vice chairman; James R. McCord, Atlanta, Ga., secretary; Frederick H. Falls, Chicago, treasurer; LeRoy A. Calkins, Kansas City, Mo.; Robert L. DeNormandie, Boston; Rudolph W. Holmes, Chicago; Robert D. Mussey, Rochester, Minn.; Everett D. Plass, Iowa City; Arthur J. Skeel, Cleveland; and Philip F. Williams, Philadelphia.

## TREATMENT OF TOXEMIA OF PREGNANCY

In spite of this management there may be a further rise in blood pressure often accompanied by undue gain in weight, which usually is attributable to retention of tissue fluids due to disturbed water balance, albumin is usually found in the urine, which is scanty and of high specific gravity. The woman should be put to bed with such evidences of increasing toxemia and should receive a reduced diet particularly a reduced amount of meat protein and a minimal amount of salt, while edema is present the total intake of fluid may be limited in amount to correspond with the total amount of urine excreted in twenty-four hours. If preferred the patient may be given a diet of milk and fruit juice. The procedures outlined in the foregoing will control most of the cases of mild toxemia. The problem is more difficult in the cases in which the condition is not so controlled and in those in which the patients present themselves to the physician in a more advanced stage of toxemia. As a general rule it may be said that a blood pressure of 170 systolic and 105 diastolic, or more, presents a more immediate hazard. Alarming symptoms may arise when the blood pressure is considerably lower than this.

After an adequate trial of various measures to insure sedation, rest, restricted diet and elimination and perhaps intravenous administration of solutions of magnesium sulphate or of dextrose or both, following the technique to be described later, persistence or increase of high blood pressure with accompanying symptoms of toxemia, confront the physician with the necessity of considering the termination of pregnancy.

It is generally considered that toxemia of the later months of pregnancy may proceed from mild to severe stages and finally to a climax of eclampsia with convulsions. In all cases of mild toxemia treatment should be efficient for in any case the condition may become severe. As the disease progresses in severity and duration the risk to both mother and fetus is increased. Long-continued toxemia is more productive of chronic arterial or renal injury than is a shorter, possibly more severe toxic state. Fortunately in few cases of acute toxemia does the condition become severe prior to the period of viability of the fetus at twenty-eight weeks. However, in the interest of the mother, pregnancy should be terminated if and when it is found that the toxemia cannot be controlled.

## METHODS OF INDUCTION OF LABOR

Various measures have been advised for induction of labor. If the need for induction is not immediately urgent, administration of castor oil and quinine sulphate (not more than a total dosage of 20 grains, or 1.3 Gm.) may be tried. Physicians who have had experience with pituitary preparations sometimes use five or six doses of 1 to 2 minims (0.07 to 0.13 cc.) of the extract of the posterior lobe or of its oxytocic fraction, repeated at intervals of half an hour, to induce labor. This medication is given subcutaneously and is discontinued as soon as labor begins, its use, however, is hazardous.

**Mechanical Induction**—If the need is more immediate it is probable that the simplest and safest method is to rupture the amniotic sac. This procedure may be inadvisable because of certain conditions. One of these conditions is fetal and pelvic disproportions, another is the presence of a long, thick, uneffaced uterine cervix, which is likely to cause failed induction or dystocia. The patient's vulvar hair is clipped or shaved, the vulva

and perineum are properly cleansed and prepared, and the physician scrubs and gloves his hands as for any intra-uterine manipulation. Some antiseptic solution, such as 1 to 2 fluidounces (30 to 60 cc.) of 1,000 aqueous solution of mercurochrome, metaphen or merthiolate may be instilled into the vagina. The membranes are ruptured by means of a sterilized orange stick or other appropriate instrument. Labor is induced by loss of amniotic fluid rather than by rupture of the sac, and in some instances the fetal head or breech must be pushed up just enough to allow the major portion of the fluid to leak out of the uterus. If labor does not begin within twelve hours after this, 1 ounce (30 cc.) of one of the named antiseptic solutions may be instilled into the vagina every four hours. In cases of the sort under consideration, morphine, chloral, derivatives of barbituric acid or other sedatives are of value in lessening irritability of the nervous system before, during and after labor.

## ECLAMPTIC CONVULSIONS

For many years it was the prevailing custom to deliver as soon as possible if the woman had eclamptic convulsions. Turning from the rapid, forcible dilation of the cervix and immediate delivery formerly employed which was followed by a maternal mortality of between 20 and 30 per cent, some physicians in more recent years have resorted to immediate cesarean section, which in many localities has a maternal mortality almost as high. Again too much emphasis cannot be put on the importance of treating the disease first and the pregnancy later. After the convulsive manifestation of the disease has been controlled, termination of pregnancy and method of delivery can be considered from the obstetric standpoint.

## TREATMENT OF ECLAMPSIA

As soon as possible after the onset of convulsions, the patient should be given morphine hypodermically. An initial dose of from one-fourth to one half gram (0.016 to 0.032 Gm.) is used, depending on the severity of the attack and the respiratory rate. Some physicians assert that administration of morphine, in repeated doses constitutes an excellent method of treatment of eclamptic convulsions, whether the morphine is used alone or in conjunction with other therapy not aimed at sedation. After the initial dose, this procedure calls for repeated injections of morphine from one-fourth to one-sixth grain (0.016 to 0.01 Gm.) every half hour, until the rate of respiration is reduced to 12 or 14 per minute. Subsequent doses should be given whenever the respirations rise to more than 16 per minute. There is wide variation in the respiratory response to morphine yet that response is the best available index of sufficient dosage, and if this method of treatment is decided on the drug must be administered until the desired effect is obtained. The dose should be graduated according to the size of the patient, the severity of the seizures and its effect.

Many physicians who practice obstetrics are administering successfully 20 cc. of 10 per cent solution of magnesium sulphate intravenously, or a similar amount of 25 per cent solution of magnesium sulphate intramuscularly, every hour until the convulsions have been controlled. Solution of magnesium sulphate may cause sloughing of subcutaneous or fatty tissue, and care must be taken to place the solution in the vein or well into the muscle, as the case may be. Magnesium sulphate is said to act in four ways: first as a depressant

of irritability of nerve cells, second, by drawing fluid from the edematous or wet brain, thereby lessening the coma, third, by drawing fluid from the body tissues and increasing the urinary output, and, fourth, by reducing the respiratory exchange. If control of convulsions is not obtained soon, sedatives such as sodium amytal, from 6 to 12 grains (0.4 to 0.77 Gm.), or pentobarbital sodium, from 6 to 9 grains (0.4 to 0.6 Gm.), may be given intravenously.

When the convulsions are under control, or sooner if desired solution of dextrose is given intravenously. The beneficial effects of hypertonic solution of dextrose in cases of toxemia are as follows: It replenishes depleted glycogen, combats acidosis, aids in withdrawal of fluids from the edematous brain and body tissues, dilutes these fluids, and promotes diuresis. For this purpose 250 cc. of 25 per cent solution is given, or 1,000 cc. of 10 per cent solution, if the patient is in need of fluids. In giving solution of dextrose the physician must observe several precautions: 1. The dextrose should be obtained in ampules or in specially prepared liter flasks of proper dilution, from a reliable pharmaceutical house. 2. If ampules are used, the water in which the dextrose is diluted should be freshly distilled or double distilled. 3. New rubber tubing should never be used unless it has been boiled in an alkaline solution. 4. The solution of dextrose should be given warm (100 F.) and slowly. The solution of dextrose may be given every eight hours until labor is over and often is of value after delivery.

Because the interval between convulsions may be short, or sometimes prolonged, it may be difficult to determine when the disease is under control. An indication that the eclampsia is under control is cessation of convulsions and returning consciousness, together with the appearance of perspiration and establishment of diuresis and catharsis. The degree of unconsciousness and coma is probably a better prognostic sign than the convulsive attacks. The patient whose periods of unconsciousness are prolonged and gradually become deeper offers a more serious prognosis than one with more convulsive attacks but milder degrees of unconsciousness.

After the control of convulsions it is necessary to decide how pregnancy should be conducted in the best interest of mother and fetus. When gestation has reached the period of viability it is safer for both of them if the pregnancy is terminated. When the period of viability has not been reached, the chance of the fetus surviving is exceedingly remote and the life of the mother is endangered by continuation of the pregnancy. The course of the physician is clear. When the convulsions have been checked, termination of pregnancy should be advised by the method best suited to the obstetric indications and environment. If the patient or her relatives insist on deferring termination of pregnancy, measures previously described may be continued as indicated, until the period of viability.

Depending on the condition of the patient, induction of labor by medical measures may be attempted, although usually to avoid delay it is better to induce labor by rupturing the membranes and draining the amniotic fluid. The question of cesarean section is decided by the obstetric indications in each case rather than by the presence of toxemia and convulsions. Toxemia in itself is not an indication for cesarean section. During labor the use of sedatives is advisable and magnesium sulphate or solution of dextrose is used when indications arise.

#### POSTPARTUM CONVULSIONS

The possible occurrence of convulsions does not end with termination of pregnancy. The physician should remain with a toxemic patient for at least an hour after delivery of the infant, whether or not the mother has had convulsions. The use of sedatives and other measures to combat the toxemia may be indicated by restlessness of the patient, persistently high blood pressure, edema or other symptoms.

#### COMMENT

In the foregoing description of the management of preeclamptic or nonconvulsive toxemia, and in the description of the management of convulsive toxemia eclampsia, no attempt has been made to include all available methods of examination and treatment but rather to give a brief outline of conservative, comparatively simple, and reasonably effective measures available to the general practitioner as well as to the specialist in obstetrics. Severe preeclamptic toxemia or eclampsia constitutes a hazard in the management of which consultation is highly desirable and adequate hospital facilities are distinctly advantageous.

### Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
HOWARD A. CARTER, Secretary

#### AN APPRECIATION

The Council on Physical Therapy wishes to take this opportunity to express its appreciation for the valuable advice and assistance of the following consultants, who have so generously offered their services in the investigation of apparatus and in the consideration of other problems which have confronted the Council: Drs. Fred L. Adair, Francis Heed Adler, Howard Ballenger, M. Herbert Barker, William Bierman, Walter M. Boothby, Curtis Burnam, Fremont Chandler, Eliot R. Clark, Virgil Counsellor, Alfred Cowan, Arthur Curtis, L. F. Curtiss, Irving S. Cutter, Geza de Takats, Cecil K. Drinker, F. H. Ewerhardt, Samuel Feinberg, Jonas Friedenwald, Sanford Gifford, Samuel Gordon, Leon A. Greenberg, George P. Gubor, Allan Hemingway, John Severy Hibben, J. Burton Hoag, Myrta M. Knowles, Disraeli Kobak, A. J. Kotkis, Richard Kovacs, Herman L. Kretschmer, Eugene Landis, Henry Laurens, Philip Lewin, Franklin P. Lowry, John MacNie, Charles O. Molander, Bernard Mortimer, Tell Nelson, Clarence A. Neymann, Earle Phelps, George E. Pfahler, Lewis J. Pollock, Leander Riba, George E. Shambaugh, Alfred E. Shaw, Clifford B. Walker, Grant E. Ward and John G. Wilson.

#### ADLANCO ULTRATHERM ACCEPTABLE (Short Wave Diathermy)

Manufacturer: Adlanco X-Ray Corporation, 54 Lafayette Street, New York

The Ultratherm is a short wave diathermy machine employing vacuum tubes for generating high frequency alternating currents. The circuit is of a well known type recognized as delivering good output at approximately 6 meter wavelength for the given cost of manufacture. 'Raw' alternating current is impressed on the plates of the vacuum tubes, hence only one half of the wave—the positive part, of the 60 cycle alternating current—is used in the generation of high frequency currents (fig. 1).

The internal construction of the machine, that is the transformers, condensers and circuit, appear satisfactory, following the best engineering practice. All parts are rigidly constructed which is an important factor in the production of high frequency

electrical currents. In a test conducted for the Council, the transformer was declared satisfactory and the temperature rise kept within the limits of safety.

The internal temperature within the cabinet itself reaches, after several hours of operation 76 C. Since the cabinet is made of metal and well insulated, this high temperature will not cause any serious damage. The shipping weight is 250 pounds.

The patient is at no time directly connected with the generating circuit that is with the 60 cycle alternating current. The use of "indirect" coupling is desirable as it eliminates the possibility of the patient receiving any low voltage electrical shocks (fig 2).

The register on the side of the machine recording the number of hours of service on the vacuum tubes is meritorious.

In a Council test the wavelength of a stock machine was found to be between 56 and 6 meters, according to the conditions under which the machine was operating. These measurements were made on both the wave meter and Lecher wires.

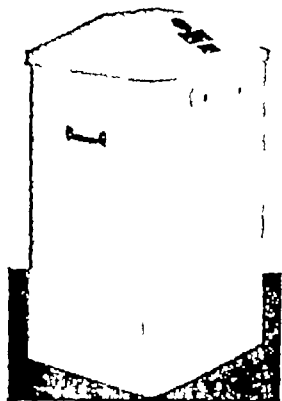


Fig. 1—Adlanco Ultratherm

Physical tests for power input were made on the Ultratherm with a Weston wattmeter. On an average of five tests with the Adlanco Ultratherm operating at full load, the power input was 1514 watts. So far as it is known, there is no standard or acceptable method of determining the power output of a short wave diathermy machine.

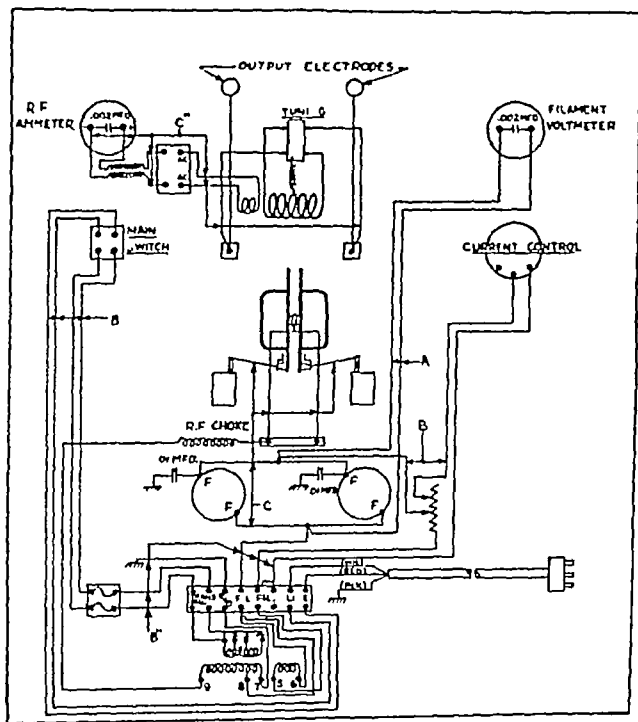


Fig. 2—Circuit of Adlanco Ultratherm

The high frequency meter on the panel of the Ultratherm does not indicate the amount of current flowing through the patient but it does indicate when the patient's circuit is in resonance. The patient's tolerance, therefore, is the controlling factor for the energy applied during treatment. One other meter on the machine records the voltage across the filaments of the tubes.

A stock Ultratherm was placed in a clinic acceptable to the Council on Physical Therapy and was used in the treatment

of many conditions in which diathermy is indicated. The machine appeared to give satisfactory service. The heating effects of the Ultratherm were investigated in a series of observations on anesthetized dogs. An average of twelve observations show that there was a substantial rise in temperature in the kidney, rectum, liver and spleen. In this series of tests the unit operated at full load.

The tissue heating effect in the human thigh was also investigated. The thermocouples were introduced into the subcutaneous and deep-lying tissues (quadriceps extensor) and after twenty minutes' treatment on eight subjects and the machine operating at the patient's tolerance a substantial rise in temperature was observed in the subcutaneous and muscle tissues. The evidence indicates that the temperature gradient is from the outside to the inside. In other words the temperature is higher nearer the surface of the skin than at any point below the surface.

The clinical indications for the Ultratherm are comparable to those of the conventional diathermy. Claims such as specific physiologic action, specific bactericidal action for certain wavelengths, and even heating through the tissues, were not substantiated in the Council's investigation. The machine is not recommended by the manufacturer for surgical diathermy or for hyperpyrexia treatments. Burns are possible, but the likelihood of their occurring with the Ultratherm is not as great as with the conventional diathermy.

In view of the favorable report on this machine, the Council on Physical Therapy voted to include the unit in its list of accepted devices for physical therapy.

### INDUCTOTHERM ACCEPTABLE (Short Wave Diathermy)

Manufacturer: General Electric X-Ray Corporation, Chicago.

The Inductotherm is a recent addition to the diagnostic and therapeutic line of the General Electric X-Ray Corporation. The purpose of this unit is to administer therapeutic heat to the body tissues thus producing a heating effect comparable to that of diathermy. Conventional electrodes are not used, and no metal to skin contact is made with the patient. High frequency electrical energy is applied through a flexible heavily insulated cable, which is wound around or about the part to be treated. The exact physical phenomenon taking place within the tissues causing the heat to be generated has not been fully explained. It is believed, however, that within the helical coil through which the high frequency current from the device flows, there is set up an alternating magnetic flux, having the same frequency as the current in the coil. If a conductive material is placed within the coil, an electromotive force will be induced in it. As a result of this induced voltage, eddy currents of the same frequency as the exciting current will flow in the conductive material. If living tissue is subjected to the magnetic field within the coil of the Inductotherm, heat will be produced in such tissue, but there will be no neuromuscular response to the eddy currents induced in the tissue because the frequency of these currents is very high, 12,000,000 cycles per second far above the frequencies that elicit muscular contraction.

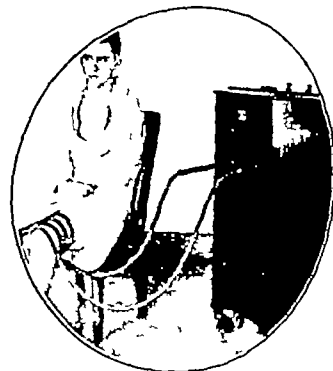


Fig. 1—Inductotherm

The circuit used in the Inductotherm is of the Hartley push-pull type, employing power vacuum tubes. The patient circuit is connected inductively to the oscillating or tank circuit. One stock unit was investigated in a laboratory acceptable to the Council. The electrical insulation was considered satisfactory.

throughout. The coils and condensers were rigidly mounted and the machine was noiseless in operation. The wavelength measured about 243 meters. Figure 2 is a diagram of the circuit.

It was also found that the wood at the top of the cabinet heated to a temperature of between 80 and 90 C after about an hour's operation under full load. It maintained this value thereafter. The transformer was tested for heating. A two hour heat test under moderately heavy load showed a rise of 19 degrees C for the plate transformer and 44 degrees C for the filament transformer. These temperature limits were considered satisfactory and safe. The shipping weight is about 200 pounds.

The power input of the Inductotherm was measured on a Weston wattmeter while the machine was operating at full load. The power input was 572 watts (average of five tests). At the present, so far as it is known, there is no standard or acceptable method of determining the power output of short wave diathermy machines.

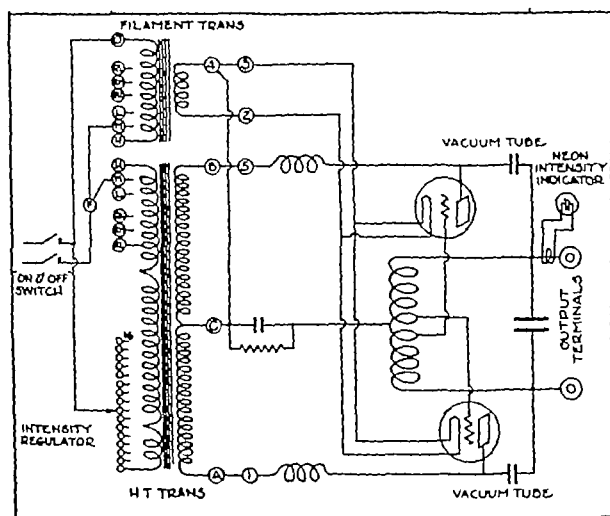


Fig 2—Circuit of Inductotherm

The heating effects of the Inductotherm were investigated in a series of observations on anesthetized dogs. An average of twelve observations showed that there was a substantial rise of temperature in the kidney, rectum, liver and spleen. In this series of tests the unit operated under full load.

The tissue heating effect in the human thigh was also investigated. Thermocouples were introduced into the subcutaneous and deep-lying tissues (quadriceps extensor) and after twenty minutes treatment with the machine operating at the patient's tolerance, and using the helical coil, a substantial rise in temperature was observed in the subcutaneous and muscle tissues. The evidence indicates that the temperature gradient is from the outside to the inside, in other words, the temperature at any point below the surface of the skin is less than at the surface.

No specific therapeutic claims are made for the Inductotherm, aside from the fact that the unit will generate heat within tissues and that the device can therefore be used satisfactorily in the treatment of conditions amenable to heat therapy.

The unit was used for ten months in a clinic acceptable to the Council. Both the helical coil and the so-called pancake coil were employed. More uniform distribution of heating was obtained by the helical coil than by the pancake coil. Burns are possible with this machine but the chances of burns are far less than for conventional diathermy. Ordinary care is all that is necessary to prevent burns.

If the physician acquiring the Inductotherm plans to use it for administering hyperpyrexia treatments, he is advised to have the company engineer adjust it for this form of therapy.

In view of the foregoing report the Council on Physical Therapy voted to include the Inductotherm in its list of accepted devices.

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE COUNCIL ON PHARMACY AND CHEMISTRY HAS VOTED TO ACCEPT EPHEDRINE HEMIHYDRATE FOR INCLUSION IN NEW AND NONOFFICIAL REMEDIES AND HAS REVISED IN SOME PARTICULARS THE TESTS AND STANDARDS FOR EPHEDRINE ANHYDROUS. THE DESCRIPTIONS APPEAR BELOW.

PAUL NICHOLAS LEECH, Secretary

**EPHEDRINE ANHYDROUS**—Ephedrina Sicca—*lacrovo*  $\alpha$ -hydroxy- $\beta$ -methyl-amino-propylbenzene— $(C_9H_9CHOHCHNCH_2CH_3)$ . An alkaloid derived from Ephedra equisetina.

**Actions and Uses**—The same as those of the ephedrine salts. The free alkaloid is employed in mediums, such as oils, in which it is more soluble than the salts.

**Dosage**—One per cent, in oil, may be used for local application to mucous membranes.

Ephedrine anhydrous occurs as an unctuous, almost colorless solid that tends to crystallize as needles. The liquefied alkaloid boils between 152 and 153 C at 25 mm pressure. It is freely soluble in alcohol, chloroform and ether and soluble in liquid petrolatum and water, the solutions being strongly alkaline to litmus paper moistened with water. Dissolve 0.01 Gm of ephedrine anhydrous in 1 cc of water and add 0.1 cc of copper sulphate solution (10 per cent) followed by 1 cc of sodium hydroxide solution (20 per cent); a reddish purple color develops. To this solution add 1 cc of ether, shake the mixture and compare with a tube made up similarly but without using ether; the reddish purple is partially extracted (apparently decolorized by the ether). Dissolve 0.05 Gm of ephedrine anhydrous in 10 cc of chloroform and allow the crystals to stand for 18 hours; evaporate spontaneously; white crystals of ephedrine hydrochloride appear; wash with 2 cc of chloroform; dry spontaneously; the crystals melt at 214-220 C.

Dissolve 0.05 Gm of ephedrine anhydrous in from 30 to 40 cc of distilled water; add 1 cc of diluted nitric acid and 1 cc of silver nitrate solution; less turbidity results than in a control tube using 0.1 cc of fiftieth normal hydrochloric acid (limit of chloride). Dissolve 0.1 Gm of ephedrine anhydrous in from 30 to 40 cc of distilled water; add 1 cc of diluted hydrochloric acid and 1 cc of barium chloride solution; no turbidity develops in ten minutes (limit of sulphate).

Transfer about 1 Gm of ephedrine anhydrous accurately weighed, to a 10 cc graduated flask and dissolve by adding 7 cc of water and 1 cc of hydrochloric acid; dilute the solution to 10 cc; transfer the solution to a polarimetric tube and take the rotation at 25 C; the specific rotation  $[\alpha]_{25/D}$  of the hydrochloride falls between -33.0 and -35.5. (The factor ephedrine to ephedrine hydrochloride is 1.22. The weight of the hydrochloride should be corrected for the water in the ephedrine by dividing the calculated weight by the percentage of ephedrine obtained in the titration.)

Dissolve about 0.2 Gm of ephedrine anhydrous accurately weighed in 5 cc of neutralized alcohol; add 5 drops of bromocresol green solution and an excess of tenth normal hydrochloric acid and titrate the excess using tenth normal sodium hydroxide solution; the acid used in neutralizing the ephedrine is equivalent to not less than 98 per cent nor more than 100 per cent of ephedrine anhydrous.

Dissolve about 0.2 Gm of ephedrine anhydrous accurately weighed in a tared beaker in 10 cc of absolute ether; evaporate spontaneously; dry the residue for 18 hours in a desiccator containing calcium chloride and ephedrine; the temperature not being allowed to exceed 22 C; the loss is not greater than 1.5 per cent.

Fit a 100 cc beaker with a cork stopper through which has been inserted a test tube  $2\frac{1}{2}$  inches long and nine sixteenths inch in diameter; remove the stopper and accompanying test tube from the beaker; transfer 5 Gm of ephedrine anhydrous to the test tube; melt the material by immersing the test tube in hot water; cool the test tube and contents to about 30 C; place the stopper and test tube in the beaker; stir slowly the supercooled liquid using an appropriate Anschutz thermometer; record the highest temperature obtained as the material congeals; the congealing point is between 31.0 and 37.5 C.

Heat about 0.5 Gm of ephedrine anhydrous accurately weighed in a platinum dish until constant weight is obtained; the ash is less than 0.1 per cent.

**EPHEDRINE HEMIHYDRATE**—Ephedrina semi-aquosa—*lacrovo*  $\alpha$ -hydroxy- $\beta$ -methyl-amino-propylbenzene with one-half molecule of water of crystallization  $C_9H_9CHOHCHNHCH_2CH_3 \cdot \frac{1}{2}H_2O$ . A hydrated alkaloid derived from Ephedra equisetina.

**Actions and Uses**—The same as those of the ephedrine salts. The free alkaloid is employed in mediums, such as oils, in which it is more soluble than the salts.

**Dosage**—One per cent, in a suitable base, may be used for local application to mucous membranes.

Ephedrine hemihydrate occurs as colorless hexagonal plates. The liquefied alkaloid boils at 152-153 C at 25 mm pressure. It is freely soluble in alcohol, ether and chloroform (the chloroform solution is turbid owing to the insolubility of the accompanying water). It is soluble in water. All of these solutions are strongly alkaline to litmus paper moistened with water. It is soluble in liquid petrolatum but the solution is turbid owing to the insolubility of the accompanying water.

Dissolve 0.01 Gm of ephedrine hemihydrate in 1 cc of water and add 0.1 cc of copper sulphate solution (10 per cent) followed by 1 cc of sodium hydroxide solution (20 per cent); a reddish purple color develops. To this solution add 1 cc of ether; shake the mixture and compare with a tube made up similarly but without using ether; the reddish purple is partially extracted (apparently decolorized by the ether).

Dissolve 0.05 Gm of ephedrine hemihydrate in 10 cc of chloroform and allow the solution to stand 18 hours, evaporate the chloroform spontaneously; white crystals of ephedrine hydrochloride appear wash with 2 cc of chloroform dry spontaneously; the crystals melt at 214-220 C.

Dissolve 0.05 Gm of ephedrine hemihydrate in from 30 to 40 cc of distilled water add 1 cc of diluted nitric acid and 1 cc of silver nitrate solution; less turbidity results than in a control tube containing the same quantity of reagents to which has been added 0.1 cc of fiftieth normal hydrochloric acid (limit of chloride). Dissolve 0.1 Gm of ephedrine hemihydrate in from 30 to 40 cc of distilled water add 1 cc of diluted hydrochloric acid and 1 cc of barium chloride solution; no turbidity develops in 10 minutes (limit of sulphate).

Transfer about 1 Gm of ephedrine hemihydrate accurately weighed to a 10 cc graduated flask and dissolve by adding 7 cc of water and 1 cc of hydrochloric acid; dilute the solution to 10 cc transfer the solution to a polarimetric tube and take the rotation at 25 C; the specific rotation  $[\alpha]_{25}^D$  of the hydrochloride falls between -33.0 and -35.5. (The factor ephedrine to ephedrine hydrochloride is 1.22. The weight of the hydrochloride should be corrected for the water in the ephedrine by dividing the calculated weight by the percentage of ephedrine obtained in the titration.)

Dissolve about 0.2 Gm of ephedrine hemihydrate, accurately weighed in 5 cc of neutralized alcohol add 5 drops of bromocresol green solution and an excess of tenth normal hydrochloric acid and titrate the excess using tenth normal sodium hydroxide solution; the acid used in neutralizing the ephedrine is equivalent to not less than 94 per cent nor more than 96 per cent of ephedrine.

Dissolve about 0.2 Gm of ephedrine hemihydrate accurately weighed in a tared beaker in 10 cc of absolute ether evaporate spontaneously, dry the residue for 18 hours in a desiccator containing calcium chloride and ephedrine the temperature not being allowed to exceed 22 C; the loss is not greater than 6 per cent nor less than 3 per cent.

Fit a 100 cc beaker with a cork stopper through which has been inserted a test tube 2 1/2 inches long and nine-sixteenths inch in diameter; remove the stopper and accompanying test tube from the beaker; transfer 5 Gm of ephedrine hemihydrate to the test tube melt the material by immersing the test tube in hot water; cool the test tube and contents to about 30 C; place the stopper and test tube in the beaker; stir the supercooled liquid slowly using an appropriate Anschütz thermometer; record the highest temperature obtained as the material congeals; the congealing point is between 36 and 39.4 C.

Melt about 0.5 Gm of ephedrine hemihydrate accurately weighed in a platinum dish until constant weight is obtained; the ash is less than 0.1 per cent.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
RAYMOND HERTWIG Secretary

### NOT ACCEPTIBLE

#### OWNEN'S ORIGINAL LAXATIVE HEALTH BREAD

The Becker Bread Company of East St. Louis, Ill., sells bread named "Ownen's Original Laxative Health Bread," which contains a substantial quantity of the purgative drug phenolphthalein. The label carries the statements:

Two slices a day keeps constipation away. Baked by secret formula formulated by Edward Ownen, International food specialist, contains vegetables, fruits, soft wheat bran and pure honey, endorsed by mothers everywhere.

**Misbranded and Adulterated**—The appearance of the bread crumb indicates the presence of 'vegetables, fruits and wheat bran,' but neither the appearance nor flavor discloses to the unsuspecting consumer the undeclared drug ingredient phenolphthalein, a well known purgative. The presence of the drug is readily demonstrated by the addition of alkali solution to the crumb producing a brilliant red color. The bread is adulterated and misbranded under the General Food and Drug Law of the State of Illinois and passing in interstate commerce, of the federal Food and Drugs Act.

**Medicated Foods to Be Condemned**—The medication of a common food such as bread with the drug phenolphthalein must be viewed with apprehension and concern. This drugged bread cannot be distinguished from nondrugged breads. The label does not warn the consumer of the drug content. Prominent label declaration of the drug, however, would not prevent possible harm that may arise from continued use of the article. Addition of drugs to common foods tends to promote indiscriminate self medication and is to be unqualifiedly condemned as a menace to public health.

**Discussion of Label**—The prominent claim "2 slices a day keeps constipation away" gives false assurance that this bread will prevent constipation whatever the cause. Continuous use of a purgative such as phenolphthalein may lead eventually to more serious chronic constipation, owing to decreasing response

of the bowel. The latter state is worse for the individual than the former. The drug-laxative habit is to be shunned by those desiring to protect health. Those suffering from constipation not readily yielding to a well balanced diet containing substantial indigestible bulk should consult a competent physician.

The statement "Baked by secret formula, formulated by Edward Ownen, International Food Specialist" enshrouds the product in mystery and leads the easily credulous to believe that the bread has special merit because devised by the allegedly famous 'food specialist' Edward Ownen. Edward Ownen is unknown among recognized authorities in foods and nutrition.

The unsupported vague allegation "Endorsed by mothers undeservingly induces confidence in the bread on the part of persons not suspecting the true nature and possible harmfulness of the food. No bread warrants the misleading designation 'health bread.' No one food is capable of giving or producing health. The entire well balanced diet is only one of the many essentials for health.

Medicated bread such as this is potentially harmful to public health and should be eliminated from the market by government agencies having jurisdiction. The advertising is distinctly detrimental to public welfare and proper and honest advertising practices of the many food merchandisers who are earnestly attempting to serve the public ethically.

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THEIR PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

### WARRANTY SIEVED APPLES

**Manufacturer**—The Nielsen Corporation, Ltd., Oakland Calif.

**Description**—Sieved apples prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt.

**Manufacture**—Purchased canned peeled, quartered apples are used. Brown spots or other undesirable portions are eliminated, and the subsequent processing and canning are essentially the same as described for Warranty Sieved Spinach (THE JOURNAL, Feb 2 1935 p 399).

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	88.8
Total solids	11.2
Ash	0.3
Sodium chloride	0.1
Fat (ether extract)	0.2
Protein (N X 6.25)	0.8
Reducing sugars as invert sugar	0.7
Sucrose	0.6
Crude fiber	9.7
Carbohydrates other than crude fiber (by difference)	0.3
Titratable acidity as malic acid	

**Calories**—0.4 per gram 11 per ounce

**Vitamins**—The method of preparation and processing insures the retention in high degree of the natural vitamin values.

**Claims of Manufacturer**—Specially intended for infants, children and convalescents and for special smooth diets. Only warning is required for serving.

### 18-K BRAND FANCY MIXED VEGETABLES

**Distributor**—Winston and Newell Company, Minneapolis

**Packer**—The Larsen Company, Green Bay, Wis.

**Description**—Mixture of carrots, potatoes, celery, green beans, cabbage, peas, corn, lima beans, onions, sweet peppers, salt and water prepared by efficient methods for retention in high degree of the natural mineral and vitamin values of the raw vegetables, the same as Larsen's Veg-All—'A Magic Garden' for Soup, Salads, Vegetable Dishes (THE JOURNAL, Aug 12 1933, p 525).



# THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, EIGHTY SIXTH ANNUAL SESSION  
CANADIAN MEDICAL ASSOCIATION, SIXTY SIXTH ANNUAL SESSION

ATLANTIC CITY, NEW JERSEY, JUNE 10 14, 1935

## OFFICIAL CALL

### TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The eighty-sixth annual session of the American Medical Association will be held in Atlantic City, June 10-14, 1935

The House of Delegates will convene at 10 a m, Monday, June 10 In the House the representation of the various constituent associations for 1935, 1936 and 1937 is as follows

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	1
California	7	New York	17
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	7
District of Columbia	1	Oklahoma	3
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	3	Tennessee	3
Kansas	2	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	6	West Virginia	3
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	5	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	1
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each

The Scientific Assembly of the Association will open with the general meeting to be held at 8 p m Tuesday, June 11 The sections will meet Wednesday Thursday and Friday, June 12, 13 and 14 as follows

#### CONVENING AT 9 A M THE SECTIONS ON

Obstetrics	Gynecology and	Pathology and Physiology
Abdominal Surgery		Preventive and Industrial Medicine and Public Health
Pediatrics		
Laryngology, Otolaryngology and Rhinology		Urology
Miscellaneous Topics	Session on Anesthesia	Session on Orthopedic Surgery
History of Medicine	Session on Military Medicine	

#### CONVENING AT 2 P M THE SECTIONS ON

Practice of Medicine	Nervous and Mental Diseases
Surgery, General and Abdominal	Dermatology and Syphilology
Ophthalmology	Gastro Enterology and Proctology
Pharmacology and Therapeutics	Radiology

The Registration Department will be open from 8 30 a m until 5 30 p m, Monday Tuesday Wednesday and Thursday, June 10 11, 12 and 13 and from 8 30 a m to 12 noon Friday, June 14

WALTER L. BIERING President  
F. C. WARRSHILS Speaker House of Delegates  
OLIN WEST Secretary

## MEMBERS OF THE HOUSE OF DELEGATES

### A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included

### STATE DELEGATES

<b>ALABAMA</b> J N Baker Montgomery A A Walker Birmingham	<b>MAINE</b> Warren E. Kershner Bath
<b>ARIZONA</b> J D Hamer Phoenix	<b>MARYLAND</b>
<b>ARKANSAS</b> Leonice J Kosminsky Texarkana William R Brooksber Fort Smith	<b>MASSACHUSETTS</b> J M Birnie Springfield C E Mongan, Somerville J F Burnham, Lawrence Richard H Miller, Boston E F Cody New Bedford Reginald Fitz, Boston
<b>CALIFORNIA</b> Lyle C Kinney San Diego Fred B Clarke Long Beach Elbridge J Best San Francisco Charles A Dukes Oakland Clarence G Toland Los Angeles Junius B Harris Sacramento William R Molony Sr Los Angeles	<b>MICHIGAN</b> L J Hirschman Detroit C S Gorsline Battle Creek H A Luce Detroit J D Brook Grandville C R Keyport Grayling
<b>COLORADO</b> Crum Epler Pueblo John W Amesse Denver	<b>MINNESOTA</b> I T Christison St Paul H M Johnson Dawson W F Braasch Rochester
<b>CONNECTICUT</b> George Blumer New Haven Walter R Steiner Hartford	<b>MISSISSIPPI</b> John W D Dicks Natchez
<b>DELAWARE</b> C E. Wagner Wilmington	<b>MISSOURI</b> W H Breuer St James A R McComas Sturgeon W M West Monett
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<b>FLORIDA</b> Bundy Allen Tampa	<b>NEBRASKA</b> B F Bailey Lincoln R W Fouts Omaha
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<b>IDAHO</b> E N Roberts Pocatello	<b>NEW HAMPSHIRE</b> Deering G Smith Nashua
<b>ILLINOIS</b> C J Whalen Chicago William D Chapman Silvis J J Phlock Chicago C Henry Mundt Chicago G C Ottrich Belleville	<b>NEW JERSEY</b> E R Mulford Burlington A Haines Lippincott Camden Walt P Conaway Atlantic City John F Hagerty Newark
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A S Lamb Vancouver B C  
A D Lapp Vancouver B C  
Forrest Leeder Victoria B C  
A. LeSage Montreal Que.  
D Slater Lewis Montreal Que  
David Low Regina Sask  
D C Malcolm St John N B  
J K Malloy Cardston Alta  
C F Martin Montreal Que

A T Mathers Winnipeg Manit  
J C Meakins Montreal Que  
A H Meneely Coronation Alta  
H H Milburn Vancouver B C  
Ross Millar Ottawa Ont  
D P Miller, Prince Albert Sask  
W T B Mitchell Montreal Que  
E W Montgomery Winnipeg  
Manit  
W L Muir Halifax N S  
A R Munroe, Edmonton Alta  
G H Murphy, Halifax N S  
H H Murphy Victoria B C  
Daniel Murray Tatamagouche  
N S  
E R Myers Saskatoon Sask  
H E. MacDermot, Montreal Que  
J S McEachern Calgary Alta  
A J McGanity Kitchener Ont  
J K. McGregor Hamilton Ont  
R E McKechie Vancouver  
B C  
S H McKee Montreal Que  
D W MacKenzie Montreal Que  
J W MacKenzie Charlottetown  
P E I  
K. A MacKenzie Halifax N S  
Murray MacLaren St John N B  
Hugh MacLean Regina Sask  
W J P MacMillan Charlotte-  
town P E I  
Helen MacMurphy Toronto Ont  
D S Macnab Calgary, Alta  
W J McNally Montreal Que  
Daniel MacNeil Glace Bay N S

J F McNeill, Summerside  
P E I  
W D McPhail Kildersley Sask  
J A McPhee Summerside  
P E I  
F C Neal Peterborough, Ont  
A G Nicholls, Montreal, Que  
J R Nugent St John N B  
F S Patch Montreal Que  
G R Peterson Saskatoon, Sask  
Paul Poirier Montreal Que  
Alexander Primrose Toronto Ont  
C W Prowd Vancouver B C  
George A Ramsay London Ont  
J W Richardson Calgary Alta  
G W Rogers Dauphin Manit  
F W Routley, Toronto Ont.  
T C Routley Toronto Ont.  
E Stanley Ryerson Toronto, Ont  
H B Small Ottawa Ont  
W H Smith Winnipeg Manit  
Howard Spohn Vancouver B C  
G D Stanley Calgary Alta  
James Stevenson Quebec, Que.  
J A Stewart Victoria B C  
G F Strong Vancouver B C  
F F Tisdall Toronto Ont  
Ethlyn Trapp Vancouver B C  
E E Trotter Montreal Que  
G C VanWart Fredericton N B  
C J Veniot, Bathurst N B  
G J Wherrett Ottawa Ont  
Ward Woolner Ayr Ont  
C F Wyld Montreal, Que  
A MacG Young Saskatoon Sask  
George S Young Toronto Ont

## CANADIAN MEDICAL ASSOCIATION

HEADQUARTERS AT HADDON HALL HOTEL

MONDAY JUNE 10

9 30 a m—Meeting of Council, West Room  
1 00 p m—Luncheon, Rutland Room, Installation of the  
President  
2 30 p m—Meeting of Council, West Room

5 00 p m—Annual Meeting, Canadian Medical Protective  
Association, West Room

5 30 p m—Meeting of Nominating Committee, Tower Room

TUESDAY, JUNE 11

9 30 a m—Meeting of Council, West Room.  
2 30 p m—Meeting of Council, West Room

## PROGRAM COMMITTEE

President Elect J C Meakins Montreal  
Chairman of Council George S Young Toronto  
Chairman Central Program Committee  
Alexander Primrose Toronto  
General Secretary T C Routley Toronto  
Section of Medicine—  
Chairman Duncan Graham Toronto  
Secretary K. A. MacKenzie Halifax  
Section of Surgery—  
Chairman W E Gallie Toronto  
Secretary A R Munroe, Edmonton  
Section of Obstetrics and Gynecology—  
Chairman John Fraser Montreal  
Secretary D C Malcolm, St. John N B  
Section of Pediatrics—  
Chairman Alan Brown, Toronto  
Secretary Howard Spohn Vancouver  
Section of Ear Nose and Throat—  
Chairman W J McNally Montreal  
Secretary William Hackney Calgary

Section of Eye—  
Chairman W G M Byers Montreal  
Secretary A R Cunningham Halifax  
Section of Military Medicine—  
Chairman John Gunn Calgary  
Secretary W H Delaney Quebec  
Section of Urology—  
Chairman D W MacKenzie Montreal  
Secretary E. R Myers Saskatoon  
Section of Radiology—  
Chairman W A Jones Kingston  
Secretary H H Murphy Victoria  
Section of Anesthesia—  
Chairman Wesley Bourne Montreal  
Secretary W L Muir Halifax  
Section of Public Health and Industrial  
Medicine—  
Chairman W J P MacMillan Charlottetown  
Secretary A Grant Fleming Montreal  
Section of Historical Medicine—  
Chairman W W Francis Montreal  
Secretary H E. MacDermot Montreal

Section of Pharmacology and Therapeutics—  
Chairman V E Henderson Toronto  
Secretary G F Strong Vancouver  
Section of Pathology and Physiology—  
Chairman William Boyd Winnipeg  
Secretary C H Best Toronto  
Section of Nervous and Mental Diseases—  
Chairman A T Mathers Winnipeg  
Secretary W V Cone Montreal  
Section of Dermatology and Syphilology—  
Chairman J F Burgess Montreal  
Secretary Paul Poirier Montreal  
Section of Orthopedic Surgery—  
Chairman R I Harris Toronto  
Secretary G A Ramsay London  
Section of Gastro-Enterology and Proctology—  
Chairman R H M Hardisty Montreal  
Secretary J K McGregor Hamilton  
Section of Scientific Exhibits—  
Chairman Slater Lewis Montreal



sented at the Garden Pier Theater, and special productions are offered at the Globe Theater, another Boardwalk playhouse

Restaurants, hotel grills and supper clubs have taken on a new gaiety and lovers of good food have a wide range of choice. Famous dance orchestras and special programs of entertainment are featured in the hotel grills

#### LOWER PRICES

The rates of Atlantic City's magnificent hotels are lower now than they have been within the last twenty years. The same is true of restaurants and places of amusements for the city has answered the challenge of Florida resorts by the slashing of prices

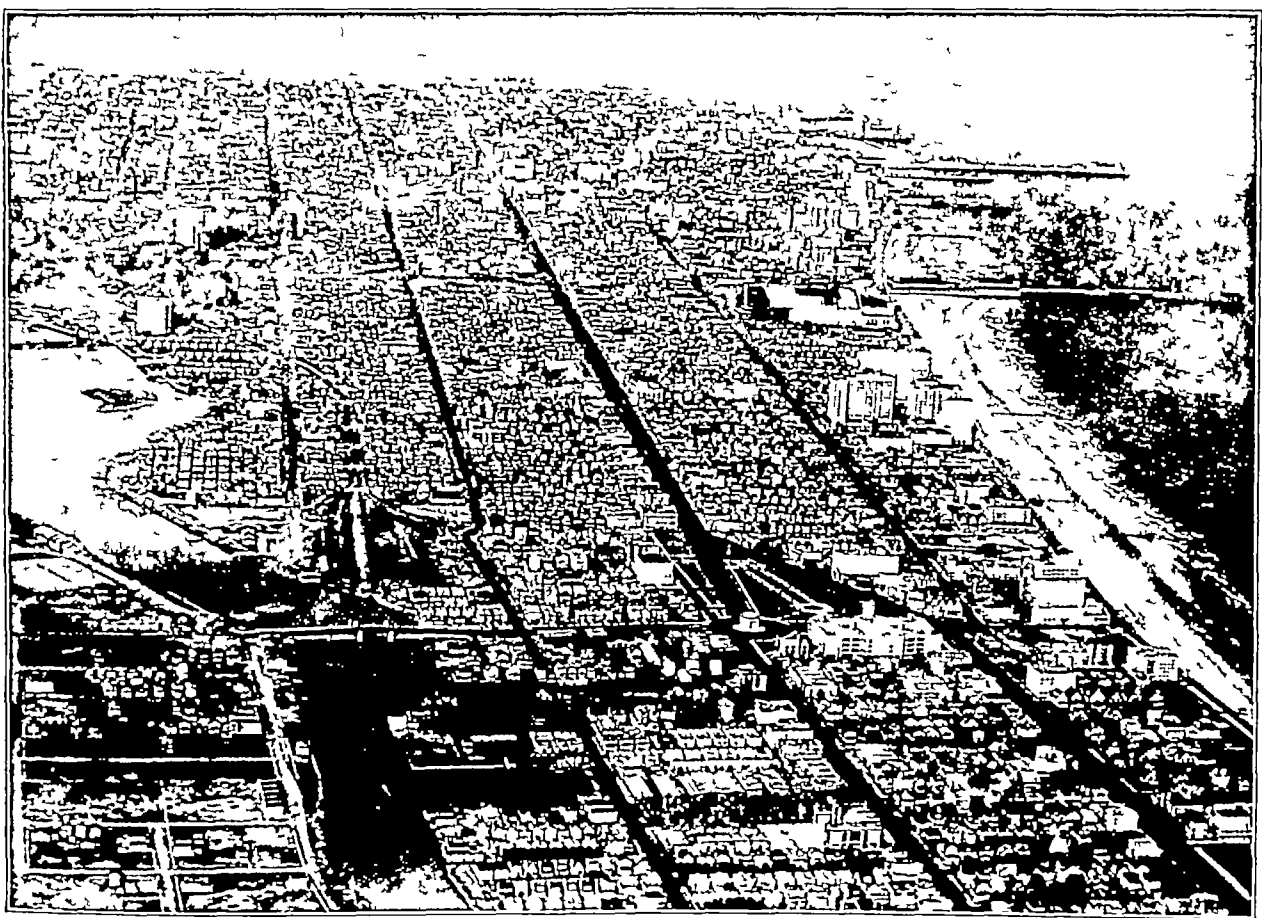
The new spirit is reflected in the array of smart shops that stretch along the Boardwalk for miles. Merchandise from all corners of the globe is displayed at prices that are often lower than those charged for similar articles in the visitor's home city

of the treacherous Brigantine shoals. During certain hours ascent to the top of the lighthouse is permitted, and the breathtaking view out over the ocean is well worth the climb

#### THE HUGE CONVENTION HALL

To the distinction it has gained as the greatest health and pleasure resort Atlantic City may add the claim of having the largest building of its kind in the world. The Convention Hall where the American Medical Association meeting will be held has been erected on a more lavish scale than has ever before been attempted in any country

The Convention Hall, which fronts on the Boardwalk between Georgia and Mississippi avenues, is 350 feet wide by 650 feet deep and covers an area of seven acres. It provides a total seating capacity of nearly 75,000, the main auditorium alone having a seating capacity of 41,000. Atlantic City has a permanent population of 65,000, and every person residing within its



AIRPLANE VIEW OF ATLANTIC CITY

#### BEAUTIFUL HOMES

A visit to Atlantic City is not complete without seeing its two residential suburbs Ventnor and Margate where all manner of beautiful homes can be seen. Colonial mansions, Spanish villas, Italian triumphs of architectural beauty set in the center of sweeping lawns and typical American homes vie for attention with beautiful shrubbery and flower gardens

It is to Ventnor and Margate, and the Chelsea section of Atlantic City that cottagers move for the summer months creating a social whirl of their own

Names that are famous in the annals of society statesmanship the theater art and politics are listed among those who make up the cottage colonies

#### THE ABSECON LIGHTHOUSE

Of endless interest to visitors is the famous Absecon Lighthouse which for years has served as a beacon to warn mariners

limits could be provided with seating accommodations in this structure with room to spare

Huge as is this monument to the progress of the Playground of the World it is none too large, for during the summer season the resort frequently entertains between 350,000 and 400,000 visitors

The floor of the main auditorium is 168,000 square feet in area while an additional space of 100,000 square feet is provided on the ground floor. Adjacent to the main auditorium and fronting the Boardwalk is another large hall measuring 130 by 185 feet which has a seating capacity of approximately 5,000 and also has a stage and committee rooms. A large arched loggia 12 feet wide, overlooking the ocean fronts this hall

In front of the Convention Hall are two splendidly equipped bath houses 60 by 150 feet in area. Branch lines of the Pennsylvania-Reading Seashore Lines run direct to the Convention

Hall on either side, making it possible should the need present itself, to discharge passengers almost on the bench itself.

A unique feature of the main auditorium is a floor space of 90 by 200 feet, which can be converted into an ice skating rink in a short time. Hockey has been one of the sports featured at the Convention Hall during the past two winters and the Atlantic City Sea Gulls won this year the national amateur hockey title. The ice in the rink can be melted in a few hours and the floor restored to its former condition.

#### THE MAIN AUDITORIUM

The immensity of the main auditorium may be envisioned from the fact that a thirteen-story building 500 feet in length and 200 feet wide might be erected within its walls leaving a space of 100 feet on all four sides. Football is played regularly at night in this mammoth hall on a regulation playing field with special illumination that gives the entire place a daylight appearance.

Within the main auditorium also has been constructed the largest stage in the world. It is 110 feet in width 85 feet in depth and measures 165 feet between the wings. It has all modern properties, full electrical equipment and dressing room facilities, and on it may be shown the most spectacular of productions.

#### THE LARGEST PIPE ORGAN

The largest pipe organ in the world both in size and in power is housed in the main auditorium. Perfect acoustics comprise another feature. Despite the auditorium's immense proportions the organ pipes have been so arranged at both sides of the stage and along the high vaulted ceiling that the entire auditorium can be flooded with melody graded to meet the needs of either large or small assemblages.

The lighting of the Convention Hall is a triumph of color and illumination. The hues of the sea and the sky mingled with gold, predominate. Through the medium of an original

are faced with marble and ornamental bronze, and from the arcade leads an entrance, 50 feet in width, to the interior of the Convention Hall.

#### PARKING SPACE

Approximately 400 automobiles may be parked on the ground floor of this great structure. Terraced sidewalks have been provided on both Georgia Avenue and Mississippi Avenue in addition to the ramp inclines from the ground. By this means the huge crowds that on occasions fill the hall to capacity are handled with great dispatch.

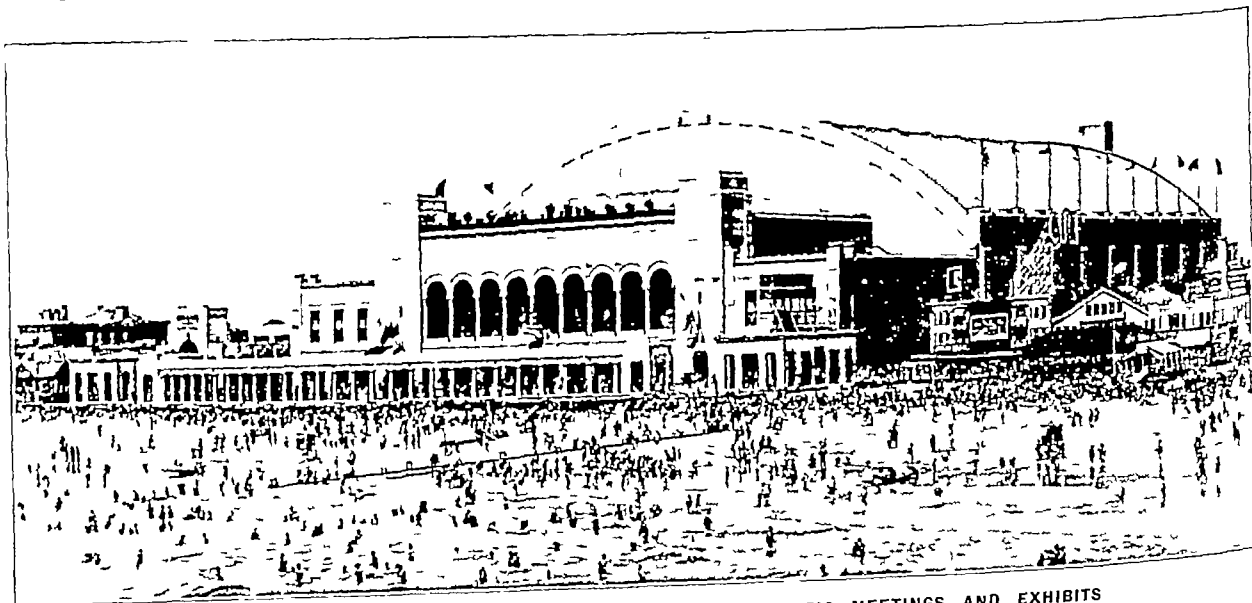
#### THE VENTILATING SYSTEM

Heat and ventilation are important items in a great structure of this character. Direct radiation is used in the main entrance lobby and entrances on the sides of the building and is supplied by recirculating air warming units.

For the maintenance of the required vacuum in the heating returns and for the disposal of air and condensation, six vacuum pumps are provided. The temperature throughout the entire structure is automatically controlled. Ventilation is provided by thirty-one motor driven fans, with an hourly capacity of 1,600 tons. There are also seventy five vent fans capable of discharging 2,900 tons of air an hour. Seventy two per cent of the air supplied to the building is for the main auditorium.

Elevators capable of handling all kinds of heavy equipment have been installed. There are two large freight lifts of the vertical steel screw type, each having a capacity of 50,000 pounds in addition to a freight elevator of 4,000 pounds capacity for trunks and light freight and a passenger elevator lifting 2,000 pounds at the rate of 300 feet a minute.

Three Sterling water tube boilers of 1,490 rated horsepower have been installed. This boiler plant provides steam for heating for hot water and for exhibition purposes. The oil fuel



THE CONVENTION HALL WHICH WILL HOUSE ALL SCIENTIFIC MEETINGS AND EXHIBITS

principle, the lighting of the stage and auditorium has been designed to permit not only the usual projection and special display of feature objects but also an unlimited showing of color effects.

The lobby leading to the Convention Hall has a vaulted passage 125 feet in length and 50 feet in width. The walls are of limestone, with a ceiling of Gustavino tile and two-tone terrazzo floor, with appropriate bronze enframements round the windows. Leading directly from this lobby and connecting with ramps to the upper and lower levels of the auditorium are roomy corridors.

#### THE ARCADE

An arcade containing fourteen finely finished stores stretches along the entire Boardwalk front of this structure. The stores

is stored in underground tanks, and coal bunkers have been provided so that if necessary a change may be made from oil to coal as fuel.

#### EQUIPMENT FOR THE PRESS

Atlantic City has exceptional advantages for the dissemination of news of national importance. With an Associated Press outlet in the Atlantic City Press-Union newspapers correspondents on the scene from New York and Philadelphia newspapers and a 50,000-watt radio station of the Columbia chain, the resort gets unusual news coverage.

The Atlantic City Press Commission composed of six trained newspapermen will place at the disposal of convention gatherings the facilities of City Press Headquarters, which is equipped for national distribution of news and pictures.

#### TRANSPORTATION FACILITIES

The unequaled transportation facilities of Atlantic City, which make it possible for millions of persons to pour in and out of the resort by motor train, bus and airplane, are described by Thomas Hesselton executive manager of the Atlantic City Chamber of Commerce. No other resort in the world has such highways leading into it, and to no other resort is it easier for wheels to turn. The world's best known highway, the "White Horse Pike," now has a twin the "Black Horse Pike," to assist in aiding the millions to move in and out of Atlantic City. The Delaware River is crossed by no less than five highway bridges from Philadelphia north and

#### ROLLING CHAIRS

Special rates will be granted on chairs of the Shill Rolling Chair Company to persons wearing Convention Badges Between Seaside Hotel and Convention Hall or between Hotel Chelsea and Convention Hall, in either direction, the charge will be 50 cents for one, two or three passengers

#### JITNEY SERVICE

The fare along Pacific Avenue from Maine Avenue to Jackson Avenue, the border of Ventnor, is 10 cents, delivering a passenger at the Boardwalk or elsewhere on a cross avenue is 10 cents extra. Twelve tickets are sold for \$1



THE CONVENTION HALL AND THE BOARDWALK AT NIGHT

spanned by five important ferry routes from Philadelphia, south, draining the important areas to the South and West. In 1919 Atlantic City recognized the importance of commercial aviation and dedicated to it the first municipal airport in the world. By plane Atlantic City is five hours from Chicago, eight from Kansas City, one to Newark, two to Washington and less than three to Pittsburgh. The resort's airport is one of the finest in the country.

#### GARAGE FOR AUTOMOBILES UNDER THE CONVENTION HALL

There is a garage located in the Convention Hall, directly under the arena and the assembly hall, which will be a real convenience to those physicians who are driving to the annual session.

This garage accommodates 500 cars. The charge will be \$2.50 for the period of the convention.

## TRANSPORTATION

#### Railroad Rates to Atlantic City

Special rates have been granted for the benefit of members of the American Medical Association and of the Canadian Medical Association and dependent members of their families who will attend the annual session at Atlantic City.

The Central, the New England, the Southeastern, the Southwestern, the Transcontinental, the Trunk Line and the Western Passenger Associations, as well as the Eastern and Western Lines of the Canadian Passenger Association, have granted a rate of one and one-third fares.

To have the benefit of a return rate of one-third fare, it will be necessary for each member to secure a CERTIFICATE from the railroad ticket agent when he purchases his ticket to Atlantic City. The certificate must be certified to by the Secretary of the American Medical Association, which may be done at the Registration Bureau, to be located in the Convention Hall in Atlantic City, and must then be validated by a representative of the railroads. When the certificate is so certified and validated, it will entitle its holder to purchase a return ticket to his home over the same route traveled to Atlantic City at one-third fare.

If the ticket agent at the member's home station does not have the certificate, he will furnish information as to where it may be obtained.

The certificate is *not* a receipt for money paid for a ticket, nor will a receipt entitle its holder to secure a return trip ticket

at a reduced rate. Be sure to ask the ticket agent for a CERTIFICATE.

The dates of sale of tickets to Atlantic City will be June 6 to 12 in the territory of the Eastern Lines of the Canadian Passenger Association and in the territories of the Central Passenger Association, the New England Passenger Association, the Southeastern Passenger Association and the Trunk Line Association from Arkansas, Kansas, Louisiana and Missouri, as well as Natchez, Miss., and Memphis, Tenn. in the territory of the Southwestern Passenger Association, and from Illinois, Iowa, Kansas, Manitoba, Minnesota, Missouri, Nebraska, northern Michigan and Wisconsin, as well as Julesburg, Colo., in the territories of the Transcontinental and Western Passenger Associations and from Saskatchewan, Manitoba and Ontario (west of Port Arthur and Armstrong) in the territory of the Western Lines of the Canadian Passenger Association.

In the territories of the Southwestern, Transcontinental and Western Passenger Associations and of the Western Lines of the Canadian Passenger Association, the dates of sale of tickets from Alberta, Colorado (except Julesburg), North Dakota, South Dakota, Oklahoma, Texas and Wyoming will be June 5 to 11 from Montana and southern Idaho, June 4 to 10 and from Arizona, British Columbia, California, Nevada, New Mexico, northern Idaho, Oregon, Utah and Washington, May 29 to June 11.



Certificates properly certified and validated will be honored for purchasing tickets for the return journey at one third fare up to and including June 18. No refund of fare will be made on account of failure to present validated certificate when purchasing return ticket. The return ticket must be used over the same route as that traveled going to Atlantic City.

When you purchase your ticket to Atlantic City secure from the railroad ticket agent a CERTIFICATE which, when properly certified to and validated will entitle you to purchase

the special rate of one and one third fares or the summer excursion fares.

#### Air Travel

Detailed information on any air or air-rail trip from any part of the United States to Atlantic City will be gladly furnished by any United Air Lines ticket office or through its Chicago office at 400 South Michigan Avenue, or from any other air line ticket office, Postal Telegraph or Western Union office or travel bureau.

### Hospitals at Atlantic City

CHILDREN'S SEASHORE HOME  
FOR INVALID CHILDREN

BETTY BACHARACH  
HOME FOR CRIPPLED  
CHILDREN



ATLANTIC CITY MUNICIPAL  
HOSPITAL FOR CONTAGIOUS  
DISEASES

a return ticket to your home, over the same route traveled to Atlantic City, at one third the fare paid for your ticket to Atlantic City.

**BE SURE TO ASK YOUR RAILROAD TICKET AGENT FOR A CERTIFICATE WHEN PURCHASING YOUR TICKET TO ATLANTIC CITY**

#### Summer Excursion Fares

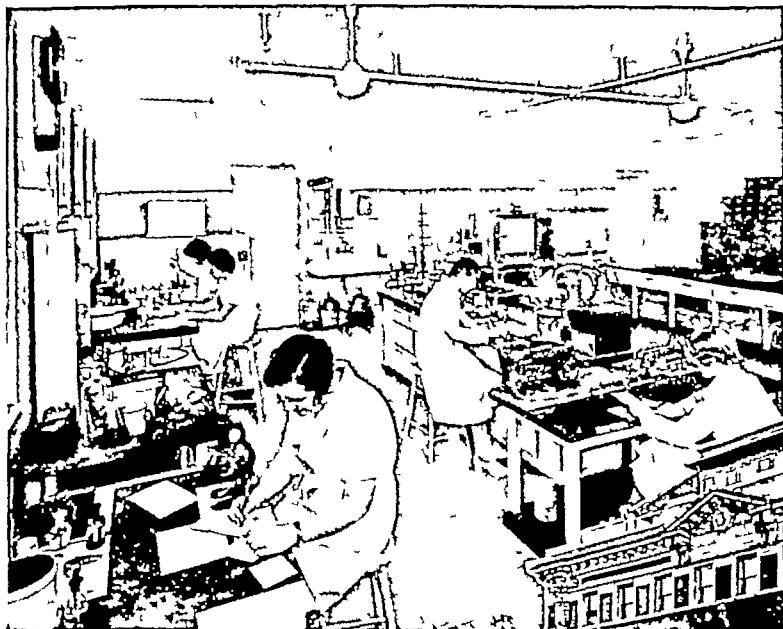
Summer excursion fares in the territories of the Transcontinental and Western Passenger Associations and of the Western Lines of the Canadian Passenger Association which in some instances are on a lower basis than convention fares, will apply from some of the Western states, and members are urged to confer with their ticket agents as to which fare is the lower—

### REGISTRATION

The Bureau of Registration will be located in the Convention Hall Boardwalk between Mississippi and Georgia avenues. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government postoffice officials will be available for visitors and an information bureau will be operated in connection with the Bureau of Registration.

#### Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows, and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have on the prescribed form, applied for Fellowship subscribed

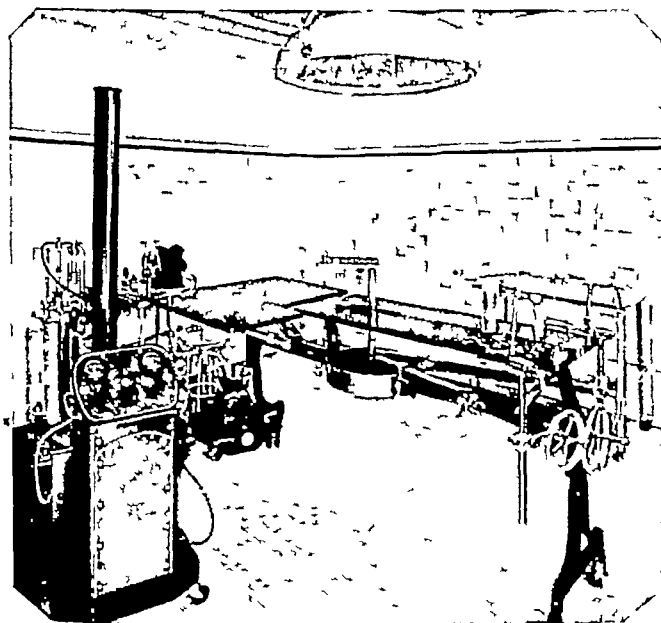


THE HOSPITAL LABORATORY

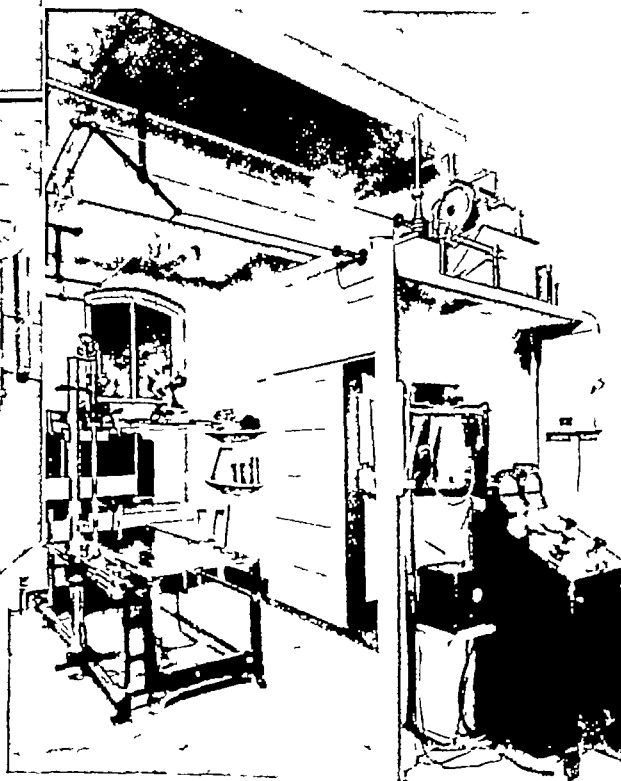
## Views of Atlantic City Hospital



ATLANTIC CITY HOSPITAL OF 316 BEDS



TWO OF THE FOUR HOSPITAL X RAY ROOMS



to THE JOURNAL, and paid their Fellowship dues for the current year. The annual Fellowship dues provide a subscription to THE JOURNAL for one year. Fellowship cards are sent to all Fellows after payment of annual dues and these cards should be presented at the registration window. Any who have not received cards for 1935 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

that pocket cards may be secured and brought to Atlantic City so that registration can be more easily and more promptly effected.

Application forms may be had on request.

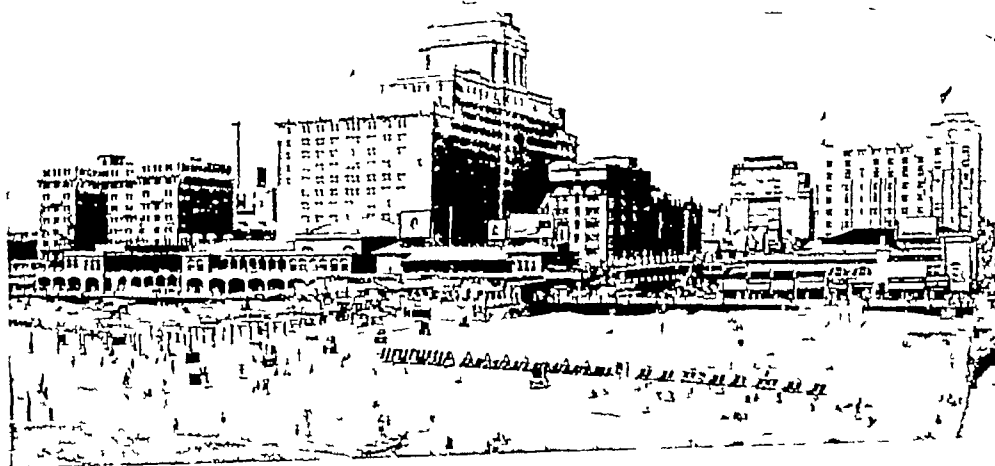
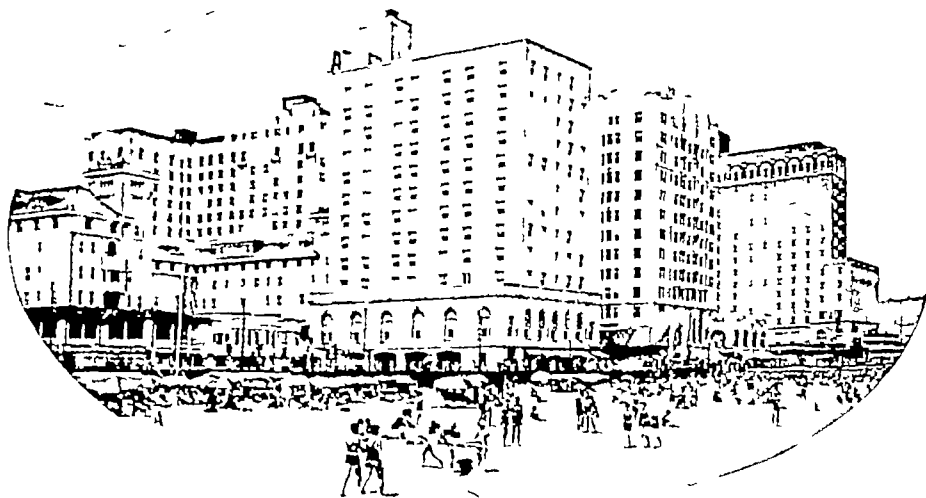
Those subscribers to THE JOURNAL who have not received pocket cards for 1935 should write to the American Medical Association for application blanks and information as to further requirements.

## Hotels at Atlantic City



From left to right THE SHEL  
BURN, DENNIS, MARLBOROUGH,  
BLENHEIM, CLARIDGE, BRIGHTON,  
MADISON and THE TRAYMORE.

Center—left to right  
CHELSEA, AMBASSADOR,  
RITZ CARLTON.



Left to right CHAL  
FONTE, HADDON  
HALL, STRAND,  
COLTON MANOR  
THE SEASIDE.

### Members in Good Standing Eligible to Fellowship in the Association

Members in good standing in component county medical societies are members of constituent state associations and of the American Medical Association. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order

### Register Early

Fellows living in Atlantic City as well as all other Fellows who are in Atlantic City on Monday and Tuesday, should register as early as possible. The names of those who register will appear in the issue of the *Daily Bulletin* appearing the next day and this will enable visiting physicians to find friends if they have registered.

**Suggestions That Will Facilitate Registration**

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back. These cards will be found on the tables

Entries on the registration cards should be written plainly, or printed as the cards are given to the printer to use as "copy" for the *Daily Bulletin* published on Tuesday, Wednesday, Thursday and Friday of the week of the session

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with their pocket cards, at one of the windows marked "Registration by Pocket Card". There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session

As previously stated it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than May 20. Any applications that are received later than May 20 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Atlantic City session

It will be possible for members of the organization to qualify as Fellows at Atlantic City. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home

It is suggested that those who apply for Fellowship at Atlantic City provide themselves before leaving home with certificates signed by the secretaries of their state associations attesting that they are members in good standing in state and county branches of the organization. A state membership card for 1935 will be acceptable. The certificate or membership card should be presented along with the filled in *blue* registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests"

**Registration for General Officers and Delegates at the Ambassador Hotel**

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly at a booth near the Renaissance Room of the Ambassador Hotel. This arrangement is made for the convenience of the members of the House of Delegates which will convene on Monday morning at 10 o'clock in the Renaissance Room of the Ambassador Hotel. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 10, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

**Registration for Members of Canadian Medical Association**

Provision will be made for the registration of the members of the Canadian Medical Association under the direction of its officers. The members of the Canadian Medical Association who are registered may attend and participate in the work of the scientific sections.

**ATLANTIC CITY HOTELS**

A list of Atlantic City hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 10-14. Dr. William Edgar Darnall is the chairman of the Subcommittee on Hotels of the Local Committee on Arrangements and may be addressed at 16 Central Pier, Atlantic City, N. J. The advertising announcement and coupon for reservations appear on advertising page 115 of this issue.

*Hotels at Atlantic City*

BOARDWALK HOTELS	—European Plan—		Additional Charge for Each Person for Three Meals
	ROOM For 1 Person	ROOM For 2 Persons	
AMBASSADOR Boardwalk at Brighton Ave.	\$3 00-\$6 00	\$6 00-\$10 00	\$4 00
BRIGHTON Boardwalk at Indiana Ave.	4 00- 5 00	6 00- 10 00	3 00
CHALFONTE HADDON HALL Boardwalk at N. Carolina Ave.	3 00- 8 00	5 00- 10 00	4 00
CHELSEA Boardwalk at Morris Ave.	3 00- 6 00	5 00- 8 00	3 00
CLARIDGE Boardwalk at Park Place	4 00- 6 00	6 00- 8 00	3 50
DENNIS Boardwalk at Michigan Ave.	3 50- 6 00	6 00- 10 00	3 00-3 50
KNICKERBOCKER Boardwalk at Tennessee Ave.	3 00- 4 00	5 00- 8 00	2 50
MARLBOROUGH BLENNHEIM Boardwalk at Ohio Ave.	3 50- 5 00	6 00- 10 00	3 50
NEW BELMONT Boardwalk at Ocean Ave.	2 50- 3 50	4 00- 8 00	
PRESIDENT Boardwalk at Albany Ave.	4 00- 6 00	6 00- 10 00	3 00
RITZ CARLTON Boardwalk at Iowa Ave.	4 00- 6 00	6 00- 10 00	4 25
SEASIDE Boardwalk at Penna. Ave.	3 00- 5 00	5 00- 7 00	3 00
SHELburne Boardwalk at Michigan Ave.	4 00- 6 00	6 00- 10 00	
STRAND Boardwalk at Penna. Ave.	3 50- 5 00	6 00- 9 00	2 50
TRAYMORE Boardwalk at Illinois Ave.		*6 00-*10 00	4 00
* These rooms may also be occupied singly at \$4 00 \$8 00			
AVENUE HOTELS			
ARLINGTON 116 S. Michigan Ave.		\$5 00-\$ 6 00	\$2 50
CAROLINA CREST 134 S. No. Carolina Ave.	2 50- 3 00	5 00- 6 00	
COLTON MANOR 110 S. Penna. Ave.	3 00- 4 00	5 00- 7 00	2 00
DELAWARE CITY 156 S. Tenn. Ave.	3 00	5 00	
FRANKLIN INN 157 S. Virginia Ave.	2 00- 3 00	4 00- 5 00	
GLASLYN CHATHAM Park Place	3 50	5 00	2 00
JEFFERSON 136 S. Kentucky Ave.		5 00- 7 00	2 00
KENTUCKY 126 S. Kentucky Ave.	3 00	5 00	1 75
LAFAYETTE 109 S. No. Car. Ave.	3 00- 4 00	5 00- 7 00	2 50
LUDY 166 S. So. Carolina Ave.	3 00- 5 00	5 00- 7 00	2 00
VADISON 123 S. Illinois Ave.		5 00- 8 00	2 00
MONTICELLO 131 S. Kentucky Ave.		5 00- 6 00	2 00
MORTON 150 S. Virginia Ave.	3 00- 4 00	5 00- 6 00	3 00
MT. VERNON 1908 Pacific Ave.	2 50	4 00	
PENN. ATLANTIC	3 00	4 00- 5 00	
PRINCESS 144 S. So. Car. Ave.	3 00	4 00- 5 00	1 75
RICHFIELD 132 S. Kentucky Ave.	4 00	5 00- 7 00	

ALL ROOMS WITH BATH

## GENERAL SCIENTIFIC MEETINGS

MONDAY, JUNE 10—2 P. M.

Empyema in Children JAMES M. MASON, Birmingham, Ala.  
Treatment of Deficiency Conditions C. P. RHOADS, New York  
The Relationship of Drug Therapy to Agammaglobulinosis

ROY R. KRACIE, Emory University, Ga.

Our Knowledge Concerning the So Called Lymphoblastomas  
LEWIS B. KRIEHLAAR, Philadelphia  
Growth, Normal and Abnormal

WILLIAM BOYD, Winnipeg, Man.

TUESDAY, JUNE 11—9 A. M.

Evidence in Favor of a More Active Purpura A Study  
of Five Hundred Cases H. B. ATLEE, Halifax, N. S.

Treatment of Diabetic Coma HENRY J. JOHN, Cleveland

Pitfalls to Be Avoided in Abdominal Diagnosis

JOHN M. T. FINNEY, JR., Baltimore

Diet in Treatment of Disease

LOUIS H. NEWBURGH, Ann Arbor, Mich.

The Surgeon's Responsibility in Cases of Duodenal Ulcer  
R. R. GRAHAM, Toronto, Ont.

TUESDAY, JUNE 11—2 P. M.

Recent Developments in the Field of Endocrinology

DAVID P. BARR, St. Louis

Scope of Thoracic Surgery

JOHN ALEXANDER, Ann Arbor, Mich.

Bone Changes in Certain Medical Diseases

A. H. GORDON, Montreal

Uses and Abuses of Modern Gland Products in Gynecologic  
Disorders

EMIL NOVAK, Baltimore

Advances in Therapeutic Technique BERNARD FANTUS, Chicago

## MEETING PLACES

HOUSE OF DELEGATES Renaissance Room of the Ambassador  
Hotel Boardwalk at Brighton Avenue

OPENING GENERAL MEETING Ballroom Second Floor Con-  
vention Hall

GENERAL SCIENTIFIC MEETINGS Ballroom Second Floor,  
Convention Hall

## SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE Ballroom, Second Floor Con-  
vention Hall

SURGERY, GENERAL AND ABDOMINAL Room E, First Floor,  
Convention Hall

OBSTETRICS GYNECOLOGY AND ABDOMINAL SURGERY Room  
E, First Floor Convention Hall

OPHTHALMOLOGY Room B, First Floor Convention Hall

LARYNGOLOGY OTOTOLOGY AND RHINOLOGY Room B, First  
Floor, Convention Hall

PEDIATRICS Ballroom Second Floor, Convention Hall

PHARMACOLOGY AND THERAPEUTICS Committee Room 13,  
Third Floor Convention Hall

PATHOLOGY AND PHYSIOLOGY Committee Room 13, Third  
Floor, Convention Hall

NERVOUS AND MENTAL DISEASES Committee Room 12,  
Third Floor, Convention Hall

DERMATOLOGY AND SYPHILOLOGY Room A, First Floor  
Convention Hall

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH  
Room C, First Floor, Convention Hall

UROLOGY Room A First Floor, Convention Hall

ORTHOPEDIC SURGERY Committee Room 12, Third Floor,  
Convention Hall

GASTRO-ENTEROLOGY AND PROCTOLOGY Room C, First Floor,  
Convention Hall

RADIOLOGY Room D First Floor, Convention Hall

MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA, ON HIS-  
TORY OF MEDICINE AND ON MILITARY MEDICINE Room D,  
First Floor, Convention Hall

GENERAL HEADQUARTERS SCIENTIFIC EXHIBIT, REGISTRATION  
BUREAU TECHNICAL EXHIBITS, INFORMATION BUREAU AND  
BRANCH POSTOFFICE Convention Hall

The Convention Hall is located on the Boardwalk between  
Mississippi and Georgia avenues

## LOCAL COMMITTEE ON ARRANGEMENTS

WILLIAM J. CARRINGTON, Chairman

CLARENCE L. ANDREWS, Vice Chairman

CHARLES B. KAIGHN, Secretary

DAVID B. ALLMAN, Treasurer

Subcommittee on Sections and Section Work Clarence L.  
Andrews, Chairman

Practice of Medicine D. Ward Scanlon Harold S. Davidson  
Surgery, General and Abdominal Theodore Senseman, James  
H. Mason

Obstetrics, Gynecology and Abdominal Surgery Edward F.  
Uzzell George A. Poland

Ophthalmology Halvor L. Harley Albert Pilkinton

Laryngology, Otology and Rhinology C. Coulter Charlton,  
Charles D. Simkinson Jr.

Pediatrics Walter B. Stewart, E. Harrison Nickman

Pharmacology and Therapeutics Lawrence A. Wilson, Levi  
M. Walker

Pathology and Physiology Isaac C. Hyman Isaac Shenfeld.  
Nervous and Mental Diseases W. Cole Davis, Samuel F.

Gorson

Dermatology and Syphilology William O. Roop, Abraham  
Krechmer

Preventive and Industrial Medicine and Public Health  
Samuel L. Salasin, Robert M. Grier

Urology Charles H. deT. Shivers Daniel C. Reyner  
Orthopedic Surgery Harry Subin Edward Z. Holt.  
Gastro-Enterology and Proctology Homer I. Silvers, M.  
Browne Holoman

Radiology William C. Wescott Robert A. Bradley

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land Leif S. Madden, William Martin, Anthony G.  
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man Louis Mackler

Subcommittee on Scientific Exhibit Robert A. Kiduffe, Chair-  
man, John J. Jacobson

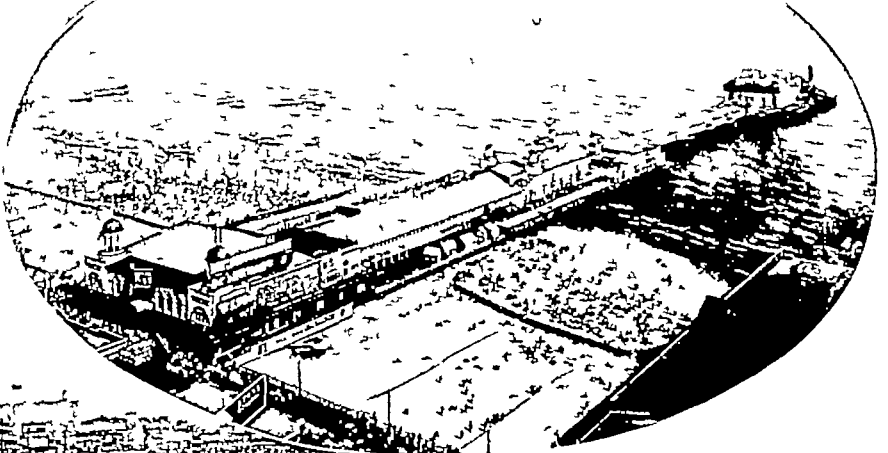
Subcommittee on Hotels William E. Darnall, Chairman  
Maurice H. Axilrod

Subcommittee on Printing and Badges Louis Feinstein, Chair-  
man Joseph Marcus



## Various Views of Atlantic City

THE BRIDLE PATH ALONG  
THE BEACH



THE FAMOUS STEEL PIER



A TYPICAL BEACH SCENE IN JUNE

ATLANTIC CITY ON A BUSY  
DAY HOTEL TRAYMORE IN  
THE BACKGROUND



**Subcommittee on Information** Edward Guion, Chairman, R T de Hellebranth, Henry C James, Henry R Lawrence, John F Massey, Louis Rosenberg, Sidney Rosenblatt, George C Schwarzkopf, Lewis R Souder Samuel Stern, Alexander M Stevenson, Carl Surran, Samuel E Weiner, Raymond A Williams

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**Subcommittee on Finance** David B Allman Chairman, Edwin H Coward, Myrtle G Frank, Edwin H Harvey, Joseph Poland

**Subcommittee on Canadian Hosts** John S Ivin Chairman, S Worth Clark Arthur E. Ewens, William W Fox, Joseph C Marshall

**Subcommittee on Women Physicians** Winifred A Blampin, Chairman, Clara K Bartlett Elizabeth T Wright

**Subcommittee on Entertainment**

Dinner to Delegates Walt P Conaway Chairman Elisha C Chew S Eugene Dalton Jr Walter Reynolds, A Burton Shimer

Alumni Dinners Smokers and Fraternity Banquets V Earl Johnson, Chairman, Marcus Magill Jr, Morton M Major

**Opening General Meeting** Sloan G Stewart, Chairman Norman H Bassett, Woodburn J Hudson, Norman J Quinn, George R Stamps, Baxter H Timberlake.

**President's Reception and Ball** Hilton S Read, Chairman, J Carlisle Brown, L Elmore Hess, Royal E. Durham, Andrew M Smith

**Golf** Walt P Conaway, Chairman, Ily R Beir, Alfred W Westney, John Pennington, Rostin R White.

**Beach Activities** Charles L Bossert, Chairman, Samuel Halpern

**Subcommittee on Women's Entertainment** Mrs Samuel L Saltsin Chairman, Mrs James Mason III, Treasurer Mrs Henry Weeks, Secretary, Mrs David B Allman, Printing

**Women's Auxiliary Subcommittees**

**Hotel Hostesses** Mrs E H Nickman, Mrs Stanley McGeehan

**Entertainment** Mrs Carl Surran

**Flowers** Mrs Ruffian Stamps, Mrs Baxter Timberlake.

**Tuesday Luncheon** Mrs John F Massey

**Bring Your Husband Dinner** Mrs H Roy Vanness

**Golf** Mrs Charles Sinkinson

**Wednesday Luncheon** Mrs Haines Lippincott.

**Tickets** Mrs A J Casselman

**Registration** Mrs H Roy Vanness

## ENTERTAINMENT

### Dinner for Delegates

A dinner and entertainment in the Submarine Grill of the Traymore Hotel is being arranged for Monday, June 10 from 7 to 11 p m for delegates and officers of the American Medical Association and of the Canadian Medical Association

### Luncheon for Delegates

A luncheon for the officers and the House of Delegates of the American Medical Association is being planned for Tuesday noon, June 11, between the morning and afternoon sessions of the House at the Ambassador Hotel. Officers and representatives of the Canadian Medical Association will be invited guests

### Opening General Meeting

The Opening General Meeting will take place on Tuesday evening, June 11, at 8 o'clock in the Ballroom of the Convention Hall

### Special Entertainment and Dance

On Wednesday evening, June 12, on the Steel Pier, an entertainment and dance is being arranged, which will be informal

### Medical Veterans

The Medical Veterans of the World War will hold a meeting on the evening of Wednesday, June 12

### President's Reception

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening, June 13, at 9 o'clock at the Ambassador Hotel

### "Bring-Your-Husband" Dinner

Arrangements are being made by Hudson and Essex counties for the annual Bring-Your-Husband Dinner for women guests of the American Medical Association and of the Canadian Medical Association and their husbands. This dinner will be served in the main dining room of the Traymore Hotel on Thursday evening, June 13, at 7 o'clock. Tickets are \$2.50

### Alumni and Group Dinners

Notice has been received of the following alumni and group dinners to be held during the week of the convention

**HARVARD MEDICAL ALUMNI**, Wednesday, June 12, 6 30 p m Harvard Hall

**JOHNS HOPKINS MEDICAL SCHOOL**, Wednesday, June 12, 6 30 p m, Marlborough-Blenheim

**OHIO STATE ALUMNI**, Wednesday, June 12, 6 30 p m

**UNIVERSITY OF MINNESOTA ALUMNI**, Wednesday, June 12, 6 30 p m

**YALE MEDICAL ALUMNI**, Wednesday, June 12, 6 30 p m

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY**, Wednesday, June 12, 7 o'clock, Hotel Traymore

**RUSH MEDICAL COLLEGE ALUMNI**, Wednesday, June 12, 7 o'clock, Hotel Ambassador, \$2 a plate

**JEFFERSON MEDICAL ALUMNI**, Wednesday, June 12, 7 30 p m, Hackney's Restaurant

**UNIVERSITY OF PENNSYLVANIA MEDICAL ALUMNI**, Wednesday, June 12, 9 o'clock, Hotel Claridge

**ALPHA OMEGA ALPHA**, Thursday, June 13, 6 30 p m, Hotel Ambassador, \$2 a plate

### Fraternity and Club Luncheons

The PHI DELTA EPSILON medical fraternity will hold a luncheon at the Ambassador Hotel, Tuesday, June 11, at 12 30 p m

The ALPHA MU PI OMEGA medical fraternity luncheon will be held at Haddon Hall, Wednesday, June 12, at 12 30 p m

The ATLANTIC CITY HOSPITAL EX RESIDENTS will have a luncheon at Haddon Hall, Wednesday, June 12, at 12 30 p m

There will be luncheon for the BLOCKLEY EX RESIDENTS ASSOCIATION at 1 p m, Wednesday, June 12

At 12 noon on Thursday, June 13, there will be a luncheon at the Traymore for the NEW YORK POST GRADUATE HOSPITAL ALUMNI

Luncheons are being arranged for ALPHA KAPPA KAPPA on Wednesday, June 12 and for the PERIPHERAL VASCULAR DISEASE GROUP on Thursday, June 13

The luncheons of the service clubs will be held as follows: **ROTARY CLUB**, President Hotel, Tuesday, June 11, 12 30 p m. **EXCHANGE CLUB**, Penn-Atlantic Hotel, Wednesday, June 12, 12 30 p m. **LIONS CLUB**, Hackney's Restaurant, Wednesday, June 12, 12 30 p m. **KIWANIS CLUB**, Hackney's Restaurant, Thursday, June 13, 12 30 p m

### Women Physicians of American Medical Association

The women physicians of the American Medical Association will meet socially in Atlantic City on the Sunday and Monday preceding the opening of the session, stopping en route in Philadelphia on Saturday, June 8, to attend a special program at the Woman's Medical College of Pennsylvania.

While in Atlantic City the medical women will make the Marlborough-Blenheim the headquarters for their various social activities which, during the session of the American Medical Association, will be confined strictly to meal hours, as these dining programs have been found so enjoyable at previous sessions. On Sunday and Monday, social affairs, including sight seeing trips will be continued throughout the day.

The Federation of Medical Women of Canada is uniting with the American women to make these meetings successful



Interesting programs have been arranged at which the following women physicians will preside

**SUNDAY, JUNE 9**

Luncheon. Ellen C Potter (New Jersey)  
Supper Ella Coughlan (New Jersey)

**MONDAY, JUNE 10**

Breakfast Emuly Dunning Barringer (New York)  
Luncheon Martha Tracy (Pennsylvania)  
Dinner Lena K. Sadler (Illinois)

**TUESDAY, JUNE 11**

Breakfast. Helen F Schrack (New Jersey)  
Luncheon. Helena T Ratterman (Ohio)

**WEDNESDAY, JUNE 12**

Breakfast. L Rosa Gantt (South Carolina)  
Luncheon. Frances Eastman Rose (Washington)  
Dinner Bertha Van Hoosen (Illinois)

**THURSDAY, JUNE 13**

Breakfast. Kate C Mead (Connecticut)  
Luncheon. Grace S Wightman (Illinois)  
Fraternity Dinners Alpha Epsilon Iota and Nu Sigma Phi

**FRIDAY JUNE 14**

Breakfast Anna E Blount (Illinois)

**Woman's Auxiliary**

All women attending the annual session of the American Medical Association and the Canadian Medical Association, whether Auxiliary members or not, are invited to participate in the entire program of the Woman's Auxiliary

The headquarters will be located in the Hotel Traymore, where all women are requested to register, securing tickets for all functions and making arrangements for golf and for bus rides at the entertainment desk.

**SUNDAY, JUNE 9**

7 p m Dinner to the National Board by the Woman's Auxiliary to the Medical Society of Delaware, Claridge Hotel

**MONDAY JUNE 10**

10 a m Preconvention board meeting Library Room, Traymore Hotel Mrs Robert W Tomlinson, presiding

1 p m National Board Luncheon. Submarine Grill Traymore Hotel Tickets \$1

2 30 p m Preconvention board meeting Library Room Traymore Hotel Mrs Robert W Tomlinson presiding

7 p m Get Together Dinner Ritz-Carlton Hotel Tickets \$2

9 p m Reception and musicale Honoring the wives of the members of the Canadian Medical Association Ritz-Carlton Hotel. Arrangements by Camden and Union counties

**TUESDAY JUNE 11**

8 a m Southern breakfast Submarine Grill Traymore Hotel Arrangements by Southern Auxiliaries Tickets \$1

9 a m General meeting Library Room Traymore Hotel Mrs Robert W Tomlinson presiding

1 p m Luncheon, Hackneys Followed by chair ride, sail, boat ride or sightseeing trip of Atlantic City Tickets \$1 50

4 p m Musicale and tea Woman's Auxiliary of the Philadelphia County Medical Society

8 p m Opening General Meeting, American Medical Association, Convention Hall

**WEDNESDAY, JUNE 12**

9 a m General meeting Library Room, Traymore Hotel Mrs Robert W Tomlinson presiding

12 30 p m Reception and Auxiliary luncheon Main dining room, Traymore Hotel Arrangements, Philadelphia, Bergen and Mercer counties Hygeia Pageant 'Goddess of Hygeia' in charge of Mrs A Haines Lippincott, Camden County Tickets \$2

7 p m Entertainment. Steel Pier Movies, informal dance Arrangements, Atlantic County Auxiliary

**THURSDAY, JUNE 13**

9 a m Group discussions

10 a m Postconvention board meeting Mrs Rogers N Herbert presiding

12 30 p m Luncheon, bridge party and style show Ritz-Carlton Hotel Arrangements, Burlington and Atlantic counties Tickets \$1 50

7 p m Bring-Your-Husband Dinner, Traymore Hotel Arrangements, Hudson and Essex counties Tickets \$2 50

9 p m President's reception and ball Municipal Auditorium

**FRIDAY, JUNE 14**

9 a m Kickers' Golf Tournament Northfield Country Club Tee off at 9 30 a m, Northfield Country Club 1 30 p m Luncheon, Northfield Country Club Tickets \$1 10, or

9 a m De luxe tour Luncheon en route. Starting point, Hotel Traymore An interesting trip through the South Jersey mainland visiting historic points and commercial industries peculiar to this section Leaving Atlantic City via Absecon and the Seaview Golf Club, passing Chestnut Neck Revolutionary War Monument, through the fishing villages of New Gretna and Tuckerton, visiting the transatlantic wireless radio towers, erected before the World War by the imperial German government through the Bass River state forest of stunted trees through the cranberry bogs of South Jersey then the Renault wine cellars at Egg Harbor, visit to Pleasant Mills Weymouth and Mays Landing tour along the Egg Harbor River, famed during Revolutionary times for the shelter of vessels carrying contraband cargo then to Atlantic City via Somers Point and Longport Frequent stops are made on this trip Tickets \$3 50

MRS SAMUEL L SALASIN,  
General Chairman of Arrangements  
MRS CARL A SURRAN,  
Chairman of Entertainment.

## GOLF TOURNAMENT

The twenty-first annual tournament of the American Medical Golfing Association will be held at the Northfield Country Club Atlantic City Monday, June 10 A thirty-six hole competition will be played for the seventy prizes offered in nine events This includes the championship event which has as its major prize the famous Will Walter Trophy awarded since 1923 for low gross thirty-six holes This trophy designed by Edgar Millar and executed by the Cellini Shop Evanston Ill symbolizes the evolution of medicine.

### HANDLES DEPICT HISTORY OF MEDICINE

The first handle depicts the age of primitive ignorance with shaman witch doctor spells and the invocation of nature gods to cure ailing mankind from antiquity to 500 B C The second handle shows the age of Greek thinkers bearing the serpents symbolic of Aesculapius god of medicine—an age of thought and research from 500 B C to 640 A D The third handle represents the age of medieval superstition from 640 A D to 1500 A D with an astrologer the physician common to the dark ages The fire of incantation rises behind the figure as he traces a cabalistic sign in the air The fourth handle depicts the age of modern medical research from the

Renaissance to modern time, with increasing light spreading from a figure symbolic of an enlarging vision

Winners since the cup was placed in competition have been Drs E. A Searorth, San Francisco 1923 George McKee, Pittsburgh, 1924, Homer Nicoll, Chicago, 1925 S M Hill Dallas Texas 1926 George McKee 1927 Walter Shelden Rochester Minn 1928, John Loudon Yakima, Wash, 1929 and 1930 George McKee 1931 S M Hill 1932 Mark Bach Milwaukee, 1933 and John Loudon Yakima, Wash 1934 (third time)

### OTHER EVENTS—SEVENTY PRIZES

Other events and trophies include the Association Handicap Championship thirty-six holes net with the Detroit Trophy, the Championship Flight first gross thirty-six holes, with the St. Louis Trophy the Championship Flight, first net, thirty-six holes the President's Trophy the Eighteen Hole Gross Championship with the Golden State Trophy, the Eighteen Hole Handicap Championship with the Ben Thomas Trophy the Maturity Event with the Minneapolis Trophy the "Oldguard" Championship with the Wendell Phillips Trophy the Kickers Handicap with the Wisconsin Trophy

## A M G A HAS ELEVEN HUNDRED MEMBERS

Dr Charles Lukens of Toledo is president, Drs C H Henninger of Pittsburgh and John B Morgan of Cleveland are vice presidents of the American Medical Golfing Association which has a total membership of approximately 1100 representing every state in the Union. All male Fellows of the American Medical Association are eligible to membership. A cordial invitation is extended to every medical golfer to write



TEEING OFF AT THE NORTHFIELD COUNTRY CLUB  
ATLANTIC CITY

the executive secretary Bill Burns 4421 Woodward Avenue Detroit for an application blank. An enjoyable day on June 10 will be the result.

## AMERICAN CANADIAN MEDICAL COLLEERS TO PLAY

International golf will be played at Atlantic City June 10 when members of the American Medical Golfing Association and golf enthusiasts of the Canadian Medical Association join forces at Northfield Country Club.

The A M G A's invitation to the Canadian Medical Association to hold a joint tournament this year has been accepted by Dr T C Routley, general secretary of the Canadian Medical Association, who replied "I am sure our Canadian colleagues will appreciate highly the honor you have done them in asking them to be present at the twenty first annual tournament of the American Medical Golfing Association."

## TWO ADDITIONAL EVENTS

Two additional events will be added to the day's already generous program of nine events and seventy prizes.

1 The International Event, featuring the 'President's Cup' a new trophy presented by Dr Charles Lukens of Toledo, Ohio and nine other American prizes for our Canadian friends to carry back home.

2 The Canadian Event, featuring the "Ontario Cup," or championship trophy, and the other prizes of the Canadian Medical Association.

MANY FOURSOMES COMBINING CANADIAN  
AND AMERICAN PLAYERS

Many American golfers having medical friends in Canada are arranging matches for the international medical golf tournament of June 10. It is expected that 200 players will tee off between 6 a m and 3 p m in this thirty-six hole and eighteen hole competition. The Atlantic City committee has arranged that free busses will leave from Haddon Hall from the Shelburne Hotel and from the Ambassador Hotel at 8 30 a m and will return from Northfield in the evening at 10 30. Dinner will be served at 7 p m with Dr Frank A Kelly of Detroit as toastmaster followed by distribution of trophies and prizes by Dr Walt P Conaway chairman of the Atlantic City Golf Committee.

For entry blanks write Bill Burns, Executive Secretary 4421 Woodward Avenue, Detroit.

## PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

PROGRAM OF THE OPENING GENERAL  
MEETING

Ballroom, Second Floor, Convention Hall

Tuesday, June 11, 8 p m

Music

Call to Order by the President WALTER L BIERRING

Invocation REV WALTER BRUGGEMAN Ventnor City N J

Welcome to Atlantic City

HON HARRY BACHARACH Mayor of Atlantic City

C. COULTER CHARITON President, Atlantic County Medical Society

MARCUS W NEWCOMB, President, Medical Society of New Jersey

Address HON WALTER EDGE, Ex-Senator and Former Ambassador

Music

Introduction and Installation of President-Elect JAMES S McLESTER, Birmingham Ala

Address The Breath of Life J C MEAKINS, President, Canadian Medical Association

Address Nutrition and the Future of Man JAMES S McLESTER, President American Medical Association

Presentation of Medal to Retiring President WALTER L BIERRING J H J UPHAM Chairman of the Board of Trustees

Music.

## THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program nor is the list complete. The Official Program will be similar to the pro-

grams issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees program of the Opening General Meeting list of entertainments map of Atlantic City, and other information. To prevent misunderstandings and protect the interest of advertisers it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

## SECTION ON PRACTICE OF MEDICINE

MEETS IN BALLROOM SECOND FLOOR CONVENTION HALL

## OFFICERS OF SECTION

AMERICAN MEDICAL ASSOCIATION

Chairman—GEORGE R MINOT, Boston.

Vice Chairman—M A BLANKENHORN Cleveland.

Secretary—W J KERR San Francisco

Executive Committee—REGINALD FITZ, Boston C T STONE, Galveston Texas GEORGE R MINOT, Boston.

## CANADIAN MEDICAL ASSOCIATION

Chairman—DUNCAN GRAHAM, Toronto Ont.

Secretary—K A MacKENZIE Halifax N S

Wednesday, June 12—2 p m.

Further Data on Artificial Pneumothorax in Experimental Lobar Pneumonia (Lantern Demonstration)

LOUIS M LIEBERMAN and SIMON S LEOPOLD Philadelphia

Artificial Pneumothorax in the Treatment of Lobar Pneumonia (Lantern Demonstration)

FRANCIS G BLAKE, MARION E. HOWARD and WINIFRED S HULL, New Haven Conn

Discussion to be opened by ALFRED STENGEL, Philadelphia.

Renal Amyloidosis (Lantern Demonstration)

W R KENNEDY, Montreal, Que  
Discussion to be opened by WALTER DE M SCRIVER Mon-  
treal Que, and HENRY A CHRISTIAN Boston  
The Frank Billings Lecture EMANUEL LIBMAN New York  
Pleural Shock. W F HAMILTON, Montreal Que  
Discussion to be opened by JOSEPH A CAPPS Chicago  
VICTOR S RANDOLPH, Phoenix, Ariz, and JONATHAN  
C MEAKINS, Montreal, Que  
Factors Causing Bronchiectasis Their Clinical Application to  
Diagnosis and Treatment  
W P WARNER, Toronto Ont  
Discussion to be opened by DAVID T SMITH, Durham,  
N C, D W CROMBIE London, Ont, and HAROLD  
BRUNN, San Francisco

Thursday, June 13—2 p m

The Antihormone Theory in Relation to Anterior Pituitary  
Physiology (Lantern Demonstration)

J B COLLIP Montreal Que  
Recent Advances in Knowledge of the Relationship of the  
Pituitary to Ovarian Hormones (Lantern Demonstration)  
DAVID P BARR St Louis  
Discussion to be opened by ELMER L SEVRINGHAUS  
Madison, Wis ARCHIBALD D CAMPBELL Montreal,  
Que JOSEPH C AUB Boston, and HAROLD E SIMON,  
Birmingham Ala

Chairman's Address (C M A)

DUNCAN GRAHAM, Toronto Ont  
The Osler Oration LEWELLYS F BARKER Baltimore  
Relation of Experimental Leukemia of Animals to Human  
Leukemia  
JACOB FURTH, H W FERRIS and PAUL REZNIKOFF, New  
York

Modern Concepts of Roentgen Therapy of Cancer

W E CHAMBERLAIN Philadelphia  
Discussion to be opened by G E RICHARDS Toronto  
Ont LOUIS K. DIAMOND and C C LUND, Boston,  
and RUSSELL S FERGUSON New York

Friday, June 14—2 p m

Election of Officers

Infectious Mononucleosis

Part I Clinical Aspects (Lantern Demonstration)  
C A MCKINLAY Minneapolis

Part II Hematologic Phases (Lantern Demonstration)  
HAL DOWNEY, Minneapolis and JOSEPH STASNEY Roch-  
ester Minn

Discussion to be opened by WARFIELD T LONGCOPE and  
PAUL W CLOUGH Baltimore

Chairman's Address (A M A) (Lantern Demonstration)

GEORGE R. MINOT Boston  
Dietary Factors in Health and Disease  
WALTER R. CAMPBELL Toronto Ont.

Discussion to be opened by E H MASON Montreal Que  
The Importance of Rest and Liver Therapy in the Treatment  
of Subacute Combined Degeneration of the Cord  
R. F. FARQUHARSON Toronto Ont

Discussion to be opened by WILLIAM B CASTLE Boston  
and H H HYLAND Toronto Ont.

SECTION ON SURGERY, GENERAL  
AND ABDOMINAL

MEETS IN ROOM E FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

AMERICAN MEDICAL ASSOCIATION

Chairman—JOHN L YATES, Milwaukee.  
Vice Chairman—ROBERT S DINSMORE JR., Cleveland.  
Secretary—HOWARD M CLUTE, Boston  
Executive Committee—FRED W RANKIN Lexington Ky  
HAROLD BRUNN San Francisco JOHN L YATES Milwaukee

CANADIAN MEDICAL ASSOCIATION

Chairman—W E. Gallie Toronto Ont  
Secretary—A R. MUNROE Edmonton Alta

Wednesday, June 12—2 p m.

Significance of Normal and Morbid Formation and Distribution  
of Cellular and Noncellular Constituents of Blood and  
Lymph JOHN L YATES Milwaukee.

Erythrocytes (Lantern Demonstration)  
WILLIAM B CASTLE, Boston.

Blood Protein and Hemoglobin (Lantern Demonstration)  
G H WHIPPLE, Rochester N Y

Leukocytes (Lantern Demonstration)

JOHN S LAWRENCE, Rochester, N Y

Blood Sugar (Lantern Demonstration)

CHARLES H BEST, Toronto Ont.

Thyroxine and Adrenal Cortex Extract

E C KENDALL, Rochester, Minn.

Lymph (Lantern Demonstration) C K DRINKER, Boston

Antigens and Antibodies (Lantern Demonstration)

REUBEN L KAHN, Ann Arbor, Mich

Summary from Internists Point of View

J C MEAKINS Montreal, Que

Summary from Surgeon's Point of View

G W CRILE Cleveland.

Discussion to be opened by G R MINOT and WILLIAM  
DAMESHEK, Boston

Thursday, June 13—2 p m

BLOOD DISCRASIAS AMENABLE TO TREATMENT  
BY SPLENECTOMY

Differential Diagnoses and Pathology (Lantern Demonstration)  
E S MILLS Montreal Que.

Hemolytotoxic Equilibrium and Emergency Splenectomy  
(Lantern Demonstration)

C A DOAN, Columbus, Ohio  
Surgical Procedure and After-Care.

A. T. BAZIN, Montreal Que  
End Results WILLIAM E GALLIE, Toronto Ont

Discussion to be opened by IRVIN ABELL, Louisville, Ky,  
and G M CURTIS and B K. WISEMAN Columbus, Ohio

ANOMALIES IN BLOOD DISTRIBUTION

Total Thyroidectomy for Intractable Heart Disease (Lantern  
Demonstration) DAVID D BERLIN, Boston.

Operative Treatment of Essential Hypertension

MAX M PEET, Ann Arbor Mich  
Discussion to be opened by GEORGE J HEUER New York.

Nonoperative Treatment of Anomalies of Peripheral Distribu-  
tion of Blood (Lantern Demonstration)

LOUIS G HERMANN Cincinnati  
Discussion to be opened by H M ELDER, Montreal, Que.,  
and N E FREEMAN Boston

Experimental Peripheral Gangrene (Lantern Demonstration)  
E J McGRATH Cincinnati

Friday, June 14—2 p m

Election of Officers

TOXEMIA AND SEPTICEMIA

Staphylococcus Antitoxin and Toxoid (Lantern Demonstration)  
C E DOLMAN Toronto Ont

Clinical Use of Staphylococcus Antitoxin and Toxoid  
W S KEITH, Toronto Ont

Principles of Treatment of Septicemia (Lantern Demonstration)  
W J MERLE SCOTT Rochester N Y

Infection by Anaerobic Gas-Forming Bacilli (Lantern Demon-  
stration) J R REEVES Indianapolis

Discussion to be opened by D A ROBBETT Columbia Mo  
Neuro Appendicopathy (Lantern Demonstration)

L C SIMARD, Montreal Que  
Significance of Pain and Vomiting in Cholelithiasis (Lantern  
Demonstration) ROBERT M ZOLLINGER Boston

Transfusions of Jaundiced Patients (Lantern Demonstration)  
E S JUDD Rochester Minn

Discussion to be opened by F K. BOLAND Atlanta, Ga

SECTION ON OBSTETRICS, GYNECOLOGY  
AND ABDOMINAL SURGERY

MEETS IN ROOM E, FIRST FLOOR CONVENTION HALL

OFFICERS OF SECTION

AMERICAN MEDICAL ASSOCIATION

Chairman—JAMES R. McCORD Atlanta Ga  
Vice Chairman—ARTHUR J SKEEL, Cleveland.  
Secretary—EVERETT D PLASS Iowa City  
Executive Committee—BAPTON COOKE HIRST Philadelphia  
JOSEPH B DE LEE, Chicago JAMES R McCORD Atlanta Ga

CANADIAN MEDICAL ASSOCIATION

Chairman—JOHN R. FRASER, Montreal Que.  
Secretary—D C MALCOLM St John N B

**Wednesday, June 12—9 a m**

- A New Biologic Test for Hormones in Urine as Applied to Various Clinical Problems  
 AARON E. KANTER, CARL P. BAUER and ARTHUR H. KLAUWANS, Chicago
- The Effect of Progesterin and Estrin on Human Uterine Contractions, and the Value of Progesterin in the Prevention of Habitual and Spontaneous Abortions  
 F. H. FAIR, JULIUS L. LACKNER and LEON KROHN, Chicago
- Certain Menstrual Disturbances Associated with Low Basal Metabolic Rates (Lantern Demonstration)  
 S. F. HAINES and R. D. MESSER, Rochester, Minn.
- Chairman's Address (C. M. A.)  
 JOHN R. FRASER, Montreal, Que.
- Sterility: Analysis of Causes and Treatment (Lantern Demonstration)  
 PAUL TITUS, Pittsburgh
- Clinical Investigation of Functional Sterility (Lantern Demonstration)  
 P. BROOKS BLAND, ARTHUR FIRST and LEOPOLD GOLDSTEIN, Philadelphia

**Thursday, June 13—9 a m**

- Modern Conceptions on Toxicity of Pregnancy and Their Influence on Treatment  
 JAMES R. GOODALL, Montreal, Que.
- The Clinical Significance of Weight Changes in Pregnancy (Lantern Demonstration)  
 H. B. VAN WICK, Toronto, Ont.
- The Mechanism of Rotation in Occiput Posterior Positions  
 JOHN MANN, Toronto, Ont.
- Chairman's Address (A. M. A.) Syphilis and Pregnancy: A Clinical Study of 2500 Cases (Lantern Demonstration)  
 J. R. McCORD, Atlanta, Ga.
- The Intravenous Use of Hypertonic Dextrose in Obstetrics and Gynecology: An Experimental and Clinical Study (Lantern Demonstration)  
 HARVEY B. MATTHEWS and VINCENT P. MAZZOLA, Brooklyn
- Hematuria as a Complication of Pregnancy  
 HAROLD L. MORRIS, Detroit

**Friday, June 14—9 a m.****Election of Officers**

- Parasacral Pudendal and Local Infiltration Anesthesia in Obstetrics (Lantern Demonstration)  
 BEATRICE E. TUCKER and HARRY B. W. BENAKON, Chicago
- Spinal Anesthesia with Particular Reference to Its Use in Obstetrics (Lantern Demonstration)  
 S. A. COSCROVE, PERRY O. HALL and WILLIAM J. GLITSCH, Jersey City, N. J.
- Rectal Ether and Oil (Lantern and Motion Picture Demonstration)  
 JAMES T. GWATHMEY, New York, and C. O. MCCORMICK, Indianapolis
- Vinyl Ether Obstetric Anesthesia for General Practice (Lantern Demonstration)  
 WESLEY BOURNE, Montreal, Que.
- Cyclopropane Anesthesia in Obstetrics (Lantern Demonstration)  
 RALPH T. KNIGHT, Minneapolis
- Ethyl Ether, Chloroform Nitrous Oxide and Ethylene Anesthesia in Obstetric Analgesia and Anesthesia  
 EDWARD W. BEACH, Philadelphia

**SECTION ON OPHTHALMOLOGY**

MEETS IN ROOM B, FIRST FLOOR, CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

- Chairman—W. G. M. BYERS, Montreal, Que.  
 Secretary—A. R. CUNNINGHAM, Halifax, N. S.

**Wednesday, June 12—2 p m**

- Chairman's Address (C. M. A.) Greetings from Canada  
 W. GORDON M. BYERS, Montreal, Que.

- Chairman's Address (A. M. A.) (Lantern Demonstration)  
 ARTHUR J. BEDELL, Albany, N. Y.
- Papilledema and Optic Neuritis: A Retrospect.  
 LESLIE PATON, London, England.
- Exophthalmos Relieved by Orbital Decompression, with Report of a Case (Lantern Demonstration)  
 MARTIN COHEN, New York.
- Discussion to be opened by H. C. NAFFZIGER, San Francisco, and GILBERT HORRAN, Boston
- Ectopia Lentis and Arachnoidactylia (Lantern Demonstration)  
 FRANK E. BURCH, St. Paul.
- Discussion to be opened by WILLIAM ZENTMAYER, Philadelphia, and RALPH I. LLOYD, Brooklyn.
- Anisophoria (Lantern Demonstration)  
 JONAS S. FRIEDENWALD, Baltimore.
- Discussion to be opened by WALTER B. LANCASTER, Boston, and FRANCIS H. ADLER, Philadelphia.

**Thursday, June 13—2 p m.**

- Preventive Ophthalmology: Relation to the Causes of Blindness in Children (Lantern Demonstration)  
 CONRAD BEREYS, New York.
- Discussion to be opened by WILLIAM H. WILDER, Chicago, and T. B. HOLLOWAY, Philadelphia.
- The Argyll Robertson Pupil (Lantern Demonstration)  
 NORMAN P. SCALA, Washington, D. C.
- Discussion to be opened by ERNEST A. SPIEGEL, Philadelphia, and HARRY S. GRADLE, Chicago
- Kinetic Stereoscopes or Stereoscopic Phenomena of a Moving Observer (Lantern Demonstration)  
 ALEXANDER E. MACDONALD, Toronto, Ont.
- Discussion to be opened by FREDERICK H. VERHOEFF, Boston, and ALFRED COWAN, Philadelphia.
- The Virus of Inclusion Conjunctivitis: Further Observations (Lantern Demonstration)  
 PHILLIPS THYGESON, and W. F. MENGERT, Iowa City.
- Discussion to be opened by C. A. CLAPP, Baltimore.
- Allergy and Cataract: Deductions Drawn from Clinical Studies  
 RUBY KATHRYN DANIEL, Rochester, Minn.
- Discussion to be opened by ALAN C. WOODS, Baltimore, and DERRICK T. VAIL JR., Cincinnati

**Demonstration Session****Friday, June 14—2 p m.****Election of Officers**

- The Control of Myopia (Lantern Demonstration)  
 EDWARD JACKSON, Denver
- Discussion to be opened by ALBERT C. SNELL, Rochester, N. Y., and F. T. TOOME, Montreal, Que.
- Herpes Ophthalmicus  
 The Treatment of Herpes Ophthalmicus by A. Rays  
 FRANCOIS BADEAUX, Montreal, Que.
- Discussion to be opened by EUGENE P. PENDEGRASS, Philadelphia
- The Iodine Treatment of Herpes Corneae, Based on Clinical and Experimental Data (Lantern Demonstration)  
 TRYGVE GUNDERSEN, Boston.
- Discussion to be opened by EVERETT L. GOAR, Houston, Texas, and SANFORD R. GIFFORD, Chicago
- Intracapsular Extraction in the Average Practice  
 S. J. BEACH and W. R. McADAMS, Portland, Maine.
- Discussion to be opened by WALTER R. PARKER, Detroit, and JOHN GREEN, St. Louis
- Artificial Fever Therapy in Ocular Syphilis (Lantern Demonstration)  
 ARTHUR M. CULLER, Dayton, Ohio
- Discussion to be opened by WILLIAM L. BENEDICT, Rochester, Minn., and ELMER L. WHITNEY, Detroit
- New Ptosis Operation (Lantern Demonstration)  
 MELVERTON E. TRAINOR, Los Angeles.
- Discussion to be opened by ARNOLD KNAPP, New York, E. C. ELLETT, Memphis, Tenn., and CLARENCE E. HILL, Toronto, Ont.

**SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY**

MEETS IN ROOM B FIRST FLOOR CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

Chairman—W J McNALLY Montreal, Que  
Secretary—WILLIAM HACKNEY, Calgary, Alta

Wednesday, June 12—9 a m

Chairman's Address (C M A) Milestones in the Recent Development of Our Knowledge of Hearing and Balancing W J McNALLY, Montreal, Que.

Carcinoma of the Larynx A Plea for Conservative Surgery in Certain Cases in Which Laryngectomy Might be Considered Necessary

NORMAN PATTERSON, London England.  
Discussion to be opened by H B ORTON Newark, N J, MURDOCK EQUEN, Atlanta, Ga, and LOUIS H CLERF, Philadelphia

Aspects of Mineral Metabolism

DAVID L THOMSON Montreal, Que  
Discussion to be opened by RALPH A FENTON Portland, Ore, J A BABBITT, Philadelphia, and A C FURSTENBURG, Ann Arbor, Mich

A Study of Clinical Cases with Vertigo as a Cardinal Symptom (Lantern Demonstration)

JOHN B McMURRAY, Washington, Pa  
Discussion to be opened by K A MACKENZIE, Halifax, N S D S WISHART, Toronto, Ont, and H R SLACK JR., Baltimore

Neoplasms Involving the Middle Ear (Lantern Demonstration)

LEROY A SCHALL, Boston  
Discussion to be opened by J K DICKIE, Ottawa, Ont, J T ROGERS, Montreal, Que, and B H SHUSTER, Philadelphia

Thursday, June 13—9 a m.

Chairman's Address (A M A) The Clinical Consideration of the Morphology of the Sinuses (Lantern Demonstration) JOHN J SHEA Memphis Tenn

The Pediatric View of Otolaryngology (Lantern Demonstration) EDWARD CLAY MITCHELL, Memphis, Tenn

Discussion to be opened by GRAHAM ROSS and PERCY WRIGHT, Montreal, Que, and H MARSHALL TAYLOR, Jacksonville, Fla

The Hormone Factors Involved in the Evolution, Development and Growth of the Paranasal Sinuses (Lantern Demonstration) HECTOR MORTIMER Montreal Que

Discussion to be opened by JAMES B COLLIP, Montreal, Que CORNELIUS G DYKE, New York, and OSCAR V BATSON, Philadelphia

Bone Proliferation in Accessory Sinuses A Pathologic Study (Lantern Demonstration)

GREGOR W MCGREGOR Toronto Ont  
Discussion to be opened by C F GESCHICKTER, Baltimore K M HOUSER, Philadelphia, and H P MOSHER, Boston

The Relationship of Bronchiectasis to Paranasal Sinus Infection (Lantern Demonstration)

GEORGE E HODGE Montreal Que  
Discussion to be opened by E G GILL Roanoke Va, and HERMAN J MOERSCH Rochester Minn

Errors in Interpretation of Roentgenograms in Otolaryngology (Lantern Demonstration)

FREDERICK M LAW New York  
Discussion to be opened by GEORGE McNEILL London Ont and W E CHAMBERLAIN and S R SKILLERN JR., Philadelphia

Friday, June 14—9 a m

Election of Officers

Brucellosis in Otolaryngology

CLAUDE C CODY Houston Texas  
Discussion to be opened by REDVERS THOMPSON Ste Anne de Bellevue Que and WALTER M SIMPSON Dayton Ohio

Contact Ulcer of the Larynx (Lantern Demonstration)

CHEVALIER JACKSON and CHEVALIER L JACKSON Philadelphia  
Discussion to be opened by H S BIRKETT and J P BOUSQUET Montreal and G W FLETCHER, Winnipeg Manit

The Diagnosis and Differential Diagnostic Data of Specific Types of Suppuration in the Petrosal Pyramid.

SAMUEL J KOPETZKY New York  
Discussion to be opened by J A SULLIVAN Toronto Ont, and HENRY K TAYLOR and RALPH ALMOUR, New York

The Value of Speech Training in Cleft Palate and Other Mouth Conditions (Lantern Demonstration)

ERNEST E SCHARFE, Montreal, Que  
Discussion to be opened by R R FITZGERALD, Montreal, Que V H KAZANJIAN, Boston and G M DORRANCE, Philadelphia

Tuberculosis of the Larynx Requiring Tracheotomy (Lantern Demonstration) M C MYERSON, New York

Discussion to be opened by FRANK R SPENCER, Boulder Colo and GEORGE B WOOD and GABRIEL TUCKER, Philadelphia

SECTION ON PEDIATRICS

MEETS IN BALLROOM, SECOND FLOOR, CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

Chairman—ALAN BROWN, Toronto, Ont

Secretary—HOWARD SPOHN, Vancouver, B C

Wednesday, June 12—9 a m

Critical Interpretation of Clinical Observations (Lantern Demonstration) A GRAEME MITCHELL, Cincinnati

Progress and Problems in Endocrinology R G HOSKINS, Boston.

Cyanosis of the New-Born

ALAN G BROWN and EDWARD A MORGAN Toronto, Ont  
Discussion to be opened by ETHEL C DUNHAM, New Haven, Conn, and JOHN D DONNELLY, Bala-Cynwyd, Pa

Therapeutic Results with the Ketogenic Diet in Urinary Infections (Lantern Demonstration)

HENRY F HELMHOLZ, Rochester Minn  
Discussion to be opened by EDWARD L BAUER, Philadelphia

Pulmonary Collapse in Children (Lantern Demonstration)

GLADYS L BOYD Toronto, Ont  
Discussion to be opened by JOSEPH STOKES JR, Philadelphia, and JOSEPH S WALL, Washington, D C

Iron and Its Availability in Foods

PEARL F SUMMERFLDT Toronto Ont  
Discussion to be opened by HUGH W JOSEPHS, Baltimore, and C Ulysses Moore, Portland Ore

Thursday, June 13—9 a m.

When Pediatricians Take Inventory (Lantern Demonstration)

FRANKLIN P GENGEBACH Denver  
Discussion to be opened by BORDEN S VEEDEER St Louis, and EDWARD CLAY MITCHELL Memphis Tenn

Milk Allergy and Its Basic Treatment (Lantern Demonstration)

BRET RATNER New York  
Discussion to be opened by CHARLES G KERLEY, New York and SAMUEL GOLDBERG Philadelphia

Allergy and Immunity in Childhood Tuberculosis (Lantern Demonstration) HENRI P WRIGHT Montreal Que

Discussion to be opened by J C GRITINGS Philadelphia, and M JAMES FINE Newark N J

The Allergic Theory of So Called Thymus Death (Lantern Demonstration)

GEORGE I WALDBOTT, Detroit  
Discussion to be opened by B S KLINE, Cleveland

Inadequacy of Present Dietary Standards (Lantern Demonstration)

FREDERICK F TISDALL, Toronto Ont  
Discussion to be opened by WALTER B STEWART Atlantic City N J and HARRY H DONNELLY Washington, D C.

Body Type in Negro Children (Lantern Demonstration)

LAWRENCE T ROYSTER University Va  
Discussion to be opened by HOWARD C CARPENTER, Philadelphia FRANK LEE BIVINGS Atlanta Ga and HAROLD C STUART Boston

Friday, June 14—9 a m

**Election of Officers**

The Diagnosis of Congenital Syphilis (Lantern Demonstration)  
ARTHUR HAWLEY PARMLEE, Oak Park, Ill and LOUIS J HALPERN, Chicago

Discussion to be opened by JOSEPH YAMPOWSKY, Atlanta, Ga, and HENRY H PERLMAN, Philadelphia

Systemic Thrush Infection FRED W SCHULTZ Chicago  
Discussion to be opened by WILLIAM WESTON Columbia, S C

A Study of Immunization Against Scarlet Fever in Charitable Institutions and Public Schools of Philadelphia  
J NORMAN HENRY Philadelphia

Discussion to be opened by JOHN A TOOMEY Cleveland, and P F LUCCHESI Philadelphia

The Development of the Therapeutic Use of Forced Perivascular (Spinal) Drainage  
GEORGE M RETAN Syracuse N Y

Discussion to be opened by LAWRENCE S KUBIE New York and TIMOTHY S FAY Philadelphia

Active Immunization Against Poliomyelitis Experimental and Human Studies

MAURICE BROMIE and WILLIAM H PARK New York  
Discussion to be opened by JOHN A KOEHLER Philadelphia and ALTON GOLDBLOOM Montreal Que

Meningococcic Meningitis in Children (Lantern Demonstration)  
JOSEPHINE B NEWMAN New York

Discussion to be opened by BRONSON CROTHERS Boston and EMILY P BACON Philadelphia

## SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN COMMITTEE ROOM 13 THIRD FLOOR  
CONVENTION HALL

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Wednesday, June 12—2 p m

Chairman's Address (C M A)

V E HENDERSON Toronto Ont

The Standardization and Potency of Digitalis Preparations (Lantern Demonstration)

C W CHALMAN and C A MORRELL Ottawa, Ont

The Use of Strophanthin in the Treatment of Auricular Fibrillation

H E RYKERT and JOHN HEPBURN Toronto Ont

Response of Coronary Vessels to Various Organic Drugs

CHARLES W GREENE Columbia Mo

Treatment of Cardiac Pain G F STRONG, Vancouver B C

Discussion on papers of DRS CHAPMAN and MORRELL, RYKERT and HEPBURN GREENE and STRONG to be opened by E E NELSON Ann Arbor Mich E FULLERTON COOK Philadelphia HARRY GOLD New York, LEONARD G ROWNTREE, Philadelphia ROBERT L LEVY New York, TASKER HOWARD, Brooklyn, and WILLIAM D STROUD Philadelphia

Clinical Experiences with Wheat Germ Oil (Vitamin E) (Lantern Demonstration) E M WATSON London Ont

Discussion to be opened by E D PLASS Iowa City, KARL M WILSON, Rochester, N Y, and PAUL TITUS, Pittsburgh

Thursday, June 13—2 p m

Chairman's Address (A M A) CARL H GREENE New York

Hyperglycemia Evaluation in the Treatment of Diabetes Mellitus (Lantern Demonstration)

HERMAN O MOSENTHAL, New York

Discussion to be opened by ELLIOTT P JOSLIN Boston, and EDWIN J KEPLER Rochester Minn

Experimental Studies on Replacement Therapy in Adrenal Insufficiency (Lantern Demonstration)

ARTHUR GROLLMAN and W M FIORA, Baltimore

Discussion to be opened by GEORGE A HARROP, Baltimore, and EDWIN J KEPLER, Rochester, Minn

The Biologic Effects Following the Continuous Administration of Pineal Extract to Successive Generations

LEONARD G ROWNTREE and J H CLARK, Philadelphia, and A M HANSON Faribault Minn

Discussion to be opened by R G HOSKINS, Boston

The Pharmacology of Testicular Hormones (Lantern Demonstration)

D ROY MCCULLAGH Cleveland

Discussion to be opened by WILLIAM E LOWER, Clermont and R G HOSKINS Boston, and JAMES B COLLIP, Montreal Que

The Metabolic and Antiobesity Actions of Dinitrophenol (Lantern Demonstration)

MAURICE L TAINTER WINDSOR C CUTTING, ANDREW B STOCKTON and E HINES San Francisco

Discussion to be opened by MAURICE BRUGER, New York and FRANK A EVANS, Pittsburgh

The Treatment of Pellagra (Lantern Demonstration)

TONY D SPIES Cleveland

Discussion to be opened by JAMES S MCLESTER, Birmingham, Ala and HENRY L BOCKUS, Philadelphia

Friday, June 14—2 p m

**Election of Officers**

The Clinical Significance of Problems of Absorption in the Human Gastro Intestinal Tract (Lantern Demonstration)

CLARK W HEATH Boston

Discussion to be opened by THOMAS T MACKIE, New York and T GRIER MILLER and SAMUEL GOLDSCHMIDT Philadelphia

Comparative Effects of Pressor and Oxytocic Fractions of Posterior Pituitary Extract on Blood Pressure and Intestinal Activity

KENNETH I MELVILLE, Montreal Que

Discussion to be opened by JAMES B COLLIP, Montreal, Que and D ROY MCCULLAGH Cleveland

The Diuretic Action of Intravenous Sodium Dehydrocholate (Lantern Demonstration)

FRANKLIN A WEIGAND Philadelphia

Discussion to be opened by B B VINCENT LYON and ABRAHAM CANTAROW Philadelphia

The Diuretic Action of Potassium Salts (Lantern Demonstration)

NORMAN M KEITH and MELVIN W BRAGER, Rochester, Minn

Discussion to be opened by M HERBERT BARKER Chicago, and CARL H GREENE New York

A Pharmacologic and Therapeutic Study of Certain Choline Derivatives (Lantern Demonstration)

JOSEPH KOVACS IRVING S WRIGHT and LESLIE SAYLOR, New York

Discussion to be opened by V E HENDERSON Toronto, Ont ISAAC STARR Philadelphia and IRVINE H PAGE, New York

Treatment of Acute and Chronic Brucellosis (Undulant Fever) (Lantern Demonstration)

FRED E ANGLE Kansas City Kan

Discussion to be opened by WALTER M SIMPSON, Dayton Ohio

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN COMMITTEE ROOM 13 THIRD FLOOR,  
CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

Chairman—WILLIAM BOYD, Winnipeg Manit.

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**Wednesday, June 12—9 a m**

**ANNIVERSARY PROGRAM BY FOUNDERS OF SECTION**  
Honorary Chairman's Address The Specificness of Streptococci (Lantern Demonstration)

LUDVIG HEKTOEN, Chicago  
Development of Pathology Since 1900  
WALTER L. BIERRING, Des Moines Iowa  
Changes in Internal Medicine. JAMES B. HERRICK, Chicago  
Relationship of Pathologic Training to Clinical Medicine.  
GEORGE BLUMER, New Haven, Conn.  
Advances in Immunity. SIMON FLEXNER New York

**Thursday, June 13—9 a m**

Chairman's Address (A M A) I Am Automatic  
E P LYON, Minneapolis  
Essential Anatomy (Lantern Demonstration)  
ALBERT KUNTZ, St. Louis  
Essential Physiology (Lantern Demonstration)  
ANTON J CARLSON, Chicago  
Essential Pharmacology (Lantern Demonstration)  
D E JACKSON, Cincinnati  
The Role of the Autonomic Nervous System in the Causation of Pain (Lantern Demonstration)  
LEWIS J POLLOCK and LOYAL DAVIS Chicago  
Clinical Tests of the Functions of the Sympathetic Nervous System (Lantern Demonstration)  
GEORGE E BROWN, Rochester Minn.  
Indications for Surgery on the Sympathetic Nervous System (Lantern Demonstration)  
ALFRED W ADSON Rochester, Minn.  
Discussion on papers of DRS KUNTZ, CARLSON, JACKSON, POLLOCK and DAVIS, BROWN and ADSON to be opened by W J MERLE SCOTT Rochester, N Y, IRVING S WRIGHT, New York, and JAMES C WHITE and A W ALLEN, Boston

**Friday, June 14—9 a m.**

**Election of Officers**  
Chairman's Address (C M A) The Relation of Pathology to Medicine. WILLIAM BOYD, Winnipeg, Manit  
Positive Friedman Tests in Nonpregnant Individuals (Lantern Demonstration) E PERRY McCULLAGH, Cleveland  
The Choice and Interpretation of Tests of Renal Efficiency (Lantern Demonstration)  
R. H. FREYBERG and L. H. NEWBURGH, Ann Arbor, Mich.  
Discussion to be opened by HERMAN O MOSENTHAL, New York  
Susceptibility and Immunity in Relation to Vaccination in Acute Anterior Poliomyelitis (Lantern Demonstration)  
JOHN A KOLMER, Philadelphia  
Reliability of Sputum Typing in the Pneumonias (Lantern Demonstration) JESSE G M BULLOWA New York.  
Discussion to be opened by WILLIAM H PARK, New York, S W SAPPINGTON, Bryn Mawr Pa, and MAXWELL FINLAND, Boston.  
Alveolar Vents and Their Significance in the Human Lung (Lantern Demonstration)  
CHARLES C MACKLIN London, Ont  
Discussion to be opened by WILLIAM BOYD Winnipeg, Manit, and CHARLES H BEST, Toronto Ont  
The Nature and Importance of the Reciprocal Cellular Equilibrium That Exists Between Lymphatic and Myeloid Tissues as Revealed by Experimental and Clinical Studies (Lantern Demonstration)  
B K. WISEMAN Columbus Ohio  
Discussion to be opened by FLORENCE R SABIN, New York and RUSSELL L HADEN, Cleveland  
Sex Determination Sex Differentiation and Intersexuality, with Report of Unusual Case (Lantern Demonstration)  
EMIL NOVAK Baltimore

**SECTION ON NERVOUS AND MENTAL DISEASES**

MEETS IN COMMITTEE ROOM 12 THIRD FLOOR CONVENTION HALL

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**CANADIAN MEDICAL ASSOCIATION**

Chairman—A T MATHERS, Winnipeg, Manit  
Secretary—W V CONE, Montreal, Que

**Wednesday, June 12—2 p m**

Ventriculography with Colloidal Thorium Dioxide (Lantern Demonstration)  
WALTER FREEMAN, H H SCHOENFELD and CLAUDE MOORE, Washington, D C  
Discussion to be opened by TEMPLE S FAX, Philadelphia, R. GLEN SPURLING, Louisville, Ky, and TRACY J PUTNAM, Boston  
Encephalographic Studies in Extraparal Disease (Lantern and Motion Picture Demonstration)  
S P GOODHART, B H BALSER and IRVING BIEBER, New York  
Discussion to be opened by A J BENDICK and CHARLES DAVISON, New York.  
Meningitis A Comparative Study of Various Therapeutic Measures (Lantern Demonstration)  
CARLO J TRIPOLI, New Orleans  
Discussion to be opened by JOHN H MUSSER, New Orleans, and JOSEPHINE B NEAL, New York  
Etiologic Factors in Multiple Sclerosis (Lantern Demonstration)  
TRACY J PUTNAM, Boston  
Discussion to be opened by ARMANDO FERRARO and JOSEPH H GLOBUS, New York  
Experimental Ptosis in Monkeys and Chimpanzees The Synergic Action of Third Nerve and Cervical Sympathetic (Lantern Demonstration)  
WILLIAM DEG MAHONEY, New Haven, Conn., and DONAL SHEEHAN, Manchester, England  
Discussion to be opened by JOHN L ECKEL, Buffalo, and R. GLEN SPURLING Louisville, Ky  
Report of a Case of Alzheimer's Disease with Neuropathologic Observations (Lantern Demonstration)  
J A HANNAH, Toronto, Ont  
Discussion to be opened by WALTER FREEMAN, Washington, D C  
Post-Traumatic Narcolepsy GEORGE W HALL, Chicago

**Thursday, June 13—2 p m**

Chairman's Address (A M A) Research in Psychiatry  
H DOUGLAS SINGER, Chicago  
The Onset in Postencephalitic and Traumatic Behavior Cases  
EARL D BOND Philadelphia  
Discussion to be opened by BERNARD J ALPERS, Philadelphia, and BROXSON CROTHERS, Boston  
A Study of Activity After Recovery from Rickets An Experimental Study (Lantern Demonstration)  
LLOYD H ZIEGLER and ARTHUR KNUDSON, Albany, N Y  
Discussion to be opened by LEO KANNER, Baltimore, and FREDERICK F TISDALL, Toronto, Ont.  
Chairman's Address (C M A)  
A T MATHERS, Winnipeg, Manit  
Depression as a Part of a Life Experience A Study of Forty Consecutive Cases  
NIELS L ANTHONISEN, Belmont, Mass  
Discussion to be opened by EARL D BOND, Philadelphia, and LLOYD H ZIEGLER, Albany, N Y  
The Intensive Treatment of Morphine Addiction  
THEOPHIL KLINGMAN, Ann Arbor, Mich., and WILLIAM H. EVERTS, New York  
Discussion to be opened by EDWIN G ZABRISKIE, New York  
The Psychiatric Hospital as an Institution of Learning (Lantern Demonstration)  
C C BURLINGAME and CARL P WAGNER, Hartford Conn  
Discussion to be opened by EDWIN G ZABRISKIE New York

**Friday, June 14—2 p m.**

**Election of Officers**

A Clinical Study of Seven Cases of Nervous Complications Following Spinal Anesthesia Tissue Study in One Instance (Lantern Demonstration)  
SAMUEL BROCK, AARON BELL and CHARLES DAVISON, New York  
Discussion to be opened by E. D. FRIEDMAN and G H HYSLOP, New York



- The Simulation of Intracranial Neoplasm by Lead Encephalopathy in Children (Lantern Demonstration)  
PAUL C BUCY and DOUGLAS N BICHANAN, Chicago  
Discussion to be opened by GEORGE W HALL, Chicago, and TRACY J PUTNAM Boston
- Subtemporal and Suboccipital Myoplastic Craniotomy (Lantern Demonstration)  
WILLIAM CONF and WILDER PENFIELD Montreal Que  
Discussion to be opened by FRANCIS C GRANT, Philadelphia
- Clinical Aspects and Treatment of Chronic Subdural Hemorrhage (Lantern Demonstration)  
FRANCIS C GRANT Philadelphia  
Discussion to be opened by TRACY J PUTNAM Boston
- Paroxysmal Neuralgia of the Trigeminal Nerve (Jacobson's Nerve) (Lantern Demonstration)  
T C FRICKSON, Montreal Que  
Discussion to be opened by FRANCIS C GRANT Philadelphia
- Cranio-cerebral Trauma Pathologic and Clinical Classification  
CHAIRMAN H MOORE Birmingham Ala  
Discussion to be opened by GILBERT HOBAN, Boston and FRANCIS C GRANT Philadelphia

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN ROOM A FIRST FLOOR CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

- Chairman—J F BURGESS Montreal Que  
Secretary—PAUL POIRIER Montreal Que

### Wednesday, June 12—2 p m

- Chairman's Address (A M A) Observations on the Therapy of Acne Vulgaris  
JEFFREY C MICHAEL, Houston, Texas
- The So Called Mosaic Fungus is an Intercellular Deposit of Cholesterol Crystals (Lantern Demonstration)  
A M DAVIDSON and P H GREGORY Winnipeg Manit  
Discussion to be opened by JOHN GODWIN DOWLING, Boston
- Rosacea Interpreted as a Bacterid from Focal Infection (Lantern Demonstration)  
HERMANN FRIT ELIZABETH ANN LASZLO and FRANK VERO New York  
Discussion to be opened by SAMUEL AYRES JR, Los Angeles
- Lichen Simplex Chronicus (Lantern Demonstration)  
D F H CLEVELAND, Vancouver B C
- Functional Studies in Patients with the Neurodermatoses (Lantern Demonstration)  
J M VAN DE ERVE Charleston, S C, and S WILLIAM BECKER, Chicago  
Discussion on papers of DR CLEVELAND and DR VAN DE ERVE and BECKER to be opened by PHILIP BURNETT, Montreal, Que and PAUL A O'LEARY Rochester, Minn
- An 'Office' Technique of Treating Functional Neuroses as Complications of Organic Disease with Special Reference to the Dermatoneuroses (Lantern Demonstration)  
JOHN H STOKES, Philadelphia  
Discussion to be opened by EARL D BOND, Philadelphia
- Histogenesis of Aberrant Lesions of Psoriasis (Lantern Demonstration)  
PAUL D FOSTER, Los Angeles, and GEORGE M MACKEE, New York  
Discussion to be opened by CLARK W FINNERUD, Chicago

### Thursday, June 13—2 p m

- Chairman's Address (C M A) Chronic Glanders in Man (Lantern Demonstration) J F BURGESS Montreal, Que
- The Treatment of Early and Late Congenital Syphilis in Children The Results of Treatment in 521 Patients  
FRANK R SMITH JR Baltimore  
Discussion to be opened by E J TROW Toronto Ont

- A Study of Dementia Paralytica and Tabes with Reference to Precocious Development (Lantern Demonstration)  
DUNCAN O POTRI, BURTON F BARNEY and Udo J WILLE Ann Arbor, Mich  
Discussion to be opened by R E POWELL, Montreal Que
- Artificial Fever Therapy of Syphilis (Lantern Demonstration)  
WALTER M SIMPSON Dayton, Ohio  
Discussion to be opened by FRANK R MENAGH Detroit
- A Study of the Comparative Value of Bismuth and Mercury Compounds in the Treatment of Early Syphilis (Lantern Demonstration)  
A BENSON CANNON and JOYCELYN H ROBERTSON, New York  
Discussion to be opened by HAROLD ORR Edmonton, Alta
- Intradermal Test for Chancroids with Sterilized Pus from Chancroidal Buboos (Lantern Demonstration)  
HAROLD N COLE and E A LEVIN, Cleveland
- Discussion to be opened by ALBERIC MARIN, Montreal Que
- The Balanitis (Lantern Demonstration)  
JOHN F MADDEN, St Paul  
Discussion to be opened by P H POIRIER, Montreal, Que

### Friday, June 14—2 p m.

#### Election of Officers

- Congenital Atrophy of the Skin with Reticular Pigmentation Report of Two Cases M F ENGMAN JR St. Louis  
Discussion to be opened by H A DIXON, Toronto, Ont
- Fever Therapy of Mycosis Fungoides  
J V KLAUDER, Philadelphia, Ont  
Discussion to be opened by W R JAFFREY, Hamilton, Ont
- Granuloma Coccidioides Report of Two Cases of a Chronic Hypertrophic Type (Lantern Demonstration)  
J L PIPKIN and C F LEHMANN, San Antonio, Texas  
Discussion to be opened by CHARLES C TOMLINSON Omaha
- Hodgkin's Disease of the Scalp (Lantern Demonstration)  
N M WRONG, Toronto Ont  
Discussion to be opened by RICHARD W FOWLES, Richmond, Va
- Depth Dose Measurements for Dermatologic Roentgen Therapy (Lantern Demonstration)  
GEORGE C ANDREWS and CARL B BRAESTRUP, New York  
Discussion to be opened by ANTHONY C CIPOLLARO, New York
- Granuloma Annulare Report of Unusual Cases, with Remarks on the Histology of This Condition (Lantern Demonstration)  
M H GOODMAN and LLOYD W KETRON Baltimore  
Discussion to be opened by G S WILLIAMSON Ottawa, Ont
- The Relation of the Endocrine System to Dermatology  
WAITER O TEICHMAN and FRANK J EICHENLAUB, Washington D C  
Discussion to be opened by BARNEY USHER, Montreal Que

## SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN ROOM C FIRST FLOOR, CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

- Chairman—W J P MACMILLAN, Charlottetown P E I  
Secretary—A GRANT FLEMING, Montreal, Que.

### Wednesday, June 12—9 a m SESSION ON PUBLIC HEALTH

- Chairman's Address (A M A) ROBERT H RILEY, Baltimore
- The Reduction of Diphtheria in Children Immunized with Toxoid (Lantern Demonstration)  
N E MCKINNON Downsview, Ont
- Public Health Problems in New York City  
JOHN L RICE, New York

**Tuberculosis** The Interval of Supervisory Treatment and Prophylactic Control (Lantern Demonstration)  
JAMES G CUMMING, Washington, D C

**Age Distribution and Longevity of the Syphilitic**  
S E GOULD, Eloise, Mich  
Discussion to be opened by REUBEN L KAHN, Ann Arbor, Mich, and OSBORNE A BRINES, Detroit

**Child Health Survey in Preschool Children Conducted as CWA Project (Lantern Demonstration)**  
JULIUS LEVY, Newark, N J

**The Importance of the Closure of Pulmonary Cavities for the Prevention of Tuberculosis (Lantern Demonstration)**  
CLARENCE L HYDE and CARL R STEINKE Akron, Ohio

**Mental Hygiene in Its Relationship to Public Health and Preventive Medicine**  
W T B MITCHELL, Montreal Que

**Thursday, June 13—9 a m**

**SESSION ON INDUSTRIAL HEALTH**

**Chairman's Address (C M A)**  
W J P MACMILLAN, Charlottetown P E I

**Physical Survey of 47 000 CWA Employees in State of Virginia (Lantern Demonstration)**  
FRED J WAMPLER, Richmond Va

**Solvents in Industry and Means of Overcoming Hazards**  
ALLEN ROGERS, Brooklyn

**Asbestos**  
A J LANZA, New York

**Tuberculosis in Industry (Lantern Demonstration)**  
R VANCE WARD, Montreal Que

**Importance of Industrial Hygiene and How It Can Best Be Handled Through State Departments of Health**  
ALBERT S GRAY, Hartford Conn

**Friday, June 14—9 a m**

**SESSION ON HEART DISEASE**

**Election of Officers**

**The Etiology of Heart Disease, with Special Reference to the Present Status of the Prevention of Heart Disease**  
H B SPRAGUE and P D WHITE, Boston

**Observations on the Epidemiology of Rheumatic Fever (Lantern Demonstration)**  
JOHN R PAUL and MARION B LEONARD, New Haven, Conn

**The Heart in Hypertension (Lantern Demonstration)**  
GEORGE FAHR, Minneapolis

**The Rehabilitation and Placement in Industry of Those Handicapped with Cardiovascular Disease (Lantern Demonstration)**  
WILLIAM D STROUD, Philadelphia

**An Analysis in the Apparent Increase in the Heart Diseases (Lantern Demonstration)**  
A E COHN, New York

**A Critical Analysis of Heart Disease Mortality (Lantern Demonstration)**  
O F HEDLEY, Philadelphia

**SECTION ON UROLOGY**

MEETS IN ROOM A, FIRST FLOOR, CONVENTION HALL

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**CANADIAN MEDICAL ASSOCIATION**

**Chairman**—D W MACKENZIE, Montreal Que  
**Secretary**—E R MYERS, Saskatoon, Sask

**Wednesday, June 12—9 a m**

**SIMPOSIUM ON GENITOURINARY ANOMALIES AND THEIR TREATMENT**

**The Role of Anomalies of the Upper Urinary Tract in the Causation of Surgical Conditions (Lantern Demonstration)**  
ROBERT GUTIERREZ, New York

**The Embryologic and Clinical Aspect of Double Ureter (Lantern Demonstration)**  
ALLEN B HAWTHORNE, Montreal Que

**Congenital Obstructions of the Female Urethra**  
WILLIAM E STEVENS, San Francisco

**The Operative Treatment for Undescended Testicle (Lantern Demonstration)**  
CHARLES M MCKENNA and E E EWERT, Chicago

**The Ectopic Pelvic Kidneys**  
OSCAR MERCIER, Montreal Que

**The Surgical Treatment of Anomalies of the Upper Urinary Tract in Children (Lantern Demonstration)**  
MEREDITH F CAMPBELL, New York

**Cystitis Cystica**  
FRANK S PATCH, Montreal, Que

**Presentation of New Instrument for Transurethral Surgery (Demonstration Only) (Lantern Demonstration)**  
CLYDE W COLLINGS, New York

**Thursday, June 13—9 a m**

**Chairman's Address (C M A)** Lymphatics of Lower Urinary and Genital Tracts—An Experimental Study with Special Reference to Renal Infections (Lantern Demonstration)  
DAVID W MACKENZIE, Montreal Que

**SIMPOSIUM ON RECENT EXPERIMENTAL METHODS AND RESEARCH PROBLEMS IN UROLOGY**

**New Methods of Diagnosis in Neurogenic Lesions of the Bladder and Vesical Neck (Lantern Demonstration)**  
LLOYD G LEWIS, Baltimore

**A Preliminary Clinical Report on the Treatment of Benign Prostatic Hypertrophy by Nonoperative Methods (Lantern Demonstration)**  
WILLIAM E LOWER, Cleveland

**New Surgical Measures in the Treatment of Impotence, with a Report of Experimental and Clinical Studies (Lantern Demonstration)**  
OSWALD S LOWSLEY, New York

**Studies of the Testis Anterior Pituitary Hormone Relation in a Human Being, with a Report of Chemical and Biologic Investigations (Lantern Demonstration)**  
JAMES F MCCAHEY, LORENZ P HANSEN and DAVID SOLOWAY, Philadelphia

**Experimental Study in Renal Arteriography (Lantern Demonstration)**  
S W MOORE and ROY B HENLINE, New York

**A Study of the Changes in the Trigon Following Resection (Lantern Demonstration)**  
DORRIN F RUDNICK, Chicago

**The Indication for Nephropexy with an Analysis of Results (Lantern Demonstration)**  
JOHN B LOWNES, Philadelphia

**Friday, June 14—9 a m**

**Election of Officers**

**SIMPOSIUM ON MALIGNANT GROWTHS OF GENITO URINARY ORGANS**

**Chairman's Address (A M A)** Metastatic Carcinomatosis of the Ureter (Lantern Demonstration)  
STANLEY R WOODRUFF, Jersey City, N J

**The Prognosis with Renal Neoplasm and Clinical Data Affecting It**  
WILLIAM F BRAASCH, Rochester, Minn

**Teratoid Tumors of the Testes (Lantern Demonstration)**  
ARCHIE L DEAN, JR, New York

**Total Cystectomy and Urethral Transplantations in Malignant Conditions of the Bladder, with the Description of a New Operative Procedure (Lantern Demonstration)**  
REED M NESBIT, Ann Arbor, Mich

**Roentgen Treatment of Malignant Tumors of the Bladder (Lantern Demonstration)**  
RUSSELL S FERGLSON, New York

**The Management of Tumors of the Kidney, Including Cyst (Lantern Demonstration)**  
RALPH M LECOMTE, Washington D C

**Carcinoma of the Female Urethra (Lantern Demonstration)**  
ERNEST M WATSON, Buffalo

**Choice of Treatment in Carcinoma of the Bladder**  
ROBIN PEARSE, Toronto, Ont

**SECTION ON ORTHOPEDIC SURGERY**

MEETS IN COMMITTEE ROOM 1—THIRD FLOOR CONVENTION HALL

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**CANADIAN MEDICAL ASSOCIATION**

**Chairman**—R I HARRIS, Toronto, Ont  
**Secretary**—G A RAMSAY, London, Ont

**Wednesday, June 12—9 a. m.**

Comminuted Colles Fracture in Elderly Patients Method of Treatment and the End Results in Thirty Cases (Lantern Demonstration) G E HAGGART, Boston  
Discussion to be opened by WILLIAM B OWEN, Louisville, Ky., WILLIS C CAMPBELL, Memphis, Tenn., and ROBERT H KENNEDY, New York

Healing of the Newer Bumper Fractures of the Tibia (Lantern Demonstration)

WALTER G STERN and LOUIS E PAIURT, Cleveland  
Discussion to be opened by WILLIAM E GALITE, Toronto Ont PAUL B MACNUSON, Chicago, and H EARL CONWELL, Fairfield, Ah

Acute Anterior Polyomyelitis A Study of the 1934 Epidemic in Southern California (Lantern Demonstration)

JOHN C WILSON and PIERRE J WALKER, Los Angeles  
Discussion to be opened by WILLIAM H PARK, New York, PHILIP LEWIN, Chicago and JOHN A KOEHLER, Philadelphia

Dupuytren's Contracture (Lantern and Motion Picture Demonstration) HENRY W MEYERDING, Rochester, Minn

Discussion to be opened by SUMNER L KOCH, Chicago and JOHN STACEY DAVIS, Baltimore

The Treatment of Scoliosis End Results in the Study of One Hundred Postoperative Cases (Lantern Demonstration)

ARMITAGE WHITMAN, New York and WILLIAM E BROCKMAN, Canton, Ohio

Discussion to be opened by A B FERGUSON and MATHER CLEVELAND, New York

Late Results of Treatment of Congenital Dislocation of the Hip (Lantern Demonstration)

CLARENCE H HEYMAN, Cleveland  
Discussion to be opened by A BRUCE GILL, Philadelphia, SAMUEL KLEINBERG, New York, JOSEPH A FREIBERG, Cincinnati and PAUL C COLOMAN, New York

**Thursday, June 13—9 a. m.**

Traumatic Flail Elbow (Motion Picture Demonstration)

J M MURRAY, Ottawa, Ont  
Discussion to be opened by FRED H ALBEE, New York, and G I BAUMAN, Cleveland

Acute Septic Arthritis (Lantern Demonstration)

GEORGE W ARMSTRONG, Ottawa, Ont  
Discussion to be opened by W R MACAUSLAND, Boston, and ROBERT W JOHNSON, JR., Baltimore

Chairman's Address (C M A) Fat Embolism—A Dangerous Complication of Orthopedic Operations (Lantern Demonstration)

R I HARRIS, Toronto, Ont  
Discussion to be opened by PAUL N JELSON, Philadelphia

Experiences in Leg Lengthening (Lantern Demonstration)

E C JAMES, Hamilton, Ont

Fractures of the Carpal Scaphoid

D W GORDON MURRAY, Toronto, Ont  
Discussion to be opened by CLAY RAY MURRAY, New York

Post-Traumatic Acute Bone Atrophy A Clinical Entity (Lantern Demonstration) FRASER B GURD, Montreal, Que

Discussion to be opened by E W RYERSON, Chicago, ROBERT V FUNSTON, University, Va., and RALPH G CAROTHERS, Cincinnati

**Friday, June 14—9 a. m.****Election of Officers**

The Conservative Operation for Bunions End Results and Refinements of Technique (Lantern and Motion Picture Demonstration) EARL D MCBRIDE, Oklahoma City  
Discussion to be opened by LEO MAYER, New York, and J TORRENCE RUGH, Philadelphia

An Analysis of Living Cases of Primary Malignant Bone Tumors (Lantern Demonstration)

WILLIS C CAMPBELL, Memphis, Tenn  
Discussion to be opened by HENRY W MEYERDING, Rochester, Minn., and BRADLEY L COLEY, New York

Chairman's Address (A M A) Difficulties of Diagnosis in Bone Tumors (Lantern Demonstration)

ROBERT D SCHROCK, Omaha

Osteomyelitis in Infancy (Lantern Demonstration)

WILLIAM T GREEN, Boston  
Discussion to be opened by GEORGE E BENNETT, Baltimore, FRANK R OBER, Boston, and H WINNETT ORR, Lincoln, Neb

Growth Arrest in the Long Bones as a Result of Fractures That Include the Epiphysis (Lantern Demonstration)

EDWARD L COMPERE, Chicago

The Effect of Inflammation on Epiphysis and Slipped Epiphyses (Lantern Demonstration)

R A Y JOHNSTON, London, Ont

Discussion on papers of Drs COMPERE and JOHNSTON to be opened by FRANK D DICKSON, Kansas City, Mo

J DEWEY BISGARD, Omaha and JAMES W SEVER, Boston

**SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY**

MEETS IN ROOM C, FIRST FLOOR, CONVENTION HALL

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CANADIAN MEDICAL ASSOCIATION

Chairman—R H M HARDISTY, Montreal, Que

Secretary—J K MCGREGOR, Hamilton, Ont

**Wednesday, June 12—2 p. m.**

Intestinal Obstruction An Experimental Study

N B TAYLOR and C B WELD, Toronto, Ont

Discussion to be opened by A C IY, Chicago

Some Effects of Barbituric Acid Derivatives on Gastro-Intestinal Motility and Absorption in the Cat (Lantern Demonstration) N B DREYER, Halifax, N S

Discussion to be opened by J A BARGEN, Rochester, Minn

Studies on Crystalline Vitamin B<sub>1</sub> Experimental and Clinical Observations (Lantern Demonstration)

MARTIN G VORHAUS, ROBERT R WILLIAMS and ROBERT E WATERMAN, New York

Discussion to be opened by E B VEDDER, Washington D C

Deficiency Disease and the Small Intestine

THOMAS T MACKIE and ROBERT E POUND, New York  
Discussion to be opened by LEWIS GREGORY COLE, New York

Multiple Nutritional Deficiency Disease (Lantern Demonstration) RUSSELL L HADEN, Cleveland

Discussion to be opened by R F FARQUHARSON, Toronto, Ont

Combined Forms of Ileitis and Colitis (Lantern Demonstration)

BURRILL B CROHN and BERNARD D ROSENBAUM, New York

Discussion to be opened by A A BERG, New York

The Use of Chondroitin in Idiopathic Headache (Lantern Demonstration)

LATHAN A CRANDALL, GEORGE M ROBERTS and LOWELL D SNORF, Chicago

Discussion to be opened by AUGUST A THOMEN, New York

The Value of Belladonna in Stomach Disorders A Summary of Laboratory and Clinical Observations

WALTER A BASTEDO, New York  
Discussion to be opened by BRUCE C LOCKWOOD, Detroit

**Thursday, June 13—2 p. m.**

Chairman's Address (A M A) The Diagnosis and Prognosis of Epithelial Tumors of the Large Bowel

WALTER A FANSLER, Minneapolis

Chairman's Address (C M A) R H M HARDISTY, Montreal, Que

Diagnostic Criteria of Colonic Cancer (Lantern Demonstration) CURTICE ROSSER, Dallas, Texas

Discussion to be opened by NEIL JOHN MACLEAN, Winnipeg, Man. and SARA M JORDAN, Boston

Endometriosis of the Large Bowel (Lantern Demonstration) NEIL JOHN MACLEAN, Winnipeg, Man.

Discussion to be opened by JAMES D SCHOFIELD, Philadelphia

Behavior of the Average Human Colon (Lantern Demonstration)  
E L WALSH, G H LAING, H L SIPPY and A C. ILL, Chicago  
Discussion to be opened by MALCOLM J WILSON, Toronto, Ont, and N B DREYER, Halifax N S  
Clinical Experience of the Mayo Clinic in the Treatment of Amebiasis (Lantern Demonstration)  
PHILIP W BROWN, Rochester, Minn  
Discussion to be opened by MOSES PAULSON, Baltimore.  
Lymphogranuloma Inguinale (Lantern Demonstration)  
HERBERT T HAYES, HARRY B BURR and J WADE HARRIS, Houston, Texas  
Discussion to be opened by WILLIAM H DANIEL, Los Angeles  
Proctologic Conditions in Children (Lantern Demonstration)  
FRANK C YEOMANS, New York  
Discussion to be opened by DESCUM C MCKENNEY, Buffalo  
Villous Papilloma of the Rectum (Lantern Demonstration)  
F B BOWMAN Hamilton Ont  
Discussion to be opened by EDWARD G MARTIN, Detroit

Friday, June 14—2 p m

Election of Officers

The Function of the Pyloric Sphincter (Lantern Demonstration)  
MALCOLM J WILSON, Toronto, Ont.  
Discussion to be opened by J EARL THOMAS, Philadelphia  
The Regulation of Gastric Acidity (Lantern Demonstration)  
CHARLES M WILHELMJ and FREDERICK C HILL, Omaha  
Discussion to be opened by F W ROLPH Toronto, Ont  
The Secretion of Gastric Mucin in Man A Comparative Study in the Normal Subject and Peptic Ulcer Patient in Response to an Alcohol Test Meal (Lantern Demonstration)  
SAMUEL J FOGELSON and RICHMOND K ANDERSON, Chicago  
Discussion to be opened by B P BABKIN, Montreal, Que, and CLEMENT R JONES, Pittsburgh  
Relation of Nonprotein Nitrogen Retention to Dehydration and Hypochloremia (Lantern Demonstration)  
JOHN EIMAN and WALTER G KARR, Philadelphia  
Discussion to be opened by WALTER R CAMPBELL, Toronto Ont  
Blood Sugar Concentration and the External Secretion of the Pancreatic Gland (Lantern Demonstration)  
B P BABKIN, Montreal Que  
Discussion to be opened by A H AARON, Buffalo  
Abdominal Symptomatology of Diabetic Acidosis (Lantern Demonstration)  
JOSEPH T BEARDWOOD JR. Philadelphia  
Discussion to be opened by JONATHAN C MEAKINS, Montreal, Que  
Esophageal Carcinoma, with Especial Reference to a Non-stenosing Variety (Lantern Demonstration)  
ROBERT W MATHEWS and TRUMAN G SCHNABEL, Philadelphia  
Discussion to be opened by GABRIEL TUCKER, Philadelphia  
Some Sequelae of Cholecystectomy (Lantern Demonstration)  
JAMES F WEIR and ALBERT M SNEEL, Rochester, Minn  
Discussion to be opened by COLIN G SUTHERLAND, Montreal, Que and HENRY A. RAFSKY, New York.

SECTION ON RADIOLOGY

MEETS IN ROOM D FIRST FLOOR, CONVENTION HALL

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DESJARDINS Rochester, Minn JOHN W PIERSON Baltimore

CANADIAN MEDICAL ASSOCIATION

Chairman—W A JONES Kingston Ont  
Secretary—H H MURPHY Victoria B C

Wednesday, June 12—2 p m.

Chairman's Address (C M A) The Role of Anatomy in the Radiologic Study of the Spine  
W A. JONES, Kingston, Ont  
A Comparison of the Clinical and Cholecystographic Manifestations of Cholelithiasis (Lantern Demonstration)  
B R KIRKLIN and T W BLAKE, Rochester, Minn  
Prepyloric Gastric Lesions (Lantern Demonstration)  
A C SINGLETON, Toronto, Ont  
A Clinical Syndrome with Radiographic Lesions in the Frontal Bone (Lantern Demonstration)  
SHERWOOD MOORE, St Louis  
The Roentgenologic Aspects of Osteomyelitis of the Skull (Lantern Demonstration)  
KARL KORNBLUM and PHILIP J HODES, Philadelphia  
Observations on the Radiographic Examination of the Accessory Nasal Sinuses (Lantern Demonstration)  
E H SHANNON, Toronto, Ont

Thursday, June 13—2 p m

Chairman's Address (A M A) Some Roentgenologic Studies in the Dynamics of the Thorax (Lantern Demonstration)  
JOHN W PIERSON, Baltimore  
Importance of Early Diagnosis in Bronchiectasis A Clinical and Roentgenographic Study of One Hundred Cases (Lantern Demonstration)  
JOHN T FARRELL JR., Philadelphia  
Intravenous and Retrograde Urography A Comparative Study (Lantern Demonstration)  
R. E CUMMING, Detroit.  
Clinical Applications of the Method for Reading with Closed Eyes (Lantern Demonstration)  
A H PIRIE, Montreal, Que  
X-Ray Diagnosis of Tumors of the Breast (Lantern Demonstration)  
MAX RITVO, PATRICK F BUTLER and EUGENE E O'NEIL, Boston  
Cancer An Adequate Offensive Attack.  
E E SHEPLEY, Saskatoon, Sask

Friday, June 14—2 p m.

Election of Officers

X-Rays in Diagnosis and Treatment of Myelogenous Neoplasms (Lantern Demonstration)  
HOWARD P DOUB and FRANK W HARTMAN, Detroit  
Inguinal Gland Metastases in Carcinoma of the Penis (Lantern Demonstration)  
BENJAMIN S BARRINGER, New York  
A New Method of Orientation Applicable to the Body and the Roentgen-Ray Beam  
BEDE J M HARRISON, Vancouver, B C  
Roentgen Therapy for Mediastinal Tuberculous Lymphadenitis (Lantern Demonstration)  
U V PORTMANN, Cleveland  
Hodgkin's Disease Its Relationship to Sarcoma (Lantern Demonstration)  
M C MORRISON, London, Ont  
Differential Diagnosis and Treatment of Tumors in Children.  
G ALLEN ROBINSON and R FRANKLIN CARTER, New York.

SECTION ON MISCELLANEOUS TOPICS

MEETS IN ROOM D, FIRST FLOOR, CONVENTION HALL

Session on Anesthesia

OFFICERS OF SESSION

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CANADIAN MEDICAL ASSOCIATION

Chairman—WESLEY BOURNE Montreal Que  
Secretary—W L MUIR, Halifax, N S

Wednesday, June 12—9 a m

Tribrom Ethanol (Lantern Demonstration)  
SIR FRANCIS SHIPWAY London, England.  
Discussion to be opened by ALBERT H MILLER, Providence, R I and WALTER L MUIR, Halifax, N S  
Combined Use of Tribrom-Ethanol and Cyclopropane (Lantern Demonstration)  
PAUL M WOOD, New York  
Discussion to be opened by HAROLD R GRIFFITH, Montreal Que. and HENRY S RUTH, Philadelphia

**The Effects of Hypnotics and Anesthetics on the Conditioned Reflexes in Dogs**

S DWORKIN and BERNARD B RACINSKY, Montreal, Que  
Discussion to be opened by HOWARD S LINDBELL, Ithaca, N Y, and FRANK C D ELSAUX, Boston

**Chairman's Address Clinical Use of Anesthetics (Lantern Demonstration)**

JOHN S LUNDY, Rochester, Minn  
Anesthesia for Thyrocardiac Patients (Lantern Demonstration)

LINCOLN F SISE, Boston  
Discussion to be opened by ANSEL M CAINE, New Orleans and MILTON J RAISBECK, New York

**Electrocardiographic Changes Under Anesthetics (Lantern Demonstration)**

CHESTER M KURTZ, Madison, Wis  
Discussion to be opened by E A ROVENSTINE, New York and LEWIS M HILATHAM, Boston

**Further Experimental Studies in Spinal Anesthesia (Lantern Demonstration)**

FRANK W COLE, New York  
Discussion to be opened by MEYER SAKLAD, Providence, R I

**Session on History of Medicine****OFFICERS OF SESSION****AMERICAN MEDICAL ASSOCIATION**

Chairman—JAMES B HERRICK, Chicago

Secretary—MAJOR G STEIG, St Louis

**CANADIAN MEDICAL ASSOCIATION**

Chairman—W W FRANCIS, Montreal, Que

Secretary—H F MACDERMOT, Montreal, Que

**Thursday, June 13—9 a m**

Decayed Diseases DAVID RUSMAN, Philadelphia

Jacques Cartier (A D 1535) and the History of Scurvy

HIO E PARISEAU, Montreal, Que

**Anatomy in the Making (Lantern Demonstration)**

F L REICHERT, San Francisco  
Walter Henry, Army Surgeon in the Early Nineteenth Century

**Medicine in the Time of the Crusades**

ROLAND HAMMOND, Providence, R I

**Session on Military Medicine****OFFICERS OF SESSION****AMERICAN MEDICAL ASSOCIATION**

Chairman—ROBERT U PATTERSON, Washington D C

Secretary—HOLMAN TAYLOR, Fort Worth, Texas

**CANADIAN MEDICAL ASSOCIATION**

Chairman—JOHN GUNN, Calgary, Alta

Secretary—W H DELANEY, Quebec, Que

**Friday, June 14—9 a m****Peace-Time Medical Department Reserve Training**

GEORGE W RICE, Washington, D C

Discussion to be opened by E A MEYERDING, St Paul

**Internal Surgery (Lantern Demonstration)**

ERNEST FULTON, Risdon, Toronto Ont

**Relationship of the Medical Officer to the Combat Officer**

M C STAYER, Carlisle, Pa

Discussion to be opened by A T MCCORMACK, Louisville, Ky

**Shell Shock in Past and Future Wars**

P R BOLUS, Ottawa Ont

**The Modern Treatment of Surgical Shock**

CHARLES H FRAZIER, Philadelphia

Discussion to be opened by FRED B LUND, Boston

**THE SCIENTIFIC EXHIBIT**

The Scientific Exhibit will occupy part of the main floor and the stage of the Atlantic City Auditorium with entrances from the Technical Exhibit near the registration desks. The same general arrangement of booths and decorations will be carried out as in former years. In addition to the group exhibits sponsored by the fifteen sections of the Scientific Assembly there will be several motion picture programs running simultaneously: symposium exhibits on cancer, tuberculosis and syphilis and special exhibits on obstetric and gynecologic hemorrhage, on the relation of psychiatry to the physician in general practice and on acute infections of the central nervous system in children, all under the direction of various section exhibit committees. The special exhibits subsidized by the Board of Trustees include diabetes, nutrition, prevention of asphyxial deaths and vaccines and serums.

Admission to the Scientific Exhibit will be limited to individuals wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the exhibit.

**Special Exhibit on Diabetes**

The exhibit on diabetes is presented by a committee composed of E P Joslin, chairman, Boston, F G Banting, co chairman, Toronto, C H Best, Toronto, H F Root, Boston, R M Wilder, Rochester, Minn, and R T Woodyatt, Chicago.

The exhibit will include all phases of the subject under the following headings: History and statistics of diabetes, heredity, incidence and etiology, Physiology of diabetes, Pathology of diabetes, Treatment of diabetes (a) diet, (b) insulin, Insulin reactions, Complications in diabetes (a) coma, (b) tuberculosis, (c) arteriosclerosis, (d) pregnancy, Surgery in diabetes (a) anesthesia, (b) operations, (c) gangrene and its prevention, Diabetes economics, including diabetic camps, State and city diabetic programs.

In addition to continuous demonstrations on all of the foregoing subjects throughout the week there will be opportunity for conferences of small groups of individuals in an area adjoining the exhibit.

An outstanding group of individuals has consented to act as demonstrators.

**Special Exhibit on Nutrition**

The exhibit on nutrition is presented for the second time under the direction of a committee composed of Reginald Fitz, chairman, Boston, Walter C Alvarez, Rochester, Minn., and L H Newburgh, Ann Arbor. The exhibit will include nutrition in the hospital, showing the phase of the dietitian in the hospital organization, nutrition in the home, where the physician must act as dietitian, demonstration of special diets, a normal diet being used as a nucleus. A competent corps of demonstrators will be on hand continuously throughout the week.

**Special Exhibit on Prevention of Asphyxial Deaths**

The exhibit on prevention of asphyxial deaths is presented by the Committee on Scientific Exhibit of the Board of Trustees in cooperation with the Society for the Prevention of Asphyxial Deaths, under the auspices of a special exhibit committee composed of C L Jackson, chairman, Philadelphia, Harrison S Martland, Newark, N J, and R R Sayers, Washington, D C.

The exhibit, consisting of charts, posters, photographs, specimens, apparatus and motion pictures, will be presented under the following headings:

Asphyxial deaths from anesthesia  
Asphyxial deaths from diphtheria  
Asphyxial deaths from allergic shock  
Asphyxial deaths from asphyxia neonatorum  
Violent deaths from asphyxia  
Oxygen and helium therapy  
Prevention of asphyxial death by the community  
Prevention of asphyxial deaths by organized medicine  
Tracheotomy for obstructive laryngeal dyspnea

Demonstrations will be conducted continuously throughout the week in each booth. The following demonstrators have kindly consented to serve: Alvan L Barach, New York, C W Buckmaster, Yonkers, N Y, Jesse G M Bullock, New York, Pamel J Flagg, New York, Wheaton Fregeau, New York, Chevalier L Jackson, Philadelphia, John Francis McGrath, New York, Harrison S Martland, Newark, N J, Samuel Neffson, New York, Lawrence W Smith, New York, Warren T Vaughan, Richmond, J T Wilson and Robert A Wilson, Brooklyn.

In addition to demonstrations in the booths, there will be a special motion picture program in an area adjoining the exhibit

### Special Exhibit on Vaccines and Serums

The exhibit on vaccines and serums is presented by a special committee under the joint auspices of the Committee on Scientific Exhibit of the Board of Trustees of the American Medical Association and the United States Public Health Service. The committee is composed of James P. Leake, Washington, D. C., William G. Workman, Washington, D. C., and Ralph C. Williams, chairman, Washington, D. C.

The exhibit will consist of charts, specimens, talks and demonstrations. It will be presented under seven headings with the following demonstrations:

Measles	C. F. McKhann	Boston
Rabies	W. G. Workman	Washington, D. C.
Typhoid Fever	S. S. Cook	Washington, D. C.
Diphtheria	W. T. Harrison	Washington, D. C.
Smallpox	J. P. Leake	Washington, D. C.
Scarlet Fever		
Tetanus	R. H. Miller	Boston

In spaces adjoining this material there will be additional exhibits on pneumonia, meningitis and poliomyelitis, presented by various individuals.

## SECTION EXHIBITS

### Section on Practice of Medicine

Section exhibit committee: IRVING S. WRIGHT, chairman, New York; RUSSELL L. HADEN, Cleveland; EUGENE S. KILGORE, San Francisco; L. G. ROWNTREE, Philadelphia; and D. SCLATER LEWIS, Montreal.

RUSSELL L. HADEN, Cleveland Clinic, Cleveland

**Qualitative Variations in Neutrophilic Leukocytes** Exhibit of natural color photomicrographs illustrating changes in shape of nucleus (Arnet, Schilling, Cooke and Ponder, and filament-nonfilament counts), variation in cytoplasmic granules ('toxic' or basophilic granulation) and other abnormalities of nucleus, granules and cytoplasm of the neutrophil.

CARL H. GREENE, J. RUSSELL TWISS and R. FRANKLIN CARTER, New York Post-Graduate Medical School, New York.

**Diagnosis of Gallbladder Disease** Exhibit of charts, specimens and a model illustrating the technic of biliary drainage, the pathologic observations and a comparative study of various diagnostic methods: history, cholecystography, and so on, in a series of cases of gallbladder disease.

ZACHARIAS BERCOVITZ, Department of Health, City of New York.

**Diagnosis of Intestinal Parasites** Exhibit includes demonstration of the salt flotation technic of stool examination for ova of the common intestinal parasites; drawings showing the appearance of intestinal parasites accompanied by microscopic stool specimens; diagrams showing fundamental facts of life history of parasites and relation to human pathologic changes; notes on accepted methods of treatment.

L. E. PRICKMAN, Mayo Foundation for Medical Education and Research, Rochester, Minn.

**Differential Diagnosis of Asthma** Exhibit includes a semi-diagrammatic model of a section through the head and thorax revealing the respiratory passages, lungs and certain adjacent organs showing a number of representative lesions which may produce symptoms that may easily be mistaken for asthma. Transparencies show explanatory notes characteristic roentgenograms, photographs of bronchoscopy and laryngoscopy and an outline of the differential diagnosis of asthma.

IRVING S. WRIGHT, A. W. DURYEE and Co-Workers, Vascular Clinic, New York Post-Graduate Medical School and Hospital, Columbia University, and Second Medical Division, Cornell University, Bellevue Hospital, New York.

**Peripheral Vascular System** The effects of (a) choline derivatives, (b) non-insulin containing pancreatic tissue extract, (c) cevitamic (ascorbic) acid. Exhibit of charts and apparatus

showing comparative effects of several of the choline derivatives and non-insulin containing pancreatic tissue extract from both a physiologic and a therapeutic point of view. The use of cevitamic acid (crystalline vitamin C) in hemorrhagic diseases and its effect on the capillary fragility will be included.

JOHN C. RUDDOCK, Los Angeles

**Peritoneoscopy** A diagnostic procedure for examining peritoneal cavity and its contents. Exhibit of drawings, photographs, legends and descriptions of cases showing (1) visualization of all abdominal viscera, (2) determination of operability of gastric lesions, (3) evacuation of ascitic fluid, (4) biopsies, (5) demonstration of technic of peritoneoscopy.

ALBERT S. HYMAN, HARRY J. LOWEN, CHARLES HERTZMAN, EMIL KLEIN, J. SANTE DIASIO, MAURICE ZIMMERMAN, Within Foundation for the Study and Prevention of Heart Disease, Beth David Hospital, New York.

**Recent Advances in Clinical Cardiology** Exhibit of charts, records, models, photographs and original specimens of (1) treatment of decompensation, (2) tests for cardiac reserve, (3) transthoracic electrocardiography, (4) the diving heart, (5) infra-red cardiac photography. Demonstration of the clinical and bedside employment of new studies and methods in the diagnosis and treatment of heart diseases.

VALDE E. ABBOTT, McGill University, Montreal

**Clinical Classification of Congenital Cardiac Disease** Exhibit of pictures, drawings, paintings, charts, diagrams, roentgenograms and tracings, and anatomic and pathologic specimens showing fish and reptilian hearts and various types of cardiac anomalies. Lantern slide demonstration.

L. G. ROWNTREE, J. H. CLARK and ARTHUR STEINBERG, Philadelphia Institute of Medical Research, Philadelphia General Hospital, Philadelphia, and A. M. HANSON, Faribault, Minn.

**The Biological Effects of Thymus and Pineal Extracts (Hanson)** Exhibit of rats, roentgenograms, photographs, electrocardiograms and motion pictures showing glandular material.

CLAYTON J. LUNDY, Chicago

**Motion Pictures** (1) Mechanism and Electrocardiographic Registration of the heart in Health and Disease, (2) The Arrhythmias.

### Section on Surgery, General and Abdominal

Section exhibit committee: ALTON OCHSNER, chairman, New Orleans; JOHN J. MORTON, JR., Rochester, N. Y.; and W. E. GALLIE, Toronto.

In addition to the exhibits listed here, the Section on Surgery, General and Abdominal, is contributing to the Symposium on Cancer.

HUBLEY R. OWEN, Medical Division, Department of Public Safety, Philadelphia.

**First Aid in Relation to Patrolmen and Firemen** Exhibit of first aid treatment and emergency splinting of fractures as used in the bureaus of police and fire, methods of artificial respiration, treatment of wounds, use of tourniquets etc., demonstration by members of the bureaus of police and fire, emergency splinting, photographs of methods of first aid taught in the police and fire schools.

FREDERICK A. BOTHE and CARL F. KOENIG, Presbyterian and Stetson hospitals, Philadelphia.

**Studies in Hyperthyroidism** Exhibit of charts and lantern demonstration showing (a) electrocardiograms before and after thyroidectomy demonstrating disturbances of conductivity with normals for comparison, (b) radiographic demonstration of distortion and compression of the trachea stressing advantage of the lateral view, (c) case reports and follow-up studies of hyperthyroidism in pregnancy, (d) microscopic tissue changes in hyperthyroidism. Roentgenograms demonstrate distortion and compression of the trachea especially in the lateral view.

JOSEPH FELSEN and A. G. OSOFSKY, Bronx Hospital, New York.

**Pharyngogenic Hematogenous Streptococcal Peritonitis (so-called Primary Peritonitis)** Exhibit showing clinical and

pathologic studies, animal studies, epierisis (human and animal work), immunologic studies, correlation of data and pathogenesis. Clinical features of the disease point to throat as primary source of infection. Disease reproduced in healthy rabbits by intravenous injections of strains recovered from peritoneum, blood, spinal fluid etc., of patients. Antigentic studies to establish similarity of strains. Pathologic lesions in human and animal identical. Bacteriologic and histopathologic studies to prove hematogenous, metastatic nature of disease. Infection of peritoneum occurs through focal intestinal lesions.

STUART W. HARRINGTON and WILLIS S. LEMON, Mayo Foundation for Medical Education and Research, Rochester, Minn.

*Surgical Treatment and Clinical Manifestations of Various Types of Diaphragmatic Hernia and Intrathoracic Tumors*. Experimental studies on the diaphragm of the dog. Exhibit depicts various types of congenital and traumatic hernias by roentgenograms and moulages. Roentgenograms show the herniated viscera on admission and after surgical repair of the hernia. Moulages show the location of the various defects and openings in the diaphragm and the herniated viscera as found at operation. Drawings and moulages show the various stages in the technique of the surgical treatment of repair of the hernias. The exhibit of intrathoracic tumors consists of the anterior and posterior mediastinal growths, as well as intrathoracic tumors of the chest wall that protrude into the thoracic cavity. Roentgenograms of the various types of tumors, both benign and malignant, before and after surgical removal. Moulages and drawings made at the time of operative removal of these growths show their location and the various stages in the technique of their surgical removal. Experimental studies on the diaphragm of the dog include the enervation of the diaphragm, its lymphatic system and the disturbances in function following phrenic excision.

MAN THORPE, American Hospital, Chicago.

*Electrosurgical Obliteration of the Gallbladder*. Exhibit of wax models, transparencies and photomicrographs showing the mechanism of biliary leakage from the unprotected gallbladder bed in classic cholecystectomy. Photomicrographs and drawings depicting the effects of electrocoagulation of the gallbladder bed effectually preventing leakage, chart studies of mortality rates. Wax models of technical details of operation, augmented by motion pictures.

CHARLES S. WHITE and J. LLOYD COLLINS, Department of Surgery, George Washington University School of Medicine, Washington, D. C.

*Surgical Anatomy of Total Ablation of the Thyroid Gland*. Exhibit of series of illustrations from dissections and operations showing the relative anatomy of the thyroid and parathyroid glands and the recurrent laryngeal nerves.

J. O. BOWER, J. C. BURNS and H. A. K. MENGLE, Philadelphia.

*Spreading Peritonitis Complicating Acute Perforative Appendicitis*. Charts showing incidence and mortality of spreading peritonitis, after administration of laxatives and in the absence of laxatives, natural color photographs of spreading peritonitis in living dogs, both without laxatives and following the administration of laxatives, drawings showing conversion of a localizing into a spreading process, correct and incorrect ways of opening appendiceal abscess, and relocation of incision to prevent induction of a spreading peritonitis, charts showing, by the rate of peritoneal absorption, the effect of anesthetics spreading peritonitis induced by laxatives, photographs showing how peritoneal absorption was studied: (1) use of colloidal graphite injected intraperitoneally, (2) splitting of sternum to expose subternal lymphatics, (3) appearance of graphite in subternal lymphatics. Natural color photographs illustrating the various circulatory and other changes during the different stages of spreading peritonitis.

HAROLD M. TRUSLER, F. G. HEMLICH and J. F. GLORE, Indiana University School of Medicine, Indianapolis.

*Plastic and Reconstructive Surgery*. Exhibit of wax models and photographs showing problems and results of reconstructive

surgery for the relief of burn scar deformities, harelip and cleft palate, malignant growths of the head and neck, and other conditions. Methods are illustrated by diagrammatic color drawings and motion pictures.

HAROLD L. COSS, George F. Geisinger Memorial Hospital, Danville, Pa.

*The Surgical Treatment of Goiter*. Exhibit consists of 1. Transparencies, illustrating technique of thyroidectomy with several new features demonstrated. 2. Transparencies of patients suffering from exophthalmic goiter showing their condition before operation and after treatment has been completed. 3. Motion picture amplifying the foregoing problems.

GROUP EXHIBIT. FRANK H. LAHEY and R. B. CATTELL, Lahey Clinic, Boston.

*A Surgical Treatment of Thyroid Diseases*. B. *Exploration of Common Duct*. C. *Abdominoperineal Resection of the Rectum*. Exhibit of illustrations of thyroid operations, results of blood iodine determinations, results of impedance angle determinations in thyroid disease, moulages of thyroid anatomy. Specimens and illustrations of carcinoma of the rectum. Illustrations, moulages and illustrations together with tables of common and hepatic bile duct injuries and stones.

DAVID D. BERLIN, CHARLES G. MYTER, L. M. FREEDMAN and M. J. SCHLESINGER, Beth Israel Hospital, Boston.

*Total Thyroidectomy for Chronic Intractable Heart Disease*. Exhibit of drawings, diagrams and motion pictures made in the operating room and in the anatomy laboratory illustrating surgical anatomy, technical considerations and end results.

LEWIS M. HURNATHAL and FRANK N. ALLAN, Lahey Clinic, Boston.

*Clinical Endocrinology*. Exhibit showing photographs of patients with definite endocrine disorders with diagnostic data. A three reel motion picture shows the various disorders and results of treatment and the physiology of menstruation.

## Section on Obstetrics, Gynecology and Abdominal Surgery

Section exhibit committee: H. C. HESSELTINE, chairman, Chicago; J. R. MILLER, Hartford, Conn.; D. P. MURPHY, Philadelphia; and N. W. PHILPOTT, Montreal.

Special features of the Section on Obstetrics, Gynecology and Abdominal Surgery will be an exhibit on Treatment of Obstetric and Gynecologic Hemorrhage and a motion picture program shown in a space adjoining the exhibit. The section is also cooperating in the Symposium on Cancer.

SPECIAL EXHIBIT, SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

*Treatment of Obstetric and Gynecologic Hemorrhage*. Exhibit of sketches, drawings, diagrams and pictures showing obstetric complications such as placenta praevia, premature separation of the placenta, lacerations and ruptures of the birth canal and atony of the uterus, together with methods of combating and treating such conditions. Motion pictures in an area adjoining the exhibit will show postpartum hemorrhage, blood transfusions, and so on. Among the special demonstrators for the exhibit will be H. C. Hesselstine, Chicago; J. R. Miller, Hartford, Conn.; Douglas P. Murphy, Philadelphia; and N. W. Philpott, Montreal.

CHARLES MAZER and S. LEON ISRAEL, Mount Sinai Hospital, Philadelphia.

*Clinical and Experimental Studies on Effects of Huge Doses of the Estrus-Inducing Hormones*. Exhibit of photomicrographs showing the pituitary and ovarian effects of large doses of estrus-inducing hormone as compared with the effects of small doses, motion pictures depicting the technique of ascertaining the amount of estrus-inducing hormone present in the blood and in the twenty-four hour output of urine as a guide in determining clinically the required dosage. Charts showing the effect of large doses of the product on the menstrual rhythm of normal, amenorrheic and dysmenorrheic women, charts showing the effect of huge doses in the severe menopausal



syndrome, gonorrheal vaginitis, amenorrhea, dysmenorrhea, adenosis of the breast with nipple bleeding and kraurosis vulvae.

AARON E KANTER, CARL P BAUER and ARTHUR H KLA-  
WANS, Rush Medical College of the University of Chicago, Chicago

*New Biologic Test for Hormones in Pregnancy Urine* Exhibit showing the living Japanese bitterling used in the tests and mounted specimens showing the positive and negative reactions together with drawings and charts explanatory of the results obtained and the various applications of the test, reconstruction drawings of the anatomy of the bitterling both gross and microscopic.

F L ADAIR and M EDWARD DAVIS, Department of Obstet-  
rics and Gynecology, University of Chicago, Chicago

*Development of Ergot as a Therapeutic Agent* Exhibit includes historical background of ergot, depicting the role that the fungus played in the progress of civilization, epidemic manifestations of ergotism, cultivation of the fungus for medicinal use, development of the crude ergot as a therapeutic agent, isolation of the known constituents of ergot and their pharmacologic and therapeutic activity, biologic methods of assay for the determination of the potency and standardization of ergot preparations, new active principle isolated from ergot in its crystalline state, together with its pharmacologic and medicinal properties

KARL JOHN KARNAKY, Department of Gynecology and  
Obstetrics, John Sealy Hospital, Texas University School of  
Medicine, Galveston, and Jefferson Davis Hospital, Houston

*Causes and Treatment of Leukorrhea, with Special Reference  
to Trichomonas Vaginalis, Monilia Albicans and Cervical  
Lesions* Exhibit of charts, pictures and diagrams of the  
causes of leukorrhea, charts showing methods of cauterization  
of the cervix and end results, methods of diagnosis, mor-  
phology and modes of transmission of Trichomonas vaginalis  
and Monilia albicans Motion picture is included on Tricho-  
monas vaginalis and Monilia albicans

P BROOKE BLAND, ARTHUR FIRST and LEOPOLD GOLDSTEIN,  
Jefferson Medical College, Philadelphia

*Clinical Investigation of Functional Sterility* Exhibit demon-  
strating routine procedures and hormone tests employed in  
determining etiologic factors, estrin and anterior pituitary sex  
hormone determination of the blood and urine and their diag-  
nostic significance, together with the value of premenstrual  
curettage.

LOUIS LEHRFELD, Department of Public Health, Philadelphia

*Control of Ophthalmia Neonatorum* Exhibit of statistical  
charts and motion pictures pointing out the missing link in the  
further reduction of ophthalmia neonatorum, namely the treat-  
ment of gonorrhea in the expectant mother, the need for change  
of the present technic of preventive measures in the eyes of  
the new-born showing that 1 per cent silver nitrate is too  
irritating and that full reliance should not be placed on a single  
drop of any germicide, the need for the instillation of 0.5 per  
cent silver nitrate on three successive days

ROBERT P BALL, Baroness Erlanger Hospital, Chattanooga,  
Tenn.

*Röntgen Pelvimetry and Fetal Cephalometry* Exhibit of  
roentgenograms, charts and legends showing cases measured  
before delivery with new technic of pelvimetry and fetal cepha-  
lometry presented in detail, utilizing drawings and diagrams

CHARLES A BEHNEY and DOUGLAS P MURPHY Department  
of Obstetrics and Gynecology, University of Pennsylvania  
School of Medicine Philadelphia

*Carcinoma of the Cervix—Its Early Detection* For descrip-  
tion see Symposium on Cancer

CHARLES C. NORRIS FRANCIS S DUNNE and PENDLETON  
TOMPAINS, Department of Obstetrics and Gynecology, Univer-  
sity of Pennsylvania School of Medicine Philadelphia

*Carcinoma of the Cervix—An Analytic Study* For descrip-  
tion see Symposium on Cancer

## Section on Ophthalmology

Section exhibit committee GEORGIANA DVORAK-THEOBALD,  
chairman, Oak Park, WILFRED E FRY, Philadelphia, PARKER  
HEATH, Detroit, and ALEXANDER E. MACDONALD, Toronto

The Section on Ophthalmology will conduct a motion picture  
program in a space adjoining the exhibits

CONRAD BERENS and BRITAIN F PAYNE, Lighthouse Eye  
Clinic, New York

*Certain Phases in the Development of the Human Eye*  
Exhibit of series of photomicrographs of the eyes of human  
embryos

DEWEY KATZ and ALFRED C LEDOUX, University of Chicago,  
Chicago

*Measurement (Roentgenometry) of Anteroposterior Diam-  
eter of Eyeball in Situ Correlated with Micrometer Measure-  
ment Following Enucleation* Exhibit of roentgenograms in  
which the apex of the cornea and the external surface of the  
posterior half of the eyeball are outlined by use of opaque  
mediums used in an original manner Roentgen triangulation  
measurements in situ have been correlated with micrometer  
measurements of the eye following enucleation The exhibit  
will illustrate the technic used and will show the roentgeno-  
grams of the eyeballs in the orbits

MANUEL URIBE TRONCOSO and RAMON CASTROVIEJO, Institute  
of Ophthalmology, Columbia University, New York

*Comparative Anatomy of the Angle of the Anterior Cham-  
ber in Mammalia* Exhibit showing new method of micro-  
anatomy of the eye with slit lamp microscope, showing the  
organs from in front with large magnifications and a beautiful  
view of the structures, frontal observation supplemented by a  
side view of the sections and easy correlation of both aspects,  
studies in herbivora, carnivora, monkeys and man first in the  
living eye with the gonioscope and then in prepared sections  
of enucleated eyes

ALBERT D RUEDEMANN and V SEITZ, Cleveland Clinic,  
Cleveland

*Conjunctival Vessel Photography* Apparatus, camera and  
light. Exhibit showing a camera and technic of photograph-  
ing the conjunctival capillaries, similar to that for the finger-  
nail bed or skin, photographs of lesions at the limbus

THOMAS D ALLEN and G W NETHERCUT, Illinois Eye and  
Ear Infirmary, Chicago

*First Aid in Eye Injuries* Exhibit of models, charts and  
photographs showing first aid in eye injuries with which the  
physician in general practice should be acquainted

A HOWARD PIRIE, Royal Victoria Hospital, Montreal  
*Reading and Seeing Pictures with Eyes Closed* Demon-  
stration of apparatus allowing spectators to read and see pic-  
tures with eyes closed

EDMUND B SPAETH, Philadelphia  
*Ophthalmic Plastic Surgery* Exhibit showing a series of  
charts to illustrate cases of ophthalmic plastic surgery before  
and after correction

FRANCIS HEED ADLER, GEORGE E. BERNER and GEORGE P  
MEYER, Department of Physiology, University of Pennsylvania,  
Philadelphia

*Testing of Tonometers* Exhibit showing instrument by  
which the accuracy of tonometers can be tested

EMANUEL KRIMSKI, Brooklyn

*New Precision Type of Stereoscope* Exhibit of stereoscope  
which enables the examiner to determine at a glance the amount  
of convergence or divergence with variable accommodations  
to fuse split pictures by incorporating (a) viewing lenses of  
selective length and for variable pupillary separation, (b)  
movable calibrated rod, (c) viewer calibrated to record the  
amount of separation of split images, (d) table to which exam-  
iner may refer so as to determine readily vergence readings

*Motion Pictures*  
JOHN OLIVER McREYNOLDS Dallas Texas 'Operations on  
the Eye.

**Section on Laryngology, Otology and Rhinology**

Section exhibit committee WILLIAM V. MULLIN,\* chairman, Cleveland, AUSTIN A. HAYDEN, Chicago JOHN J. SIFA, Memphis, and GREGOR MCGREGOR, Toronto

In addition to its section exhibit, the Section on Laryngology, Otology and Rhinology is contributing to the Symposium on Cancer

JAMES HAROLD MENDEL Philadelphia

*Lar Drums and Their Interpretation* Exhibit of a series of original plaster models illustrating in correct colors the progressive stages of acute otitis media the normal drum and progressive course of acute ear infection up to the point at which myringotomy is indicated various types of bulging and the treatment are shown Contrasted to these are models of other bulgings the treatment of which is entirely different Rare types are included in the collection some of which must be carefully differentiated from the normal

F. H. SHANNON, St. Michael's Hospital Toronto

*Accessory Nasal Sinuses* Exhibit of roentgenograms showing accessory nasal sinuses

RAPHAEL SCHILLINGER Brooklyn

*Chronic Nasal Sinusitis* Exhibit of roentgenograms of nasal sinuses for the purpose of comparing diagnostic value of (a) simple standard roentgen examination (b) an examination with the aid of radiopaques, paying particular attention to a study of the time element necessary for evacuation of the opaque from the sinus whereby an index of physiologic activity of the sinus mucosa is established clinical and operative data and microscopic pathologic changes will be shown

SAMUEL J. KOPETZKY, RAIPH ALMOHR and HENRY K. TAYLOR Beth Israel Hospital New York

*Diagnostic and Surgical Aspect of Suppuration of the Pneumatic Petrous Bone* Exhibit consists of (1) tribulations of symptoms and clinical course (2) models and temporal bones showing types of operative approach (3) charts of cases (4) roentgenograms showing types of lesions, stages in diagnosis and postoperative condition and healing

L. H. CLERF, B. L. CRAWFORD and R. M. LUKINS, Jefferson Hospital Philadelphia

*Neoplasms of the Larynx* For description see Symposium on Cancer

AMERICAN FEDERATION OF ORGANIZATION FOR THE HARD OF HEARING, INC. Washington, D. C. For description see Educational Classification

COMMITTEE ON DEAFNESS PREVENTION AND AMELIORATION, AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

*Deafness Prevention and Amelioration* For description see Educational Classification

**Section on Pediatrics**

Section exhibit committee F. THOMAS MITCHELL chairman Memphis, Tenn., ABRAHAM LEVINSON, Chicago, WALTER B. STEWART, Atlantic City, and ALLAN BROWN, Toronto

One of the features of the exhibit of the Section on Pediatrics is the Symposium on Acute Infections of the Central Nervous System in Children. The section is also contributing to the Symposium on Tuberculosis being conducted by the Section on Preventive and Industrial Medicine and Public Health

ALLAN ROY DAFOE, Callander, Ontario, and WILLIAM A. DAFOE, Toronto

*Chart Life of the Dionne Quintuplets* Exhibit showing weight graphs of five babies for ten months, combined chart showing daily weight of all for first month together with individual charts of daily weight of each, chart of caloric intake for first five months for smallest and largest babies, table showing exact feedings, manner and frequency of feeding, short summary of background and certain incidents in the lives of the babies, photographs, map showing location of Callander

GIRNVILLE GIDDINGS, Atlanta, Ga.

*Observations on Normal Children* Exhibit showing observations made on normal children, including regular and periodic urinalyses, blood counts, blood pressure readings, height and weight curves, electrocardiogram and basal metabolism tests, further observations on sleep

G. ALLEN ROBINSON and R. FRANKLIN CARTER, New York

*Surface Tumors in Childhood* Exhibit showing the various types of benign and malignant tumors occurring in children, differential diagnosis, best methods of treatment, and end results obtained in a large series of cases

LFE BIVINGS, Emory University School of Medicine, Atlanta

*Feet in Infancy and Childhood Foot Printing and Classification of Foot Prints Comparison of the Feet of White and Negroes* Exhibit of plaster casts of feet of infants and children, normal and abnormal, white and Negroes, demonstration of new device for recording walking foot prints and heel prints without soiling the feet or heels, foot print records of various types of feet and photographs of various types of feet

T. G. H. DRAKE, Hospital for Sick Children, Toronto

*Infant Care and Feeding in Ancient Times* An exhibit of antiquities consisting of (a) Egyptian, Roman Greek amulets, from 300 B. C. to 300 A. D. to promote easy labor, increase lactation and protect the child from various diseases and the 'evil eye' (b) English and French documents, prints and medals from 1660 to 1820 concerning foundlings and wetnursing, (c) infants' feeding utensils, from 300 B. C. to 1850 A. D.

CHARLES F. CHURCH and DOROTHY V. WHIPPLE, University of Pennsylvania School of Medicine, Philadelphia

*Vitamin B and Fat in Metabolism* Exhibit shows experimental beriberi and experimental fat deficiency diseases and their signs and symptoms, correlated with functional tests and pathologic observations, the interrelation of the physiologic requirements of the organism for fat and for vitamin B and the failure of rancid fat to meet lipid requirements, ease with which cod liver oil undergoes oxidative rancidity and how deterioration of cod liver oil is a frequent and clinically important source of rancid fat in the dietary of children.

S. A. WEISMAN, University of Minnesota Medical School, Minneapolis

*Normal Development of the Human Chest* For description see Symposium on Tuberculosis

ISAAC EBB and GLADYS L. BOYD, Hospital for Sick Children, University of Toronto Department of Pediatrics, Toronto

*Childhood Pulmonary Tuberculosis and Bronchiectasis* For description see Symposium on Tuberculosis

## SYMPOSIUM ON ACUTE INFECTIONS OF THE CENTRAL NERVOUS SYSTEM IN CHILDHOOD

GREGORY SHWARTZMAN, Mount Sinai Hospital, New York

*Local Skin Reactivity in Studies on Meningococcal Meningitis, Tuberculosis, and Malignant Tumors* Exhibit dealing with (1) highly toxic factors derived from meningococcus as demonstrated by the phenomenon. (2) Hitherto unknown antitoxins as demonstrated by the phenomenon. (3) The methods of preparation of these antitoxins in horses. (4) The relationship of these antitoxins to agglutinins. (5) Demonstration of the auxiliary antibodies necessary for the neutralization of the meningococcus toxins. (6) Demonstration of certain reactivating factors inhibitory to toxin and antitoxin neutralizations. (7) New toxic substances in Bacillus tuberculosis demonstrated by means of the phenomenon. (8) The relationship of these toxic substances to problems of tuberculin hypersensitivity. (9) The role of Bacillus tuberculosis toxic substances in tuberculous lesions. (10) Failures of growth, regressions and hemorrhagic lesions of malignant tumors elicited by certain bacterial factors

JOSEPHINE B. NEAL, Bureau of Laboratories, Department of Health, New York

*Meningitis* Exhibit of charts and tables showing distribution of meningitis by age and etiology also salient points in diagnosis and treatment

MAURICE BRODIE, Bureau of Laboratories, Department of Health and Department of Bacteriology, New York University and Bellevue Medical School, New York

*Poliomyelitis Vaccine* Exhibit shows preparation of the vaccine and the results obtained with it in children and in experimental animals, results of its use in an epidemic area in California and its application for the protection of the community in an endemic focus. Neutralization test with mice for determination of susceptibility to poliomyelitis

SIDNEY D. KRAMER, Long Island College of Medicine, Brooklyn

*Poliomyelitis* Exhibit of charts and photographs on epidemiology, immunity symptomatology and preparalytic diagnosis, illustrating various evidence on which concept of the disease is based. Evidence shows it is no longer a mysterious disease and the experimental and other evidence bring out a striking analogy to better known diseases, particularly diphtheria. The presence of healthy carriers explains adequately the extensive immunity to so rare a disease. Poliomyelitis is a well defined and recognizable clinical entity

ABRAHAM LEVINSON and DAVID J. COHN, Michael Reese Hospital, Chicago

*Studies in Cerebrospinal Fluid* Exhibit shows comparative studies of lumbar and cistern fluids in various conditions and demonstration of simple quantitative method of determining dextrose in cerebrospinal fluid

GEORGE M. RETAN, Syracuse University College of Medicine, Syracuse, N. Y.

*Forced Perivascular Drainage for the Treatment of Infections of the Central Nervous System* Exhibit of charts illustrating various phases of treatment case histories, and photomicrographs of sections of the central nervous system continuous motion picture demonstration featuring the treatment of poliomyelitis, acute encephalitis and chorea

#### Section on Pharmacology and Therapeutics

Section exhibit committee C. D. LEAKE, chairman, San Francisco, C. F. SCHMIDT, Philadelphia, and V. E. HENDERSON, Toronto

E. PERRY McCULLAGH, W. KENNETH CUYLER and D. ROY McCULLAGH, Cleveland Clinic Foundation, Cleveland

*Experimental and Clinical Studies of Hormone Assays* Exhibit of charts, transilluminated slides, models and assay apparatus showing the gonadotropic hormones of the pituitary thyroid hormone testicular hormone and estrogenic hormone, methods of assay for these hormones, applicable for clinical use, methods of assay for gonadotropic hormone by means of the Friedman test measurement of the thyroid hormone by blood iodine determination in human beings, methods of assay for testicular and ovarian hormones in the urine. The clinical significance of the assays will be indicated

GROVER C. PENBERTH and CHARLES N. WELLER, Children's Hospital of Michigan, Detroit

*Treatment of Burns with Tannic Acid* Exhibit of photographs representing the various degrees of burns and stages during treatment, motion picture depicting the use of tannic acid and subsequent procedures in the treatment of burns

SANFORD M. ROSENTHAL, National Institute of Health, Washington, D. C.

*Formaldehyde Sulphoxylate as an Antidote for Acute Mercury Poisoning* Exhibit of charts showing blood nonprotein nitrogen in control (corrosive mercuric chloride) and treated animals microscopic and gross appearance of kidneys of treated and untreated animals clinical results, reducing power of the drug as demonstrated with oxidation reduction indicators reducing power of the blood serum after injections of the drug chemical action of the drug on mercuric chloride color tests for the drug

WILLIAM BIERMAN, Beth Israel Hospital, New York

*Skin Surface Temperatures in the Diagnosis and Treatment of Peripheral Vascular Diseases* Exhibit of charts showing determinations in the normal and in pathologic states—arteriosclerosis, thrombo-angitis obliterans varicose veins, embolism

relation between skin surface temperature of the toe and other parts of the body, changes during fever induced by intravenous typhoid and physical measures, effect on toe temperature of heat and cold applied directly and remotely, temperature of the toe as influenced by intravenous salt solution, positive and negative pressure, thermostatically controlled heat, nerve block (spinal and general anesthesia), acetylsalicylic acid, hot water, tea, coffee alcohol and smoking

CARL E. ERVIN, HENRY F. HUNT and WILLIAM H. DEARING, George F. Geisinger Memorial Hospital, Danville, Pa.

*Diseases of the Kidney* Exhibit of wax models and enlarged photomicrographic transparencies of the gross and microscopic structure of the kidney. Charts show the present concepts of the etiology of nephritis with an outline of the modern methods of treatment. Other forms of kidney infections such as those produced by the staphylococcus and B. tuberculosis demonstrated by models and photomicrographs. Exhibit emphasizes the fact that most kidney lesions are merely expressions of disease elsewhere in the body

M. S. DOOLEY and J. SOLON MORDELL, University Hospital and College of Medicine, Syracuse University, Syracuse, N. Y.

*Rational Drug Therapy in Hospitals* Exhibit of photographs placards, lantern slides, standard containers rules governing drug orders, and so on, showing how a limited scope of approved standard drugs is controlled without encroachments in a general open staff hospital

#### Section on Pathology and Physiology

Section exhibit committee FRANK W. HARTMAN, chairman, Detroit, A. B. LUCKHARDT, Chicago, E. P. LYON, Minneapolis, J. P. SIMONDS, Chicago, and WILLIAM BOYD, Winnipeg

In addition to the exhibits described here, the Section on Pathology and Physiology is participating in the Symposium on Cancer

WILLIAM C. LANGSTON and PAUL L. DAY, University of Arkansas School of Medicine, Little Rock

*Leukopenia, Anemia and Associated Manifestations of Vitamin Deficiency in the Monkey* Exhibit of tables charts and photographs illustrating the effect of the withdrawal of vitamin G from the diet of the monkey, including diet used, weight curves, survival periods, oral lesions and other clinical signs, and progressive changes seen in hemoglobin values, total red cell counts, total white cell counts, differential white cell counts, reticulocytes, platelets cell volume, clotting time and blood chemical changes. Stained blood preparations, with microscopes for examination will be available

EARL W. FLOSDORF and STUART MUDD, University of Pennsylvania School of Medicine, Philadelphia

*Preservation of Serum and Other Biologicals by Desiccation in Vacuo from the Frozen State* Exhibit will consist of apparatus and samples of normal human adult serum, convalescent human and immune animal serums, serum proteins, breast milk, and the like processed on this apparatus

ISAAC SCHOUR and A. G. BRODIE, University of Illinois College of Dentistry, Chicago

*Effect of Metabolic Disturbances on Teeth* Exhibit of photomicrographs, charts and roentgenograms showing (1) the effects of hypophysectomy on the incisor and molar of the white rat, retarded eruption smaller size, histopathologic changes and disturbed calcifications, (2) dental changes in a boy suffering from hypopituitarism, which are similar to the experimental observations (3) effect of experimental hyperparathyroidism on the incisor of the rat, primary reaction of hypocalcified dentin and secondary reaction of hypercalcified dentin, (4) effect of acute fluorosis on enamel and dentin of rat, a disturbed layer for each injection and abnormal change in enamel forming cells within one hour following a single injection

L. W. DIGGS, University of Tennessee, Memphis

*Sickle Cell Anemia* Exhibit of photographs, photomicrographs drawings and charts giving clinical and pathologic picture of sickle cell anemia, methods used in diagnosis, printed matter summarizing the essential features of the disease, his-

tory, physical observations, blood picture, pathology, differential diagnosis, series of roentgenograms showing bone changes

LAWRENCE J. RILEY and HORTENSE DOUGLAS, Department of Pathology, Montreal General Hospital, Montreal

*Pathologic Lesions of the Gastro Intestinal Tract* Exhibit of wax mouldages illustrating lesions of the gastro-intestinal tract with a brief summary of the clinical aspects of the patients from whom the specimens were obtained

JULIUS S. WEINGART and ROBERT A. SAGE, Iowa Methodist Hospital, Des Moines, Iowa

*Stereoscopic Photographs of Pathologic Specimens* Exhibit showing the method of making photographs by a camera designed for the purpose, also the method of development and printing photographs and very fine viewers will demonstrate the superiority of this type of picture over the ordinary one, in illusion of depth, clearness of anatomic arrangements and fine detail of the lesions

DAVID I. ABRAMSON and SYDNEY MARCOLIN, Long Island College of Medicine, Brooklyn

*Gross and Microscopic Anatomy of the Conduction System in the Mammalian Heart* Exhibit of sheep and beef hearts in which the sheath spaces surrounding the individual fibers of the conduction system have been filled with India ink in order to bring the fibers to view, photographs of the fibers in gross specimens and microscopic sections in the dog, pig, sheep and beef hearts. Special emphasis has been placed on the presence of a myocardial Purkinje system which ramifies through the muscle substances of the outer ventricular walls and interventricular septum in all the foregoing hearts

JANE SANDS ROHN, J. G. FRED HISS and R. C. ROHN, Syracuse University School of Medicine, Syracuse, N. Y.

*Cardiac Muscle-Bundle Physiology* (experimental coronary lesions) Exhibit shows (1) dissections of injected human hearts, showing the coronary blood supply to specific muscle bundles, (2) experimental anatomic and electrocardiographic evidence delimiting the pathways of conduction in the ventricle of the dog and monkey, (3) typical electrocardiograms of premature beats excited in the superficial ventricular muscles of the dog

MAX STRUMIA, Bryn Mawr Hospital, Bryn Mawr, Pa.

*Hematologic Tables, with a New Staining Method for Blood Smears* Exhibit of lithographic tables in full colors illustrating all types of human blood cells and all the commonest and most important blood pictures (anemia, leukemias, infections), explanatory notes and staining technique, lantern slides and blood smears demonstrated at the microscope

WILLIAM A. GROOT and STELLA M. ZIMMER, Syracuse University College of Medicine, Syracuse, N. Y.

*Leukemia Blood Pictures* Exhibit shows various types of leukemia illustrated by photomicrographs of stained blood, colored enlargements and direct color photomicrographs as transparencies. Emphasis is placed on the similarities between the leukemias and the sarcomas, and cytologic evidence thereof is presented. Complete series of the stages of mitotic division from several types of leukemia are included. Haploid mitotic figures in leukemia cells are shown

MILTON B. COHEN, B. S. KLINE and A. M. YOUNG, Asthma and Hay Fever Clinic and Mount Sinai Hospital, Cleveland

*Clinical Diagnosis of Periarthritis Nodosa* Exhibit of charts, specimens and photographs showing the pathology of periarthritis nodosa, demonstrating the allergic nature of the disease, clinical types and the salient points of diagnosis

FRANK W. HARTMAN, R. D. MCCLURE and C. I. ALLEN, Henry Ford Hospital, Detroit

*Further Studies on the Pathology and Treatment of Burns* Exhibit of work concerned with the pathologic physiology produced by burns, particularly the shock that follows the burn and later untoward reactions that have been ascribed both to absorption of dead tissue and to infection. Bacteriology of the burned areas is studied in conjunction with various types of treatment, i. e., caron oil, trimetaphenol and tannic acid. Pathologic studies include the histology of the burned areas in various

stages of healing and also of the various regions in association with the acute shock. Treatment is presented in the form of actually burned areas in various stages preserved in natural colors. Various types of treatment are presented in this way for comparison

M. SPIEGEL-ADOLF and E. A. SPIEGEL, Temple University School of Medicine, Philadelphia

*Apparatus for Measurement of Polarization and Permeability of Tissues* Exhibit of apparatus consisting of a conductance measurement outfit equipped with an oscillator that gives alternating currents of various frequencies (from 560 to 6,800 cycles). It is shown that a difference in conductivity at high and low frequencies is found in tissues or in the presence of certain semipermeable membranes. This difference can be used as measure of polarization and consequently of permeability. The method permits a study of the permeability of tissues in vivo in various physiologic and pathologic conditions. This is illustrated by charts

JOHN A. KOLMER, Research Institute of Cutaneous Medicine and Temple University, Philadelphia

*Immunity and Vaccination in Infantile Paralysis* Exhibit of charts on susceptibility and immunity, the vaccine, results of immunization, etc.

JESSE G. M. BUILDOWA, Littauer Pneumonia Research Fund of New York University, Harlem Hospital Station, New York

*Management of the Pneumonias—Serum Treatment and Oxygen* Demonstration of Neufeld and Sabin typing and slide agglutination for the control of dosage. Blood culture technique. Lung suction. Charts showing the reliability of sputum typing. Charts showing the occurrence and importance of bacteremia. Distribution of types. Results of serum treatment in Types I, II, VII, VIII, XIV and XVIII. Motion picture "Management of the Pneumonias"

RAYMOND S. ROSEDALE and DONALD S. MCKAY, Buffalo City Hospital, Buffalo

*Primary Lung Cancer—Clinical, Pathologic and Roentgenologic Study* For description see Symposium on Cancer

## Section on Nervous and Mental Diseases

Section exhibit committee: GROVES B. SMITH, chairman, Godfrey, Ill.; THOMAS J. HELDT, Detroit; LLOYD H. ZIEGLER, Albany; and C. B. FARRAR, Toronto

The Section on Nervous and Mental Diseases will present a special exhibit on the relationship of psychiatry to the physician in general practice. A motion picture program will also be shown in an area adjoining the exhibit.

## SPECIAL EXHIBIT, SECTION ON NERVOUS AND MENTAL DISEASES

*Relation of Psychiatry to the Physician in General Practice* Exhibit of charts, posters, photographs and specimens showing (a) the incidence of mental disease and its economic relation ship, as well as the facilities that exist for the care and treatment relative to the general practitioner, (b) clinical evaluations of various aspects of neuropsychiatry and its divisions, including behavior and emotional disturbances, mental deficiency, the psychoneuroses, psychoses and organic conditions that the general practitioner commonly meets, (c) practical applications of everyday treatment aspects. The exhibit will be demonstrated continuously throughout the week by Thomas J. Heldt, Detroit; Lloyd Ziegler, Albany, N. Y.; and Groves B. Smith, Godfrey, Ill.

HERBERT H. SCHOENFELD, CLAUDE MOORE and WALTER FREEMAN, George Washington University, Washington, D. C.  
*Ventriculography with Thorium Dioxide* Exhibit of roentgenograms and transparencies of cases following trephine and the injection of small quantities of colloidal thorium dioxide.

J. A. HANNAH, Ontario Department of Health, Neuropathological and Research Division, Department of Neuropathology, Banting Institute, University of Toronto, Toronto

*Microscopic Sections of Whole Brains Showing Various Pathologic Lesions* Exhibit of microscopic sections of whole brains cut in various planes, showing the pathologic processes and the common meeting grounds of psychiatry in general medicine

cine, smaller sections of brain and sections of other organs are included to show lesions commonly found in the psychotic as well as the nonpsychotic patient

C M HINCKS, Canadian National Committee for Mental Hygiene, Toronto

*Mental Hygiene Progress in Canada* Exhibit of charts illustrating in a series of graphs and curves the progress in mental hygiene in Canada

EARL D BOND, EDWARD A STRECKER and Staff, Pennsylvania Hospital, Philadelphia

*Mental Hygiene in the Community* Exhibit of photomicrographs, charts, diagrams, sketches and apparatus showing types of patients, follow-up studies, recovery rates and behavior reactions of inpatients and outpatients in mental hospitals, diagram of teaching courses in psychiatry and relationship to the psychiatric hospital, motion pictures

GROUP EXHIBIT TEMPLE FAI, W A CHAMBERLAIN J O ARNOLD, JOHN ROYAL MOORE, J GARRETT HICKEY, NICHOLAS GOTTEN and JOHN H TAEFFNER, Temple University School of Medicine, Philadelphia

*Correlation of Clinical Results Obtained in Various Branches of Medicine by Regulation of the Cerebral Hydrodynamics and the Methods of Treatment Involved* Apparatus demonstrating cerebral volume relationships, showing continuous mechanical alterations of volume occurring within the craniovertebral cavity. Illuminated charts and statistical tables showing a definite decrease in mortality, resulting from treatment directed toward the correction of the disturbances manifested in the fundamental physiology and physical laws concerned with cerebral circulation. The exhibit will include (1) neurosurgical aspects (comparative mortality covering a period of eleven years), (2) obstetric aspects (comparative mortality covering a period of five years), (3) orthopedic aspects (effect on spasticity, observations covering a period of six years), (4) roentgenographic aspects (encephalographic determinations and interpretation), (5) convulsive state and mental retardation (comparative statistics covering a period of eight years), (6) cerebral trauma (statistics of comparative mortalities during a period of eleven years)

FRANCIS C. GRANT, Hospital of the University of Pennsylvania and Graduate Hospital, Philadelphia

*Clinical Symptoms and Methods of Diagnosis in Tumors of the Spinal Cord* Exhibit showing a series of verified spinal cord tumors illustrating manner of onset and clinical picture accompanying these lesions, the more exact methods of diagnosis by the use of the Queckenstedt test, chloroformized rapeseed oil injection into the subarachnoid space, temperature and skin studies, operative methods illustrated by motion pictures photomicrographs showing the different pathologic types of spinal cord tumor

CHARLES DAVISON, Montefiore Hospital, New York

*Neuropathologic Demonstration* Complete coronal horizontal and sagittal sections of the brain embedded in celloidin cut 50 microns thick, stained by the myelin sheath and cresyl violet methods, illustrating vascular, neoplastic, infectious toxic and degenerative diseases of the nervous system

CARL P WAGNER and AGNES MEYER, Neuro Psychiatric Institute of the Hartford Retreat, Hartford Conn

*Demonstration of Educational Methods to Replace Occupational Therapy* Exhibit shows the superiority of educational methods over the traditional type of occupational therapy in training the psychiatric patient. Motion picture in colors will show the technic of introducing class work and developing interest in a diversified curriculum

*Motion Pictures* Motion pictures will be shown in an area adjoining the exhibit on a schedule to be announced later

#### Section on Dermatology and Syphilology

Section exhibit committee FRED D WEIDMAN, chairman Philadelphia, CLARK W FINNERUD Chicago ROBERT L GILMAN, Philadelphia, WILLIAM O ROOF Atlantic City and J F BURGESS, Montreal

A feature of the Section on Dermatology and Syphilology is a symposium on syphilis in addition to various other exhibits, many of which illustrate papers read before the section

GEORGE M LEWIS and MARY E. HOPPER, New York Skin and Cancer Unit, New York Post-Graduate Hospital, Columbia University, New York

*Differentiation of Fungous Species by Fluorescences* Many species of fungi exhibit characteristic fluorescent colorizations when viewed under the "Wood" light. Young primary colonies exhibit the most vivid colors. The hues of young subcultured growths, while of the same character, are not so brilliant. The procedure is a practical aid in the differentiation of fungous species. In scalp ringworm, where the treatment may vary with the causal fungus this method offers a simplified means of distinguishing between the two commonest organisms, namely, *Microsporon Audouini* and *Microsporon lanosum*

JOHN G DOWNING and S M COUSINS, Boston City Hospital and Harvard School of Biology, Boston

*Fungi Pathogenic to Man* Exhibit of fungi intended for the instruction of general practitioners or those unfamiliar with mycology. It also includes the results of recent work on significant variations in these fungi

M H GOODMAN with collaboration of L W KETRON, Johns Hopkins Hospital, Baltimore

*Various Stages in the Histopathology of Granuloma Annulare* Exhibit of slides to illustrate the essential microscopic changes in granuloma annulare, demonstrating gradations from mild changes in the connective tissue to the typical outspoken necrosis found in granuloma annulare.

RHODA W BENHAM, College of Physicians and Surgeons, Columbia University, New York

*Pathogenic Fungi—Types of Fungi and the Diseases Which They Cause* Exhibit of photographs, cultures and microscopic slides showing cultures of the main groups of pathogenic fungi with pictures of lesions from which they were isolated, also some saprophytes where necessary to bring out differential points. The exhibit includes (1) dermatophytes, (2) cryptococci and *Monilia*, (3) *Coccidioides*, *Blastomyces* and related fungi, (4) *Actinomyces*. Emphasis will be given to classification and criteria for identification

SAMUEL AYRES JR. and N P ANDERSON, Los Angeles

*Focal Infection in Dermatology* Exhibit of photographs and charts illustrating the role of focal infection in the production of skin lesions, the relation of focal infection to allergy and immunity, the important sources of focal infection, their bacteriology and methods of treatment

S WILLIAM BECKER, Section on Dermatology, University of Chicago, Chicago

*Pigmentations of the Skin* Exhibit of photographs of clinical cases, microscopic drawings, photomicrographs and charts outlining fundamental principles of normal and pathologic pigmentation.

THEODORE CORNBLEET and E. R. PACE, University of Illinois College of Medicine, Chicago

*Sweat Physiologic and Biologic Studies, with Clinical Implications* Analyses of sweat from normal persons and those with certain skin disorders will be compared and the difference shown. The results will be used to explain the etiology of some dermatoses. A demonstration will be made to illustrate how profuse sweating changes the skin surface milieu. Exhibit of sweat as a medium for the growth of certain fungi. An exposition will be made of how the sweat as a reducing agent conditions the skin surface

#### SYMPOSIUM ON SYPHILIS

CLARK W FINNERUD and FRED D WEIDMAN, Chicago and Philadelphia

*Cutaneous Manifestations of Syphilis* Exhibit of photographs illustrating practically all of the cutaneous manifestations of syphilis

COMMITTEE ON EVALUATION OF SERODIAGNOSTIC TESTS FOR SYPHILIS, American Society of Clinical Pathologists and United States Public Health Service

*Evaluation of Serodiagnostic Tests for Syphilis in the United States* Exhibit showing the conclusions of the committee upon

sored by the United States Public Health Service and the American Society of Clinical Pathologists

NORMAN TORIAS, St. Louis

*Extragenital Chancres* Exhibit of photographs of extragenital chancres of the skin and mucous membranes, showing some of the common locations of extragenital chancres and the different forms in which they present themselves, especially of the upper and lower lips

A. H. PARMATTE and LOUIS J. HAMMAN Rush Medical College and Cook County Hospital Chicago

*Diagnosis of Congenital Syphilis* Exhibit of statistical charts and graphs showing the results of clinical, serologic and roentgenologic examinations on a series of infants of syphilitic mothers at various periods during the first year of life, also roentgenograms showing types of osseous lesions produced by congenital syphilis

CLAUDE L. CUMMER and CHARLES G. IAROCO Department of Dermatology Charity Hospital Cleveland

*Skin Manifestations of Syphilis* Exhibit of a collection of transparent positive prints demonstrating the cardinal points in the recognition of primary, secondary tertiary and hereditary syphilis

JOSEPH A. KLAUDER and THOMAS BUTTERWORTH Philadelphia

*Syphilis from Blood Transfusion* Exhibit of a chart showing syphilis from blood transfusion

C. F. LEHMANN and J. L. PIPKIN San Antonio Texas

*Hypertrophic Type of Coccidioidal Granuloma* Exhibit of photographs photomicrographs roentgenograms cultures and mouldages showing the clinical picture before and after treatment tissue organism and culture

DAVID R. MORGAN Department of Dermatology and Museum Jefferson Medical College Philadelphia

*Morbid Anatomy of Syphilis* Exhibit of specimens plate preparations bones and wax models of skin lesions showing the morbid anatomy of syphilis especially vascular syphilis and syphilis of the bones and viscera

S. S. GREENBAUM and DAVID MERANZF Mount Sinai Hospital Philadelphia

*Laboratory Aspects of Syphilis* Exhibit showing experimental rabbit syphilis darkfield exhibit of *Spirochaeta pallida* stained specimens of darkfield *Spirochaeta pallida* demonstrations of Wassermann Kluver and Kahn blood tests colloidal gold test on spinal fluid

DUDLEY C. SMITH W. A. BRUMFIELD JR. and E. E. BARNSDALE University of Virginia Charlottesville, Va.

*Practical Epidemiology of Syphilis* Exhibit of charts illustrating the efficacy of tracing exposures of syphilis and the use of population group surveys in locating syphilitic infections

### Section on Preventive and Industrial Medicine and Public Health

Section exhibit committee PAUL A. DAVIS, chairman, Akron Ohio, ALICE HAMILTON, Boston, THURMAN B. RICE, Indianapolis, and H. G. GRANT, Halifax

The Section on Preventive and Industrial Medicine and Public Health presents as a special feature an exhibit symposium on the subject of tuberculosis devoted especially to those aspects of the disease of interest to the physician in general practice

W. G. SMILLIE and W. S. WELLS Harvard School of Public Health, Boston

*Air-Borne Infection* Exhibit shows apparatus for testing air and charts illustrating results of tests, small portable machine for pollen determination, with illustrative material

D. A. IRWIN Department of Medical Research, University of Toronto, Toronto

*Experimental Silicosis* Exhibit of a series of photomicrographs illustrating the lesions of experimental silicosis

THURMAN B. RICE and JAMES R. REEVES Indiana University School of Medicine Indianapolis

*Etiology of Anaerobic Infections* Exhibit shows nature of gas gangrene infections and criticism of current methods of

bacteriologic diagnosis, methods of culturing with anaerobic technic, types of patients more likely to have gas gangrene infection anaerobic organisms cultured from presumably normal tissue (animal and human), undescribed species of anaerobic bacteria *Clostridium* with two spores

M. B. BRAHMA MAURICE LENARSKI L. W. SMITH and C. A. GIFFANY Willard Parker Hospital, New York

*Rapid Method for the Culture of Diphtheria Bacilli* Exhibit of (1) photomicrographs from stained smears from four hour (rapid method) cultures taken from diphtheria membranes (2) photomicrographs of stained smears from rapid method transplants for obtaining pure culture for virulence tests in carriers (3) charts to show comparative results of rapid method and Loeffler method in diphtheria cases and controls, (4) charts to show higher percentage of identification of virulent carriers by the new method (5) culture tubes for new rapid method.

LOUIS SCHWARTZ United States Public Health Service, Washington D. C.

*Industrial Dermatoses* Exhibit of charts showing causes pictures of cases, mouldages of cases, samples of articles and chemicals causing industrial dermatoses

K. K. CHEN CHARLES L. ROSE and G. H. A. CLOWES Lilly Research Laboratories Indianapolis

*Cyanide Poisoning* Exhibit showing sources of cyanide poisoning death rates in registration area and large cities, crucial tests for diagnosis antidotes previously advocated and their failures modern method of treatment

WALTER S. CORNELL, Division of School Medical Inspection, Board of Education and Department of Public Health, Philadelphia

*School Medical Inspection* Exhibit of statistical tables, charts and photographs showing medical examination of pupils, health status correction of diseases and defects proportion of diseases and defects treated by private physicians and public clinics respectively reasons for non treatment condition of health of pupil population special classes for partly sighted, deaf crippled sanitary standards used in inspecting school buildings Special investigation of field of school child health roentgen examinations of chests, later roentgen examinations to ascertain progress of tuberculous infection audiometer tests of hearing later tests to determine permanence of defective hearing nutritional survey before and during current economic depression school factors in transmission of scarlet fever, periodic health examinations for teachers

### SYMPOSIUM ON TUBERCULOSIS

CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM Allan J. Hrubc Chicago

*Demonstration of Collapse Therapy in Pulmonary Tuberculosis* Exhibit of roentgenograms of the chest before and after collapse therapy by various methods, pneumothorax, intra pleural pneumolysis, phrenico-cyesis and thoracoplasty surgical technic shown by a motion picture, demonstration of relative results in collapse therapy

S. A. WEISMAN University of Minnesota Medical School Minneapolis

*Normal Development of the Human Chest* Exhibit of plaster models made of human chests from the new born infant through the adult state and models of abnormal tuberculous chests showing that the average healthy chest is flat and wide and that the tuberculous chest is deep and narrow

A. J. COHEN JACOB GERSHON-COHEN and SAMUEL WEIN Eagleville Sanatorium, Eagleville Pa.

*Behavior of Cavities in Pulmonary Tuberculosis* Exhibit of serial roentgenograms of patients who presented tuberculous cavities in various parts of the lungs and the behavior of these cavities from time to time and their response to the different forms of accepted treatment

ISAAC H. ERB and GLADYS L. BOYD, Hospital for Sick Children Department of Pediatrics, University of Toronto, Toronto

Exhibit of pathologic specimens photomicrographs drawings and roentgenograms showing childhood pulmonary tuberculosis and bronchiectasis

CLARENCE L HYDE CARL R STEINKE and ASSOCIATES, Edwin Shaw Sanatorium, East Akron, Ohio

*Cavity Closure in Pulmonary Tuberculosis* Exhibit of (1) chart showing the importance of the closure of cavities, (2) roentgenograms and legends showing closure of cavities by conservative treatment, artificial pneumothorax, artificial pneumothorax and interpleural pneumolysis, phrenicectomy, combined phrenicectomy and artificial pneumothorax and thoracoplasty, (3) illustrations of failure to close cavities by the foregoing procedures and the reasons therefor

H HAROLD FELLOWS and ADA CHREE REID Metropolitan Life Insurance Company, New York

I Demonstration of the value of the routine fluoroscopic examinations in the detection of (a) early cases of pulmonary tuberculosis (b) lesions other than pulmonary tuberculosis (c) cases of advanced pulmonary tuberculosis without physical signs or symptoms II Demonstration of roentgenograms showing development of pulmonary tuberculosis in a previously healthy adult.

### Section on Urology

Section exhibit committee RUSSELL S FERGUSON, chairman, New York, THOMAS D MOORE Memphis Tenn G J THOMPSON, Rochester, Minn., and D W MACKENZIE Montreal

HUGH H YOUNG, James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore

*Plastic Surgery of Lower Urogenital Tract* Exhibit consists of history and illustrations of cases of congenital malformations, epispadias, hypospadias, exstrophy of bladder incontinence of urine, pseudohermaphroditism and hermaphroditism showing condition before operation, surgical procedure and observations, photomicrographs, postoperative treatment and end results

C J BUCHER, R. MANGES SMITH and THEODORE R FETTER Jefferson Medical College Hospital, Philadelphia

*Differential Diagnosis of Some Common Renal Lesions—Pyogenic Infections, Tuberculosis and Malignancy* Exhibit of roentgenograms, pathologic and bacteriologic specimens, case histories and clinical charts illustrating the lesions and the radiologic, bacteriologic and clinical evidence side by side

MOSES SWICK, Mount Sinai Hospital and Harlem Hospital New York

*Congenital Anomalies of the Urinary Tract* Exhibit of pyelograms depicting congenital anomalies of the urinary tract, diagnosis and differential diagnostic problems

JAMES F McCABE, LORENZ P HANSEN, DAVID SOLOWAY and DAVID R MORGAN, Jefferson Medical College, Philadelphia

*Anterior Pituitary-Testis Endocrine Relation in the Human Being* Exhibit of diagrams showing methods used in the chemical extraction of hormones from the urine, methods of testing for testis hormone by injection of capons, charts of capon comb growth obtained in various pathologic states, photographs of patients and of capons photomicrographs of ovaries of immature female mice illustrating reactions to anterior pituitary extract

JOHN S LEWIS JR. and EDGAR C BAKER Youngstown Hospital Association Youngstown Ohio

*The Lower Ureter* (as shown by serial urograms) Exhibit of transparencies of cases illustrating changes or lack of change in the lower ureter immediately following retrograde injection of opaque mediums

C C HIGGINS Cleveland Clinic Cleveland

*Transplantation of Ureters* Exhibit of drawings models and roentgenograms illustrating different methods of ureteral transplantation with experimental observations and clinical results with a new method

DAVID W MACKENZIE and ALEXANDER B WALLACE, Urological Department, Royal Victoria Hospital Montreal

*Lymphatic Studies Relation of Lower Urinary and Genital Tracts to Renal Infections* I Anatomic (a) demonstration of normal lymphatics of rabbits and method of preparation (b) demonstration of comparative lymphatic anatomy in fetus

II Experimental (a) demonstration of absence of lymphatic absorption from intact mucosa of bladder, (b) demonstration of lymphatic spread of dye after injection to pelvic organs, (c) demonstration of lymphatic absorption from zones of ureter, (d) demonstration of lymphatic absorption by roentgenograms

### Section on Orthopedic Surgery

Section exhibit committee PAUL N JEPSON, chairman, Philadelphia, A LEO BRETT, Boston, ARTHUR WEILAND, Miami, Fla and R I HARRIS Toronto

The Section on Orthopedic Surgery in addition to other exhibits is presenting a group of exhibits on chronic arthritis In an area adjoining the exhibits a special motion picture program will be shown

PAUL N JEPSON, Orthopedic Department, University of Pennsylvania School of Medicine, Philadelphia

*Gill Plate Graft in Treatment of Ununited Fractures of Long Bones* Exhibit of roentgenograms and drawings of bones that have been cut, showing shape of graft and how to reverse and hold in place, including femur, tibia, humerus, radius, ulna and clavicle with explanatory notes

J DEWEY BISGARD, University of Nebraska School of Medicine, Omaha

*Longitudinal Growth of Long Bones* Exhibit shows (1) measurements of longitudinal growth of the principal long bones of goats (2) growth disturbances produced by damage to the epiphyseal cartilage causing deformities of shortening, (3) growth disturbed by x-ray and radium radiation, (4) questions of compensatory overgrowth, (5) clinical illustrations of problems

J P LORD R D SCHROCK and H F JOHNSON, Orthopedic Department, University of Nebraska Medical College Omaha

*Bone Tumors* Exhibit of transparent negatives showing x ray photographs and photomicrographs of bone tumors classified according to Registry of Bone Sarcoma

E P CORSON-WHITE, IRVIN STEIN, RALPH S BROWER and LASLO KAJDI Zoological Society of Philadelphia and Orthopedic Hospital, Philadelphia, and Johns Hopkins Hospital, Baltimore

*Diseases of Disturbed Bone Metabolism in Monkeys and Man* Charts illustrating metabolic studies and roentgenograms of osteomalacia, von Recklinghausen's disease and a condition simulating Paget's disease in monkeys, produced by variations in calcium, phosphorus and vitamin D in diets that gave a neutral, acid or alkaline ash, roentgenograms and charts illustrating treatment of Paget's disease, osteomalacia and von Recklinghausen's disease in man, based on dietary principles

F J GAENSLER, Milwaukee

*Spiking of Fractures of the Neck of the Femur* Exhibit showing (1) a method of reducing fractures of the neck of the femur (2) a method of taking anteroposterior and lateral roentgenograms of the hip without shifting the position of the patient (3) a method of internal fixation by means of spikes introduced subcutaneously

LEWIS CLARK WAGNER, Hospital for Ruptured and Crippled, New York

*Posterior Bone Block of Ankle for Paralytic and Spastic Drop Foot* Exhibit of specimens and charts describing the operation for bone block on the ankle

A LEO BRETT Boston

*Corrective Osteotomy of Tibia for Adult Genu Recuratum* Exhibit of photographs, drawings and roentgenograms showing underlying bony mechanopathology drawings of operation, roentgenograms before and after operation, corrective intra-capsular osteotomy elevating the anterior table of the tibia

WILLIAM T GREEN, Children's Hospital of Boston, Boston

*Osteomyelitis in Infancy* Exhibit of roentgenograms, charts, tissue specimens and stained preparations showing the difference between the osteomyelitis in infants (under 2 years) and that of older individuals



FRANK R. OBER and ARTHUR T. LEGG, Children's Hospital of Boston, Boston

*Operative Treatment of Poliomyelitis* Exhibit of drawings of operative procedures and photographs of patients before and after operation, showing the operative procedures available in the treatment of deformities of infantile paralysis

JOSEPH BUCHMAN, Hospital for Joint Disease, New York  
*Healing in Osteomyelitis Following Maggot Therapy* Exhibit of roentgenograms showing appearance of bones before the institution of maggot therapy and late after-results

BENJAMIN KOEHN and M. T. KOEHN, Jewish Hospital and Bethel Hospital, Brooklyn

*Unusual Skeletal Tumors* Exhibit of roentgenograms, photomicrographs and macrophotographs of biopsy and autopsy specimens, clinical history and review of literature dealing with plasma cell myeloma, primary hepatoma with bone metastases, giant cell tumor of spine, thyroidal metastasis, subcutaneous glomus tumor and multiple enchondroma affecting all skeletal bones

DAVID SASHIN, Hospital for Joint Diseases, New York

*Relation of Pathologic Changes in the Intervertebral Disks to Low Back Pain* Exhibit of gross formaldehyde and macerated specimens, microscopic sections, charts, photographs and roentgenograms showing intervertebral disk herniations, vascularizations, fibrosis and calcification of intervertebral disk substance, mounted macerated specimens illustrating the effect of a narrowed degenerated intervertebral disk on the articular facets and on the normal lumbar curve

EDGAR M. BICK, Hospital for Joint Diseases and Mount Sinai Hospital, New York

*Common Soft Tissue Tumors of the Extremities* Exhibit of charts, illustrations and photomicrographs depicting the clinical aspects of soft tissue tumors of the extremities, their preponderant locations, age of greatest occurrence, duration and certain physical characteristics, as an aid to clinical preoperative differential diagnosis

PALI C. COLOANA, New York University College of Medicine, New York

*New Type of Reconstruction Operation for Old, Ununited Fracture of the Hip* Exhibit of roentgenograms, models and drawings showing preoperative and postoperative cases and stages of operation

*Motion Pictures* The following motion pictures will be presented on a definite schedule

ARTHUR T. LEGG, Boston: "Early After-Care of Poliomyelitis"

WILLIAM T. GREEN, Children's Hospital of Boston, Boston: "The Care of the Joints in Atrophic Arthritis of Children"

PAUL B. MAGNUSEN, Northwestern University, Chicago: "Continuation of Arthritic Symptoms Due to Mechanical Irritation of Arthritic Residue and Prolonged Slight Trauma"

VOIGT MOONEY, Allegheny General Hospital, Pittsburgh: "Studies of the Human Locomotion"

### EXHIBITS ON CHRONIC ARTHRITIS

M. H. DAWSON, A. B. FERGUSON, H. H. KASABACH and G. D. TAYLOR, Presbyterian Hospital, New York Orthopedic Dispensary and Hospital, New York

*Röntgenologic Observations in Various Forms of Chronic Arthritis* Exhibit of roentgenograms, drawings and charts showing the characteristic roentgenologic appearances in the following forms of chronic arthritis: rheumatoid arthritis, osteoarthritis, gout, tuberculous arthritis, gonococcic arthritis, Marie Strümpell spondylitis, Still's disease

WALLACE S. DUNCAN and RUSSELL L. HADEN, Departments of Medicine and Orthopedic Surgery, Cleveland Clinic, Cleveland

*Chronic Arthritis* Exhibit of wax models illustrating chronic rheumatoid (atrophic) arthritis and chronic hypertrophic arthritis (osteoarthritis) with roentgenograms and clinical histories

JOHN W. GRAY, WILLIAM G. BERNHARD and CECIL H. GOWEN, Hospital St. Barnabas, Newark, N. J.

*Chronic Arthritis* Exhibit of specimens, photomicrographs, roentgenograms and charts showing pathologic changes, clinical types, classification, differential diagnosis, clinical manifestations, bacteriology and treatment

### Section on Gastro-Enterology and Proctology

Section exhibit committee: A. H. AARON, chairman, Buffalo, THOMAS L. ALTHAUSEN, San Francisco, J. A. BARGEN, Rochester, MINN., RUSSELL S. BOLES, Philadelphia, HERBERT T. HAYES, Houston, Texas, ERNEST C. CLEAVER, Toronto, and R. H. M. HARDISTY, Montreal

The Section on Gastro-Enterology and Proctology, in addition to an extensive array of exhibits dealing with various phases of gastroenterology and proctology, is participating in the Symposium on Cancer

GROUP EXHIBIT *The Small Intestine* University of Pennsylvania School of Medicine, Philadelphia: Exhibit showing the physiology, chemistry and pathology of the small intestine, including the physical, chemical and radiologic observations on the experimental animal and man and apparatus working in the human being and in the dog with cinematographic tracings, charts and tubes, and roentgenographic illustrations. The following individuals will participate: Section of Gastro-Enterology: T. GRIFR. MILLER, W. OSLER ABBOTT and KATHERINE OSBORN. Medical Clinic: WILLIAM G. KARR, Department of Research Surgery: I. S. RAVDIN, CHARLES G. JOHNSON and P. J. MORRISON, Department of Physiologic Chemistry: D. WRIGHT WILSON, F. A. CAJORI and EDWIN J. DEBEER, Department of Radiology: HENRY K. PANCOAST, EUGENE P. PENBERGRASS, PHILIP J. HOBBS and J. ROBERT ANDREWS

GROUP EXHIBIT *Sodium Chloride Therapy in Relation to Hypochloremia, Isotemia and Dehydration* Abington Memorial Hospital, Abington, Pa.: Exhibit consisting of charts and experimental work on dehydration, hypochloremia and azotemia, cases illustrating this syndrome in bicarbonate intoxication, high obstructions, renal disease, toxemias of pregnancy and diabetes. The following individuals will participate: WILLIAM G. KARR and JOHN ELMAN, Surgery; DAMON B. PFEIFFER, CALVIN SMYTH JR., IRVING M. BOSKIN, J. WALTER LEVERING, Medicine; GEORGE MORRIS PIERSOL, HARRY B. WILMER, HARRY L. BOCKUS, JOSEPH STOKES JR., JOHN H. WILLARD, THEODORE S. WILDER, JOHN B. POLANSKY, Urology; ALEXANDER RANDALL and EDWARD W. CAMPBELL

GROUP EXHIBIT *Studies on Crystalline Vitamin B<sub>1</sub>* Exhibit will include the method of isolation from rice polishings, chemical studies of isolated substances, cleavage products, a model of its structure, a number of studies demonstrating its effect on animals and a group of studies on human beings. The following individuals will participate: Chemistry: ISOLATION: ROBERT R. WILLIAMS, ROBERT E. WATERMAN, JOHN C. KREBSZTESY. Sulphur Chemistry and Thiazole Nucleus of Vitamin: H. T. CLARK and SAMUEL GURIN. General Chemical Structure of Vitamin: EDWIN R. BUCHMAN and ROBERT R. WILLIAMS. Ultraviolet and Potentiometric Studies: A. E. RUFFLE. Analytic Data: OSCAR WINTERSTEINER. Medical and Physiologic Clinical Experiments: MARTIN G. VORHAUS, ROBERT R. WILLIAMS and SIDNEY BERKOWITZ. Animal Experiments: ROBERT E. WATERMAN and MARION AMMERMAN. Bio-Assays: MARION AMMERMAN

HERBERT T. HAYES, HARRY B. BURR and J. WADE HARRIS, Houston, Texas

*Lymphogranuloma Inguinale* Exhibit of placards, photographs and drawings with mounted gross specimens

COLLIER F. MARTIN, University of Pennsylvania Graduate School of Medicine, Philadelphia

*Lymphopathia Venerea* Exhibit of photomicrographs, photographs, diagrams and charts illustrating origin and clinical course, age, sex and race, Frei test and associated pathologic changes and complications, anatomic specimens showing the lymphatic and blood supply of the urogenital and rectal areas

MAURICE F DWYER, Mason Clinic, Seattle

*Gastro-Intestinal Lesions* Exhibit of roentgenograms of certain gastro-intestinal lesions, each accompanied by nature size colored plaster models of the stomach or colon correlating the roentgenologic surgical and pathologic changes in the lesion Duodenal ulcer, gastric ulcer, gastric carcinoma at various sites, benign gastric tumors and carcinoma and polyposis of the colon are depicted.

MARTIN E. REHFUSS, Jefferson Medical College, Philadelphia

*Gastrophotography* Exhibit of actual photographs of the interior of the stomach, roentgenograms of these cases, abstracts of history, charts with complete description of surgical and pathologic changes

ASHER WINKELSTEIN, Mount Sinai Hospital, New York

*Continuous Intragastric Milk Drip—A New Therapy for Peptic Ulcer* Exhibit of apparatus, method of therapy and charts showing studies in gastric secretion on which the method is based, particularly nocturnal gastric secretion, curves before and after treatment, roentgenograms showing results

A. M. SNELL, J. F. WEIR, J. D. CAMP, C. H. WATKINS and MILDRED ADAMS, Mayo Foundation for Medical Education and Research, Rochester, Minn.

*Idiopathic Steatorrhea* (nontropical sprue) Exhibit of transparencies showing photographs of patient, charts of gastric acidity, metabolism of fat and nitrogen calcium and phosphorus disturbances, hematologic changes, and results of treatment, roentgenograms showing changes in the intestine and bone Evidence is presented to suggest relationship to celiac disease, tropical sprue and pernicious anemia

MANFRED KRAEMER and MAURICE ASHER, Newark N. J.

*Management of Nonspecific Ulcerative Colitis* Exhibit of charts, roentgenograms, colored proctoscopic drawings and photographs presenting the clinical picture of nonspecific ulcerative colitis and its treatment together with the role of serums, vaccines, diets, rest, medication and ultraviolet irradiation in the therapeutic armamentarium.

SEALE HARRIS, Birmingham, Ala.

*Disorders of Insulin Secretion Diabetes Mellitus (Hypo-Insulinism) Dysinsulinism and Hyperinsulinism* Exhibit of charts, diagrams, simplified diets and lantern slides illustrating cases of pituitary thyroid, adrenal, hepatic and pancreatic diabetes mellitus Clinical type of hyperinsulinism, mild moderately severe and severe cases Gastro-intestinal manifestations Neuropsychiatric hyperinsulinism. Convulsive seizures and hyperinsulinism Dysinsulinism

WILLIAM A. SWALM, Temple University School of Medicine, Philadelphia

*Practical Consideration of Coprology (Exclusive of Parasites)* Exhibit on (1) normal and pathologic physiology of the gastro-intestinal tract with special regard to the feces, (2) estimation of transit time, (3) intestinal test diet, (4) charts, paintings photographs and casts referable to the macroscopic, chemical, microscopic and bacteriologic examination of the feces, (5) charts concerning hypermotility and functional disorders of the colon and sample diet for these conditions including roughage and bland bulk of various foods

RUDOLF SCHINDLER, University of Chicago, Chicago

*Development of Gastroscopy* Exhibit of historic instruments with short description, books, colored pictures and motion pictures showing the technic of gastroscopy

ARTHUR SCHIFFRIN, Mount Sinai Hospital, New York

*Pathology of the Liver and Biliary Tract* Exhibit of gross specimens and photomicrographs representing the pathogenesis of diseases of the liver and biliary tract, showing the various types of cirrhosis, graphic representation of a classification of the cirrhosis, pathology of 'catarrhal jaundice' and detailed correlation between the clinical observations and interpretations and the morphologic aspects of the specimens exhibited

N. B. DREYER, Dalhousie University, Halifax N. S.

*Study of Intestinal Movements in Situ in the Cat* Exhibit shows a record of movements from an intestinal loop in a decerebrated or anesthetized cat demonstrating the effects of drugs

B. B. VINCENT LYON, Philadelphia

*Microscopy of Oral, Gastric Duodenal and Biliary Tract* Exhibit of photomicrographs demonstrating normal and abnormal cytology of mouth, esophagus, stomach, duodenum and biliary tract, photomicrographs of commoner foods in various stages of digestion, microscopy of fresh biliary drainage, with differential diagnostic interpretations, differentiation of calculous from noncalculous cholecystitis

THOMAS E. JONES, Cleveland Clinic, Cleveland

*Anorectal and Colonic Cancer* For description of exhibit see Symposium on Cancer

## Section on Radiology

Section exhibit committee S. W. DONALDSON, chairman, Ann Arbor, Mich., VINCENT W. ARCHER, University, Va., JOHN T. FARRELL JR., Philadelphia, and W. A. JONES, Kingston Ont.

The Section on Radiology has contributed largely to the symposium on cancer as well as to various other section exhibits. In addition to the exhibits listed here, a large amount of radiologic material will be found in other parts of the hall.

ALBERT SOILAND, W. E. COSTLOW and O. N. MELAND, Los Angeles

*Selective Radiologic Treatment of Neoplastic Diseases* Exhibit of transparencies showing pioneer work in irradiation (1901-1910), transition period, modern period and pictures of patients before and after treatment, photomicrographs of tumors, with brief outline of each case or group, including cancer of the skin, oral and pharyngeal cavities, sinuses, breast, uterus and others, together with a few sarcomas of various types

J. CURRIE McMILLAN, Winnipeg, Manit.

Exhibit consisting of roentgenograms showing (1) visualization of the biliary tract with iodized poppy-seed oil, (2) fibrocystic bone disease (parathyroid tumor)

ARTHUR C. SINGLETON, Toronto General Hospital, Toronto

*Prepyloric Gastric Lesions* Exhibit of transparencies illustrating prepyloric cancer, prepyloric ulcer, gastric syphilis, hypertrophic pyloric stenosis pylorospasm and prepyloric deformity due to extragastric lesions

BEDE J. HARRISON, Vancouver General Hospital, Vancouver, B. C.

*New Method of Orientation Applicable to the Body and the X-Ray Beam* Exhibit of series of prints showing the application of method to the position of the patient and to the position of different parts of the body, description of the central ray with regard to the patient prints showing method of determining the point of incidence of the central ray for use with the method, prints of different parts of the body, with the details of the position of the patient and the portion of the ray described according to the method.

J. E. GENDREAU, Institut du Radium Montreal, Que.

*Intestinal Roentgenograms with Colloidal Thorium Compounds* Exhibit of roentgenograms showing results of the thorium technic, with a comparison of the barium technic.

H. DABNEY KERR and EDWIN L. RYBINS, Department of Roentgenology, State University of Iowa, Iowa City

*Roentgen Diagnosis of Neoplasms of the Kidney in Adult Life and Childhood* Exhibit deals with tumor of the kidney, with pyelographic and other roentgenologic observations, several cases of tumors in adults and in children are presented with tissue differential diagnosis from blood clot and metastatic invasion of the kidney are pointed out

I. SETH HIRSCH, New York

*Kymoroentgenography (A Method of Recording Cardiac Movement by Roentgen Ray)* Exhibit of charts and diagrams illustrating the principles of kymography roentgenograms of normal and pathologic hearts, showing records of movements, kymoscope for making visible the cardiac movements from the roentgenkymogram

RAPHAEI POMERANZ, Newark, N. J.

*The Mesentery* Exhibit showing visualization of liver, spleen, normal and pathologic peritoneum and mesenteric lymphatics in animals with microscopic observations. New method of arteriography of the mesentery in animals, roentgenograms of human cases, with operative observations and special reference to mesenteric pathologic changes. (1) mesenteric cyst, (2) two different types of intussusception in children, (3) inflammatory mass in the right lower quadrant, differential diagnosis from neoplastic lesion, (4) gelatinous carcinoma of cecum growing around sigmoid, (5) early carcinoma of sigmoid with long mesosigmoid, (6) carcinoma of descending colon, with clinical and radiologic symptoms of small bowel obstruction.

JOHN RUSSELL CARTY, New York Hospital, New York.

*Diagnostic Scope of Soft Tissue Radiography* Exhibit of roentgenograms of normal and pathologic soft tissue, illustrating the diagnostic possibilities in the radiographic exploration of soft tissue, essential technical features are briefly reviewed.

JACOB GERSHON-CORFAN and ALBERT STRICKLER, Philadelphia Skin and Cancer Hospital, Philadelphia.

*Röntgenographic Studies of Female Normal Breast* Exhibit of roentgenograms of normal female breasts made in subjects from 10 to 80 years of age at the beginning and midway between the menstrual cycles, showing the variation in the appearance of the normal breasts roentgenographically and the general characteristics for each age group related particularly to puberty, young adult (unmarried), young adult (married), adult (child bearing), the climacteric and the postclimacteric periods.

W. EDWARD CHAMBERLAIN and BARTON R. YOUNG, Temple University School of Medicine, Philadelphia.

*Hodgkin's Disease—Unusual Manifestations and Sources of Error in Diagnosis* Exhibit showing clinical data, roentgenograms, laboratory observations, photographs and photomicrographs of biopsy and autopsy material dealing with cases in which Hodgkin's disease was not suspected because the presenting symptoms and clinical appearances suggested some other condition. The protean manifestations of the disease are brought out to observers' attention by exhibiting cases in which the disease localized itself in the breast, spleen, bones, skin or lungs leading clinicians to believe they were dealing with primary conditions. Diagnoses such as cancer of the breast, malaria, scabies and tuberculous adenitis were made.

SHERWOOD MOORE, the Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis.

*New Metabolic Disorder and Its Pathognomonic Radiologic Signs in the Skull* Exhibit of roentgenograms of skulls and anatomic material, photographs of patients and specimens, abstracts from case histories, plaster reproductions of anatomic specimens and certain tabulations.

LEE A. HADLEY, Syracuse University Medical School, Syracuse, N. Y.

*Apophysal Subluxation—Disturbances in and About the Intervertebral Foramen Causing Back Pain* Exhibit of anatomic specimens, microscopic sections and roentgenograms illustrating conditions that cause both local and referred pain by disturbances in and about the intervertebral foramen.

HARRY H. BOWING and ROBERT H. FRICKE, Mayo Clinic, Rochester, Minn.

*Radium Treatment of Carcinoma of the Uterine Cervix, the Broken Dose Method* For description see Symposium on Cancer.

MAX CUTLER, Tumor Clinic, Michael Reese Hospital, Chicago. *Carcinoma of the Mouth: Causation and Treatment* For description see Symposium on Cancer.

B. P. WIDEMANN and J. L. WEATHERMAN, Radiologic Clinic, Philadelphia General Hospital, Philadelphia.

*Value and Limitation of Roentgen Rays and Radium in the Treatment of Cancer* For description see Symposium on Cancer.

G. E. RICHARDS, Ontario Institute of Radiotherapy, Toronto General Hospital, Toronto.

*Radiation Therapy in Cancer* For description see Symposium on Cancer.

M. H. DAWSON, A. B. FERGUSON, H. H. KASABACH and G. D. TAYLOR, New York.

*Röntgenologic Observations in Various Forms of Chronic Arthritis* For description see Exhibits on Chronic Arthritis under Section on Orthopedic Surgery.

E. H. SHANNON, St. Michael's Hospital, Toronto, Ont.

*Accessory Nasal Sinuses* For description see Section on Laryngology, Otology and Rhinology.

ROBERT P. BALL, Broness Erlanger Hospital, Chattanooga, Tenn.

*Röntgen Pelvimetry and Fetal Cephalometry* For description see Section on Obstetrics, Gynecology and Abdominal Surgery.

A. HOWARD PIRIE, Royal Victoria Hospital, Montreal, Que.

*Reading and Seeing Pictures with Eyes Closed* For description see Section on Ophthalmology.

### Symposium on Cancer

The symposium on cancer is made up of exhibits contributed by the Section on Surgery, General and Abdominal, the Section on Obstetrics, Gynecology and Abdominal Surgery, the Section on Laryngology, Otology and Rhinology, the Section on Pathology and Physiology, the Section on Gastro Enterology and Proctology, and the Section on Radiology, together with other exhibits and motion pictures. There will also be found in other parts of the hall additional exhibits dealing with cancer and similar neoplasms.

LOUIS I. DUBLIN, Metropolitan Life Insurance Company, New York.

*The Trend of Cancer—Incidence, Mortality and Curability* Exhibit of charts showing cancer deaths in the United States compared with other causes, chances at each age of eventually dying from cancer, chief sites of cancer by sex, by age groups, trend of cancer death rate by site, by age groups, curability of cancer in certain sites, as reported in recent medical literature.

CHARLES A. BEHNEY and DOUGLAS P. MURPHY, Department of Obstetrics and Gynecology, University of Pennsylvania School of Medicine, Philadelphia.

*Carcinoma of the Cervix—Its Early Detection* Exhibit showing illustrations of lesions often associated with carcinoma, early carcinoma, gross specimens, photomicrographs, colposcope and biopsy instruments.

CHARLES C. NORRIS, FRANCIS S. DUNNE and PENDLETON TOMPKINS, Department of Obstetrics and Gynecology, University of Pennsylvania School of Medicine, Philadelphia.

*Carcinoma of the Cervix—An Analytic Study* Exhibit of charts, depicting the frequency, diagnosis, treatment, effect of preceding operation, pregnancy and follow up of carcinoma of the cervix, other conditions are presented for comparison by means of pathologic specimens in natural color, showing both rare and unusual conditions and especially typical conditions.

R. W. TEAHAN, W. S. HASTINGS, E. E. DOWNS and H. WYMMACK, Jeanes Hospital, Philadelphia.

*Carcinoma of the Cervix Uteri* Exhibit of gross specimens, photomicrographic transparencies, roentgenograms, drawings, graphs and charts of carcinoma of the uterine cervix, showing the histology, gradation, metastases, complications, methods of treatment and results.

THOMAS E. JONES, Cleveland Clinic, Cleveland. *Anorectal and Colonic Cancer* Exhibit of wax models of specimens and charts descriptive of the one stage abdominoperineal operation.

HARRY H. BOWING and ROBERT E. FRICKE, Mayo Clinic, Rochester, Minn.

*Radium Treatment of Carcinoma of the Uterine Cervix—The Broken Dose Method* Exhibit of transparencies dealing with cancer of the cervix, incidence, classification, discussion of

various radium therapy techniques, and the broken dose method of treatment, drawings of illustrative cases during the actual courses of treatment with explanations and a series of charts showing the late results obtained during the first decade (1915-1925)

NORMAN TREVES, Memorial Hospital, New York

*Inflammatory Carcinoma of the Female Breast* Exhibit of wax models taken from living patients water color illustrations of inflammatory cancer, photographs and photomicrographs and charts showing results of treatment and various diseases of the breast that may simulate inflammatory carcinoma Inflammatory carcinoma of the female breast appears to be a distinct clinical phase of breast cancer and it does badly if treated surgically In fact, surgery is contraindicated, irradiation offers the only hope of palliation

WILLIAM J HOFFMAN and GEORGE T PACK Memorial Hospital, New York

*Carcinoma of the Duodenum* Exhibit of transparencies illustrating incidence, symptoms, physical signs, radiographic appearance, diagnosis, pathology and treatment of carcinoma of the duodenum

MAX CUTLER, Tumor Clinic, Michael Reese Hospital, Chicago

*Carcinoma of the Mouth—Causation and Treatment* Exhibit of apparatus and charts dealing with 1 Causative factors demonstration of apparatus used for the measurement of electrical potentials in the mouth, charts indicating results of tests made in a large series of patients and a series of controls 2 Treatment special technic of preparation of radium moulds in the treatment of cancer of the mouth

RAYMOND S ROSEDALE and DONALD R MCKAY, Buffalo City Hospital, Buffalo

*Primary Lung Cancer—Clinical, Pathologic and Roentgenologic Study* Exhibit of charts to illustrate the location of tumor, cell type, bronchial constriction, metastases and associated lung changes—pneumoconiosis, fibrosis, tuberculosis, atelectasis, emphysema, abscess, bronchiectasis, empyema Charts to illustrate age, sex, race, occupational incidence the clinical symptoms and signs, radiologic, bronchoscopic and biopsy observations and pathologic processes that mask or obscure the clinical or radiologic picture of tumor Representative case histories with transparencies of roentgenograms, gross lung tumors and photomicrographs Bronchoscopic view of bronchogenic carcinoma in a manikin with electrically actuated artificial lung

L H CLERF B L CRAWFORD and R M LUKENS, Jefferson Hospital, Philadelphia

*Neoplasms of the Larynx* Exhibit of photomicrographs photographs, drawings, records, statistics and transparencies emphasizing the importance of early diagnosis of laryngeal neoplasms, particularly carcinoma, neoplasms of the larynx illustrating various types of carcinoma, also benign neoplasms

B P WIDMANN and J L WEATHERMAN Radiological Clinic, Philadelphia General Hospital, Philadelphia

*Value and Limitations of Roentgen Rays and Radium in the Treatment of Cancer* Exhibit of photographs, charts and drawings illustrating results of various technical procedures for administering roentgen rays and radium in the treatment of cancer lesions involving all anatomic sites, including early and late cancers classified according to the microscopic character and cellular differentiation and results obtained with various techniques and doses impressions on the results of higher voltages higher filtrations with special reference to the Coutard technic of treating intra-oral cancers discussion of a wide range of technical procedures that can be employed in the treatment of skin intra-oral cervix and breast cancer

JACK MASON HUNDLEY JR HENRY J WALTON and GRANT E. WARD, Oncological Clinic University of Maryland, Baltimore

*Combined Therapeutic Measures in the Treatment of Malignant Conditions* Exhibit of drawings photographs wax moulds and motion pictures covering the use of the roentgen ray radium and electrosurgery in the treatment of various types of malignant disease

G E RICHARDS University of Toronto and Ontario Institute of Radiotherapy and Department of Radiology, Toronto General Hospital, Toronto

*Radiation Therapy in Cancer* Exhibit of transparencies illustrating methods of treatment and results obtained in various types of cancer by radiation therapy

*Motion Picture* E E. SHEPLEY, Saskatoon Hospital, Saskatoon, Sask 'An Effective Offensive'

## OTHER EXHIBITS ON CANCER

ALBERT SOILAND, W E COSTLOW and O N MELAND, Los Angeles

*Selective Radiologic Treatment of Neoplastic Diseases* For description see Section on Radiology

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, New York  
*Cancer of the Uterus* For description see Educational Classification

RALPH POMERANZ Newark N J

*The Mesentery* For description see Section on Radiology

## EDUCATIONAL CLASSIFICATION

### Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than the individuals and which are intended to show progress in the particular activities with which those institutions deal

These exhibits are not open to medal awards, but a special certificate of merit is presented to the best exhibit in this classification

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, New York

*Cancer of the Uterus* Exhibit consisting of wax models and charts showing classification of various stages, results of treatment and methods of prevention Maps of the United States showing the activities of the American Society for the Control of Cancer in several states and the progress of cancer control that has taken place in the United States since 1933

NATIONAL TUBERCULOSIS ASSOCIATION, New York

*Costs of Tuberculosis* Exhibit showing a series of statistical graphs, based on a study of costs of hospitalization loss of wages and so on in relation to time, diagnosis, use made and other factors

UNITED STATES PHARMACOPEIA

*The New (Eleventh Revision) of the United States Pharmacopeia* Exhibit of new assay methods for Pharmacopeial preparations medicinal products added to the Pharmacopeia, demonstration of a new cathartic biologic assay method studied for possible Pharmacopeial use, illustrations of Pharmacopeial revision methods

AMERICAN PHARMACEUTICAL ASSOCIATION Washington, D C

*The National Formulary* Exhibit of some of the more important and interesting additions to the new National Formulary, particularly items suitable for prescription practice

AMERICAN FEDERATION OF ORGANIZATIONS FOR THE HARD OF HEARING Washington, D C

Exhibit of posters charts and maps calling attention to the work of the federation, pamphlets pertaining to the work of the hard of hearing (educational, vocational and recreational)

COMMITTEE ON DEAFNESS PREVENTION AND AMELIORATION, American Academy of Ophthalmology and Otolaryngology

*Deafness Prevention and Amelioration* Exhibit of charts, diagrams photographs and motion pictures illustrating the need of efforts in the field of deafness prevention and amelioration modern methods of detection of hearing loss including instruments used in this work demonstration of hearing tests by modern methods methods of ameliorating the condition of the deafened through education, rehabilitation and the use of mechanical hearing aids

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, U S Department of Agriculture, Washington, D C

(a) *Maggots in Treatment of Osteomyelitis* (b) *Honey as a Food* (a) An exhibit showing recent developments in the use of maggots for the treatment of osteomyelitis and other diseases of man and animals, also on the screw worm as a cause of myiasis in man (b) The chemical analysis of honey from a dietetic standpoint

AMERICAN SOCIAL HYGIENE ASSOCIATION, New York

*Diagnosis of Primary Syphilis* Exhibit of photographs, charts, motion picture, stained specimens for the microscope, dark field microscope and specimens presenting the chancre of syphilis, *Spirocheta pallida*, the methods of collecting specimens of chancre fluid, differential diagnosis of primary syphilis, the advantages of dark field diagnosis as compared with indurum and other staining methods, the practicability of mail transportation of specimens for diagnosis, and of central diagnostic laboratory facilities, and the importance of earliest diagnosis and treatment of syphilis

MEDICAL SOCIETY OF NEW JERSEY, Trenton

Exhibit showing 1 Organization plan of state and county societies 2 Coordination of state and county projects 3 Cooperation with state and county agencies 4 Legislation supervision and influence 5 Specific projects for the current year 6 Analyses of New Jersey health problems (graphic and statistical data on health conditions and needs at this time) 7 Procedures in vogue at present in preventive program 8 Forms and records used 9 Difficulties encountered 10 Results accomplished and the criteria used in measuring them

AMERICAN HOSPITAL ASSOCIATION, Chicago

Exhibit of charts, books, package libraries and other material covering the subject of hospital operation and maintenance.

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION, New York

*Occupational Therapy* Exhibit of photographs, diagrams, charts and other means of demonstrating graphically a few of the methods of aiding the recovery of the sick by means of occupations of various kinds

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia

Exhibit of charts describing the work and progress of the National Board of Medical Examiners

AMERICAN PHYSIOTHERAPY ASSOCIATION

*Modern Techniques in the Exercise Treatment of Faulty Body Mechanics* Exhibit showing (1) methods of stimulating interest in body mechanics, (2) principles of progression in exercise treatment, (3) carry-over of principles learned in exercise treatment, (4) significant points in kinesiology of water activities, (5) methods of recording improvement in body mechanics, schematograph, silhouettegraph, (6) case records

AMERICAN ASSOCIATION OF MEDICAL SOCIAL WORKERS, Chicago

*Contributions of Social Work to the Care of Ill Health* Exhibit of (1) charts and graphs showing social factors in certain diagnostic groups, as (a) tuberculosis, (b) heart disease, (c) diabetes, (2) pamphlets and reprints of social studies

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Board of Registry

*Training and Registration of Laboratory Technicians* Exhibit of placards, signs and photographs illustrating the activities of the Board of Registry in regulating the training and standardization and registration of laboratory technicians in the United States, and a list of approved schools with pamphlets, booklets and other literature describing the work of the registry

CHILDREN'S BUREAU, U S Department of Labor, Washington, D C

*Neonatal Mortality Studies of the Children's Bureau* Exhibit of charts and maps dealing with neonatal mortality and related subjects, such as prematurity and neonatal morbidity

AMERICAN HEART ASSOCIATION, New York

*Heart Disease as a Cause of Sudden Death* Exhibit of charts and photographs of postmortem observations in sudden death, giving a summary of the lesions most commonly encountered in sudden, unexpected death from natural causes

Approximately 70 per cent of sudden deaths are due to organic heart disease and 90 per cent to lesions in the cardiovascular system (heart, arteries, arterioles, capillaries and veins)

COMMITTEE ON EVALUATION OF SERODIAGNOSTIC TESTS FOR SYPHILIS, AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS AND THE UNITED STATES PUBLIC HEALTH SERVICE

*Evaluation of Serodiagnostic Tests for Syphilis* For description of exhibit see Symposium on Syphilis under Section on Dermatology and Syphilology

CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM, Chicago

*Collapse Therapy in Pulmonary Tuberculosis* For description of exhibit see Symposium on Tuberculosis under Section on Preventive and Industrial Medicine and Public Health.

## AMERICAN MEDICAL ASSOCIATION

The exhibits from the headquarters group of the American Medical Association will be found in various parts of the hall. These exhibits are not open to awards

COUNCIL ON PHYSICAL THERAPY Exhibit of motion pictures illustrating physiologic effects of physical agents, demonstrations of useful therapeutic measures in the after treatment of fractures by physical therapeutic measures, charts and diagrams portraying results

COUNCIL ON PHARMACY AND CHEMISTRY Exhibit of posters, specimens and demonstrations showing the work of the Council on Pharmacy and Chemistry

CHEMICAL LABORATORY Exhibit of posters, specimens and demonstrations showing the activities of the A M A Chemical Laboratory, in its work for the Council on Pharmacy and Chemistry and the Bureau of Investigation.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS Exhibit showing the work of the Council in relation to 1 Resurvey of medical education 2 Postgraduate medical courses 3 Approved internships and residencies in specialties. 4 Certification of specialists 5 Schools of laboratory technique, physical therapy and occupational therapy 6 Hospital statistics 7 Distribution of hospitals

BUREAU OF MEDICAL ECONOMICS Exhibit of charts showing numbers and percentages of physicians in active practice according to age, size of community and type of practice. Examples of forms that must be filled in for persons covered by the French compulsory sickness insurance system.

BUREAU OF LEGAL MEDICINE AND LEGISLATION Exhibit of posters on legal medicine and legislation.

## AWARDS

There will be two classes of awards, consisting each of (a) a gold medal, (b) a silver medal, (c) a bronze medal and (d) three certificates of merit

[NOTE.—The special (subsidized) exhibits (diabetes, nutrition, vaccines and serums, and prevention of asphyxial deaths) and the exhibits of the headquarters of the American Medical Association are not open to awards]

### CLASS I

Awards in class I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation

### CLASS II

Awards in class II are made for exhibits that do not exemplify purely experimental studies, which are judged on basis of the excellence of correlating facts and excellence of presentation

Medals are awarded only to individuals. A special certificate of merit will be awarded to the best educational exhibit in the Educational Classification (this includes exhibits by national organizations)

The Committee on Awards will be composed of five persons. It will make the decisions on Wednesday, June 12.

The names of the members of the Committee on Awards will not be available until after the decisions have been published.



Each succeeding year has seen the technical exhibits at the A M A Convention take on more and more of an educational character. This year the Technical Exposition will reach a high point not only in number of exhibitors but in the quality of the exhibits themselves. They will represent practically every type of article or service needed by the physician in the practice of medicine. They will range all the way from small exhibits of single, highly specialized articles to motion pictures in separate projection rooms and a special showing of one of the most famous exhibits from the Chicago Century of Progress.

The vast size of the Atlantic City Auditorium will make the technical exhibits unusually convenient this year. These will be laid out on one floor along a uniform system of aisles and cross aisles. More important still, the scientific exhibits will also be located on the same floor, being merely separated from the Technical Exposition by a partition. Also all of the section meet-

ings and other sessions are to be accommodated in the Auditorium.

Visiting physicians will therefore find it unusually convenient to take full advantage of the Technical Exposition. Spare time before and after meetings each day can be spent with pleasure and profit by going about in a leisurely manner and getting acquainted with the firms represented, the products exhibited, and the men in charge. In each booth the physician will almost invariably meet one or more representatives well qualified to discuss the subject in which they are particularly interested.

The Exposition will be open from 8 30 a m to 6 p m each day. It will close Friday at noon. On the following pages will be found advance information as to what each individual firm will feature in its exhibit.

WILL C BRAUN,  
Superintendent of Exhibits

## APPARATUS AND INSTRUMENTS

### Air-Way Surgical Belts

Specially trained representatives of the Air-Way Surgical Company will be on hand in Booth 232 to give detailed information regarding their corrective garments on exhibition. These will include the improved line of Air-Way Surgical Belts now embodying a new patented Pull and Uplift feature and also special surgical elastics and anchored laces.

### Fine Wood Furniture

The W D Allison Company manufacturers of physicians fine wooden furniture for more than fifty years will display two new suites the Directoire and the Moderne—both practical and beautifully designed. Their popular Metropolitan suite and the new improved Hanes rectal table will also be shown in Booths 162-163.



### New Line of Furniture

In Booth 178 the A S Aloe Company will display for the first time to the medical profession the new Contempora line

of wood furniture in genuine American walnut at unusually low prices. In Booth 132 they will show their entire general line of instruments apparatus and equipment including the new style Elliott machine and Stillé-Scanlon rustless steel instruments at a special discount of 25 per cent.

### Portable Humidifiers

Portable humidifiers that evaporate approximately a pint and a half of water an hour and require only the equivalent of a 25-watt electric light bulb to operate will be exhibited by the American Gas Accumulator Company in Booth 216. If you are interested in humidifiers for home office or hospital use you are invited to pay special attention to this exhibit.

### Bausch & Lomb Microscopes

You are invited to inspect the Model HA Physicians and Medical Students Microscope to be shown by the Bausch & Lomb Optical Co. in Booth 149. This instrument is superior for laboratory use because of its weight balance and stability. The exhibit will also include hemocytometers, colorimeters, micro-



### Newest Baumanometer

The W A. Baum Company Booth 96 will have on display the latest of a distinguished line of Baumanometers—their new '300 Model' Cased in Duralumin. It is not only smaller in outside dimensions but actually roomier within. It carries the same exclusive Baumanometer guaranty of perpetual accuracy and against glass breakage as do all life-time Baumanometers. See this sturdy instrument.

### Manufacturing Demonstrations

Becton Dickinson & Company will give two manufacturing demonstrations—one on the making of hypodermic syringes, the other on clinical thermometers. They will also show their new products including the B-D Diabetic Bakelite Pocket Case, the B-D Venous Pressure Outfit with Luer-Lok connections, Asepto Syringe with new Bakelite plug, Improved Rusher Automatic Injector and the three B-D Fever Thermometers devised for patients' convenience. Booths 12, 43, 41, 45 and 46.

### Betz Moderne Steel Furniture

The new Straight Line Steel Office Furniture in the Frank S. Betz Company's exhibit in Booth 117 will be well worth seeing. Also on display here will be the



A GLASS BLOWER SHOWS HOW FINE THERMOMETERS ARE MADE

new Betz Electric Centrifuges and a sample line of our surgical instruments equipment, supplies and specialties

### Electrocardiographs

The exhibit in Booth 131 of the Cambridge Instrument Company Inc. pioneer manufacturers of electrocardiographs, will be of great interest to heart specialists who are invited to inspect the latest Mobile and Portable All-Electric Rindie model Electrocardiographs and important accessories, and also a new portable Stethograph for amplifying and recording heart sounds. A combined Electrocardiograph-Stethograph will be demonstrated.

### To Show Tele-Vaginalite

The latest developments in electrically lighted instruments will be exhibited by the Cameron Surgical Specialty Company in Booth 87. Included will be the Tele-Vaginalite (Micro-Colposcope), the new full vision, proximally lighted Bronchoscope and 5-in-1 Surgimold Ophthalmoscope and also the Cameron Cauterodyne in a new and inexpensive model for cutting and coagulating in office and ambulatory surgery.

### Castle to Show Sterilizers

In the Wilmet Castle Company's exhibit in Booth 168, will be displayed full automatic, cast-in bronze Castle Sterilizers, Castle Autoclaves for offices, clinics and hospitals, Castle Lights, both major lights and spot lights, and the Humidifier which provides automatic humidity and temperature for infant care.

### Respiration Apparatus

You are invited to inspect the very latest in respiration apparatus in Booth 34, where Warren E. Collins Inc. will exhibit the newest models of the Drinker-Collins Respirator. The Improved Benedict-Roth Metabolism Apparatus will also be shown.



### Sutures for Special Purposes

Davis & Geck Inc. will show their complete line of sterile surgical sutures, including special purpose sutures with Atraumatic needles affixed for tonsil, thyroid, obstetrical, circumcision, plastic eye, ureteral and renal work. See the films from their Library of Surgical Motion Pictures to which many new subjects have been added since last year. Booth 129.

### Skeletal Traction

If you are interested in fracture equipment see the DePuy Reducing Frame and Splint for lower leg fractures, and the special stainless steel Hirschner wire and Steinman pins which are guaranteed not to break. The DePuy Manufacturing Company will exhibit these in Booths 124 and 233.



### DeVilbiss Nasal Guard

A prominent feature of the exhibit of the DeVilbiss Company, makers of medicinal atomizers will be the recently developed DeVilbiss Nasal Guard which prevents any excess pressure in the nasal passages during prescribed self-treatment. You are invited to inspect the complete DeVilbiss line of atomizers and vaporizers for both home and professional use, in Booth 151.

### Innovations in Thermometers

The latest Elscle developments in syringes, needles and clinical thermometers will be on display in Booth 7. A representative of Elscle & Company will gladly show you the ingenious new needle lock for syringes and the new green plunger. The clinical thermometers will show innovations adding to their utility.

### Recent Progress in Diagnosis

Many new features and developments that have taken place in electrically lighted instruments will be shown by the Electro Surgical Instrument Company in Booth 171. Do not fail to see the new Israel Bronchoscopes, the new Bule Proctoscope, the Brasch Bumpus Resectoscope, the Russell Lonsfaringoscopy and Nongag Glottoscopy and newer types of the Holmes Nasopharyngoscope and of Antroscopes and other instruments.

### To Demonstrate Respirators

Because of the newly recognized importance of equipment for carrying patients through periods of impaired respiration physicians will find the J. H. Emerson exhibit of great interest. In Booth 35 they may see demonstrations of the standard Diaphragm Respirators and Oxygen Tents, and also of smaller instruments of definite interest to the practitioner.

### Expert on Office Planning

The Enochs Manufacturing Co. will display a walnut suite of their popular Modern style treatment room equipment and some representative pieces of other matched suites. An expert on physicians office arrangement and decoration will be in attendance in Booth 68 to confer with doctors on any office planning problems.



### A Stomach Camera

The Gastro-Phot, the tiny camera for direct photographing of the interior of the stomach will have its first showing by the Gastro Phot Laboratories in Booth 170. A large number of stomach photographs will be on display and competent men will be in attendance to give complete information regarding this ingenious instrument.



### Walnut Table for General Use

The Hamilton Manufacturing Company will show a new walnut examining and treatment table with all the mechanical advantages of the best adjustable steel tables. The removable pan adjustable cushions, and top which can be raised in a horizontal position for examining and treating small children are features to be noted. Booths 140 and 141.

### To Demonstrate Kinetometer

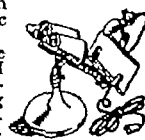
The Heidebrink Company pioneer in the field of anesthesia equipment designed for the carbon dioxide absorption method of anesthesia, has been distributing for the past year its latest improved equipment, the Kinetometer. This will be displayed and demonstrated in Booth 152 with other late models of oxygen therapy equipment.

### New White Drybak Adhesive

In Booth 75 Johnson & Johnson will introduce a new white Drybak Adhesive Plaster as a companion to the well known sun-tan Drybak. The new white Drybak is soft and flexible, easy to apply and will not stiffen. Well informed representatives will be prepared to give interested physicians full information on Johnson & Johnson products.

### New Keystone Telebinocular

Included among the new developments in orthoptic equipment to be shown by the Stereophthalmic Division of the Keystone View Company in Booth 76, will be office and clinic units, diagnostic units, prescription units for home orthoptic training, school and industrial vision survey units, malingering tests, and complete standard anatomical stereograms.



### Improved Traction Splint

In Booth 231, the Little Manufacturing Company makers of traction splints, will demonstrate an improved traction splint which definitely eliminates loss of traction and provides means for applying antero-posterior and lateral traction at any point desired. Mechanical means prevent the patient from getting the leg out of alignment and frequent adjustments are unnecessary. See it demonstrated!

## List of Exhibitors

FIRM NAME	AISLE	SPACE NO.
Abbott Labs. North Chicago Ill.	D	77
Adlanco X Ray Corp. New York	H	179
Air Way Surg. Co. Cincinnati	AA	232
Allerga Products Co. Newton Mass.	H	183
Allison Co. W. D. Indianapolis	G	162-163
Aloe Co. A. S., St. Louis	F & H	132 & 178
A. M. A. Motion Picture		Room # 2
A. M. A. Periodicals and Books	I	213
Amer. Cystoscope Makers New York	C	66
Amer. Gas Accumulator Co., Elizabeth N. J.	AA	246
Amer. Hosp. Supply Corp. Chicago	D	95
Amer. Optical Co. Southbridge, Mass.	I	199-200-201
Amer. Seating Co. Grand Rapids Mich.	AA	229
Appleton Century Co. D., New York	F	127
Armour and Co. Chicago	E	118
Aznoc's Natl. Phys. Exchange, Chicago	H	188

FIRM NAME	AISLE	SPACE NO.
Bard Inc. C. R., New York	AA	227
Baum Co. W. A., New York	D	96
Bausch & Lomb Opt. Co. Rochester N. Y.	G	149
Becton Dickinson & Co. Rutherford N. J.	B	42-43-44-45-46
Beech Nut Packing Co. Canajoharie N. Y.	I	209
Bell & Howell Co., Chicago	AA	249
Betz Co. F. S. Hammond Ind.	G	147
Bilhuber Knoll Corp. Jersey City	H	180
Bi Valve Adapter Co., New York	AA	253
Blakiston's Son & Co. Philadelphia	E	117
Bovril of America Inc., Camden N. J.	A	23
Burdick Corp. The Milton Wis.	C	56-57
Calco Chemical Co., Bound Brook N. J.	H	174
Cambridge Instr. Co. New York	F	134
Cameron Surg. Specialty Co. Chicago	D	87
Camp & Co., S. H., Jackson Mich.	E	119



## Steel Surgical Instruments

In Booth 55 Charles Lentz & Sons, first makers of stainless steel surgical instruments in America, will show their NoCo Steel Cutting Instruments which retain a keen edge for hundreds of operations and which also defy the action of iodine, bi-chloride of mercury nitric acid lemon salt solution and other reagents used by physicians and surgeons

**LENTZ NOCO STEEL**

## For Eye, Ear, Nose and Throat

The ophthalmologist will be interested in the latest model training apparatus the Synoptophore, the new Hamblin Stereoscopic Charts and the Berens Ergograph, to be featured by the E. B. Meyrowitz Surgical Instruments Co. in Booth 85. Of great interest to the otolaryngologist will be the Ruskin Ear Set, the Watson Williams Set the Iodine Vaporizer, and a combination laryngeal mirror-spray

## New Jones Motor-Basal



You may have your own metabolic rate shown in graphic form by the Middle-west Instrument Company, Booth 92. See the demonstration of the new All-Electric Jones Motor-Basal both hospital and portable models with inkless recording electric clock, wireless spirometer and direct reading technic

## New Bone Engines

Among the newer items in V Mueller & Company's large display of surgical instruments and equipment in Booths 111 and 112, will be recent developments in both large and small bone engines the Furniss Intestinal Anastomosis Clamp, and new eye lamps by Dr. W. E. Shaban. The Wells' Iodine Vaporizer and DeBakey-Gillentine Blood Transfusion set will also be shown



## Modern Office Sterilizers

In Booth 70 the Pelton & Crane Company will have a complete exhibit of modern office sterilizers, including the new Duplex Special model built-in type sterilizers, and the Pelton Automatic Autoclave for office use. You are also invited to inspect the new Pelton Indirect Flood Light, the new operating light with variable intensity and indirect illumination directly projected

## See Instruments Demonstrated

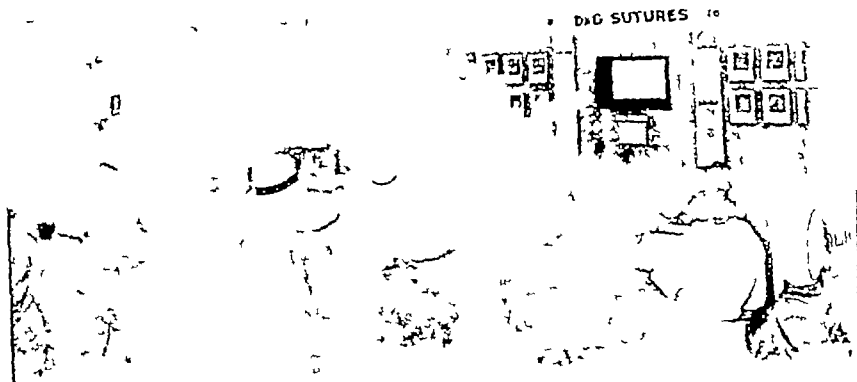
Every doctor, regardless of his branch of medicine, will find a visit to Booth 54 worth while. Here representatives of the Penn Surgical Manufacturing Company, Inc., will be glad to demonstrate many new instruments and new apparatus without any obligation on the part of visitors

## New Diagnostic Unit

The Philadelphia Surgical Instrument Company will exhibit in Booth 210 the new combination treatment and office diagnostic unit which provides suction and pressure pump, cautery and light transformers with the necessary cautery and light equipment and bottles and atomizers—all in one unit at an exceptionally low price

## Sterilizers—Large and Small

A complete line of sterilizers from the small portable type to the heavy duty ward



SUTURING TECHNIQS SHOWN IN MOVING PICTURES

size all completely automatic in operation will be shown by the Prometheus Electric Corporation in Booth 28 and cabinet models in the new chip-proof enamel will be demonstrated. There will also be demonstrations of a small model food conveyor and of operating room lights of emergency and spot light types with many revolutionary features

## New Thoracic Instruments

Specialists in eye ear nose and throat work in thoracic surgery and in bronchoscopy and esophagoscopy will find much of interest in the exhibit of George P. Pilling & Son Co. in Booth 114. The new thoracic instruments and both portable and stationary apparatus for pneumothorax together with bronchoscopic instruments identical with those used in the Chevalier Jackson Clinics will be on display



## New Perimeter for Oculists

In Booth 248 the J. E. Reid Instrument Company will show for the first time the Pascal Perimeter a new development of this type of instrument. You are invited to see it demonstrated as it is used in making both perimetric and campimetric examinations while the patient remains in the original position. Among other instruments of interest to the eye ear nose and throat specialists will be the May Ophthalmoscope with illuminated numerals

## Metabolism Equipment

The Sanborn Company invites you to visit Booth 102 where the latest metabolism and electrocardiograph equipment will be exhibited. Be sure to stop in to see the new electric, inkless Sanborn Motor Graphic Metabolism Test—the new low priced Sanborn Electric-Portocardiograph with Redux the resistance-reducing electrode paste developed and perfected by Sanborn

## Surgeons' Fine Gloves

Seamless Standard Surgeons' Gloves will be exhibited by the Seamless Rubber Company in Booth 106 where you may examine them and see for yourself how their anatomical shape greatly reduces finger fatigue. Also note how thin and tactile they are although they stand repeated sterilization without losing their life

## Late Model Operating Table

The latest model Scanlon-Balfour operating table A5a, which provides an extensive range of adjustments, the Operax Multi-beam equipped with swivel off-set assembly and the new type Scanlon-Morris high pressure water sterilizers will be features of the Scanlon-Morris Company's exhibit of surgical equipment in Booth 31. Scanlon bent sterilized surgical sutures will be demonstrated



## To Show Pivot Leg Splint

Among the many new splints and future appliances shown by the J. R. Brandt Manufacturing Company will be the Pivot Leg Splint—the original rocking splint. Equipped with scale and traction, it assures a perfectly immobile fracture at all times, eliminates pain, muscle spasm and gives quicker red stop in at Booth 70 to inspect this

## Prescribing Technic for L

The Sight Light Corporation will demonstrate in Booth 250 of the prescribing technic developed for the thalimologist. Examine the simple ment recommended. See reports of suits obtained by following the of lighting established by the famous scientists in this field. Learn hand the facts about the contribution human welfare that improvement in conditions invariably produce

## Pneumothorax Apparatus

Visit Booth 108 for a demonstration of the new portable and easy to use Davis Pneumothorax A



J. Sklar Manus also invites you to inspect line of suction and pumps, the new Ralks matic Blood Transfusions Umbilical Clamp (illustrated), and a line of stainless steel chrome plated surgical instruments

## Sonotone Hearing Aids

Sonotone 35 the latest hearing individual use developed by the Laboratories will be shown by the tone Corporation in Booth 126. are invited to note its improvement previous models in volume

## List of Exhibitors—Continued

FIRM NAME	aisle	SPACE NO	FIRM NAME	aisle	SPA
Canava Cigar Co. Chicago	AA	235	Davis & Geck, Inc. Brooklyn	F	
Carnation Milk Sales Co. Milwaukee	A	26	DePuy Mfg. Co. Warsaw Ind	F & AA	1
Cash Inc. J & J So. Norwalk, Conn	A	25	DeVilbiss Co. Toledo	G	
Castle Co. Wmott Rochester N Y	H	168	Dictograph Products Co. New York	AA	
Chevrolet Motor Co. Detroit	Room	2	Domore Chair Co. Elkhart, Ind	G	
Church & Dwight Co. New York	D	91	Dry Milk Co. New York	D	
Cincinnati Scientific Co. Cincinnati	H	187	Dubin Labs Inc., H E. New York	H	
Clapp Inc., Harold H. Rochester N Y	G	146	Duke Labs Inc. Long Island City	I	
Collins Inc., Warren E. Poston	B	34	DuPont Film Mfg Corp. New York	B	
Complex Oscillator Corp. New York	C	66	Eastman Kodak Co. Rochester N Y	B	
Coop Med. Adv. Bar	I	213	Eusele & Co. Nashville	A	
Corn Products Refining Co. New York	F	122	Electro Surg Instr Co. Rochester N Y	H	
Cutter Labs. Berkeley Calif	Adj. Ret	219	Electro Therapy Prods Corp. Los Angeles	H	
Davis Rose & Co. Boston	G	148	Emerson J. H. Cambridge Mass	B	
Davis Co. F A., Philadelphia	B	50	Enochs Mfg Co. Indianapolis	C	
Davis Co. R. B., Hoboken	D	97	Fischer & Co. H G Chicago	G	

## THE TECHNICAL EXPOSITION



A GLASS BLOWER SHOWS HOW FINE THERMOMETERS ARE MADE

### Electrocardiographs

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### Sutures for Special Purposes

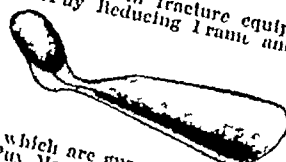
Davis & Geck, Inc. will show their complete line of sterile surgical sutures including special purpose sutures with Atraumatic needles adapted for tonsil, thyroid, eye, ureteral and renal work. The firm from their library of Surgical Motion Pictures of which many new subjects have been added since last year. Booth 120



FIRM NAME  
Abbott Labs North Chicago Ill  
Adlanco X Ray Corp New York  
Air Way Surg Co Cincinnati  
Allergia Products Co Newton Mass  
Allison Co W D Indianapolis  
Aloe Co A S St Louis  
A M A Motion Picture  
A M A Periodicals and Books  
Amer Cystoscope Makers New York  
Amer Gas Accumulator Co Elizabeth N J  
Amer Hosp Supply Corp Chicago  
Amer Optical Co Southbridge Mass  
Appleton Century Co Grand Rapids Mich  
Arnour and Co Chicago  
Iznoe & Natl Phys Exchange Chicago

If you are interested in fracture equipment see the DePuy Reducing Frame and Splint for lower leg fractures, and the special stainless steel Hirschner wire and Stehman pins which are guaranteed not to break. The DePuy Manufacturing Company will exhibit these in Booths 124 and 233.

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SPACE No	FIRM NAME
77	Bard Inc C R New York
179	Baum Co W A New York
232	Bausch & Lomb Opt. Co Rochester N Y
183	Becton Dickinson & Co Rutherford N J
162-163	Beech Nut Packing Co Canajoharie N Y
132 & 178	Bell & Howell Co Chicago
Room # 2	Beitz Co F S Hammond Ind
213	Bihuber Knoll Corp Jersey City
66	Bl Valve Adapter Co New York
246	Blakiston's Son & Co Philadelphia
95	Borisl of America Inc Camden N J
199-200-201	Burdick Corp The Milton Wis
229	Calco Chemical Co Bound Brook N J
127	Cambridge Instr Co New York
118	Cameron Surg Specialty Co Chicago
188	Camp & Co S H Jackson Mich

SPACE No	FIRM NAME
227	AA
96	D
149	G
42-43-44-45-46	B
209	I
249	AA
147	G
180	H
253	AA
117	E
23	A
56-57	C
174	H
134	D
87	E
119	E

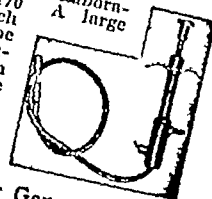
### Expert on Office Planning

The Enoch's Manufacturing Co will display a walnut suite of their popular Modern style treatment room equipment and some representative pieces of other matched suites. An expert on physician's office arrangement and decoration will be in attendance in Booth 68 to confer with doctors on any office planning problems.



### A Stomach Camera

The Gastro Photor the tiny camera for direct photographing of the interior of the stomach will have its first showing by the Gastro-Photor Laboratories in Booth 170. A large number of stomach photographs will be on display and competent men will be in attendance to give complete information regarding this ingenious instrument.



### Walnut Table for General Use

The Hamilton Manufacturing Company will show a new walnut examining and treatment table with all the mechanical advantages of the best adjustable tables. The removable pan adjustable cushions, and top which can be raised in a horizontal position for examining and treating small children are features to be noted. Booths 110 and 111.

### To Demonstrate Kinetometer

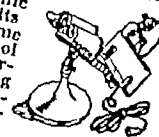
The Heldbrink Company pioneer in the field of anesthesia equipment designed for the carbon dioxide absorption method of anesthesia, has been distributing for the past year its latest improved equipment, and demonstrated in Booth 152 with other models of oxygen therapy equipment.

### New White Drybak Adhesive

In Booth 75 Johnson & Johnson will introduce a new white Drybak Adhesive plaster as a companion to the well known Is soft and flexible easy to apply and will not stiffen. Well informed representatives will be prepared to give interested physicians full information on Johnson & Johnson products.

### New Keystone Telebinocular

Included among the new developments in orthoptic equipment to be shown by the View Company Division of the Keystone View Company in Booth 70 will be office and clinic units, diagnostic units, orthoptic training units for home and industrial vision school, very units, malingering tests, and complete standard anatomical stereograms.



### Improved Traction Splint

In Booth 231 the Little Manufacturing Company makers of traction splints will demonstrate an improved traction splint which definitely eliminates loss of traction and provides means for applying anterior and lateral traction at any point desired. Mechanical means prevent the patient from getting the leg out of alignment and frequent adjustments are unnecessary. See it demonstrated!

### Steel Surgical Instruments

In Booth 55 Charles Lentz & Sons, first makers of stainless steel surgical instruments in America, will show their NoCo



Steel Cutting Instruments which retain a keen edge for hundreds of operations, and which also defy the action of iodine, bichloride of mercury, nitric acid, lemon salt solution and other reagents used by physicians and surgeons

### For Eye, Ear, Nose and Throat

The ophthalmologist will be interested in the latest model training apparatus, the Synoptophore, the new Hamblin Stereoscopic Charts and the Berens Ergograph to be featured by the L. B. Meyowitz Surgical Instruments Co. in Booth 85. Of great interest to the otolaryngologist will be the Ruskin Ear Set, the Watson-Williams Set the Iodine Vaporizer, and a combination laryngeal mirror-spray

### New Jones Motor-Basal



You may have your own metabolic rate shown in graphic form by the Middlewest Instrument Company, Booth 92. See the demonstration of the new All-Electric Jones Motor-Basal, both hospital and portable models, with inkless recording electric clock, waterless spirometer and direct reading technic

### New Bone Engines

Among the newer items in V Mueller & Company's large display of surgical instruments and equipment in Booths 111 and 112, will be recent developments in both large and small bone engines the Furniss Intestinal Anastomosis Clamp, and new eye lamps by Dr. W. E. Shahan. The Wells' Iodine Vaporizer and DeBakey-Gillentine Blood Transfusion set will also be shown



### Modern Office Sterilizers

In Booth 78 the Pelton & Crane Company will have a complete exhibit of modern office sterilizers including the new Duplex Special model built in type sterilizers, and the Pelton Automatic Autoclave for office use. You are also invited to inspect the new Pelton Indirect Flood Light, the new operating light with variable intensity and indirect illumination directly projected

### See Instruments Demonstrated

Every doctor regardless of his branch of medicine will find a visit to Booth 54 well while. Here representatives of the Penn Surgical Manufacturing Company, Inc., will be glad to demonstrate many new instruments and new apparatus without any obligation on the part of visitors

### New Diagnostic Unit

The Philadelphia Surgical Instrument Company will exhibit in Booth 210 the new combination treatment and office diagnostic unit which provides suction and pressure pump, cautery and light transformers with the necessary cautery and light equipment and bottles and atomizers—all in one unit at an exceptionally low price

### Sterilizers—Large and Small

A complete line of sterilizers from the small portable type to the heavy duty ward

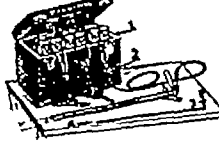


SUTURING TECHNIQS SHOWN IN MOVING PICTURES

size all completely automatic in operation will be shown by the Prometheus Electric Corporation in Booth 26 and cabinet models in the new chip-proof enamel will be demonstrated. There will also be demonstrations of a small model food conveyor and of operating room lights of emergency and spot light types with many revolutionary features

### New Thoracic Instruments

Specialists in eye ear nose and throat work, in thoracic surgery and in bronchoscopy and esophagoscopy will find much of interest in the exhibit of George P. Pilling & Son Co. in Booth 114. The new thoracic instruments and both portable and stationary apparatus for pneumothorax together with bronchoscopic instruments identical with those used in the Chevalier Jackson Clinics will be on display



### New Perimeter for Oculists

In Booth 248 the J. E. Reid Instrument Company will show for the first time the Pascal Perimeter a new development of this type of instrument. You are invited to see it demonstrated as it is used in making both perimetric and campimetric examinations while the patient remains in the original position. Among other instruments of interest to the eye ear nose and throat specialists will be the May Ophthalmoscope with illuminated numerals

### Metabolism Equipment

The Sanborn Company invites you to visit Booth 102 where the latest metabolism and electrocardiograph equipment will be exhibited. Be sure to stop in to see the new electric inkless Sanborn Motor-Gratic Metabolism Tester the new low priced Sanborn Electric-Portocardiograph with Redux the resistance-reducing electrode paste developed and perfected by Sanborn

### Surgeons' Fine Gloves

Seamless Standard Surgeons' Gloves will be exhibited by the Seamless Rubber Company in Booth 196, where you may examine them and see for yourself how their anatomical shape greatly reduces finger fatigue. Also note how thin and tactile they are, although they stand repeated sterilization without losing their life

### Late Model Operating Table

The latest model Scanlon-Balfour operating table, A5a, which provides an extensive range of adjustments, the Operav Multi-beam equipped with swivel offset assembly and the new type Scanlon-Morris high pressure water sterilizers will be features of the Scanlon-Morris Company's exhibit of surgical equipment in Booth 31. Scanlon heat sterilized surgical sutures will be demonstrated



### To Show Pivot Leg Splint

Among the many new splints and fracture appliances shown by the J. R. Siebrandt Manufacturing Company will be the Pivot Leg Splint—the original rocking leg splint. Equipped with scale and spring traction, it assures a perfectly immobilized fracture at all times eliminates pain and muscle spasm, and gives quicker reduction. Stop in at Booth 79 to inspect this splint.

### Prescribing Technic for Light

The Sight Light Corporation will give a demonstration in Booth 250 of the light prescribing technic developed for the ophthalmologist. Examine the simple equipment recommended. See reports of the results obtained by following the principles of lighting established by the researches of famous scientists in this field. Learn firsthand the facts about the contributions to human welfare that improvement in seeing conditions invariably produce

### Pneumothorax Apparatus

Visit Booth 108 for a demonstration of the new portable and easy to use Davidson's Pneumothorax Apparatus. The



J. Sklar Manufacturing Co. also invites you to inspect its line of suction and pressure pumps, the new Ralks' Automatic Blood Transfuser, Kane's Umbilical Clamp (illustrated), and a complete line of stainless steel and chrome plated American made surgical instruments

### Sonotone Hearing Aids

Sonotone 35 the latest hearing aid for individual use developed by the Sonotone Laboratories, will be shown by the Sonotone Corporation in Booth 126. Visitors are invited to note its improvement over previous models in volume, clarity, natu-

## List of Exhibitors—Continued

FIRM NAME	aisle	SPACE No	FIRM NAME	aisle	SPACE No
Canava Cigar Co Chicago	AA	225	Davis & Geck, Inc, Brooklyn	F	129
Carnation Milk Sales Co, Milwaukee	A	5-6	DePuy Mfg Co, Warsaw, Ind	F & AA	124
Cash Inc., J & J So Norwalk, Conn	A	25	DeVilbiss Co, Toledo	G	151
Castle Co Wilmet Rochester N Y	H	168	Dictograph Products Co, New York	AA	230
Chevrolet Motor Co, Detroit	Room 23	168	Domore Chair Co, Elkhart, Ind	G	157
Church & Dwight Co, New York		91	Dry Milk Co, New York	D	88
Cincinnati Scientific Co, Cincinnati	H	187	Dubin Labs Inc, H E, New York	H	176
Clapp Inc, Harold H, Rochester N Y	G	146	Duke Labs Inc, Long Island City	I	197
Collins Inc, Warren E, Boston	B	34	DuPont Film Mfg Corp, New York	B	40
Complex Oscillator Corp, New York	C	66	Eastman Kodak Co, Rochester N Y	B	51
Coop Med Adv, Bur	I	213	Eisels & Co, Nashville	A	7
Corn Products Refining Co, New York	F	122	Electro Surg Instr Co, Rochester N Y	H	171
Cutter Labs, Berkeley, Calif	Adj Reg	219	Electro Therapy Prods Corp, Los Angeles	H	182
Davies Ross & Co, Boston	G	148	Emerson J H, Cambridge, Mass	B	35
Davis Co, F A, Philadelphia	D	50	Enochs Mfg Co, Indianapolis	C	68
Davis Co, R B, Hoboken	D	97	Fischer & Co, H G, Chicago	G	166

ralness of reproduction and distance pick-up, as well as in size and appearance. Another advance to be shown is in the Lieber Oscillator, now available in high, medium and low pitch.

### Suction and Pressure Outfits

For your inspection, C M Sorensen Company will have on display in Booth 71 several very interesting new models and combinations of Suction and Pressure Outfits, with their allied accessories for tonsil irrigation, coagulation and desiccation where these are indicated in the treatment of the ear, nose and throat.

### Scientific Optical Instruments

The Spencer Lens Company Booth 159 will show microscopes with the new low fine adjustment, and binoculars featuring the convenient converging inclinoculars. The Bright-Line Haemacytometers will be of particular interest. And other instruments on display will include new microscope lamps for research work, microtomes and photo micrographic cameras with side focussing telescope to insure easy and accurate focussing on the ground glass and plate.

### Desk Model Tycos

The Taylor Instrument Companies will feature their new desk model Tycos Sphygmomanometer finished in black and trimmed with chromium. You are invited to inspect this easily read thermometer which has no mercury to keep clean and which never requires testing. Booth 186

*Taylor*

### New Diagnostic Instruments

In Booth 12 will be a display of all the new developments in the diagnostic field originated by the Welch Allyn Company. It will include their ophthalmoscope with illuminated dial new transilluminators several new types of laryngoscopes urethrosopes and Montague rectal instruments. Pitman pharyngoscopes dilators and accessories nasopharyngoscopes and retinoscopes.

### New Zeiss Equipment

In addition to their well known Microscopes, Photomicrographic and Projection accessories Carl Zeiss Inc., will exhibit a collection of Electro-Optical Instruments, such as Wolf-Schindler Flexible Gastroscope, Henning Oesophagoscope, and Laparo-Thoracoscope. Their display in Booth 142 will also include a new model Colposcope, ophthalmic instruments, Pulfrich Photometer Refractometers and Polarimeters.

### Modern Fracture Equipment

The Zimmer Manufacturing Company's exhibit in Booth 81 will be headquarters for fracture apparatus of the most modern type. You are invited to inspect the bone instruments and reduction apparatus of latest design which will be on display.

## BOOKS

### A M A Publications

In Booth 213 the American Medical Association will display its official periodicals and books, which you are invited to examine without any obligation. You are also welcome to stop at this booth and secure a catalog of the A.M.A. publications for future reference.



MAKING GOOD USE OF A GOOD OPPORTUNITY

### Important Revision of Osler

The forthcoming revision of Osler's Principles and Practice of Medicine by Thomas McCrone will be a feature of the D Appleton-Century Company exhibit in Booth 127. In addition to their standard line of medical literature they will show The Practitioner's Library of Medicine and Surgery, including the volumes on pediatrics and therapeutics just published and other new works of importance.

### Blakiston's Publications

In the showing of their latest publications in Booth 117, P Blakiston's Son & Company Inc. will direct attention to such new editions as Gould's "Medical Dictionary," Hughes-Gordon's "Practice of Medicine," Wolff's "Pathology of the Eye," Duke-Elder's "Refraction," Lawrence's "Diabetic Life," Springstun's "Doctors and Jurists" and "Recent Advance" volumes on Allergy, Endocrinology, Pathology, Ophthalmology, Neurology and Medicine.

### State Medical Journals

You are invited to visit Booth 213 where an electric display will point out the locations of the 32 official state medical journals which conform to the advertising standards of the American Medical Association. They are represented by the Cooperative Medical Advertising Bureau Chicago.

### "Cyclopedia of Medicine"

The newly completed "Cyclopedia of Medicine" in 12 large volumes and Desk Index will be an outstanding feature of the F A. Davis Company's exhibit in Booth 50. "Clinical Tuberculosis" by Benjamin Goldberg and 33 other recognized authorities, Polevski's "The Heart Visible," new revised editions of Loewenberg's "Diagnostics of Internal Medicine" and Kennedy's "Practical Surgery of the Abdominal and Pelvic Regions," Dimmitt's new book on "Clinical Laboratory Methods," and many other works will be shown.

### To Show Influence of HYGEIA

HYGEIA the Health Magazine, published by the American Medical Association for the layman will have an interesting exhibit in Booth 213 illustrating its influence in the home, the school, the library and the community. A series of HYGEIA articles will be shown on the screen to demonstrate to the visiting physicians how this magazine presents the point of view of the medical profession to the layman.

### Lea & Febiger Anniversary

In celebration of their 150th anniversary Lea & Febiger will show in Booth 109 "The American Journal of the Medical Sciences" published since 1820, and Gray's "Anatomy," published since 1859. Among their important new books shown will be Adair and Steglitz's "Obstetric Medicine," Clapp's "Cataract," Graham Singer and Ballou's "Thoracic Surgery," Duncan's "Diabetes" and new editions of well known works.

### Unusual New Books

In addition to new editions of well known texts and reference books the J B. Lippincott Company exhibit will include such unusual new books as Pfaunder and Schlossmann's "Diseases of Children," Peham and Amreich's "Operative Gynecology," Kirschner and Ravdin's "Operative Surgery," Barker's "Treatment of the Commoner Diseases," Barhorka's "Treatment by Diet," Goldthwait's "Body Mechanics" and Moore's "Principles of Ethics." Booth 115.

### "Atlas Fundus Oculi"

One of the outstanding books of the year, Wilmer's "Atlas Fundus Oculi" will be displayed by The Macmillan Company in Booth 107, where physicians are invited to examine it at their leisure. Also on display here will be Christie's "Economic Problems of Medicine," one of the most timely books of vital interest to every physician.



### Mosby to Feature Journals

Visitors are invited to make their headquarters at the C. V. Mosby Company's booth, No. 121, where their full line of medical journals will be shown. New medical volumes shown for the first time will include (radwohl's "Clinical Laboratory Methods and Diagnostics" new editions of Clendenen's "Methods of Treatment," Macleod's "Physiology in Modern Medicine," Sutton's "Diseases of the Skin and Pottenger's "Tuberculosis in the Child and Adult".



ton's "Diseases of the Skin and Pottenger's "Tuberculosis in the Child and Adult".

## List of Exhibitors—Continued

FIRM NAME	aisle	SPACE NO	FIRM NAME	aisle	SPACE NO
Foley Mfg Co, Minneapolis	AA	242	Hawanan Pineapple Co, San Francisco	Adj Reg	220
Food Concentrates Inc, New York	A	67	Health Prods Corp, Newark	H	172
Foregger Co, The, New York	I	198	Heidbrink Co, The, Minneapolis	G	152
Form Publishing Co, New York	A	22	Heinz Co, H J, Pittsburgh	F	137
Fougere & Co, E, New York	F	139	High Tension Corp, New York	I	203
Gastro-Phot Lab, New York	H	170	Hoffmann La Roche Inc, Nutley N J	D	94
General Electric Co, Cleveland	A	14	Hygeia	I	213
General Electric, Ray Co., Chicago	B	28-29-30	Hynson Westcott & Dunning, Baltimore	B	33
General Food Sales Co, New York	A	27	Ideal Baby Shoe Co, Danvers Mass	A	19
General Mills Inc, Minneapolis	I	192	Ill Surg Supply Co, Chicago	AA	224
Gerber Products Co, Fremont, Mich	C	64	Inst. of Amer Fats & Oils, Washington D C	AA	245
Gevaert Co of America, Inc, New York	A	11	Irradiated Evap Milk, Inst, Chicago	I	212
Gilliland Labs, Marietta Pa.	D	83	Johnson & Co, Mead, Evansville, Ind	A H & I	184-185 214-
Hamilton Mfg Co, Two Rivers Wis	F	140-141	Johnson & Johnson, New Brunswick N J	I	(215 & Room 21
Hankins Rubber Co, Massillon Ohio	G	150	Keith Co, Geo E, Campello Mass	A	75
Hanovia Chem. & Mfg Co, Newark	D	90			20



A FOOD EXHIBIT WHERE THE "TEST OF TASTE" IS ENCOURAGED

## From the Oxford Press

Among the new books which the Oxford University Press invites you to inspect in Booth 84 will be: "X-Ray Interpretation" by Bull, fifth edition of "Applied Physiology" by Wright, "Diseases of the Chest" by Davidson, "Obstetrical and Gynaecological Pathology" by Teacher, "B.C.G. Vaccine" by Irvine, "Head Injuries" by Rawling and also the Oxford Loose Leaf Medicine and Oxford Monographs on Diagnosis and Treatment

## New "Pediatrics" by Brennemann

At Booth 88 full particulars may be obtained regarding W. F. Prior Company's 4-volume loose-leaf set on pediatrics which will be ready for delivery in the early fall. "Practice of Pediatrics," edited by Joseph F. Brennemann, like Prior's other loose-leaf sets will be kept continually up to date by periodic additions and revisions

## Saunders' New Books

W. B. Saunders Company in Booth 110, will show as part of their complete list of over 300 titles many new books and new editions. Of outstanding importance will be such new books as Human's "Urology," the 1935 Mayo Clinic Volume, Curtis' 3-volume work on "Obstetrics and Gynecology," Blackham's "Operative Surgery," Harrow and Sherwin's "Biochemistry," and Kitchens' entirely different kind of "Diagnoses."



## "Surgery, Gynecology and Obstetrics"

The official journal of the American College of Surgeons to be displayed by the Surgical Publishing Company in Booth 17, will include an extensive file of bound volumes. Visiting physicians and surgeons are invited to examine also the "International Abstract of Surgery," published as an integral part of "Surgery, Gynecology and Obstetrics," and "The Joy of Living," an autobiography of Dr. Franklin H. Martin, founder of the journal

## Thomas' New Books

Charles C. Thomas Publisher, invites you to see these new books in Booth 169. Gay's "Agents of Disease and Host Resistance," Kanner's "Child Psychiatry," Steindler's "Mechanics of Normal and Pathological Locomotion in Man," Spurling's "Practical Neurological Diagnosis,"

Craig's "Amoebiasis and Amoebic Dysentery," Corlett's "Medicine Men of the American Indian," Wiener's "Blood Groups and Blood Transfusion," Homan's "Textbook of Surgery," 3rd Ed., and Hitchcock's "Physical Chemistry for Students of Biology and Medicine" 2nd Ed.

## Showing Books in Preparation

All the latest publications of William Wood & Company and The Williams & Wilkins Company may be examined in Booth 187. Visitors can also secure advance information and examine specimen pages or sections of several important new textbooks now in preparation. Outstanding will be Beck's "Illustrated Obstetrics," Watson's "Gynecology," Harrison's "Roentgenology," and Best and Taylor's "Physiological Basis of Medical Practice."

## DIETETIC SUPPLIES

## Concentrated Beef Bouillon

Bovril, a highly concentrated beef extract combined with highly concentrated extract of fresh brewers' yeast will be demonstrated in Booth 23 by Bovril of America. Physicians may obtain descriptive literature concerning Bovril which has been prescribed by European physicians for nearly half a century and is accepted by the Committee on Foods



## Strained Baby Foods

Harold H. Clapp, Inc. first to introduce commercially prepared baby foods to the medical profession and first to use enamelled containers for strained baby foods, will show their products in Booth 148. Representatives will be glad to discuss progress made in this field

## Karo for Infant Feeding

Karo Syrup, Karo Powdered and U.S.P. Dextrose will be featured in Booth 122 by the Corn Products Refining Company. Physicians are cordially invited to visit this exhibit and get detailed information regarding the digestibility, energy value and composition of Karo, so widely used for infant feeding

## To Serve Cocomalt Again

Cocomalt, the food concentrate that increases the food value of milk and supplies a Vitamin D content in a particularly

delicious form will be exhibited by the R. B. Davis Company in Booth 97 where the Director of the Home Economics Department will be in charge. You are invited to visit this exhibit and enjoy some delicious Cocomalt. Interesting scientific data will also be available.

## For Prelacteal Feeding

To all physicians calling at Booth 88, the Dry Milk Company will give a handy obstetrical calendar. A staff of trained representatives will gladly furnish information concerning a successful prelacteal feeding procedure using National Beta Lactose the improved milk sugar. The new Special Dryco with added Vitamin B will be featured. Also exhibited will be Klim and Merrell-Soule Powdered Protein and Whole Lactic Acid Milk, as well as the Walker-Gordon Products and Borden Products

## Dried Ripe Bananas

You are invited to visit Booth 67 and see the display of Food Concentrates, Inc., manufacturers of dried ripe bananas in Melotose products for the diets of normal infants and children and those suffering from chronic intestinal indigestion (celiac disease) and other intestinal disturbances. Literature and samples as well as information regarding Melotose will be available

## Have a Cup of Sanka Coffee!

You are invited to have a cup of Sanka Coffee at the General Foods exhibit, Booth 27, and learn for yourself how good is this blend of the finest Central and South American coffees from which 97 per cent of the caffeine has been removed. If you register here you will receive a special gift package containing Sanka Coffee, D-Zerla Post's Bran products, and other foods of especial interest to physicians



## To Show Accepted Foods

In Booth 192, diagonally across the aisle from the A.M.A. booth General Mills, Inc. will display their products which have been awarded the seal of Acceptance of the Committee on Foods—Wheaties Gold Medal "Kitchen Tested" Flour, Bisquick, and Softasilk Cake Flour



## Gerber's New Process

In Booth 64 the Gerber Products Company will explain the new process of Shaker-Cooking of Gerber Strained Foods, a method by which the contents of the center of the can reach the temperature necessary for adequate sterilization in from one-fourth to one-third the time necessary by the usual canning procedure, resulting in a brighter color and better flavor of the foods. Booklets and reprints will be available, some for professional use some for distribution by physicians

## To Serve Pineapple Juice

Those who are interested in pure fruit juices as an important part of the daily diet will be interested in the exhibit of Dole Pineapple Juice by the Hawaiian Pineapple Company. Call at Booth 220 for a drink of natural golden juice of fresh, ripe pineapples and learn its value in the diet



## List of Exhibitors—Continued

FIRM NAME	AIISLE	SPACE NO	FIRM NAME	AIISLE	SPACE NO
Kelley Koett Mfg Co Covington Ky	G	154-155-156	Little Mfg Co Wadesboro N C	AA	231
Kellogg Co Battle Creek Mich	C	72	McCasky Register Co Alliance Ohio	I	204
Keystone View Co Meadville Pa	B	36	McIntire, Magee & Brown Philadelphia	A	18
Knox Gelatine Co Johnston N Y	D	89	McIntosh Electric Corp, Chicago	AA	240 241
Laboratories Chappel Bros Rockford, Ill.	B	48	McKesson Appliance Co Toledo	D	78
Lakeside Labs, Milwaukee	C	74	M & R Dietetic Labs Columbus Ohio	F	125
LaMoite Chemical Prods Co., Baltimore	F	135	MacGregor Instr Co Needham, Mass	AA	243
Larsen Co, The, Green Bay Wis	A	24	MacLett Labs Inc., Springfield Conn	A	21
Lea & Febiger Philadelphia	E	109	Macmillan Co, The New York	A	107
Lederle Labs, Inc. New York	C	143	Maize Jr Edw R Philadelphia	AA	239
Lentz & Sons Charles Philadelphia	C	55	Mallinckrodt Chem Works, St Louis	F	123
Lepel High Frequency Labs New York	C	53	Malthie Chem. Co Newark	E	120
Libel Flarsheim Co Cincinnati	AA	236	Maltine Co New York	C	58
Lilly and Co. Elh Indianapolis	E	99-100-101	Marcelle Laboratories Chicago	C	73
Linde Air Prods. Co New York	A	9-10	Medical Bureau Chicago	D	80
Lippincott Co J B Philadelphia	E	115	Medical Case History Bureau New York	E	113

### Heinz Nutritional Charts

H J Heinz Company creators of the famous 57 Varieties of Pure Foods, will display their Strained Foods Tomato Juice and Breakfast Cereals especially suited to infant feeding and diet therapy. You are invited to register at Booth 137 for the Heinz Nutritional Charts a set of reference charts invaluable to the doctor in diet planning.

### Display of Margarine

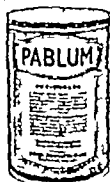
The Institute of American Fats and Oils invites you to visit Booth 245 and sample the delicious margarine made from domestic fats and oils. The Home Economics Director will explain its use instead of butter for the table and cooking and will distribute copies of the Institute's booklet "The Wholesomeness and Food Value of Margarine."

### Irradiated Evaporated Milk

If you have questions regarding the irradiation of evaporated milk—concerning development potency uses etc.—a nutritionist of the Irradiated Evaporated Milk Institute will be present in Booth 212 to answer them. An irradiating machine shown in operation will be an interesting feature of this exhibit.

### Motion Picture Auditorium

In Room 1 Mead Johnson and Company will show for the first time a number of interesting new motion pictures, including one on allergy and one on premature babies. Their products will be shown in Booths 184, 185, 214, and 215. One feature will be a series of photomicrographic studies of the porous Pabulum flake which is made possible by the thorough (patented) process of cooking.



### To Serve Kaffee Hag Coffee

Doctors are invited to visit the Kellogg Company's booth number 72 for a cup of refreshing Kaffee Hag Coffee. Bottle exhibits showing the stages in decaffeinating coffee will be on display and the process explained. Kellogg's All-Brain will also be exhibited and reprints of articles dealing with research on brain and on caffeine will be available.



### Preparation of Strained Vegetables

The Larsen Company packers of strained vegetables from the well known Green Bay Wisconsin district will have an exhibit in Booth 24. It will show a complete layout of the newest development in preparing strained vegetables—an all vacuum process which cooks strains and seals under vacuum to protect vitamins.



### For Infant Feeding

Since the adjustment of the diet for babies deprived of human milk must always be of interest to physicians, the Mellin's Food Company will show the basic principles of Mellin's Food, with the sincere belief that evidence accumulated from long experience fully justifies the recognition of the value of Mellin's Food as a modifier of milk in infant feeding. Booth 116.



LOOKING INTO A MILK IRRADIATING MACHINE

### A Completely Modified Milk

The M & R Dietetic Laboratories will have in their display Similac, a completely modified milk for infants deprived of breast feeding. Representatives will be on hand to explain the value of the low curd tension of Similac as it applies to infant feeding and also the special cases in which it has proved beneficial. They will also explain the value of Splintate the powdered spinach, as a mineral supplement. Booth 125.



### New Book on Infant Nutrition

Lactogen Hylac and Nestlé's Food will be displayed by Nestlé's Milk Products Inc. in Booth 190. A feature of this exhibit will be an attractive new book on Infant Nutrition, a copy of which will be available to every interested physician who visits the Nestlé booth.

### The Story of Pet Milk

All physicians at the Convention are cordially invited to call at the Pet Milk exhibit Booths 193 and 194 where they may see through special material and interviews with representatives what the Pet Milk Company has learned about making evaporated milk in the fifty years since it founded the industry.

### Tree-Ripened Fruit Juices in Cans

After years of research Dr P. Phillips Company has developed a process of canning tree-ripened, fully matured Orange Juice, Grapefruit Juice and Fancy Grapefruit Hearts and retaining to a high degree the vitamin C and other nutritional values of the fresh fruit. Visit Booth 49 and receive samples and information.



### Calcium Derived from Milk

Weytone formerly called PMC a dietary form of calcium entirely derived from milk will be shown in its "new" package and new pleasant, odorless taste, in Booth 59. The Protein Mineral Company will have a visual display of the entire manufacturing process surrounding Weytone as it goes through a cheese manufacturing plant. Visitors may taste this unique form of calcium and thus test its pleasing palatability.

### A Distinctive Carbohydrate

The Scientific Sugars Company, in Booth 217 will display Carotose a carbohydrate

syrup for supplementing milk in infant feeding which has introduced a new standard of bacterial purity in infant nutrition. An interesting demonstration will be made of a new product which is expected to be ready for announcement at this time.

### Smaco Carotene Products

The significant resemblance of S.M.A. to breast milk for infants deprived of that ideal food will be pointed out by the S.M.A. Corporation in Booth 82. The display will also include Smaco Carotene which may be used to provide Vitamin A activity in the same form in which it occurs in the natural human diet and uncomplicated by the presence of other vitamins.

### New Strained Cereal

You are invited to visit Booth 128 and examine the new product which Stokely Brothers and Company have recently added to their line of Stokely Strained Foods. This is Stokely Strained Cereal specially prepared from farina rolled oats, wheat germ, barley flour, whole milk, soy bean flour, yellow corn meal, tricalcium phosphate and yeast.



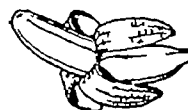
### Tomato Juice on Tap

Kemp's Sun-Ray'd Pure Tomato Juice will be dispensed free to thirsty doctors in Booth 175. The Sun-Ray'd Company will display a trophy won for the high quality Indiana tomatoes used, and will call attention to the patented process by which the juice is made to insure vitamin potency, non-separation, and smooth full-bodied flavor.



### Have a Fresh Banana Drink

You may enjoy a variety of delicious drinks made from fresh ripe bananas before your very eyes. If you will stop at the United Fruit Company's exhibit Booths 160 and 161. Printed recipe cards for these banana drinks will be distributed. In addition, you may secure the latest scientific data on the nutritive and therapeutic value of the banana based on extensive research.



### Value of California Prunes

Pamphlets and the latest literature containing full information on the nutritional

## List of Exhibitors—Continued

FIRM NAME	BOOTH
Medical Protective Co.	Wheaton Ill
Mellin's Food Co.	Boston
Mennen Co.	Newark
Merck & Co.	Rahway N J
Merrell Co.	The Wm S. Cincinnati
Meyrowitz Surg. Instrs.	Co. New York
Middlewest Instr. Co.	Chicago
Mosby Co.	The C. V. St. Louis
Mueller & Co.	V. Chicago
National Carbon Co.	Cleveland
National Drug Co.	Philadelphia
National Oil Prods. Co.	Harrison N J
Nestlé's Milk Foods.	Inc. New York
New York Med. Exchange	New York

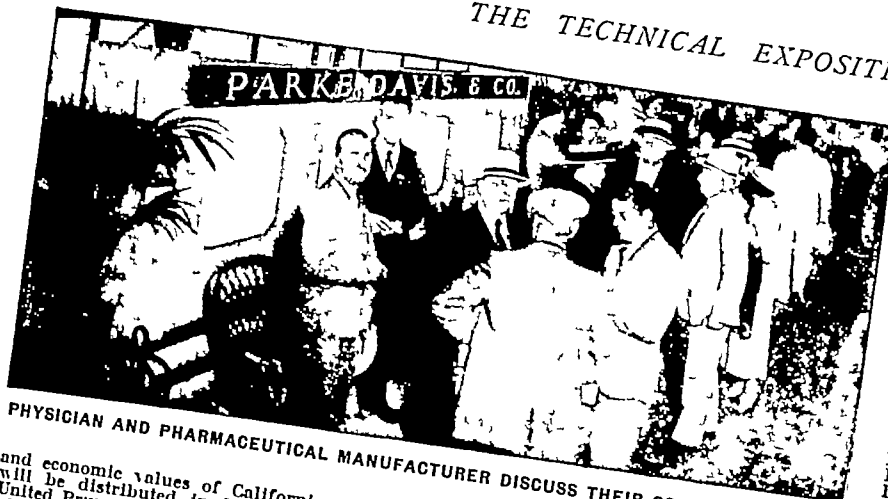
FIRM NAME	BOOTH
O'Leary, Inc.	Lydia New York
Oxford University Press	New York
Parke Davis & Co.	Detroit
Patch Co.	The E. L. Boston
Patterson Screen Co.	Towanda Pa
Pelton & Crane Co.	Detroit
Penn Surgical Mfg. Co.	Philadelphia
Pet Milk Co.	St. Louis
Petrolagar Labs.	Chicago
Pfanstiel Chem Co.	Waukegan Ill
Phila Surg. Instr. Co.	Philadelphia
Philip Morris & Co.	New York
Philips Metalix Corp.	
Phillips Co., Dr. P.	Orlando Fla.

BOOTH	SPACE NO.
G	165
D	84
F	130-131
B	38
I	202
C	70
C	54
I	193-194
C & I	52, 210 & Room 24
AA	251
I	So 1/2 of 210
B	39
G	144-145
B	49



# THE TECHNICAL EXPOSITION

1755



PHYSICIAN AND PHARMACEUTICAL MANUFACTURER DISCUSS THEIR COMMON PROBLEMS

and economic values of California prunes will be distributed in Booth 181 by the United Prune Growers of California. Much of the material in the pamphlets is based on the results of scientific research work completed during the past year and a half.

**Feeding Test Animals on Display**  
Vitamin Food Company Inc. and Vegex Inc. will display in Booth 8 animals with feeding charts showing the results of various milk and growth factor from a new vitamin and other feeding combinations in winter feeding.

## To Serve Vitamin D Milk



The Vitex Laboratories Booths 2, 3 and 4, will make and serve Vitex Vitamin D milk and will distribute reprints of clinical studies made with Vitex milks, and also of studies of Vitex Vitamin D milks in relation to dental caries control.

## Steenbock Irradiation Process

All irradiated Vitamin D food and medicinal products produced by means of the Steenbock ultraviolet irradiation process will be displayed by the Wisconsin Alumni Research Foundation in Booth 211. In attendance will be highly trained scientists able to answer your questions with respect to the need for and efficacy of Vitamin D as well as matters relating to the Foundation's policies. Interesting educational literature based on extensive laboratory and clinical research may be had.

## PHARMACEUTICALS AND BIOLOGICALS

### Demonstrations at Abbott Booth

Technical, scientific demonstrations on local anesthetics, antiseptics, ephedrine and halver oil will be given at the Abbott Laboratories Booth No. 77. These will show interesting physiological chemical and bacteriological action and facts which for the most part are not usually demonstrated except by trained technicians in a well equipped laboratory. Physicians are cordially invited to visit the booth and to ask questions.

### Organotherapeutic Preparations

The sources of glandular preparations surgical ligatures, etc., in meat animals will be depicted at the Armour and Company Booth.

pany exhibit Booth 118 Pituitary thyroid and many other pharmaceuticals will be shown with the glands from which the substance is extracted. The exhibit will emphasize the necessity for proper handling of the highly perishable raw material from which organotherapeutic preparations are made. Competent men will be in attendance.

## Possibilities of Dilaudid

At Booth 180 representatives of the Bilhuber-Knoll Corp. will be pleased to tell you about the morphine derivative Dilaudid, for the relief of pain and cough. Other products displayed will include Theocalcin, ment of congestive heart failure and angina pectoris. Brobilitate sedative and hypnotic Euresol for diseases of the skin and scalp, and Lenigallol for the various eczematous.



## For Trigeminal Neuralgia

The Calco Chemical Company extend a cordial invitation to visit their technical exhibit, Booth 174. It will feature Trichlorethylene in a form that offers important features of convenience and protection in trigeminal neuralgia. Cinchophen (Calco) and Aminoacetic Acid (Calco) recently found to exert a significant effect upon urinary and muscle creatine in myasthenia gravis progressive muscular dystrophy and pseudohypertrophic muscular dystrophy.

## Sodium Bicarbonate U S P

Church & Dwight Company who for 89 years have concentrated on producing pure sodium bicarbonate will exhibit in Booth 81 Here they will show those dependable old products that have stood the acid test of time since 1840—Arm & Hammer and Cow Brand Bicarbonate of Soda.



## Pernicious Anemia Preparations

Chappel Bros Laboratories of Rockford Ill. will exhibit their different types of Liver Extract and show newest charts and research in treatment of pernicious anemia with parenteral liver extract. They will also show slides demonstrating blood conditions.

## List of Exhibitors—Continued

aisle	SPACE No
F	133
A & H	15-16 & 189
E	114
D	86
A C	26
G	59
H	158
G	164
AA	177
	164
	248
Aisle A Lounge	195
I	82
E	102

FIRM NAME
Sandoz Chem Works New York
Saunders Co W B Philadelphia
Scanlan Morris Co Madison Wis.
Schering Corp Bloomfield, N J
Schiffelshin & Co New York
Scientific Glass Instr Co Northfield N J
Scientific Sugars Co Indianapolis
Seamless Rubber Co, New Haven
Searle & Co G D, Chicago
Sharp & Dohme Philadelphia
Stebrandt Mfg Co Kansas City Mo
Sight Light Corp New York
Skar Mfg Co J Brooklyn
Smith Kline & French Labs Philadelphia
Sonotone Corp New York

ditions in various types of anemia. Orders for professional samples and literature will be accepted at their Booth No. 48.

## Visit Davies, Rose Exhibit

When rambling among the scientific and commercial exhibits you will find it pleasant and profitable to stop at the Davies & Co Booth No. 148. Here their representatives Messrs Mansfield Poole and Fleming will be happy to receive you and to explain the merits of the preparations displayed.

## Dubin Aminophyllin

In Booth 176 the H. E. Dubin Laboratories will give daily demonstrations of the easy solubility of their product, Aminophyllin, so useful as a coronary vasodilator, myocardial stimulant and diuretic. Literature and complimentary samples will be available to interested physicians.

## Latest Uses for Lipiodol

A visit to the E. Fougere & Company Booth 139 will give you an excellent opportunity to acquaint yourself with the latest advances which have been made with Lipiodol both from a diagnostic and therapeutic standpoint. Competent representatives will be in attendance.

## Gilliland Biological Products

You are cordially invited to visit Booth 83 where the Gilliland Laboratories are displaying a complete assortment of biological products. The representative in charge will be pleased to explain some of the latest laboratory methods, as well as refined biologicals in which they specialize exclusively.

## How Cod Liver Oil Is Concentrated

White's Cod Liver Oil Concentrate Tablets will describe their manufacture and show reprints of articles giving clinical evidence of the vitamin stability and accurate developments emphasizing the therapeutic value of the unsaponifiable portion of cod liver oil will also be presented.

## Roche to Have New Display

The Hoffmann-La Roche preparations embodying the most recent advances in biochemistry and medicine will be featured in an entirely new exhibit constructed especially for this Convention. Among the favorites to be shown are Elixir Alurate, Alurate Tablets and Sodium Alurate. Scientific men from headquarters at Nutley, N. J., will be present at Booth 94.

## All About Mercurochrome

In Booth 33 Hynson Westcott & Dunning will emphasize the careful investigation and control which are behind their product Mercurochrome—the bacteriological standardization and pharmacological tests which are made as a final check. Competent members of the detail force will be in attendance.

## Blood Chemistry Outfits

If you are interested in applying blood and urine chemistry to your routine work, be sure to visit Booth 135 and learn about the simplified LaMotte Blood Chemistry Outfits. Chemists in charge will be glad to demonstrate the simplicity of the outfit, to discuss the application of the tests and to explain the research and care which have been exercised in developing these outfits.

aisle	SPACE No
F	126
E	110-111
B	31
AA	41
AA	228
Adj Reg	223
I	217
E	196
C	103
D	60-61-62-63
AA	79
E	250
D	108
F	85
	136

FIRM NAME
Phys Supply Co of Phila., Philadelphia
Pickering & Ray Corp. New York
Pilling & Son Co Philadelphia
Prior Co W F Hagerstown Md
Prometheus Electric Corp New York
Puritan Mineral Co New York
Radium Compressed Gas Corp Kansas City Mo
Radium Chem Co New York
Radon Co Inc. New York
Reid Instr Co, J E Philadelphia
Remington Typewriters
Riedel-Haen Inc. New York
S. M. A Corp Cleveland
Sanborn Co Cambridge Mass





MR ALI MENTARY TRACT IS THE STAR PERFORMER IN THIS MOVIE

### Ampoule Preparations

Their Council Accepted Ampoule preparations, particularly their ampoules of Dextrose (d Glucose) 50% Sodium Cacodylate and Calcium Chloride will be exhibited by Lakeside Laboratories, Inc. in Booth 74. Members of the research staff will be present to demonstrate the chemical, bacteriological and physiological methods used to insure the purity, sterility and safety of Lakeside products.



### Lederle Exhibits

Staphylococcus Toxoid and its application in staphylococcal infections will be featured at Booth No. 143 by Lederle Laboratories, Inc. The use of Solution Liver Extract Paracetal in pernicious anemia will be shown by charts and drawings. In addition a short moving picture will demonstrate the use of Liver Extract and give some high lights in the treatment of pneumonia. Other items will also be featured.

### Dioramas at Lilly Booths

Departments of Eli Lilly Laboratories engaged in the production of Iletin (Insulin, Lilly), the Amylase, Extralin, Merthiolate, Carbarsone etc., will be shown in three dimensions by six photographic dioramas. Among decorative features of the display will be life-size bas-reliefs of Aesculapius and Hygieia. Members of the medical staff will be in attendance to answer questions at Booths 99, 100 and 101.

### Calcreose and Creosote Therapy

The Maltbie Chemical Company extend a cordial invitation to visit their Booth, No. 120. Here questions relative to Calcreose and creosote therapy will be answered gladly. And, if you wish to leave your name and address, liberal samples will be mailed for clinical trial.

### New Crystalline Vitamin C

At Booth 216 Merck & Co. will show for the first time their product Cebione the new crystalline Vitamin C. There will also be a display of some actual chemical processes used in the manufacture of such medicinals as iodine and quinine, and full-size charts in color of the central and autonomic nervous systems and their relationships to various organs. In conjunction with a display on Digtan there will be instructive charts designed to simplify the interpretation of electrocardiographs.

### Cod Liver Oil Research

The Maltbie Company will demonstrate, in Booth 58, the various steps involved in the manufacture of Maltine with Cod Liver Oil, and will show evidence that the vitamin A value of cod liver oil is enhanced two-fold when administered as Maltine with Cod Liver Oil. Charts and illuminated photographs will show results of recent laboratory research on this subject.



### A New Topical Anesthetic

The exhibit of the Wm. S. Merrell Company in Booth 93 will include a display of their new topical anesthetic Diethane. There will also be depicted in miniature settings two stages in the development of this pioneer pharmaceutical house. One is a reproduction of the early 19th century apothecary of Dr. Wm. S. Merrell; the other is an interior view of the present day Merrell Biological Laboratory where Merrell's Toxoids Typhoid Vaccine and Ilirogen Local are produced.

### Antitoxins, Serums, Vaccines

A complete line of biological products will be shown by the National Drug Company in Booth 153. Methods of production and testing will be demonstrated. Among important products included in the exhibit will be Tetanus Toxoid, specific antigens for the prevention of hay fever treatment for ivy and oak poison. Leaflets will be furnished physicians to help awaken the public to the importance of immunization of young children against diphtheria, scarlet fever, smallpox and whooping cough.

### Parke-Davis Accomplishments

A staff of expert technical men will be in charge of Booths 130 and 131 where Parke Davis & Company will display a number of scientific accomplishments. These will include Meningococcus Antitoxin, a group of glandular products, the group of sedatives and hypnotics included in Ortol and other products of special interest to the medical profession.

### "The Doctor" in Sculpticolor

The life-size sculpticolor "The Doctor" created for Petrolagar Laboratories Century of Progress exhibit will be shown in Room 4 of the Convention Hall. This three-dimensional rendering of the famous Sir Luke Fildes' painting has attracted wide attention in 16 cities of the United States, where it has been viewed by four

million people in the past two years. The regular Petrolagar pharmaceutical exhibit will occupy Booths 52 and 210.

### Aminoacetic Acid Pure

The Pfansthel Chemical Company in display Booth 251 will feature Aminoacetic Acid Pure (Glycine), for the treatment of muscular disorders, particularly myasthenia gravis and muscular dystrophy. Research chemicals, Pfansthel, 39 rare sugars or related products and 30 amino acids or derivatives will also be displayed.

### Puritan Maid Products

The Puritan Compressed Gas Corporation pioneer medical gas manufacturers will have on display in Booth 158 their own Puritan Maid brand of Nitrous Oxide, Ethylene Oxygen and Carbon Dioxide. They will also show the leading makes of oxygen tents, nasal catheter outfits and anesthetic apparatus which they distribute.

### Toxicity of Bile Salts

The exhibit of Riedel-de Haen, Inc. of New York will be devoted to such products as Decholin and Decholin-Sodium, Nostal (a mild but dependable hypnotic), and bile salts for experimental purposes. Also it will demonstrate the difference between cholagogues and true cholaretics and their respective toxicities. If you are interested in the increasing importance of liver detoxification in therapy don't miss Booth 195.



### For Relief of Migraine

Gynergen, a product of the specific ergot alkaloid ergotamine, which has recently been shown to relieve migraine headaches, will be displayed by the Sandoz Chemical Works in Booth 120. Literature on the use of Gynergen in this condition, as well as in the prevention and treatment of uterine hemorrhage will be featured and discussed by competent representatives. Other products to be displayed are Scillaren-B, Calglucon, and Sandopain.

### Searle Research Products

G. D. Searle & Company will display several of the interesting products which have been developed in their Research Laboratories, the principal one of which is Aminophyllin (Searle). If you are interested in this new product for the treatment of cardiac disease you can get pertinent chemical information at the Searle Booth, No. 103. Other products which will be on display and demonstrated will be Sodium Morrhuate, Bis-muth Sodium Tartrate and Chlathofon.

### Pharmaceuticals Old and New

Sharp & Dohme will present an interesting display of their well-known pharmaceuticals and biologicals in Booths 60, 61, 62 and 63. Although no particular preparation will be featured, you will find at this exhibit a group of physicians and medical service men prepared to give special informative data concerning a number of important products, old and new.

### To Show New Vaso-Constrictor

Benzedrine (benzyl methyl carbinamine), a new vaso-constrictor indicated for shrinking the nasal mucosa in head colds, sinusitis, vasomotor rhinitis, hay fever and asthma will be exhibited by Smith, Kline and French Laboratories. Samples of the product and literature on its chemical structure and use can be had at Booth 85.

(Continued on Advertising Page 88)

### List of Exhibitors—Concluded

FIRM NAME	AISE	SPACE No	FIRM NAME	AISE	SPACE No
Sorensen Co. C. M. Long Island City	C	71	United Fruit Co. Boston	G	160-161
Spencer Corset Co. New Haven	H	191	United Prune Growers of Calif. San Francisco	H	181
Spencer Lens Co. Buffalo	G	159	Vitamin Food Co. and Vegex Inc., New York	A	8
Squibb & Sons E. R. New York	E	104-105-106	Waite & Bartlett & Ray Mfg. L. I. C.	A & H	15-16 & 189
Standard X-Ray Co. Chicago	AA	237-238	Wallace & Tiernan Prods. Inc. Belleville N. J.	AA	226
Stearns & Co., Frederick, Detroit	H	173	Welch Allyn Co., Auburn N. Y.	A	12
Sterisol Ampoule Corp. Long Island City	AA	247	Westinghouse X-Ray Co. Long Island City	I	205-206-207-208
Stokely Bros. & Co. Indianapolis	F	128	Winthrop Chem. Co. New York	D	98
Sun Rayed Co. The Frankfort, Ind.	H	175	Wisconsin Alumni Research Found. Madison, Wis.	I	211
Supt. of Exhibits	I	Adj. Room # 1	Woche & Son Co. The Max, Cincinnati	C	76
Surgical Publishing Co. Chicago	A	17	Wood & Co. Division, Wm. Williams & Wilkins Co.	G	167
Tauby Nason Co. Cambridge Mass.	F	138	Baltimore	B	47
Taylor Instr. Cos., Rochester N. Y.	H	186	Wyeth & Bro. Inc. Jno. Philadelphia	F	142
Thomas Charles C. Springfield Ill.	H	169	Zeiss Inc. Carl New York	D	81
Tower Co. The Seattle	Adj. Reg	218	Zimmer Mfg. Co. Warsaw Ind.		
Training School Vineland, N. J.	C	69			

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO, ILL.

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SATURDAY, MAY 11, 1935

## THE ATLANTIC CITY SESSION

Elsewhere in this issue appear the announcements associated with the annual session of the American Medical Association, which will be held in Atlantic City, June 10-14. For the first time in history there is a joint session with the Canadian Medical Association. Atlantic City offers marvelous opportunities for a session held under the best possible physical conditions as to hotels and meeting places, for recreation in a salubrious atmosphere, and for entertainment surpassing that available in most other seaside resorts.

Attention is called here particularly to the scope of the scientific and technical exhibits at the Atlantic City session. Both in quantity and in quality of material they represent a new level in such educational features. The General Scientific Meetings have been planned as a graduate course for general practitioners of medicine in some of the problems of most immediate concern.

The Opening General Meeting introduces a notable speaker in the person of Hon. Walter Edge and addresses by the presidents of the Canadian and American Medical Associations on the physiology of respiration and our present knowledge of nutrition in relationship to the future of man. Among the list of our foreign guests from London are Mr. Leslie Paton, Mr. Norman Patterson and Sir Francis Shipway.

It is impossible in the scope of an editorial even to begin to emphasize some of the exciting and extraordinary contributions in the programs of the various sections. More than 350 separate contributions cover every aspect of modern scientific medicine. Attention should be called specifically, however, to the program of the surgical section, which on this occasion is particularly designed to cover the relationship of physiology to the advancement in surgery as a specialty and will provide a review of our knowledge of the blood and of immunology along entirely new lines. The Section on Pathology and Physiology has moreover provided a special program by the founders of the section, including Drs. Ludvig Hektoen, Walter L. Bierring, James B. Herrick, George Blumer and Simon

Flexner, who will present a survey of advancement since 1900 in various medical fields depending on pathology. Attention is called also to the sessions on anesthesia, military medicine and the history of medicine, which are special features of this joint meeting.

In the Scientific Exhibit, collective exhibits of recent research on chronic arthritis, tuberculosis, syphilis, cancer, infections of the central nervous system, vaccines and serums and many other subjects afford extraordinary opportunities for rapidly bringing the physician up to date in these fields.

The indications are that the attendance at the Atlantic City session will rival that of the largest medical meetings ever held elsewhere. Arrangements are being completed for several national broadcasts from the meeting. Those who plan to attend should make hotel reservations<sup>1</sup> at the earliest possible moment, to be assured of comfortable accommodations near the centers of interest.

## CALIFORNIA HEALTH INSURANCE BILL

Space is not available in these editorial columns for a complete analysis of the proposed California health insurance act, which has been made by the Bureau of Legal Medicine and Legislation. However, a brief review of the proposed legislation and its method of development calls to mind a statement made by Justice Stephen of the High Court of Justice, Queen's Bench Division, in Great Britain, who said, many years ago,

I have had on many occasions to draft Acts of Parliament, which, although they may be easy to understand, people continually try to misunderstand, and in which, therefore, it is not enough to attain to a degree of precision which a person reading in good faith can understand, but it is necessary to attain, if possible, to a degree of precision which a person reading in bad faith cannot misunderstand. It is all the better if he cannot pretend to misunderstand it.

As was emphasized in *THE JOURNAL* last week, the proposed California health insurance act is presumably a creation of the committee of six of the California State Medical Society, which is using intense efforts to put the medical profession solidly behind the legislation, and of the interim committee of the senate, appointed two years ago, which has functioned largely through Mr. Celestine Sullivan.

An analysis of the act indicates that the system it will set up can hardly be called an insurance system, since benefits and the costs are not distributed in proportion to the risks of the contributors. The act yields no evidence of any attempt to lessen the total cost of illness or injury. It does, however, definitely add to the ordinary cost of illness the expenses of an elaborate administrative system, which must be paid before contributors to the fund receive any benefit whatever. It taxes all employees subject to the act 3.5 per cent of their wages and all employers 1.5 per cent of the wages paid to such employees, but the contributing employee

<sup>1</sup> For list of hotels, see page 1719 and advertising page 115.

receives no benefits unless he or some of his dependents become ill or injured or pregnant, except for children under 14, who are entitled to some medical supervision. No matter how long or how much an employee pays, his payments have no withdrawal or cash value. It should be obvious, moreover, that employers in many instances will add the amount of the tax to the price of the services or goods sold or offset the tax by lessening the wages of the employee. There is a special clause in the bill which completely frees the state of California itself from any liability in excess of the resources of the fund created by this legislation.

Concerning the benefits promised and attractively set forth in this legislation, not one of them is guaranteed, because all may be shortened and reduced by the health insurance commission, which commission, incidentally, contains two doctors and three laymen. A definite limit of twenty-six weeks is set up in relationship to any one illness or injury, a limitation that will throw the worker on his own resources at the time when help is most needed, as in cases of cancer, diabetes, heart disease, infantile paralysis or other prolonged diseases or injuries. Under this proposed act dental service is to be had in the vast majority of cases only on prescription of a physician as therapeutic dental service. The additional benefits mentioned under the bill which involve nursing service outside a hospital, exceptional drugs and medicines, institutional convalescent care and necessary dentistry, are to be had only in case the amount of money in the health insurance fund justifies the expense, and this is to be determined by the commission that administers the fund.

Probably most of the population of California will be compelled by this act to pay for the benefits it offers them whether they use the benefits or not, and there is no provision for rebate in case they fail to avail themselves of these benefits. Free choice of physician is not offered, because the patient can get the benefits of the act only if he uses the services of a doctor practicing under the act. Something is said as to the patient's right to choose his own physician, but the commission may at any time for cause strike the name of a doctor off the available list. Such a set up will inevitably tend to lower the number of physicians engaging in the private practice of medicine and to handicap them definitely by forcing their patronage into the system.

Nothing has been found in a thorough search of this bill that gives the slightest clue as to the manner in which physicians, dentists, hospitals, nurses and pharmacists are to be paid. Apparently the commission itself will rule as to whether payment will be made by fee or salary and as to the amount of such payments. There is nothing in the act that insures to the physician a fair voice in determining the conditions of payment. Not a word is said as to hours of service, postgraduate study, vacations, equipment, supplies, the number of patients any one physician or dentist will be allowed to treat, the reports that he may be required to make,

or any of the other details that will determine whether or not the proposed system maintains the standard of medical service in California. In order to render service under any health service insurance association the doctor must obtain a license from the commission and renew it annually. In order to get a license he must furnish the commission with a great deal of personal information about himself and his affairs. He must pay a minimum fee of \$5 and file a bond not to exceed \$25,000 to guarantee his activities to the commission. Moreover, hospitals, dentists, nurses and pharmacists are likewise in every sense of the word the slaves of the health insurance commission.

It is amusing in considering the drafting of this legislation to realize that the commission is to be composed of five members, "all of whom shall have been residents of California for at least a total of ten years." This is mentioned particularly, because this may mean that all five members are to have had ten years of residence in California or that each member is to have had ten years of residence in California. Aside from these qualifications, the act specifies no qualification of any commissioner except that he cannot hold any position of trust or profit and engage in any business, occupation or profession the duties of which are inconsistent with his duties as a commissioner. This would no doubt bar any physician who wished to continue in practice but might not interfere with other members, who could continue their usual occupations.

Every effort seems to have been made in drafting this act to give the commission authority as nearly absolute as is possible under our form of government and to protect it in every possible way from any control by the courts of the state of California.

The proposed California insurance act has been studied by several competent men of both legal and medical training. All are agreed that the draft is in such a form as to render intelligent analysis extremely difficult. Certainly it is not in a form that will permit proper consideration and action by any legislative body. There is no adequate provision to keep the administration of the act out of politics. There is nothing to assure a nonpartisan commission from the political point of view. It seems evident that the personnel of the commission and its employees and the amount of money involved are greater than may be concerned in any other activity in the state of California. There is nothing in the act to show that it will improve the quality of medical service or lessen its cost, but there is plenty of evidence to indicate that the expense of administration will add greatly to the cost of service.

As was stated previously, space is not available here for a complete and detailed analysis of this proposed legislation. Indeed, the only reason for giving it consideration is the example it sets to other states in relationship to this work. In California apparently the medical profession, as represented by its elected officials,

has had rather large opportunity to express itself in the drafting of the legislation. Yet even with this opportunity the legislation proposed is complex, inadequate and dangerous. How much less is the likelihood of decent legislation from the point of view of the medical profession and the public health in states in which the medical profession may not have opportunity to express its point of view?

### OSTEOPATHY IN GREAT BRITAIN

Many of our readers have no doubt observed in the London letter a discussion of the hearings on osteopathy before a select committee of the house of lords in the British parliament. The attempt to obtain state recognition for osteopathy in Great Britain came "to an ignominious conclusion," in the words of the London *Lancet*, when on April 12 the leading counsel for the promoters of the bill announced the decision of his clients to proceed no further with it. The reasons given for withdrawal were two. It was said that during the course of the meetings the issue had changed. "It was now not so much the desirability of the registration of the osteopaths and the regulation of the practice of osteopathy as the question whether osteopathy could be said to rest upon a scientific basis." The second reason for the withdrawal was the position of the British School of Osteopathy.

Since it was clear to the opposition to this bill that the proponents had gotten themselves into a difficult spot, the opposition objected to the suggestion to discontinue the hearings, but the committee ruled that it would hear two more witnesses and then discontinue. The proponents of the measure threw overboard any defense of the seven bulletins of the A. T. Still Institute for Research. The *British Medical Journal*, in its consideration of the situation, says "When the reputable osteopaths have established an osteopathic school in this country with even a semblance of efficiency, have associated therewith a hospital (not merely an outpatient clinic) of reasonable size, have passed a number of students through their full course at such school or hospital, and have satisfied some scientific body that they have some prima facie evidence which can be submitted for examination, then, and then only, there may be a case for further official action on behalf of the community."

The inquiry by parliament into osteopathy occupied a good many days and cost a lot of money. It brought out the fact that the proponents of the legislation were not capable of framing a definition of osteopathy that would distinguish it from other healing cults. It made clear the fact that the osteopaths claim that their art and practice cover the whole field of medicine and that osteopathy is based on a pathology and a theory of causation which are peculiar and in no sense of the word established. Although the osteopaths were willing

to accept certain limitations on their work and to stress spinal manipulation, they claimed the right to use surgery of all degrees and drugs of many varieties. Indeed, they claimed equally to prevent disease by spinal manipulation and to limit infectious disease by this process.

In contrasting conditions between Great Britain and the United States, the *British Medical Journal* says

The legal position as to the practice of healing is radically different in this country from that which exists in the United States of America. There all such practice is forbidden except to those who are registered here, with a very few minor exceptions, it is open to anybody. In America, therefore, registration and regulation are necessary to enable people to choose whatever kind of attention they desire. Here there is no such necessity. In this country the state, while allowing this liberty, has established a single Medical Register, mainly to prescribe a minimum standard for practitioners who may properly have certain duties imposed upon them and be used by the state officially for the advantage of public health. It follows from this system that the consequences of state recognition of more than one register would be given an authoritative cachet to perhaps inconsistent theories and practices, and must lead to a very difficult, almost impossible, position in public health administration.

This consideration should emphasize to every intelligent person the necessity for developing in the United States, through the establishment of basic science laws, a minimum standard of education for all who propose to heal the sick, regardless of the method by which such healing is to be brought about. Great Britain seems to have realized the value of its own method of control. Apparently it still requires some extensive education of both legislators and the American people to bring them to a realization of the necessity for basic science legislation in this country.

### Current Comment

#### EARLY DOCTORS IN ATLANTIC CITY

For many years the Jersey coast has been recognized as a region of great healthfulness. In the seventeenth century Gabriel Thomas, according to some items discovered by Dr. Philip Marvel, wrote to a friend saying "Of doctors and lawyers I shall say nothing as this country is very peaceful and healthy." Later on Dr. John Gordon, writing to his brother in England, said "If you design to come hither sometime, come as a planter or merchant, but as a doctor I cannot advise you, as I hear of no diseases to cure, but some agues and cut fingers, and legs." Among the pioneers in Atlantic City was Jonathan Pitney, who settled at Absecon in 1819 and called attention to the cleanliness of the sand dunes, the absence of mud and the purity of the air. The need of facilities for transportation led to the formation of a committee, on which Dr. Pitney was included. Through the efforts of this committee the first system of railroad transportation covering the sixty miles from Philadelphia to Atlantic City was built some eighty-five years ago.

## BLINDNESS, CHRISTIAN SCIENCE AND SENATOR COPELAND

"The Senate proceeded to consider the bill (S 2153) to provide for the prevention of blindness in infants born in the District of Columbia

"Mr Copeland Mr President, there is an amendment on the desk of the clerk which I desire to suggest to the bill

"The President *pro tempore* The clerk will state the amendment

"The Chief Clerk On page 3, line 15, after the word 'physician' and the period it is proposed to insert the following

The provisions of this act shall not be construed to apply to persons treating human ailments by prayer or spiritual means as an exercise or enjoyment of religious freedom

"The President *pro tempore* The question is on agreeing to the amendment.

"The amendment was agreed to

"The bill was ordered to be engrossed for a third reading, read the third time, and passed" *Congressional Record*, April 15, 1935, pp 5860-5861

And so the Senate of the United States, on the motion of the Senator from New York, Royal S Copeland, a doctor of medicine and at one time commissioner of health of the city of New York, recognized "prayer or spiritual means" as legally sufficient protection against ophthalmia and blindness in new-born babies

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45 Chicago daylight saving time (3 30 p m central standard time) The next three broadcasts will be delivered by Dr W W Bauer The titles will be as follows

May 16 Children's Eyes  
May 23 Saving Our Eyesight.  
May 30 Eye Accident Prevention

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4 15 Chicago daylight saving time (3 p m central standard time) The next three broadcasts will be as follows

May 14 Training Good Doctors W D Cutter, M D  
May 21 Pain W W Bauer M D  
May 28 Problems of American Medicine Morris Fishbein M D

#### Broadcast, May 11, in Commemoration of National Hospital Day

The American Medical Association, through the courtesy of the Columbia Broadcasting System, will broadcast on a nationwide network on the afternoon of May 11 at 4 o'clock eastern daylight saving time (3 p m eastern standard time, 2 p m central standard time, 1 p m mountain time 12 noon Pacific time) in commemoration of National Hospital Day, which falls on May 12

Speakers will be Dr Howard W Haggard of Yale who will speak on Hospitals of Yesterday, and Dr Charles Gordon Heyd, past president of the Medical Society of New York, who will speak on Hospitals of Today The program will be introduced from Chicago by Dr W W Bauer Drs Haggard and Heyd will speak from the Columbia Broadcasting System Studios in New York.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS EDUCATION, PUBLIC HEALTH ETC.)

### ALABAMA

Bill Introduced—S 120 proposes to grant to physicians and hospitals supported in whole or in part by private charity, treating persons injured through the negligence of others, liens on all claims, rights of action, judgments, compromises or settlements accruing to such injured persons by reason of their injuries

### ARKANSAS

State Medical Election—Dr George B Fletcher, Hot Springs National Park, was chosen president-elect of the Arkansas Medical Society at the annual session in Fort Smith, April 15-17, and Dr Melvin E McCaskill, Little Rock, was installed as president Vice presidents are Drs Davis W Goldstein, Fort Smith, John B Jameson, Camden, and Herman W Hundling, Little Rock. The next annual session will be held in Hot Springs National Park A section on ophthalmology and otolaryngology was organized at this meeting with Drs Herbert Moulton, Fort Smith, as chairman, and Lewis M Henry, Fort Smith, secretary

### CALIFORNIA

Motor Vehicle Deaths Increase—The California State Department of Health reports that there were 2,798 deaths from motor vehicle accidents in the state in 1934, as compared with 2,403 in 1933 Of the number, 959 were due to collisions with pedestrians and 849 to collisions with other motor vehicles The entire number of accidental deaths for the year was 5,566, as compared with 5,153 the previous year There were 1,292 accidental deaths in homes, more than half of which were attributable to falls Conflagrations, burns and explosions caused 212 deaths Deaths from accidents in air transportation decreased from 76 in 1933 to 53 in 1934 The records showed 333 drownings as compared with 269 in 1933

Society News—Speakers before the San Francisco County Medical Society, April 9, were Drs Emmett C Taylor on "Management of Chronic Arthritis", Ernst Gehrels, "Problems of Colonic Surgery", LeRoy Brooks, "Undescended Testicle," and Arne E. Ingels, "Precancerous and Cancerous Dermatoses"—Speakers before the Los Angeles County Medical Association and the pediatric section, April 4, were James David McCoy, D D S, on "Interdependence of Pediatrics and Orthodontics," and Egbert Earl Moody, "Pneumomas of Childhood, Differences from Adult Forms in Classification, Diagnosis, Course, Complications and Treatment"—Dr Morris Fishbein, Chicago, Editor of THE JOURNAL, discussed "Sickness Insurance and Sickness Costs" at a meeting in Los Angeles, April 12

### CONNECTICUT

Public Health Meeting—The Connecticut Public Health Association will hold its annual meeting in Bristol, May 15 Following an address by Dr Stanley H Osborn, state health commissioner, on "Highlights of Health Legislation," there will be a symposium on pneumonia by Drs Roderick Heffron, Boston, John A Wentworth, Hartford, and Millard Knowlton, Hartford. The afternoon will be devoted to a symposium on school health service Speakers will include Dr Reginald M Atwater, New York, executive secretary, American Public Health Association, Dr Charles C. Wilson, Hartford, director of health and physical education of the board of education, Wilson S Dakin, supervisor, rural education, state board of education, Miss Helen Brundage, R.N., school nurse for Brookfield, New Fairfield, Sherman and Weston, and Karl Reiche, superintendent of schools, Bristol

### DISTRICT OF COLUMBIA

Medical Society Protests Proposed Huge Medical Center—The establishment of a medical center in the District of Columbia, to replace the present hospitalization system, was opposed by the Medical Society of the District of Columbia in a nine page report adopted April 17 Under the plan which was submitted early in April by Commissioner George E Allen,

all existing hospital facilities would be united. In addition, one large hospital would be constructed at a cost of more than \$5,000,000 from public works funds as a self-liquidating project and would be operated on a nonprofit basis. The society averred in its statement that an endowment of from \$50,000,000 to \$100,000,000 would be necessary to maintain the proposed center, in excess of the contemplated cost and asked the commissioners' committee to name the promoters of the project and the form of guaranty they offer the public and the medical profession that they are able to carry the plan through. The report was drawn up by the committee on medical economics of the society.

## FLORIDA

**Bills Introduced**—Committee Substitute for S 142 proposes to require every licensed physician, chiropractor, naturopath or midwife (1) to register his license with the clerk of the circuit court of the county in which he practices and (2) to register with the state board of health, on or before January 1, and to pay a fee of \$2. If a practitioner subsequently changes his residence or changes the place in which he practices he must reregister with the state board of health and pay a fee of \$2. H 748 proposes to require all hospitals maintained wholly or partially by public funds to permit any licensed practitioner of the healing art to practice within their confines. H 816 proposes to authorize all persons licensed to practice any form of the healing art to make examinations and issue certificates showing the condition of health of all persons required by any law to be examined for any purpose whatever.

**State Medical Meeting at Ocala**—The sixty-second annual meeting of the Florida Medical Association will be held at Ocala, May 13-15, with headquarters at the Marion Hotel and under the presidency of Dr. Homer L. Pearson, Miami. The following program has been arranged:

Dr. Herbert R. Mills, Tampa: Friedman Test for Pregnancy. Report of Two Hundred Cases.  
Dr. Samuel R. Norris, Jacksonville: Obstetric Liabilities.  
Dr. Henry Hanson, Jacksonville: Maternal Mortality.  
Dr. Pearson, Miami: The Physician and His Government.  
Dr. James E. Paullin, Atlanta, Ga.: Arthritis.  
Dr. Chadbourn, A. Andrews, Tampa: Diagnosis and Management of Skin Diseases.  
Dr. Shaler A. Richardson, Jacksonville: The Care of Cataract Patients.  
Dr. Lawrence C. Ingram, Orlando: The Tonsil Problem.  
Dr. Emory W. Bitzer, Tampa: Observations on the Mechanism and Treatment of Circulatory Failure.  
Dr. John R. Chappell, Orlando: Boils and Carbuncles.  
Dr. Thomas O. Otto, Jr., Miami: Principles of Plastic Surgery of Benefit to the General Surgeon.  
Dr. Walter C. Payne, Pensacola: Infections and Treatment of Cervix Uteri.  
Dr. Warren W. Quillian, Coral Gables: Immunization Against Contagious Diseases of Childhood.

At the annual dinner Tuesday evening Dr. Henry C. Dozier, Ocala, will be toastmaster, and Dr. Stewart R. Roberts, Atlanta, the speaker. The woman's auxiliary will meet Monday and Tuesday. Other associations meeting at this time include the Florida Railway Surgeons Association, the Florida Radiological Society and the Florida Society of Dermatology and Syphilology.

## ILLINOIS

**Bills Introduced**—S 363 proposes to enact a new chiroprody practice act. It proposes to permit a chiroprodist, by any means or methods, to diagnose, recommend or prescribe for any ailment or supposed ailment of the human foot by local medical, mechanical or surgical treatment, including general manipulative massage, whether manual, mechanical or electrical. A chiroprodist is not to amputate the foot or toes, use anesthetics other than local, or use drugs or medicines other than local anesthetics. S 408 proposes to prohibit the manufacture of cosmetics, medicines or drugs without a license from the department of agriculture and the payment of a fee of \$2,500. The department is to investigate the contents and ingredients of the cosmetics, drugs or medicines manufactured by the person applying for a license, and, if it finds that the articles are adulterated or that any statement in the application is false or misleading or that the brand, name or any label or advertisement of the product gives a false indication of origin, character, composition or place of manufacture, it may refuse to license the applicant. H 937 proposes a system of compulsory and voluntary sickness insurance. The benefits proposed consist of cash and all forms of medical and dental service. Persons employed at other than manual labor and receiving wages in excess of \$60 a week, farm laborers and persons employed by an employer having less than three employees in personal or domestic services, are excluded from the compulsory insurance of the bill but are entitled to participate in the voluntary insurance.

## CHICAGO

**Grant for Research on Phenolphthalein**—Phenolphthalein Research, Inc., is an organization of manufacturers and those interested in the distribution of phenolphthalein to develop facts regarding this drug. The research will be carried out under a grant to the University of Illinois College of Medicine and in other institutions.

**Rise in Birth Rate**—There were 47,850 births reported in Chicago in 1934 as compared with 46,655 in 1933, according to the *Chicago Tribune*. This is the first year since 1898 it was stated that the birth rate has increased over the previous year. The report points out that the birth rate of 13 per thousand of population recorded in 1933 was just half of the rate (26 per thousand) in 1904.

## INDIANA

**Roentgen Society Disapproves of Tuberculosis Survey**—At a recent meeting of the Indiana Roentgen Society, a resolution was adopted declaring that general tuberculosis surveys are in their nature mass production and therefore inefficient and create a sense of false security and tend toward socialized medicine. This action was taken following a recent request for and discussion of a general tuberculosis survey of school children. The society recommends scientific examination by competent physicians and qualified roentgenologists rather than mass production methods. The society believes that since a negative roentgen examination may be followed in three months by a positive one, the surveys are of questionable value unless repeated at frequent intervals, in that they create a sense of false security in the minds of parents and occasionally a loss of valuable time while the disease remains unrecognized.

## MARYLAND

**State Medical Meeting and Election**—Dr. Frederick D. Chappellear, Hughesville, was elected president of the Medical and Chirurgical Faculty of Maryland at its one hundred and thirty-seventh annual meeting in Baltimore, April 23-24, to succeed Dr. John M. T. Finney, Baltimore. Other officers are Drs. Harvey G. Beck, Baltimore; Jesse O. Purvis, Annapolis, and Norman S. Dudley, Church Hill, vice presidents; Dr. Walter Dent Wise, Baltimore, secretary, and Dr. Joseph Albert Chatard, Baltimore, treasurer, to fill the unexpired term of the late Dr. Charles E. Brack. The new officers will be installed next January. The Trimble lectures were delivered at this meeting by Dr. Leonard G. Rowntree, Philadelphia, on "Further Studies on the Thymus and Pineal Glands," and Victor G. Heiser, New York, "The Need for Research in the Prevention of Surgical Diseases." Other speakers on the program were Dr. Olm West, Secretary and General Manager of the American Medical Association, Dr. Finney, on "The Acute Abdomen," and Drs. Wise, Harvey B. Stone and Maurice C. Pincoffs, who participated in an open forum on present-day medical trends. Table clinics and a round table luncheon also formed a part of the program.

## MASSACHUSETTS

**Bill Introduced**—S 484 proposes to authorize the establishment in the town of Norfolk of a hospital for the confinement and care of the criminal insane.

**Personal**—Dr. Frederick F. Russell, general director, International Health Division, Rockefeller Foundation, has been appointed lecturer on preventive medicine and hygiene and epidemiology, Harvard Medical School, for one year beginning in September. The *Boston Herald* announces the retirement of Dr. Harriet E. P. Vaughan as a missionary in India. Dr. Vaughan began her service in 1895 under the American Board of Commissioners for Foreign Missions. Dr. Arthur N. Ball, assistant to the commissioner of mental diseases, has been appointed superintendent of the Northampton State Hospital, Northampton, succeeding the late Dr. Edward W. Whitney.

**Meeting of Obstetricians and Gynecologists**—The spring meeting of the New England Obstetrical and Gynecological Society was held in Springfield, May 1. Clinics occupied the morning and in the afternoon the following papers were presented:

Dr. Oliver J. Menard: The Thyroid in Pregnancy.  
Dr. Paul M. Ashton: A Comparison of Results of the Classical and the Low Cervical Cesarean Section.  
Dr. Rafe Nelson Hatt: Congenital Deformities and Birth Injuries.  
Dr. Stanley S. Stusnick: The Problems of the Cystocoele.  
Dr. Norman A. Pokorny: Medical Diseases of the New Born.  
Dr. Walter W. Williams: Morphologic Characteristics of Spermatozoa as a Means of Estimating Functional Possibilities.

All the speakers are Springfield physicians.



## MISSISSIPPI

**State Medical Meeting at Biloxi**—The Mississippi State Medical Association will meet in Biloxi, May 14-16, with headquarters at the Buena Vista Hotel and under the presidency of Dr. Edward C. Parker, Gulfport. A general open session will be held Tuesday evening, May 14, at which Dr. Parker will deliver his official address on "Highway Accidents in Mississippi," and the Ewing Fox Howard Oration will be delivered by Dr. Giles S. Bryan, Amory, on "The Universal Challenge." Guest speakers from outside the state will be

Dr. Seale Harris, Birmingham, Ala., Dietary Management of Diabetes Mellitus—Hypoinsulinism and Hyperinsulinism  
Dr. William Thornwall Davis, Washington, D. C., Asthenopia and Headache Not of Ocular Origin (Differential Diagnosis)  
Dr. Robert E. Parrish, San Antonio, Texas, Mastoid Complications  
Dr. Charles F. Craig, New Orleans, Prevention and Control of Amebiasis  
Dr. Charles A. Thomas, Tucson, Ariz., The Collapse Program in Pulmonary Tuberculosis

A round table discussion will be conducted during a boat trip Wednesday afternoon, May 15, by Dr. Davis, on strabismus, and Dr. Parrish, on further mastoid complications. Among Mississippi physicians who will participate in the program will be the following:

Dr. William A. Dearman, Gulfport, Pulmonary Moniliasis  
Dr. William K. Purks, Vicksburg, Electrocardiographic Diagnosis of Coronary Occlusion  
Dr. Robin Harris, Jackson, Foreign Bodies in the Food and Air Passages  
Dr. Leon C. Davis, Greenville, Etiology and Significance of Mydriasis  
Dr. William D. Hickerson, Natchez, Diagnostic Clinics as Aids in Preventing Tuberculosis  
Dr. David A. Ratliff, Columbia, Management of Labor in the Home  
Dr. Reuben B. Caldwell, Baldwin, Diagnosis and Repair of the Pelvic Floor

## MISSOURI

**Mental Hygiene Conference**—The Missouri Society for Mental Hygiene sponsored a mental health conference in St. Louis, March 26-28. Dr. Clarence M. Hincks, general director, National Committee for Mental Hygiene, New York, discussed "Mental Health—A Problem for the Community," and also addressed a meeting with the St. Louis Medical Society on "Twenty-Five Years of Mental Hygiene." Other speakers included Dr. Harold Douglas Singer, Chicago, on "The Meaning of Mental Health," John J. B. Morgan, Ph.D., professor of psychology, Northwestern University, Chicago, "Mental Health for Normal People," and Clifford Shaw, research sociologist of the Institute for Juvenile Research, Chicago, "Delinquent Careers."

**Symposium on Diphtheria**—The St. Louis Medical Society devoted a special meeting, April 29, to a symposium on diphtheria presented under the auspices of the St. Louis Health Department.

Joseph T. Bredeck, M.D., health commissioner, Diphtheria Immunization Status in St. Louis  
Jacques J. Bronfenbrenner, Dr. P.H., Active Immunization Against Diphtheria  
Jean V. Cooke, M.D., Toxoid versus Toxin Antitoxin  
Joseph C. Willett, D.V.M., Virulence Tests in Diphtheria and Their Significance  
Julius Rossen, M.D., Clinical Types of Diphtheria  
John W. Eschenbrenner, Jr., M.D., Treatment of Laryngeal Diphtheria, Report of 650 Cases

The health department has been conducting a campaign against diphtheria.

## NEBRASKA

**State Medical Meeting at Omaha**—The Nebraska State Medical Association will hold its annual meeting at the Fontenelle Hotel, Omaha, May 14-16, under the presidency of Dr. Joseph Bixby, Geneva. Guest speakers will be

Dr. Irving McQuarrie, Minneapolis, Some Recent Advances in the Field of Carbohydrates and Fat Metabolism in Children  
Dr. Frederick A. Collier, Ann Arbor, Mich., Water Balance in Surgical Patients  
Dr. Oliver J. Fay, Des Moines, Iowa, Medical Organizations or Political Control  
Dr. Bernard L. Wyatt, Tucson, Ariz., Treatment of Chronic Arthritis  
Dr. Willard Bartlett, St. Louis, An Inventory of Surgical Consideration Which Is Fundamental to Further Progress in Our Art  
Dr. Emsley T. Johnson, Kansas City, Mo., Liver Damage Resulting from the Use of Synthetic Drugs  
Dr. Russell L. Haden, Cleveland, Treatment of the Anemias  
Dr. Joseph L. Baer, Chicago, Operative Obstetrics

Tuesday afternoon, May 14, there will be a special "cancer hour" at which speakers will be Drs. Herbert H. Davis, Earl C. Sage, Frederick C. Hill, and James F. Kelly, all of Omaha. An innovation this year will be informal luncheons and dinners at which guest speakers will conduct discussions. Tuesday evening, May 14, Drs. Collier and McQuarrie will discuss Acute Appendicitis—When and When Not to Operate. Thursday noon, Drs. Johnson, Haden, and Baer will discuss Possibilities

of Research in Medical Practice." Another special feature will be the showing of a motion picture on first aid and transportation of fractures by Dr. Hubley R. Owen, Philadelphia.

## NEW YORK

**State Medical Meeting at Albany**—The one hundred and twenty-ninth annual meeting of the Medical Society of the State of New York will be held, May 13-15, in Albany at the Hotel Ten Eyck, and under the presidency of Dr. Arthur J. Bedell, Albany. The house of delegates will meet May 13, section meetings will be held in the mornings of the succeeding days and general sessions in the afternoons. Speakers at the general sessions will be

Dr. Walter L. Bierring, Des Moines, Iowa, President, American Medical Association, The Function of the American Medical Association  
Dr. Olin West, Chicago, Secretary and General Manager, American Medical Association, Medicine of Today  
Dr. Harrison S. Martland, Newark, N. J., Recent Advances in Pathology of the Cardiovascular System  
Dr. Arthur F. Chace, New York, Treatment of Pneumonia  
Dr. William P. Murphy, Boston, Facts Concerning the Treatment of Anemia  
Dr. John J. Moorhead, New York, The Problem of the Broken Hip  
Dr. Walter C. Alvarez, Rochester, Minn., Hints for Recognizing the Patient Who Will Probably Not Be Helped by an Abdominal Operation  
Dr. George H. Hyslop, New York, Face Pain  
Guest speakers who will address the sections are  
Dr. Frank H. Bethell, Ann Arbor, Mich., Application of Diagnostic Criteria to the Treatment of the Anemias  
Dr. Stuart W. Harrington, Rochester, Minn., Surgical Treatment of Anterior and Posterior Mediastinal Tumors  
Dr. Grover F. Powers, New Haven, Conn., Infant Feeding: Historical Background and Modern Practice  
Dr. Louis W. Sauer, Evanston, Ill., Whooping Cough Vaccine as an Immunizing Agent  
Dr. William Allen Pusey, Chicago, The Field of Dermatology  
Dr. Frederick H. Verhoeff, Boston, Treatment of Sympathetic Ophthalmia with Antidiphtheritic Serum  
Dr. Alan C. Woods, Baltimore, Allergy in Its Relation to Sympathetic Ophthalmia  
Dr. George G. Smith, Boston, X-Ray and Radium Therapy in Diseases of the Genito-Urinary System  
Dr. Alexander Randall, Philadelphia, Calculus in the Upper Urinary Tract.

The annual banquet will be held at the Ten Eyck Tuesday evening. Guests of honor will be the President and Secretary of the American Medical Association, Dr. Bierring and Dr. West, presidents of the medical societies of adjoining states and Gov. Herbert H. Lehman. Twenty-seven scientific exhibits will be displayed.

## New York City

**Eighth Harvey Lecture**—John H. Northrop, Ph.D., of the staff of Rockefeller Institute for Medical Research, Princeton, N. J., will deliver the eighth lecture of the Harvey Society at the New York Academy of Medicine, May 16, on "The Isolation and Properties of Crystalline Pepsin and Trypsin."

**Society News**—Speakers at the monthly meeting of the Medical Society of the County of New York, April 22, were Drs. Menas S. Gregory, on "Psychiatry in General Practice, with Special Reference to Therapy," Eli Moschowitz, "Allergy to Life: An Interpretation of the Neurotic Constitution," Helen Flanders Dunbar, "Psychic Factors in Cardiovascular Disease," George Eaton Daniels, "Psychic Factors in Gastro-Intestinal Disease," and George W. Henry, "Psychic Factors in Thyroid Disease."—Drs. Martin E. Rehfuss, Philadelphia, and Albert F. R. Andresen addressed the Medical Society of the County of Kings, April 16, on "What Are We to Believe Regarding Modern Dietary Fads?" and "Dietary Principles in Treatment of Gastro-Intestinal Diseases," respectively.—Dr. Edward C. Vogt, Boston, addressed the New York Roentgen Society, April 15, on "The Noninfectious Diseases of the Hips in Children."—Dr. Russell S. Ferguson, among others, addressed the New York Pathological Society, April 25, on "Pathogenesis of Multiple Tumors of the Urinary Tract."—A symposium on syphilis and pregnancy was presented at a meeting of the section on obstetrics and gynecology of the New York Academy of Medicine, March 26, by Drs. John L. Rice, health commissioner, Joseph Earl Moore, Baltimore, James R. McCord, Atlanta, and Thurman B. Givan, Brooklyn.

## OHIO

**Dr. Blankenhorn Goes to University of Cincinnati**—Dr. Marion A. Blankenhorn, professor of clinical medicine, Western Reserve University School of Medicine, has been appointed to the Gordon and Helen Hughes Taylor chair of internal medicine at the University of Cincinnati College of Medicine effective next September. He will succeed the late Dr. Roger S. Morris. Dr. Blankenhorn was graduated from Western Reserve in 1914, saw service during the World War and has served in various capacities on the faculty of his alma mater since 1920. He was appointed professor in 1929.



Dr Tom Douglas Spies, senior instructor in medicine at Western Reserve, was appointed at the same time assistant professor of medicine at Cincinnati

## OKLAHOMA

**State Medical Meeting at Oklahoma City**—The forty-third annual session of the Oklahoma State Medical Association will be held in Oklahoma City, May 13-15, with headquarters at the Skirvin Hotel and under the presidency of Dr Le Roy Long, Oklahoma City. The house of delegates will meet Monday, May 13, general sessions will be held in the mornings and section meetings in the afternoons, May 14 and 15. At the general sessions speakers will be

Dr Charles M Pearce Oklahoma City state health officer, Public Health and Organized Medicine in Oklahoma  
Dr Frank R Teachener Kansas City Mo Management of Brain Injury  
Dr Rosco G Leland Chicago, Director Bureau of Medical Economics American Medical Association Changes Confronting Modern Medicine  
Dr Morris Edward Davis, Chicago Treatment of Toxemia Late in Pregnancy  
Dr Max Thorek Chicago Modern Trends in Surgery

Dr Louis H Ritzhaupt, Guthrie president-elect, will give his official address at a general meeting Tuesday evening which will be followed by the president's reception and dance. The annual golf tournament will be played Monday at the Oklahoma City Golf and Country Club

## PENNSYLVANIA

**Harrisburg Graduate Assembly**—The second annual graduate assembly sponsored by the Harrisburg Academy of Medicine will be held at the Penn Harris Hotel, May 23. The following program will be presented

Dr George B Eusterman Rochester Minn Gastric and Duodenal Ulcers  
Dr George W Crile Cleveland Tumors of the Breast  
Dr Elliott P Joslin Boston Prevention and Treatment of Diabetes  
Dr James H Means Boston The Tongue and What It Teaches About the Patient's Condition  
Dr William Wayne Babcock Philadelphia Appendicitis  
Dr George E Pfahler Philadelphia Roentgenology and Its Relation to General Medicine

**Bills Introduced.**—S 1127 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Applicants for licensure must be high school graduates and graduates of an incorporated chiropractic school or college approved by the board which requires a course of training therein of at least four years of eight months each with a minimum class attendance of 3000 forty-five minute hours. The bill proposes to define chiropractic as 'the science of locating and correcting any interference with nerve transmission and expression'. A license to practice chiropractic is not to confer on the licensee the right to practice surgery or obstetrics, to prescribe drugs or to administer anesthetics. H 2278 proposes to authorize the sexual sterilization of inmates of state institutions or of licensed institutions for the mentally defective, who are afflicted with hereditary forms of feeble mindedness, imbecility or idiocy, if the patient, if competent, or his legal guardian, consents

## Philadelphia

**Society News**—Drs Scott Johnson and Henry T Chickering, New York, addressed the Philadelphia County Medical Society, April 10, on 'Diagnosis and Treatment of Influenza and "Treatment of Pneumonia" respectively.—Dr John J Shea Memphis, Tenn addressed the Philadelphia Laryngological Society, April 2, on "Management of Allergic Conditions of the Ear, Nose and Throat.—Dr Ralph R Rathbone Washington D C among others, addressed the Philadelphia Roentgen Ray Society April 4 on Treatment of Epithelioma Involving Cartilage or Bone with Heavily Filtered Deep X-Ray Therapy.—Among speakers at the annual health institute sponsored by the Woman's Auxiliary of the Philadelphia County Medical Society were Drs Chevalier L Jackson, on 'Danger of Swallowing Caustics or Foreign Bodies' and Stanley P Reimann, The Menace of Cancer.—Dr William H Park, New York, delivered the Frederick A Packard Memorial Lecture of the Philadelphia Pediatric Society, April 9 on "Value of BCG Vaccination in the Prevention of Tuberculosis in Children.—Dr Edward B Allen, White Plains N Y, among others, addressed the Philadelphia Psychiatric Society, April 12 on Psychotic Reactions in Hypoglycemia, or an Artificially Induced Hyperinsulinism, with Differential Diagnosis Between These and Psychoneuroses.—Drs Harlow Brooks, New York, and William D Stroud were speakers at the thirteenth annual meeting of the Philadelphia Heart Association April 24. Dr Brooks's subject was 'Play and Exercise in Heart Disease' and Dr Stroud reviewed the year's work of the society

## SOUTH DAKOTA

**State Medical Meeting at Pierre**—The fifty-fourth annual session of the South Dakota Medical Association will be held in Pierre, May 13-15, with headquarters at the St Charles Hotel and scientific sessions at the Masonic Temple. Mornings will be devoted to clinics conducted by Drs Charles B Wright, and Chester A Stewart, Minneapolis, Carl C Chatterton, St Paul, Russell M Wilder and Roger L J Kennedy Rochester, Minn. Among addresses to be given by guest speakers are

Dr Stewart Developmental Stages Through Which Tuberculosis Passes in Children  
Dr Walter A Fansler, Minneapolis Use of Electrocoagulation in the Treatment of Rectal Carcinoma  
Dr John D Camp Rochester Minn Significant Roentgenologic Changes in Cases of Low Back Pain  
Dr Wilder The Diet in Diabetes High Carbohydrate or Low Carbohydrate  
Henry F Vaughan Dr P H Detroit The Economic Aspect of Preventive Medicine—The Role of the Family Physician  
Earl R Series Ph G Brookings S D Chronic Arsenic Poisoning as Developed from the Handling of Grasshopper Bait  
Dr Chatterton Treatment of Some of the Deformities of Poliomyelitis

The South Dakota Academy of Ophthalmology and Otolaryngology will meet, May 14 with the following guests: Drs Harold I Lillie, Rochester, Minn, "Blood Stream Infection Associated with Suppurative Diseases of the Ear", John F Curtin, Minneapolis, "The Radical Mastoid Operation," and William H Stokes, Omaha, "Chronic Dacryocystitis and Its Surgical Management". The Woman's Auxiliary will celebrate the twenty-fifth anniversary of its founding at its annual meeting, May 14-15. Mrs R D Jennings, Hot Springs, first president, will be the honor guest.

## WISCONSIN

**Bills Introduced**—S 345 proposes to omit from the law forbidding the torture of animals a proviso which excludes "experiments carried on for scientific research". *Correction* A 733 proposes to authorize the State Medical Society of Wisconsin, or any county medical society in a manner approved by the state society to "undertake and coordinate all sickness care of indigents and low income groups, through contracts with public officials, and with physicians and others, and by the use of contributions, cooperative funds and other means, provided only that free choice of physician within such contracts shall be retained and that responsibility of physician to patient and all other contract and tort relationships with patient shall remain as though the dealings were direct between physician and patient". The item concerning this bill appearing in the May 4 issue of THE JOURNAL inadvertently omitted the phrase italicized in the foregoing summary

## GENERAL

**Medical Bills in Congress**—*Bills Introduced* S 2713, introduced by Senator O Mahoney, Wyoming proposes to authorize the erection of additional facilities at the existing Veterans' Administration facility, Cheyenne Wyo. H R 7524, introduced by Representative Fernandez Louisiana, proposes to extend the benefits of the United States Public Health Service to certain seamen. H R 7635 introduced by Delegate Dimond Alaska, proposes to extend the benefits of the United States Public Health Service to fishermen. H R 7835, introduced by Representative Luckey, Nebraska, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Lincoln, Neb. H R 7850, introduced by Representative Robison, Kentucky proposes to reenact all laws in effect March 19 1933 granting pensions to veterans of the Spanish-American War including the Boxer Rebellion and the Philippine Insurrection, their widows and dependents. Female contract nurses, but not contract surgeons, will be entitled to the benefits conferred by the bill

**Bequests and Donations**—The following bequests and donations have recently been announced

St Luke's Hospital New York \$10 000 outright a trust fund of \$300 000 and the residuary estate of \$1 176 463 Stuyvesant Square Hospital \$10 000 by the will of the late Mrs Mary Helena Tompkins  
Jewish Memorial Hospital New York \$8 500 by the will of the late Philip Cohen  
St Vincent's and Presbyterian hospitals New York \$2 500 each Mount Sinai Hospital a trust fund of \$10 000 and the residuary estate by the will of the late Bertha Weinman  
Pennsylvania Lankenau and the Woman's Medical College hospitals Philadelphia and the Rivercrest Preventorium of the Kensington Dispensary for Treatment of Tuberculosis Montclair Pa., \$5 000 each by the will of the late Miss Cornelia Schiedt  
Montefiore and Stuyvesant Square hospitals New York, \$7 500 and Hospital for Ruptured and Crippled \$5 000 by the will of the late Isa Nordlinger  
St Vincent's Hospital \$2 000 United Hospital Fund \$1 500 and Greenwich Hospital \$500 all in New York by the will of the late Joseph Augustus Flynn  
Salem Hospital, Salem, Mass \$5 000 by the will of the late Susan Northend

**Awards for Research on Vitamin A**—The Mead Johnson Vitamin A Research Award Committee announces that the award for laboratory research, \$5,000, has been divided between Karl E. Mason, Ph.D., Nashville, Tenn., and Dr. Simon Burt Wolbach, Boston. Dr. Mason was honored for his work at Vanderbilt University on "Changes in the Vaginal Epithelium of the Rat After Vitamin A Deficiency." Dr. Wolbach, whose research was done in collaboration with Percy R. Howe, D.D.S., at Harvard University, dealt with "The Incisor Teeth of Albino Rats and Guinea-Pigs in Vitamin A Deficiency and Repair." The Mead Johnson Company, Evansville, Ind., established two awards for research on Vitamin A, Jan. 30, 1932. The committee decided to postpone bestowal of the main award of \$15,000 till 1936. Members of the committee are Drs. Isaac A. Abt, Chicago; Kenneth D. Blackfan, Boston; Alan G. Brown, Toronto, Ont.; Horton R. Casparis, Nashville; Henry F. Helmholtz, Rochester; Minn.; Lawrence T. Rovster, University, Va.; Robert A. Strong, New Orleans; and Elmer V. McCollum, Sc.D., Baltimore, and Lafayette B. Mendel, Ph.D., New Haven, Conn.

**Society News**—The nineteenth annual meeting of the Association for the Study of Internal Secretions will be held in Atlantic City, June 10-11, at the Chalfonte-Haddon Hall. The American Academy of Pediatrics will have its annual meeting, June 7-8, at the Waldorf Astoria, New York. Chairmen for panel discussions will be Drs. Hugh Cabot, Rochester, Minn., on "Indications for Surgery in Pueria"; Lee W. Dean, St. Louis, "Prevention of Colds in Children"; Roy G. Hoskins, Boston, "Pituitary Glands," and Elmer V. McCollum, Sc.D., Baltimore, "Nutrition." The Medical Library Association will hold its thirty-seventh annual meeting in Rochester, N. Y., June 17-19, at the Rochester Academy of Medicine and the University of Rochester School of Medicine. Two delegates to the International Federation of Library Associations, meeting in Madrid May 19-30, will give reports at Rochester. This association has a membership of about 175 medical libraries of the United States and Canada. Mr. Charles Frankenger, Brooklyn, is president. The American Proctologic Society will meet in Atlantic City, June 10-11, at the Marlborough-Blenheim.

## Government Services

### Colonel Reynolds Appointed Surgeon General of Army

Col. Charles R. Reynolds, now surgeon of the Second Corps Area, at Governors Island, N. Y., was appointed surgeon general of the army, April 29, with the rank of major general, to succeed Major Gen. Robert U. Patterson, whose four-year term expires June 1. The new surgeon general is a native of New York and a graduate of the University of Pennsylvania School of Medicine. He is 57 years old. After serving briefly as a contract surgeon, he was commissioned in May 1901 as an assistant surgeon and rose through the grades to the rank of colonel in 1927. During the World War he received the Distinguished Service Medal, and in the Philippines in 1906 he received the Silver Star Citation for gallantry in action. In 1923 he was named commandant of the medical field service school at Carlisle Barracks, Pennsylvania. He was appointed to his post as surgeon of the Second Corps Area, Sept. 4, 1931. He also holds the rank of Officer of the Legion of Honor of France. Col. M. August Wroten Shockley, commandant of Letterman General Hospital at the Presidio of San Francisco, was named assistant surgeon general with the rank of brigadier general. Colonel Shockley was born in Fort Scott, Kansas, in 1874. He entered the army in 1898 and reached the rank of colonel in 1926. He also holds the Distinguished Service Medal and the cross of the Legion of Honor. General Reynolds' appointment is effective June 2, and Colonel Shockley's August 1.

### CORRECTION

**Clinical Spectroscopy**—In the article by Gaul and Staud in THE JOURNAL, April 20, it was stated on page 1389 that Becker believes that the administration of 18 Gm or more of silver arphenamine is apt to be followed by argyria. The number should have been 15 instead of 18.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 13, 1935

### Annual Report of Medical Research Council

The report of the Medical Research Council for 1933-1934 has just been published.

#### CLINICAL RESEARCH

The council has repeatedly stressed the importance of increasing the facilities for the scientific study of disease, particularly the need for a larger number of posts for whole time work, offering prospects such as already exist in the laboratory branch of medical science. It has for many years supported one clinical research unit with a whole time staff, the Department of Clinical Research at University College Hospital, under the direction of Sir Thomas Lewis. Two years ago it arranged for the establishment at the National Hospital for Nervous Diseases of a research department in neurology under the direction of Dr. E. A. Carmichael. When the post held by Sir Thomas Lewis received permanent endowment from the Rockefeller Foundation, funds were set free that enabled the council to establish a new clinical research unit at Guy's Hospital. One of the council's research workers, Dr. E. J. Wayne, has been appointed professor of pharmacology in the University of Sheffield, which is a whole time teaching and research position with full opportunity for clinical work. At King's College Hospital a new whole time appointment for clinical and research laboratory work has been established. At Middlesex Hospital a clinical research unit has been inaugurated. The new British Postgraduate School involves whole time professorships in medicine, surgery and obstetrics, which, though primarily teaching, are likely to give excellent opportunities for research work.

#### MENTAL DISEASES

The council has long regarded mental disorders as demanding active investigation. The number of mental defectives in England and Wales is about a quarter of a million and their proportion is believed to be greater than it was a generation ago. The council has therefore appointed a new committee for research into mental disorders consisting of representatives of psychiatry and medical psychology, neurology, physiology, biochemistry, pathology and genetics. The committee on sterilization referred to the council the question whether vasectomy before the attainment of maturity has any deleterious effect on development. The council was able to advise that evidence exists to show that no such effect results from vasectomy in young animals. A valuable line of research lies in the examination of the offspring of consanguineous marriages. An inquiry into cases of mental defect in similar and dissimilar twins is recommended as a means of testing the relative importance of genetic and environmental factors.

#### INHERITANCE AND DISEASE

In spite of the great advances in the biologic study of heredity, human genetics has been relatively neglected. Two years ago the council appointed a human genetics committee under the chairmanship of Prof. J. B. S. Haldane. A scheme for the extensive collection of data on the question of consanguinity has been framed. A large number of hospitals are cooperating by recording the parentage in respect to all their inpatients. The aim is to detect 'recessive' defects—characters usually not manifest in parent and child but transmitted in a latent form to appear when inherited on both sides. Up to the present, 'dominant' rather than 'recessive' inherited defects have been identified in man. Another important question is the part played by inheritance in the production of immunity to infec-

tion. The council has already published a report on this by Dr A Bradford Hill. It consists of a critical review of the published experimental data.

#### THE NATURAL HISTORY OF EPIDEMICS

The knowledge of the natural laws governing epidemics has been advanced by research on mice by Professor Topley and Greenwood. A practical study in man has been the investigation of infections in the more or less closed communities of boarding schools. The scheme is aimed chiefly at the diseases spread by droplet infection. A valuable research on active immunization against diphtheria among the pupils of the Greenwich Hospital School has been made by Dudley, May and O Flynn, medical officers of the navy. The conclusion is drawn that diphtheria is a manifestation of a firmly established symbiosis, that parasite and host act and react on each other in such a way that neither is destroyed. Total eradication of the parasite is not possible. The aim of preventive medicine is the establishment of conditions under which the bacterium can live harmlessly in human beings actively immune against it.

#### INFLUENZA

The study of influenza has been advanced by the discovery of Laidlaw, Andrewes and Smith that ferrets can be infected by material from the mucous membrane of patients suffering from the disease. A characteristic feverish catarrhal condition is produced in the animals and is transferable to other healthy ferrets. As the infective material was passed through a fine filter, before instillation into the ferret's nostril, the causative organism must be an ultramicroscopic virus. This virus shows affinities to that which American workers found to be the cause of "hog influenza." It has also been found that mice can be infected by intranasal inoculation, the illness being of a pneumonic type and generally fatal.

#### THE CHEMICAL CONTROL OF THE NERVOUS SYSTEM

The part played by specific chemical agents in the control of the nervous system is a new and interesting chapter in physiology. The researches of Dale make it highly probable that all messages from the central nervous system to voluntary muscles and other organs depend for their passage at particular points on the liberation of the unstable substance acetylcholine, while those sent through the sympathetic system have long been known to depend on a substance at least related to epinephrine. The specific reaction of the nervous system to drugs is well known, but the possibility is now raised that its activity depends on a series of "drugs" produced in the body. The recent work of Prof. R. A. Peters has shown that when vitamin B<sub>1</sub> is deficient in the body, parts of the brain become incapable of oxidizing carbohydrate completely, with the result that lactic acid accumulates, producing dire results. It has also been shown that in young animals vitamin A is essential for the integrity of the nervous system. Unlike the case of acetylcholine the effect is largely on the afferent side. In a number of nervous diseases—subacute combined degeneration of the cord, nervous ergotism, pellagra and lathyrism—the lesions are almost identical with those produced in young animals by vitamin A deficiency. It is thus probable that this experimental work will elucidate their causation. The work is also of interest as evidence that nerve cells and the defense of certain tissues against infection. Thus xerophthalmia—long known to follow vitamin A deficiency—appears to be due to loss of neurotrophic control of the cornea, owing to degenerative changes in the gasserian ganglion and its fibers in the trigeminal.

#### Cancer and the Sex Hormones

Work by Dr J. W. Cook and Prof. E. C. Dodds has shown that compounds which are potent in the production of experimental tumors are closely allied in chemical constitution to the sex hormones. Synthetic compounds have been prepared that

induce tumor growth and excite estrus. This is the more suggestive as some resemblance exists between the cell multiplication due to estrogenic substance and the early stages of malignant growth and offers a clue of obvious importance, which may lead in some new direction.

#### Drug Waste Under the Insurance System Manchester's Addiction to Medicine

In a previous letter, the report of the Ministry of Health showing that in England the national health insurance system involved excessive prescribing and therefore waste of drugs was reviewed. The root of the evil is that the working class likes to take medicine whether for real or for imaginary ailments, and can obtain it without cost under the insurance system. The *Lancet* has suggested that a small charge should be made for drugs and this has been done in the Canadian insurance system. Attempts have been made to explain away this excessive prescribing but the argument that the cost of drugs per head under the insurance system in England is 50 per cent greater in England than in Scotland (where no such weakness for drugs exist) has proved unanswerable. In some parts of England the evil is much greater than in others. According to the *British Medical Journal*, Manchester "has maintained over a term of years a steady 50 per cent increase over the corresponding national averages. What the Manchester *Guardian* describes as "Manchester's notorious addiction to medicine" has led to a prolonged effort on the part of a special subcommittee appointed by the Manchester Insurance Committee to explain this unenviable preeminence. The subcommittee has attempted to arrive at some explanation by examination of statistics relating to industrial depression, climatic conditions, the incidence of sickness and many other matters, and in the end had to confess that all the voluminous statistics collected failed to reveal any explanation of Manchester's high drug cost. The failure to find a satisfactory explanation was only to be expected in view of the unsatisfactory one mentioned, which is referred to in an appendix to the report. The chief medical officer of the Ministry of Health suggested in his official report that during a long period of prosperity in the cotton mills the household custom was established in Lancashire of having a standing account with a physician and a firm belief in the bottle of medicine. The subcommittee finally quotes a warning to physicians that they may be fined for overprescribing.

#### Road Accidents

The number of road accidents involving death or injury in 1934 was 204,710, being 13,000 more than in 1933, and the number of persons killed or injured was 238,946, against 223,530 in 1933. The number of deaths was 7,343 against 7,202.

#### International Campaign Against Trachoma

The International Organization for the Campaign Against Trachoma met at the house of the Royal Society of Medicine. The president, Prof. Emile de Grosz of Budapest, said that during the fifteen years in which he had acted as commissioner for trachoma affairs he had set up the fundamental principle that the eye hospitals were the centers of antitrachoma prophylaxis. Trachoma was unable to spread in England because of the wise preventive measures and the work of the ophthalmic surgeons.

The president-elect Dr A. E. MacCallan, was the head of the antitrachoma campaign in Egypt for twenty years. He said that there were certain games or sports which tended to the dissemination of trachoma if a single player was infected. One was rugby football and the other was wrestling. It was not generally known that nearly all professional wrestlers had trachoma. Sporadic cases did occur in England. He had under observation two physicians, neither of whom had ever been out

of England or had ever seen a case of trachoma as far as he knew and yet who suffered from it. During the discussion it was stated that Glasgow was the only city in the British Isles where trachoma was notifiable

## PARIS

(From Our Regular Correspondent)

April 5, 1935

### The Prevention of Tuberculosis by B C G Vaccination

The following guide as to the methods, in general, of using the Calmette-Guérin vaccine in children has been sent to physicians in France and its colonies

Vaccination		
Age of Children	Preliminary Conditions	Method of Vaccination
New born during first 10 days	Born viable birth before term is no contraindication	By mouth 3 ampules of B C G at intervals of 48 hours
6 months to 2 years	1 Good general condition 2 Two negative skin reactions to tuberculin at 3 day intervals	Either (a) By mouth 3 ampules B C G as at birth at 48 hour intervals or (b) Subcutaneously 1 cc special emulsion of B C G 8c preferably in shoulder region
2 years and older	1 Clinical and radio scope examinations must be negative 2 Two preceding skin reactions to tuberculin at 7 day intervals must have been negative	By mouth 1 ampule B C G N R (nonreacting)

### Dosage of Diphtheria Antitoxin

A graduating thesis by Dr Zadour Valentin, based on the observation of 341 cases of diphtheria in the service of Dr Darre at the Children's Hospital has just been published. The antitoxin employed was prepared at the Pasteur Institute and preference given to simultaneous injection by both subcutaneous and intramuscular routes. Intravenous administration is employed only in cases of malignant diphtheria, in association with injection by the other two routes. The 46 mild cases went on to recovery after the injection of only 6,000 units of antitoxin. The author divides 133 more severe cases into two groups: those in which the thick whitish membranes were present only on the tonsils, and those in which the membranes were visible also on the palate and posterior pharyngeal wall. There were no evidences in either group of any malignancy in the form of edema of the mucous membranes or edema round the cervical lymph nodes, and there was a minimum of toxemia, with slight pallor and albuminuria. The mortality in these two groups was practically negligible, although one case had not been treated until the eighth day.

In the first group 12,000 units was given, and in the second group 24,000 units. These doses appeared ample in both instances, because when larger doses were given the membranes did not disappear any earlier nor was the incidence of paralysis any less. Paralysis was noted in 85 per cent of the cases of group A and in 185 per cent of those in group B. With the exception of one case, the paralysis was observed only in children first seen on the third day of the infection.

Malignant diphtheria occurred in sixty children. The clinical evidence included thicker, more grayish membranes with marked fetor and a tendency to bleed easily. There was also edema of the mucous membranes and of the neck and marked toxemia. The mortality in these sixty malignant cases was 36.6 per cent. There were eleven hypermalignant cases in this group of sixty in which the mortality attained as high a figure as 82.2 per cent. The latter cases showed a marked tendency to severe bleeding. If one excludes these hypermalignant cases, the mortality in the ordinary malignant type was only 26.5 per cent. Paralysis during convalescence occurred in 58.3 per cent of the malignant cases in which recovery occurred.

It is useless to give more than 60,000 units in the malignant form of diphtheria. The earlier the treatment is instituted, the less will be the mortality and likelihood of paralysis in all types of diphtheria. To be really efficacious, serotherapy must be employed before the third day in the usual forms and at the earliest possible moment in the malignant cases. A large initial dose of antitoxin is more important than smaller amounts given at intervals, hence a very large dose should be given as soon as the diagnosis has been made. In the form usually seen clinically, i.e., tonsillar or even beyond, from 12,000 to 24,000 units, in noncomplicated laryngeal cases 20,000 units, and as high as 60,000 units in the malignant forms, should be the

Revaccinations		
Age of Children	Preliminary Conditions	Method of Vaccination
1 3 7 and 15 years	1 Good general condition 2 Already vaccinated at birth	By mouth 3 ampules of B C G same as at birth at intervals of 48 hours
3 7 and 15 years	1 Good general condition 2 Already vaccinated between age of 6 months and 2 years revaccinations must be preceded by negative skin reactions	Preferably by mouth 3 ampules B C G same as at birth at 48 hour intervals
About every 5 years to adult age	1 Good general condition 2 Previously vaccinated once	By mouth 1 ampule B C G N R

initial doses. One should not continue to give the antitoxin over too long a period, because the liver and kidneys are often involved in the toxic forms and there is, in addition, danger of serum reactions. Antitoxin has no influence on the paralysis. One ought to give the same doses to those who have been vaccinated against the disease as if vaccination by antitoxin had not been done. Examination of the blood shows that the amount of antitoxin attains its maximum on the third day and then gradually decreases in amount.

## BERLIN

(From Our Regular Correspondent)

March 18, 1935

### Census of Persons Who Attend the Sick

An official census was taken Jan. 1, 1934, of all persons in the German Reich who attend the sick in a professional capacity. A total of 278,353 persons were thus engaged, being distributed as shown in table 1.

TABLE 1—Distribution of Persons in the German Reich Who Attend the Sick in a Professional Capacity

Classification	Males	Females	Total Males and Females	Number per 10,000 Population in		
				Cities	Rural Districts	Combined
Physicians	44,474	2,501	47,275	11.4	4.3	7.3
Dentists	10,589	658	11,247	2.8	1.0	1.7
Licensed pharmacists	10,310	529	10,845	2.2	1.3	1.7
Assistant pharmacists and apprentices	3,378	1,801	5,289	1.2	0.5	0.8
Midwives	20,911	2,911	23,822	2.3	6.0	4.0
Dental technicians	17,726	2,272	19,998	4.1	2.3	3.1
Bath assistants attendants masseurs	6,240	5,164	11,410	2.8	1.0	1.7
Attendants on the sick	20,618	99,508	120,216	24.6	14.1	18.4
Nurses of infants and pre-school children		5,747	5,747	1.6	0.4	0.9
Nurses of puerperants		1,197	1,197	0.3	0.08	0.2
Disinfecting crews	4,764	188	4,952	0.6	0.9	0.8
Lay practitioners, etc.	10,888	3,378	14,266	3.6	1.3	2.2
Totals	129,019	149,334	278,353	57.5	32.3	42.7

As compared with the status of Dec. 31, 1931, the number of males has increased by 1.3 per cent, the number of females

by 5.2 per cent, and the total by 3.4 per cent. It is interesting to note that the number of masseurs, attendants, and the like, of dental technicians and of dentists has increased to a much greater extent, and particularly the number of nurses for infants and preschool children. On the other hand, the number of physicians showed a decrease of 1.4 per cent, also the number of pharmacists and midwives has diminished. The number of physicians reported as actively engaged, as of Jan 1, 1934, was 47,275. A comparison with the census taken Dec 31, 1931, reveals a decrease of 688 (1.4 per cent). The male physicians show a decrease of 734 (1.6 per cent), whereas the women physicians have increased by forty-six, so that the proportion of women physicians with respect to the total was 5.92 per cent, as against 5.74 per cent in 1931. Table 2 gives a survey of the changes in the number of physicians since 1876.

TABLE 2—Survey of Physicians Since 1876

Year	Total Number	Women Physicians	Number per 10 000 Population	Number per 100 Sq Kil	To One Physician	
					Inhabitants	Sq Kil
1876	13 728		3.2	2.5	3 112	89.3
1887	15,824		3.3	2.9	2 951	84.2
1898	24 725		4.0	4.0	2 192	21.9
1900	30,558	82	4.8	5.7	2,060	17.7
1927	43 583	1 739	6.9	9.3	1 451	10.6
1928*	45 948	2 202	7.2	9.8	1,289	10.2
1929*	47 534	2,421	7.4	10.1	1 349	9.9
1930*	47 308	2,611	7.3	10.1	1 305	9.9
1931*	47 063	2,755	7.4	10.2	1,351	9.8
1934†	47,275	2 801	7.2	10.1	1 380	9.9

\* December 31  
† January 1

It is evident, therefore, that during the past five years the figures have changed but slightly. Of the 47,275 physicians, 14,711, or 31.1 per cent, were specialists, with a classification as shown in table 3.

TABLE 3—Classification of Specialists in Germany

Specialty	Men	Women
Surgery	2,701	28
Gynecology and obstetrics	1 655	102
Dermatology and venereal diseases	1 750	63
Ophthalmology	1 291	69
Otology, laryngology and rhinology	1 464	12
Internal diseases	2 703	92
Diseases of children	841	287
Mental and nervous diseases	1,573	80
Totals..	13 978	733

Since 1931 there has been a further increase in the number of specialists, and thus likewise an increase in the percentage of specialists with respect to the whole body of physicians. Five per cent of the women physicians were specialists, which figure was a little lower than the percentage of women physicians with reference to the total. In the rural districts were found 3.4 per cent of the men physicians but only 2.0 per cent of the women physicians and 1.7 per cent of the specialists. The metropolitan districts are the best supplied with physicians, while in some of the rural districts the number is exceedingly small. In the ordinary medical rural districts of from 50 to 69 square kilometers there are only three or four physicians to 10,000 inhabitants whereas in Berlin there are 15.9 physicians per 10,000 of population in Hamburg 12.5, and in the average urban center 11.4.

Between 1931 and 1934 the number of lay practitioners increased by 1.7 per cent or by no means as rapidly as from 1930 to 1931 (8.4 per cent). Nevertheless Jan 1 1934, there were three lay practitioners to every ten physicians (in 1931 only 2.93). The increase was found almost exclusively among the men, 63.4 per cent of the male and 7.1 per cent of the female lay practitioners were engaged in urban centers.

## MEXICO

(From Our Regular Correspondent)

March 2, 1935

## Program of Child Care

The department of public health in Mexico City is working on a program for the care of children in the homes and dispensaries supported by the department. Dr Alfonso L. Alarcón, head of the branch, and the visiting physicians have met several times to discuss the program. To study the problems of children from social and scientific angles, during the preparation of the program, meetings of physicians, nurses and mothers have been held. The first meeting was successful because of the cooperation of the mothers. The department of public health supplies with milk many homes and public milk stations for infants and children. The public health laboratories in the Calzada de Tacuba have been improved with the aim of supervising the quality of milk supplied by the department.

## Tourists and Public Health

Dr J. C. Geiger of the department of public health of San Francisco was in Mexico City, accompanied by his daughter, to study the requirements demanded by the authorities in Mexico of tourists. He is preparing a program related to the requirements of tourists between the United States and Mexico which will be submitted for the approval of the health authorities of both countries.

## Prevention of Smallpox

In Chihuahua and some other states an outbreak of smallpox was recently observed, and the public health authorities have intensified the campaign of prevention. The work includes vaccination of school children and workers in factories and offices. Special brigades are working for this purpose in Aldama, Coyame and Rancheria Juarez.

## Rural Hygiene by Correspondence

The present system of teaching hygiene by correspondence to rural teachers, which has been used during the last three years in Mexico, gives satisfactory results. The courses are given in the form of printed lectures prepared by special physicians. In this way, rural teachers receive a regular education in hygiene. They take examinations in their studies by correspondence, and if they meet the requirements they are given a diploma. February 28 was the closing day of registration for the 1935 course, in which about 4,000 rural teachers registered.

## Marriages

HENRY R. DOUGLAS JR., Harrisburg, Pa., to Miss Frances Louise Ball of Indianapolis, in New York, February 22.

JOHN M. FLEMING, Spartanburg, S. C., to Miss Caroline Z. Miller of Williamsport, Pa., Dec 22, 1934.

HERBERT W. BARRON, Collegeville, Pa., to Miss Alice Williams of Conshohocken, February 23.

STANLEY OSBORN WILKINS, Tinton, Falls, N. J., to Miss Jane Macon Davis of Metuchen, April 17.

RAYMOND HOWE, Daytona Beach, Fla., to Miss Clyde Woodard of Miami, at DeLand, April 8.

HILL CARTER, Washington, D. C., to Miss Devereux Stokely of Birmingham, Ala., April 27.

AUSTIN C. LYNN, Philipsburg, Pa., to Miss Henrietta Brill of Philadelphia in March.

JOHN B. GRAVIS JR., to Miss Helen Cavanaugh, both of Columbus, Ohio, April 6.

CHARLES E. KENNEDY to Miss Mary Johnson, both of Smackover, Ark., March 29.

WILLIAM HARBIN JR., to Miss Elizabeth Warner, both of Rome, Ga., April 24.

## Deaths

**William Valentine Mullin** ☉ Cleveland, Denver and Gross College of Medicine, 1908, secretary of the Section on Laryngology, Otology and Rhinology, American Medical Association, 1925-1928, and chairman, 1928-1929, member, in 1926 vice president, in 1933 treasurer and in 1934 secretary of the American Laryngological Association, member of the American Academy of Ophthalmology and Oto-Laryngology, the American Laryngological, Rhinological and Otological Society and the American Otological Society, fellow of the American College of Surgeons, served during the World War on the editorial board of the *Annals of Otology Rhinology and Laryngology*, since 1926 head of the otolaryngology department of the Cleveland Clinic Foundation, aged 51 died, April 25 in the Cleveland Clinic Hospital, of cavernous sinus thrombosis

**Arthur Teall Mann** ☉ Minneapolis, Harvard University Medical School, Boston, 1896, associate professor of surgery, University of Minnesota Medical School, assistant in surgery, 1900-1902, instructor, 1902-1907 and clinical professor 1907-1913 associate professor of surgery, University of Minnesota Graduate Faculty since 1915, member and past president of the Western Surgical Association fellow and at one time governor of the American College of Surgeons, served during the World War, for many years consulting surgeon to the Minneapolis City Hospital surgeon consultant to the U S Public Health Service, 1919-1923, aged 69, died, April 15, of carcinoma of the cecum

**George Clinton Straub**, Brooklyn Long Island College Hospital, Brooklyn 1902 member of the Medical Society of the State of New York served during the World War on the courtesy staffs of the Brooklyn Eye and Ear Hospital and the Prospect Heights Hospital, aged 58 died, April 8, in the Long Island College Hospital, of agranulocytic angina

**Edmund D Putnam**, Sioux Falls, S D Medical Department of Omaha University, 1897, past president of the Sioux Valley Medical Association fellow of the American College of Surgeons, on the staffs of the McKennan Hospital and the Sioux Valley Hospital, aged 61, died, April 1, of cerebral arteriosclerosis

**Frank Samuel Boyer** ☉ Allentown Pa, Medico Chirurgical College of Philadelphia 1909, past president of the Lehigh County Medical Society, chief medical inspector in the public schools, on the staffs of the Sacred Heart and Allentown hospitals, aged 59, died March 23 of cardiovascular renal disease

**Tyre Harrison Stice**, Imola, Calif, Cooper Medical College, San Francisco, 1894 member of the California Medical Association superintendent of the Napa State Hospital aged 65, died, March 9, in the Victory Hospital, Napa of chronic myocarditis, arteriosclerosis and cholelithiasis

**George Busby Campbell** ☉ Nunda, N Y University of the City of New York Medical Department, 1892 served during the World War, for many years on the staff of the Utica (N Y) State Hospital aged 66, died, April 7, in the Strong Memorial Hospital, Rochester, of pneumonia

**Alfred Heaton Schooley** ☉ Terril, Iowa State University of Iowa College of Medicine, Iowa City, 1902 past president of the Dickinson County Medical Society served during the World War, on the staff of the Birney Hospital, Estherville, aged 63, died, March 18 of carcinoma of the stomach

**Farquhard Campbell** ☉ Kansas City, Kan, Western University Faculty of Medicine, London, Ont, Canada, 1903, at one time health officer, police surgeon and county deputy coroner on the staffs of the Bethany and Providence hospitals, aged 55, died, April 1, of cerebral hemorrhage

**Samuel Joshua Bernstein** ☉ Brooklyn University and Bellevue Hospital Medical College, New York 1909 formerly on the staffs of the Jewish Hospital, the Trinity Hospital and the Beth Moses Hospital, aged 46, died, April 2, in Los Angeles, of coronary thrombosis

**Charles Edwin Butts** ☉ Spokane, Wash State University of Iowa College of Medicine, Iowa City, 1908 fellow of the American College of Surgeons served during the World War aged 51 on the staff of St Luke's Hospital, where he died, March 30 of diabetes mellitus

**George Elden MacArthur** ☉ Ipswich, Mass University of Vermont College of Medicine, Burlington 1883 formerly chairman of the school committee aged 76 on the staff of the Benjamin Stickney Cable Memorial Hospital where he died, April 11, of arteriosclerosis

**John H Sutter**, St Louis, St Louis College of Physicians and Surgeons, 1901, member of the Missouri State Medical Association, past president of St Louis County Medical Society, aged 63, died, March 29, in the Evangelical Deaconess Hospital, of carcinoma

**Ross Fred Terrell** ☉ Stigler, Okla, University of Tennessee Medical Department, Nashville, 1900, secretary of the Haskell County Medical Society, aged 59, died, March 14 in St Edward's Mercy Hospital, Fort Smith, Ark., of spinal meningitis

**John E Guy** ☉ Milwaukee, Hahnemann Medical College and Hospital, Chicago, 1904, member and past president of the Wisconsin State Board of Medical Examiners, on the staff of St Mary's Hospital, aged 55, died, April 10, of coronary embolism

**Sidney Manson Edmondson** ☉ Clayton, N M, North Carolina Medical College Davidson, 1906, past president of the Union County Medical Society on the staff of St Joseph Hospital, aged 53, died in March in Texline, Texas, of angina pectoris

**Albert Lee Peters**, Hurricane, W Va, Louisville (Ky) Medical College, 1894, member of the West Virginia State Medical Association, served during the World War, aged 68, died, February 21, of myocarditis and cardiac asthma

**James Henry Trainor**, Newark, N J Columbia University College of Physicians and Surgeons, New York 1903 member of the Medical Society of New Jersey, aged 53, died suddenly, March 15, of chronic myocarditis

**Edward Adolph Pinkus**, Brooklyn, Syracuse University College of Medicine 1923, served during the World War, aged 41 on the staff of the Jewish Hospital, where he died, April 5, of heart disease.

**George Duncan Macleod**, Cleveland, Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1898, aged 69, died, April 3, of arteriosclerotic heart disease

**Ernest Milton Parrett**, Columbus Ohio, Starling Medical College, Columbus, 1899, on the staff of the Grant Hospital, aged 59, died, April 15, of bronchiectasis and chronic myocarditis

**John Henry Sevier**, Brownsville, Tenn, Vanderbilt University School of Medicine, Nashville 1883, aged 72, died, April 15, in the Baptist Hospital, Memphis, of cerebral hemorrhage

**Arthur William Brennan**, Minneapolis, St Louis University School of Medicine, 1911 served during the World War, aged 47, died, March 27, of pulmonary tuberculosis

**James Henry Thompson** ☉ Ashtabula, Ohio University of Toronto Faculty of Medicine, 1927, on the staff of the Ashtabula General Hospital, aged 33, died, April 5, of pneumonia

**John W Phemister**, Houston Mo, St Louis College of Physicians and Surgeons, 1890, aged 69, died, February 21, in a hospital at Rolla, of carcinoma of the sigmoid

**Joseph Callahan Bussey**, Louisa, Ky Medical College of Ohio, Cincinnati, 1889 aged 76, died, March 27, of arteriosclerosis, chronic nephritis and uremia

**Robert Joseph St Jacques**, Marlboro, Mass, School of Medicine and Surgery of Montreal, Que., Canada, 1879, aged 78, died, March 1, of angina pectoris

**Alonzo D Thornton**, Goreville, Ill Chicago College of Medicine and Surgery, 1913 aged 52 died, February 1, in the Herrin (Ill) Hospital, of pneumonia

**Oliver Gatch Chance** ☉ Cincinnati University of Cincinnati College of Medicine, 1924, aged 34, died, April 8, in the Christ Hospital, of spinal meningitis

**Joseph Alfred Robertson**, Hot Springs National Park, Ark. Memphis (Tenn) Hospital Medical College 1897, aged 71, died recently of cholelithiasis

**John W Cain**, Waukon, Iowa, Rush Medical College, Chicago, 1883, aged 79, died, March 25, of arteriosclerosis, chronic nephritis and uremia

**W H Plummer**, Winfield, Ark (licensed in Arkansas in 1903), also a lawyer, preacher and postmaster, aged 66, died, April 11, of heart disease.

**Leander K Shipman**, New London, Conn New York Homeopathic Medical College 1883 aged 81 died April 11, of cerebral thrombosis

**William Eugene Settle**, Wynne Wood, Okla Louisville (Ky) Medical College, 1894, aged 68, died, March 12, of myocarditis

**Harry Wilbur Sims**, Columbus Ohio Rush Medical College, Chicago, 1908 aged 53, died, March 29 of heart disease



## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request

### PREMATURE ALOPECIA IN WOMAN

*To the Editor*—A woman aged 53 has had an itching scalp and falling of the hair for the past two years. The general health, aside from nervousness of the menopause is good. The scalp is clean except for a few minute scales of a seborrheic nature. The scalp and hair are quite oily the condition returning in three or four days after a shampoo as does the intense itching. There are no irritated or sore spots on the scalp. There is no evidence of syphilis. The patient has never had permanent waves or other severe hair dressings nor has she permitted hair dressers to use severe or strong preparations on the scalp. As to treatment, sulphur, resorcinol and the usual category of medicaments have been used also small doses of quartz light. The hair does not come out in spots but it is thinning all over the head. I will appreciate any suggestion. Please omit name.  
M D, Oklahoma

**ANSWER.**—The description is that of premature alopecia in a seborrheic individual. The following pomade may be vigorously massaged into the scalp twice daily or applied at night and washed out in the morning oil of cade 12 Gm precipitated sulphur, 6 Gm, salicylic acid 3 Gm, sufficient official ointment of rose water to make 60 Gm. The oil of cade may be omitted, but the preparation is then less efficient. The scalp should be shampooed with tincture of green soap at least three times weekly. It should be lathered and rinsed several times until abundant foamy lather is obtained, which should be left on for from fifteen to thirty minutes. The hair should then be dried well. Frequent massage and shampoos will mechanically remove some of the loose hairs so that the hair loss is temporarily aggravated. The hair may be bobbed for convenience. Daily exposure to the air cooled mercury vapor lamp is efficacious in sufficient dosage to produce tanning of the scalp. After a few weeks the pomade may be replaced by the following scalp lotion corrosive mercuric chloride, 0.125 Gm, chloral hydrate, 0.5 cc tincture of capsicum 1 cc alcohol 60 cc, perfumed spirit 60 cc, sufficient water to make 240 cc. A small amount should be poured into the scalp daily, followed by massage. If there is any evidence that the itching is due to the menopausal nervousness a daily nap and phenobarbital will lower the patient's irritability.

### PTOSIS OF UPPER EYELIDS

*To the Editor*—In THE JOURNAL Dec 22 1934 appears a query and minor note entitled Ptosis of Upper Eyelids. As Dr Guyton's and my own symptoms began with an intermittent ptosis which a number of eminent physicians failed to recognize as a symptom of myasthenia gravis we are wondering how the person who answered this inquiry ruled out myasthenia gravis.

HARRIET EDGEWORTH Warm Springs Ga

**ANSWER.**—The ptosis described was not intermittent, did not come on when the patient was tired, and the doctor specifically states that the general musculature was normal. While ptosis is a common finding in myasthenia gravis, it is intermittent present when the patient becomes fatigued, and occurs most often in women around the age of 50. In these cases the duction tests show the extrinsic ocular muscles stronger than normal.

The condition described is most likely a paresis resulting from an influenza.

Aminoacetic acid and epinephrine or ephedrine can be used as a therapeutic test. These would help myasthenia gravis as well as any muscular weakness.

### TREATMENT OF SYPHILIS

*To the Editor*—I have two patients a mother aged 29 and a son aged 6 who both have 4+ Wassermann reactions. The father's reaction is negative. The mother had some treatment apparently with neosarsphenamine about ten years ago. Neither mother nor son has any external signs of syphilis. The mother has had two spontaneous abortions in the past two years. The son has very marked internal strabismus. Will you please outline the best treatment for each? Please omit name.  
M D Pennsylvania

**ANSWER.**—Authorities differ as to what constitutes the 'best' treatment for syphilis. Modern syphilotherapy favors a combined attack with heavy metals preferably a bismuth compound either conjointly or alternating with courses of one of the arsphenamines. According to one recent authority from twenty to thirty injections of arsphenamine intravenously and perhaps

double that number of injections of a bismuth compound intramuscularly will confer a high rate of protection against recurrence and late accidents in early cases. In addition to this treatment the mother should receive iodides between courses and mercurial inunctions may be substituted for one of the bismuth courses. The child who obviously has congenital syphilis, should receive substantially the same treatment in correspondingly smaller doses. The correspondent would do well to consult "Modern Syphilology," by Stokes, or the "Treatment of Syphilis," by Schamberg and Wright, or "The Modern Treatment of Syphilis," by Moore for details as to dosage, frequency of injection, and instructions how to guard against possible dangerous reactions to the drugs employed. Unless the practitioner is well versed in the treatment of syphilis he would do well to send his patients elsewhere.

### NUMBNESS OF FINGER IN FURRIER

*To the Editor*—A man aged 40 whose general physical condition is excellent and who is 6 feet (183 cm) tall and weighs 195 pounds (88 kg) complains of numbness and coldness in the lower half of the right index finger. There is also slight tingling in the tip of the finger and a marked impairment in the sense of touch. He is a furrier and relies on his sense of touch in this particular finger to determine the quality of furs. In childhood both hands were frozen on two or three occasions. In 1915 he sustained a gunshot wound of his right hand and arm and fourteen of these shots are in the hand and arm and one of them lies along the medial side of the right index finger. There is no evidence of lead poisoning. On examination the finger is slightly bluish over the distal phalanx is not swollen puts on pressure as none of his other fingers do is cold and there is a complete loss of light touch but perceptions of heat and cold are differentiated. Kindly advise as to what the possible etiologic factors may be and what course of treatment I should pursue.  
H O TUCKER MD Santa Barbara Calif

**ANSWER.**—Numbness and coldness of the fingers of a man who does not have any known existing disease suggests the following possibilities. 1. He may have early disease of the digital arteries, which may be thrombo-angitis obliterans of the digital vessels or arteriosclerosis obliterans or some unidentified form of arterial disease. Persistent coldness of the finger and the presence of color changes on exposure to cold may help in the diagnosis. The presence or absence of pulsations in the palpable arteries should be sought for. Arteriography has been of great help in the identification of occlusive lesions of the peripheral arteries. 2. He may have some disturbance of the peripheral nerves with a secondary vasospastic disturbance. The presence of shot in the arm and finger suggests the effects of a foreign body on the nerve. It seems more likely from the unidigital distribution of the complaint that the foreign body in the finger may be responsible. The coldness of the finger could be related to irritation of sympathetic nerves in the peripheral mixed nerve. The loss of light touch is frequently found in any disease in which the circulation is diminished. Warming the fingers, by putting the hands in warm water frequently demonstrates restoration of the sense of touch by improving the circulation. Cervical ribs should be ruled out as this condition may produce paresthetic symptoms in the fingers. Early scleroderma is ruled out by absence of changes in the skin.

The treatment depends on the diagnosis. As long as the circulation is fairly adequate, as demonstrated by preservation of normal color of the skin when the hands are elevated, no serious sequelae should follow. Removal of the lead pellets should be considered.

### HERPES OR ALLERGY

*To the Editor*—A married woman aged 30 with no complaints other than an intractable constipation has for fifteen years suffered from multiple ulcers of the peptic type on the lips cheeks and tongue. Relief of the constipation does not have any effect on the occurrence of the ulcers. A chronic infection of the nose and throat has been cured, with no improvement in the condition of the mouth. Diet and conditions of hygiene cannot be criticized. Her dentist assures me that the teeth are not rough or irregular. The bowel is neither of the spastic nor the atonic type. The oral administration of phenyl salicylate 20 grains (1.3 Gm) a day in divided doses gave no benefit. What more can you suggest? Please omit name and address.  
M D New York

**ANSWER.**—The lesions on the lips, cheeks and tongue may be either a chronic herpes or more probably oral manifestations of a gastro intestinal allergy. The latter may be determined by keeping a food diary for two or three weeks and possibly finding a relationship with any foods and the occurrence of the lesions, that failing, a series of skin tests with food allergens might be carried out. Finally elimination diets might be tried such as suggested by Rowe. The constipation should be treated by high residue diets drinking several glasses of water daily, exercise, and the occasional use of a retention oil enema.



## TUMOR OF HYPOPHYSIS

*To the Editor*—M C a boy, aged 12½ years was seen three and one half years ago with a complaint of increased thirst, poor appetite, restless sleeping and the passing of great quantities of water. The birth and the developmental history were normal. At the age of 4 years he had a left frontal sinus operation following acute ethmoiditis from which he apparently made complete recovery. Medical and neurologic examinations at this time were negative. Complete Wassermann tests and determination of the serum potassium and calcium roentgen examination of the skull and eyeground examinations were all negative. Complete chemistry stool and complete urine examinations were negative. The twenty four hour intake varied from 6 to 8 quarts with a corresponding output. Following the diagnosis of diabetes insipidus solution of pituitary by hypodermic injection in adequate dosage was given to which he responded a short time by decreased intake and output but after ten days the solution of pituitary seemed to have lost its effect even though the dose was increased. Restriction of the fluid intake resulted in extreme restlessness, headaches, dryness of the hands and feet and cracking of the lips and general body discomfort although the output was lowered. Ampules of pitressin by hypodermic injection produced the same effect as the solution of pituitary giving relief for a short time followed by a return of the high intake and output. Amidopyrine by mouth reduced the intake and output greatly but produced extreme nausea no matter in what form given so that the medical treatment was discontinued. These symptoms in the status of the case continued unchanged until one year ago when in addition to the symptoms of polyuria and increased thirst he began to have spells of nausea vomiting and dizziness which lasted for three days and seemed to occur periodically every two weeks. During this time he lost weight was unable to retain any nourishment and was entirely incapacitated. These symptoms were somewhat ameliorated when 40 mg of pituitary powder was given intranasally three times a day but the spells of nausea dizziness and vomiting have persisted up until the present time. He has been thoroughly checked at the Johns Hopkins Hospital Neurological Institute. Encephalograms and repeated neurologic examinations have been persistently negative. Complete chemical tests taken before during and after the spells of nausea and vomiting proved negative. I would appreciate any information as to the diagnosis and management of this case.

A S FINKELSTEIN M.D. Newark N. J.

*ANSWER*—The history of this patient suggests a lesion of the hypophysis or probably more correctly the hypothalamus. The careful studies that have already been made would tend to exclude the diagnosis of tumor in the region of the diencephalon. Other lesions of the hypothalamus may cause vomiting, headache, nausea and loss of weight. Nuclear degeneration from disease, postencephalitic lesions, gummas, cysts lymphomas, multiple sclerosis and hemorrhage may produce symptoms that are similar to those caused by tumors and may be not unlike those which are present in the case described. The supra-optic nucleus has been considered the center of water metabolism, and lesions of this region may cause polyuria and other symptoms complained of by the patient. Many writers suggest that occasional lumbar puncture may give relief in some cases. Solution of pituitary and ampules of pitressin, which have already been tried in this case, are recommended.

## LOSS OF POTENCY IN IMMUNE SERUM

*To the Editor*—In a recent issue of a veterinarian journal I noted a statement to the effect that a blood serum gradually decreased in its agglutinative power on aging. This statement was made with particular reference to *Brucella abortus* or Bang's abortion disease in cattle and man. Has there been any publication that would uphold such a statement? Several times I have made checks on positive serum reacting to this disease and the agglutinative power always appears to remain strong even up to two weeks time. Your information will be greatly appreciated.

ROGER D. MINSTER Bacteriologist Nampa Idaho

*ANSWER*—It is true in general that immune serum gradually loses in antibody strength on standing but this loss is gradual and it may take months and even years before the loss becomes complete. An agglutinating serum against *Brucella* would be expected to retain its agglutinins much longer than two weeks if properly preserved in the icebox.

## WARTS AROUND FINGERNAILS

*To the Editor*—Kindly advise best treatment of papillomatous growths around and underneath the fingernails. Electrodesiccation and x-rays have been used but the growths recurred. Please describe local anesthetic method for electrodesiccation at this area. Please omit name.

M.D. New York

*ANSWER*—Warts often can be cured by suggestion and many of the cures from mild chemical or physical measures may really be faith cures. Even after the failure of electrodesiccation and x-rays this may be worth trying, but the chances of success are much smaller than they are in untreated cases.

Electrodesiccation or the electrocautery will cure them if carried far enough. After a treatment that seems adequate,

the patient should return regularly for inspection and the cauterization should be repeated on any areas incompletely treated.

Anesthesia sufficient for small areas can be obtained by injecting a 2 to 4 per cent solution of procaine hydrochloride directly about and under the wart to be treated. For patients with many warts on one finger, a circle of deep injections proximal to the area to be treated will anesthetize the whole tip of the finger. Epinephrine should not be used for fear of serious damage to the circulation.

## DYSPNEA AND SWALLOWING

*To the Editor*—I have a case under observation of a woman aged 64, formerly a trained nurse, who is active energetic and in good health. During the last three years she has at rare intervals viz. once or twice a year, been seized with an attack of dyspnea. The attack is brought on by some failure to swallow properly which results in a fit of coughing. Suddenly during the latter she is seized with a sensation of being strangled gasps for breath totters and becomes frightened. The seizure is painful to witness. The struggle for air and the terror soon pass leaving the patient in a perfectly normal condition. I take it that this is a reflex spasm of the bronchi because I have heard of bronchospasm and have not heard of laryngeal spasms in normal people. I have read of death resulting from bronchospasm in persons of frail constitution but this woman is strong though of advanced years. Will you be so kind as to inform me how the patient can meet these crises herself also what I might do to assist her? These questions I should like to have answered promptly. Less urgent is my request for references to the literature on this subject. Please omit name and city.

M.D. Pennsylvania

*ANSWER*—These attacks are apparently initiated during the act of swallowing. The first manifestation is coughing, indicating irritation of the larynx, followed by "strangling," and eventually severe laryngeal spasm preventing inspiration or expiration and giving the sensation of acute suffocation.

The disturbance of swallowing is apparently in the pharynx or hypopharynx and would suggest impairment of initiation of the act of deglutition due to paresis of the muscles. As it occurs at long intervals it may be associated with a too rapid attempt of the act and some of the food flows into the larynx.

The patient should be cautioned to masticate her food thoroughly and to swallow slowly. The prognosis is good unless there are signs indicating progressive bulbar palsy.

## PSORIASIS

*To the Editor*—I have a girl aged 3½ years under my care who has had psoriasis lesions on her trunk and scalp for three months. What is the most satisfactory method of treating this condition and what will be the prognosis after she reaches adult life? Please omit name.

M.D. California

*ANSWER*—The application of an ointment containing 3 per cent of salicylic acid and from 3 to 5 per cent of ammoniated mercury to the affected spots each night, and removing it with any loose scales, with olive oil the next morning, is of value in these cases. Starch and alkaline baths are also advised. If the case is one of true psoriasis, the possibility of recurrent attacks, with remissions of variable duration, for the rest of her life is highly probable. Restriction of protein and fat has also been recommended in psoriasis. The use of vitamins A and D by mouth, or salicin, or the careful administration of arsenic is of value in cases that resist local and dietary treatment.

## TREATMENT OF SYPHILIS IN PATIENT WITH SMALL VEINS

*To the Editor*—I would appreciate your advising me of any suggested method you may know about for treating syphilis by the injection method in a patient who has unusually poor veins. Please omit name and address.

M.D. New York

*ANSWER*—It is rare when patients have veins that are not suitable for intravenous injection. This does, however, occasionally occur, particularly in very obese individuals.

When the veins cannot be easily reached, the patients may be treated if arsphenamine is indicated, by intramuscular injections of sulpharsphenamine or by placing entire reliance on heavy metal therapy, which can be injected into the buttock, in the form of either bismuth or mercury compounds. The type of heavy metal and the choice of the particular drug are open to considerable variation. Generally speaking, the insoluble salts of both mercury and bismuth, such as mercuric salicylate and bismuth subsalicylate, given once weekly, are most widely used by syphilologists. If sulpharsphenamine is given it may be used weekly in doses of 0.15 Gm. to each 25 or 30 pounds of body weight and under these conditions heavy metal should of course be used.

### MULTIPLE SCLEROSIS

*To the Editor*—Is it advisable to search for focal infections in multiple sclerosis and eliminate them if found? If a positive complement fixation test for gonorrhea is found in a patient with multiple sclerosis after the patient has supposedly been cured of gonorrhea five years and is at present without symptoms referable to the old gonorrheal infection, is a stock gonococcus vaccine treatment advisable? If so what line of vaccine treatment should be pursued? What is the consensus as to fever therapy or quinine hydrochloride in multiple sclerosis? Has there been any confirmatory literature on lead as a possible cause of multiple sclerosis since the article in the *Journal of Neurology and Psychiatry* in February 1934? How long may a remission in multiple sclerosis last? Is the prognosis different in the sexes? Is there anything to be done for spastic paresis? How much exercise is advisable in a patient with slight spastic paresis of one leg? Please omit name  
M D, Massachusetts

**ANSWER**—Multiple sclerosis is considered by some investigators to be degenerative and by others to be inflammatory in nature. It is advisable to clear up any focal infection when present. There is no causal relationship between gonorrhea and multiple sclerosis. Gonococcus vaccine treatment in multiple sclerosis is not advised. Typhoid and paratyphoid vaccine is used often in retrobulbar neuritis of multiple sclerosis in the hope that the process in the involved eye may be arrested. Quinine hydrochloride should be used in every case of multiple sclerosis unless the patient is sensitive to it. There has been no confirmatory literature on lead as a possible cause of multiple sclerosis since 1934. A remission in multiple sclerosis may last from weeks to years. There have been isolated instances of complete recovery. There is no difference in prognosis for the two sexes. Absolute rest in bed is probably the best treatment for spasticity in multiple sclerosis.

### PERLÈCHE

*To the Editor*—What would you advise for a woman aged 55 who for twelve years has complained of fissures from the corner of her mouth and her nose that persistently crack open and become sore? Various ointments such as Calumol have been tried. She has received dilute hydrochloric acid for gastric achylia with no permanent benefit also silver nitrate locally. Although the basal metabolic rate was only -3 per cent she was given desiccated thyroid 2 grains (0.13 Gm) daily with but a slight improvement.  
M D Wisconsin

**ANSWER**—The condition conforms to that seen in perlèche. This is a condition most frequently seen in children but which may occur in adults and in which the skin at the corners of the mouth becomes macerated and small transverse fissures appear showing a reddened base near the lip when it is stretched. This condition is an infection due to cocci, moniliae or cryptococci. The involvement of the nose could occur by secondary extension. Syphilis, of course, must be ruled out by serologic tests. If the condition is perlèche, the areas should be painted with a 2 per cent solution of gentian violet. The use of 2 per cent ammoniated mercury ointment is also of value in some of these cases.

### SILVER DEPOSITS IN SKIN

*To the Editor*—I have a patient who is employed in an industry which necessitates immersing his hands in silver solutions whereby there remains on his skin a deposit of silver sulphide that is extremely difficult to remove. He has experienced no effects either locally or systemically from his exposure. I am interested in finding out whether or not there is anything that he can use to remove this deposit from his skin. Please omit name  
M D Massachusetts

**ANSWER**—The removal of silver deposits from the skin is a difficult procedure. Sodium thiosulphate intravenously or an intradermal injection of 6 per cent sodium thiosulphate and 1 per cent potassium ferricyanide, as recommended by Stillians and Lawless (*THE JOURNAL*, Jan 5 1929), may be tried.

### KERATOSIS OF PALMS AND SOLES

*To the Editor*—A girl baby aged 3 months has had thick rough dry palmar and plantar epidermis since the age of 6 weeks. The physical examination and laboratory studies give negative results. The blood Wassermann reaction is negative in the child and her mother. The family history is negative except that the mother has had the same condition since about the age of the child. A diagnosis of hereditary or congenital keratosis has been made. I would like your opinion as to diagnosis prognosis and treatment. Please omit name.  
M D Iowa

**ANSWER**—This case is one of congenital symmetrical keratosis of the palms and soles. In the inherited cases the prognosis must be guarded as the complete removal of the disorder is not often accomplished. The skin, however may be kept soft by applying an ointment consisting of from 2 to 5 per cent of salicylic acid in petrolatum. Bathing of the parts to secure

maceration, shampooing with soft soap, and the subsequent application of a bland ointment are also of value. When the child gets older, x-rays may be cautiously used in fractional doses.

### STERILITY IN CRYPTORCHIDISM

*To the Editor*—A man aged 24 with bilateral cryptorchidism is in good health, both testes are apparently intra abdominal puberty occurred at about 15 years and male sex characteristics and sexual appetite are normal. He never considered marriage because of his condition and he has considered himself sterile. He believes himself the only one to have had intercourse with a now pregnant woman about the time she became pregnant. The lady confirms him in this belief. Examination of a condom specimen twelve hours old showed no spermatozoa or heads of spermatozoa. Would a fresher specimen possibly show spermatozoa? Please advise as to the possibility of this man not being sterile. Please omit name  
M D, Pennsylvania

**ANSWER**—Cryptorchids are as a rule sterile. The condom specimen examined shows almost conclusively that the patient is sterile, for, even if examined at this late date, spermatozoa though dead ought to be found in a normal specimen. There is no harm, of course, in confirming this information by obtaining a fresher specimen. The chances are, however, that he is absolutely sterile. A trial of injections of gonadotropic substance from the urine of pregnancy (antuitrin S or follutein) should be made in the hope of causing a descent of the testicles, and, if not successful, an operation should be advised.

### TOURNAY SIGN

*To the Editor*—Will you kindly let me know the meaning of the following sign? "Tournay's sign is always present in Horner's syndrome. Horner's syndrome was recently discussed at a meeting of ophthalmologists and Tournay's sign was mentioned from the literature. No one present ever heard of the term."  
M D, New York

**ANSWER**—The Tournay sign consists in a unilateral dilatation of the pupil of the abducting eye on extreme lateral fixation. The dilatation begins after an interval of three to five seconds and it is about 0.5 mm in extent. It persists as long as the lateral fixation is maintained, although hippus-like variations occur. According to Franceschetti, this phenomenon was described by Gianelli before Tournay's publication in 1927.

### VISUAL ACUITY IN CHILD

*To the Editor*—How early in life does a child see?—a question that was suddenly popped at me. Please omit name  
M D, Ohio

**ANSWER**—A baby sees as soon as it emerges from the birth canal. The visual acuity is low, however, for the macular area of the retina is not yet differentiated. Visual acuity as judged by adult standards depends on a complete differentiation of the macular retina, and this differentiation does not begin until about the sixth week of extra-uterine life. It is completed between the third and fifth months. It is believed that at birth the macular retina has about the same visual efficiency as does the adult retina that lies 15 or more degrees away from the macula, namely, about one forty-fifth of standard visual acuity.

### NEW YORK CLIMATE AND BRONCHITIS

*To the Editor*—Can you inform me or are there any data available as to the advantages or disadvantages of southeastern New York State over the western part of New York State (Buffalo) in the protection of a child from recurring bronchitis? I will appreciate any aid you may be able to give me concerning this problem.  
H F FOHLMANN, M D Middletown, N Y

**ANSWER**—The climatic conditions in the western part of New York State, and the southeastern part, are in a general way comparable. From the climatic standpoint there should be no advantages or disadvantages in relation to a child suffering from recurring bronchitis.

### COMPARATIVE REACTIONS FROM SCARLET FEVER AND DIPHTHERIA ANTITOXINS

*To the Editor*—In the Year Book of General Medicine 1935 page 98, Hunt says that the reaction from scarlet fever antitoxin is not more severe than the reaction of diphtheria antitoxin. I am wondering whether this statement is not questioned by most writers.  
J D MICHIE, M D Childress Texas

**ANSWER**—On the contrary, writers who have had extensive experience agree with Dr Hunt.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**ALABAMA** Montgomery June 24 26 Sec Dr J N Baker 519  
Dexter Ave Montgomery

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** Oral (Group A and Group B candidates) New York June 10 Sec, Dr C Guy Lane, 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** Final oral and clinical examination (Group A and Group B candidates) Atlantic City, N J, June 10 11 Sec Dr Paul Titus 1015 Highland Bldg, Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** Philadelphia June 8 and New York June 10 Sec Dr William H Wilder 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N J June 10 and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** Philadelphia June 7 8 Sec Dr Walter Freeman 1726 Eye St NW Washington D C

**AMERICAN BOARD OF RADIOLOGY** Atlantic City N J June 8 10 Sec Dr Byrl R Kirklm Mayo Clinic Rochester Minn

**ARIZONA** Basic Science Tucson June 18 Sec Dr Robert L Nugent, Science Hall University of Arizona Tucson

**ARKANSAS** Regular Little Rock May 14 Sec Dr A S Buchanan Prescott Electic Little Rock May 14 Sec Dr L L Marshall 820 W 14th St Little Rock

**CALIFORNIA** Reciprocity San Francisco May 15 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**CONNECTICUT** Basic Science New Haven June 8 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven

**DELAWARE** June 11 13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover

**FLORIDA** Jacksonville June 17 18 Sec Dr William M Rowlett P O Box 786 Tampa

**GEORGIA** Atlanta and Augusta June 11 12 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**INDIANA** Indianapolis June 18 20 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis

**IOWA** Iowa City June 4 6 Dir Division of Licensure and Registration Mr H W Gref, Capitol Bldg Des Moines

**KANSAS** Topeka June 18 19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned

**KENTUCKY** Louisville June 5 7 Sec State Board of Health Dr A T McCormack 532 W Main St Louisville

**MARYLAND** Regular Baltimore June 18 21 Sec Dr John T O Mara 1211 Cathedral St Baltimore Homeopathic Baltimore June 11 12 Sec Dr John A Evans 612 W 40th St Baltimore

**MICHIGAN** Detroit June 5 7 and Ann Arbor June 11 13 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 3 4 Hollister Bldg, Lansing

**MISSISSIPPI** Jackson June 25 26 Asst Sec State Board of Health Dr R N Whitfield, Jackson

**MISSOURI** St Louis June 12 14 State Health Commissioner Dr E T McLaugh State Capitol Bldg Jefferson City

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16 18 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** Omaha June 11 12 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEW JERSEY** Trenton June 18 19 Sec Dr James J McGuire 28 W State St Trenton

**NEW YORK** Albany Buffalo New York and Syracuse June 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

**NORTH CAROLINA** Raleigh, June 10 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh

**OHIO** Columbus June 4 7 Sec State Medical Board Dr H M Platter 21 W Broad St Columbus

**OKLAHOMA** Oklahoma City June 5-6 Sec Dr J M Byrum Mammoth Bldg Shawnee

**OREGON** Basic Science Portland May 18 Sec Mr Charles D Byrne University of Oregon Eugene

**SOUTH CAROLINA** Columbia June 25 Sec Dr A Earle Boozer 505 Saluda Ave, Columbia

**TEXAS** Austin, June 18 20 Sec Dr T J Crowe 918 19 20 Mercantile Bldg Dallas

**VERMONT** Burlington June 26-28 Sec Board of Medical Registration Dr W Scott Nay Underhill

**VIRGINIA** Richmond June 19 21 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

**WISCONSIN** Basic Science Milwaukee June 1 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee Medical Milwaukee June 25 28 Sec Dr Robert E Flynn 401 Main St La Crosse

**WYOMING** Cheyenne May 20 Act Sec Dr G M Anderson Capitol Bldg Cheyenne

### Oregon January Examination

Dr Joseph F Wood secretary Oregon State Board of Medical Examiners reports the written examination held in Portland, Jan 8-10 1935. The examination covered 11 subjects. An average of 75 per cent was required to pass. Seventeen candidates were examined all of whom passed. The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists		(1934)	87.6
Loyola University School of Medicine		(1934)	84.1
Indiana University School of Medicine		(1934)	85

University of Rochester School of Medicine	(1934)	90.4
Western Reserve University School of Medicine	(1934)	86.1
University of Oregon Medical School	(1932) 92	(1933) 89 90
(1934) 82 1, 85 7 86 86 5 87 7, 87 7, 89 6 94 4		
University of Wisconsin Medical School	(1933)	87.7

### Rhode Island January Examination

Dr Lester A. Round, former director, Rhode Island Public Health Commission, reports the written and practical examination held in Providence Jan 3-4, 1935. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Nine candidates were examined all of whom passed. The following schools were represented

School	PASSED	Year Grad	Per Cent
Howard University College of Medicine		(1918)	80.1
Boston University School of Medicine		(1934) 82 7 *	88
Harvard University Medical School		(1932)	89.8
Tufts College Medical School		(1926)	81.7
St Louis University School of Medicine		(1934)	83*
Hahnemann Medical College and Hospital of Philadelphia		(1934) 86 4 *	89.5*
Universidade de Lisboa Faculdade de Medicina		(1932)	85.2

\* License withheld pending completion of internship

## Book Notices

**Sculpture in the Living. Rebuilding the Face and Form by Plastic Surgery.** By Jacques W. Mallinck MD. With a foreword by Wendell C. Phillips MD. Cloth. Price \$3. Pp 203 with 70 illustrations. New York: Lancet Press 1934.

This interesting little book is concerned chiefly with the social and esthetic aspects of deformities principally those of the face. It is an attempt to acquaint the physician and through him the layman with the possibilities of the legitimate practice of plastic surgery. Much of the space is given over to a discussion of the psychic and legal aspects of facial deformities, real or fancied. The history of this interesting art is briefly sketched and there is a fair description of the anatomy and physiology of the structures involved. Numerous blemishes and other deviations from normal are mentioned and the treatment is indicated. So far as technique is concerned the book is superficial. One could hardly expect a work of this size to devote much space to the actual details of the operative procedures. Surgeons desiring information on this phase of the subject will have to seek elsewhere. Mallinck's book is more general in its scope. It delineates the boundaries of ethical plastic surgery in contradistinction to the oft publicized quackery masquerading as such with its attendant evils, misconceptions and complications. The physician who reads this book will gain a clearer conception of what plastic surgery can accomplish at the hands of the experienced and be thereby enabled to advise his patients intelligently.

**The Practice of Refraction.** By Sir Stewart Duke Elder M.A. D.Sc. Ph.D. Ophthalmic Surgeon and Lecturer in Ophthalmology St George's Hospital London. Second edition. Cloth. Price \$4. Pp 383 with 180 illustrations. Philadelphia: P. Blakiston, Son & Company Inc. 1935.

This edition was written about seven years after the first. As some of the redundant matter has been eliminated, it is smaller than its predecessor. In the preface the author says that "whatever the type of book the would be refractionist uses it cannot be insisted upon too strongly that the art of refraction cannot in any sense be learned by reading." This booklet is divided into six sections and six appendices, covering eyestrain, refraction accommodation and convergence, the muscle balance, clinical methods of examination and spectacles. Although the first edition attracted some unfavorable comment it is believed that the second edition will redound to the credit of the author. He does not attempt to teach the beginner how to refract but rather counsels him in the art of refraction. Sound clinical advice is scattered throughout the pages particularly with regard to the correction of lower errors of hypermetropia and astigmatism. The outline of the management of myopia in children is sound. Unfortunately the chapter on convergence is not as clearly understandable as are the other chapters. The description of the management of muscular imbalances, tropias or phorias shows a clear understanding of the subject, without the fanaticism exhibited by so

many writers on this subject. The chapter on clinical methods of examination is of necessity brief, but it should be either briefer or else of much greater length. In the last section are numerous extremely practical points not to be found in the average textbook. The appendices of optical tables and formulas and official visual requirements are compact and convenient. This is a good work especially for supplementary reading, for the young refractionist.

**Catalogue of the Onodi Collection in the Museum of the Royal College of Surgeons of England.** By T. B. Layton DSO MS Conservator of the Museum. Sir Arthur Keith MD FRCS Cloth Pp 131 with 64 illustrations. London: Headley Brothers Journal of Laryngology and Otology. Published in conjunction with the Royal College of Surgeons of England 1934.

The anatomy of the nasal chambers and the cavities accessory to them have been known in a general way to anatomists and to a lesser extent to physicians for many years. In 1882 Zuckerkandl published his 'Normale und pathologische Anatomie der Nasenhöhle.' This publication and the investigations behind it furnished the impetus to the anatomic and clinical work in the succeeding two decades that brought rhinology to its present high state as an art. In 1900 before a meeting of the Society of Hungarian Ear and Throat Specialists, Onodi demonstrated anatomic specimens the study of which was to form the basis of the world famous publications to be brought forth in the next decade. Among these all of which were translated later into English, were 'The Anatomy of the Nasal Cavity and Its Accessory Sinuses,' 'The Optic Nerve and the Accessory Sinuses of the Nose,' 'The Accessory Sinuses of the Nose in Children' and 'The Relations of the Lacrimal Organs to the Nose and Nasal Accessory Sinuses.' In 1903 Killian published 'Die Nebenhöhle der Nase und ihre Lagebeziehungen zu den Nachbarorganen.' The work of Lothrop, Mosher and Ingersoll and Hanau Loeb in the United States, and of Logan Turner in Great Britain together with that of others in France and other countries carried forward our knowledge in the detailed anatomy and the topographic relationships of the accessory sinuses, so that by about 1915 the fund of knowledge was about as complete as it is today. The present review concerns itself with a catalogue consisting of an atlas of drawings and photographs made from specimens of that part of the Onodi collection purchased from Professor Onodi's son, Dr Stanislaw Onodi by a number of British medical men and presented by them in turn to the collection of the Royal College of Surgeons. Descriptions of all the specimens in the collection are present in this publication. Many of these were selected for illustration. A preface by T. B. Layton consists of an interesting discussion of some of the problems in nomenclature that have arisen concerning the detailed anatomic features in this field. Rhinologists should get much pleasure from a perusal of this work and a study of its fine illustrations.

**Illustrations of Regional Anatomy.** By E. B. Jamieson MD Senior Demonstrator and Lecturer Anatomy Department University Edinburgh. Section I Central Nervous System Section II Head and Neck Section III Abdomen Section IV Pelvis Section V Thorax. Paper Price \$9 per set. 203 plates. Baltimore: William Wood & Company 1934.

These illustrations are reproductions of the drawings made by Professor Jamieson in his lectures in the department of anatomy of the University of Edinburgh. Many of them are colored, and they are loosely bound in five sets so that any individual plate is readily detachable. The sets are grouped as follows: central nervous system forty-eight, head and neck sixty-one, abdomen thirty-seven, pelvis thirty, thorax twenty-seven. Any accurate drawings of dissections or any well devised anatomic diagrams repay study. They convey much more information than verbal descriptions in much less time. After one careful dissection has been made they constitute an exceedingly valuable method of rapid review. Thus the atlases of Spalteholz of Toldt and of Sobotta are of the greatest help to students and physicians. There is no royal road to a knowledge of gross anatomy but such illustrations come closer than anything else to providing one. It is clear that the more drawings of different preparations from different points of view there are available the better is this method of study and review. These drawings of Dr Jamieson's do not duplicate those of the atlases in ordinary use. Many are somewhat

diagrammatic, but they are nevertheless true and a reliable means of instruction. Students in countries other than Great Britain will regret somewhat the fact that the labels on all these illustrations are in the local British terminology instead of in the internationally familiar terms of the B.N.A. While the illustrations will be of value to students and physicians everywhere, one can readily understand that they are especially interesting to graduates of the medical schools of the University of Edinburgh, for whom they carry many associations and so constitute an especially valuable means of recalling the knowledge acquired in the dissecting laboratories and lecture rooms of that university.

**The Abbey of Evolayne.** By Paule Ragner. Translated from the French by Samuel Sloan. Cloth Price \$2. Pp 302. New York: Harcourt Brace & Company 1935.

This novel tells the story of the conversion to Catholicism of a surgeon and of the mental reaction of his young wife to the loss of her husband. The book has in it little of specific medical interest except so far as relates to the mental attitude in conversion. The volume seems to elucidate quite satisfactorily the tenets of the Catholic Church and it has been recommended by the Catholic Book Club.

**Female Sex Perversion. The Sexually Aberrated Woman as She Is.** By Maurice Childekel MD. With a foreword by Dr S. Wolman Associate in Medicine Johns Hopkins University. Cloth Price \$6. Pp 331 with 10 illustrations. New York: Eugenics Publishing Company 1935.

This volume is essentially a brief outline of various forms of sex perversion with thumbnail case reports apparently taken from the practice of the author and also from the records of hospitals in Baltimore. It offers also a bare indication of the Freudian conceptions in relationship to such perversions.

## Medicolegal

**Dental Practice Acts. Appointments to Board Limited to Nominees of Dental Association.**—The Tennessee state board of dental examiners revoked the license of Prosterman to practice dentistry and he brought suit in the chancery court, Hamilton county, to have the order of revocation set aside. The court after reviewing the evidence, entered a decree suspending Prosterman's license for thirty days. Both the board and Prosterman appealed to the Supreme Court of Tennessee, the former contending that the chancery court exceeded its authority in modifying the order of the board, the latter protesting that his license should not have been suspended at all.

Prosterman, said the Supreme Court, was entitled to a trial de novo and, under the laws of Tennessee, the chancery court had authority to pass on the facts and modify the order of the board. The Supreme Court sustained the finding of the chancery court that Prosterman had falsely advertised that he had twenty years' experience in all lines or branches of dentistry. Prosterman himself admitted that he had had only ten years. The Supreme Court found misleading a representation made by Prosterman to prospective patients that he was a Dentist formerly Professor and Dean Southern Dental Institute Atlanta, Georgia. Prosterman sought to justify the representation by testifying that he had at one time organized a concern by this name, in Atlanta, which he operated a short time in connection with his dental office there. But, the court said the organization was little more than a name. Prosterman himself testified that he employed no instructors in the so-called institute, that he was the only dentist connected with it. We think, said the Supreme Court it is too plain for argument that such a situation did not justify his holding himself out as formerly Professor and Dean Southern Dental Institute. "Professor" of an 'institute,' said the court implies a position of importance and recognition by others of capacity. The term "dean" clearly suggests an office of responsibility, and definitely denotes a group situation. It is a misleading misnomer if applied to a situation where but one person is engaged, acting for himself and directing only his own individual activities.

Prosterman further challenged the constitutionality of the dental practice act, specifically complaining that the group from

which the governor may appoint members of the board of examiners is limited, by statute, to such dentists as shall be recommended for appointment by the state dental association. While the practice of dentistry, said the court, is a property right, we do not understand that this is true of membership on the state dental or other appointive boards. The right of every qualified dentist to practice his calling provided he does so within the law, is safeguarded by the dental practice act, and the courts are open to all for relief in case the board of examiners appointed by the governor acts arbitrarily or illegally. We find, concluded the court, no constitutional difficulty with this act. The decree of the chancery court suspending Prosterman's license for thirty days, was affirmed.—*Prosterman v Tennessee State Board of Dental Examiners (Tenn.)*, 73 S W (2d) 687

**Abortion, Criminal Fact of Pregnancy Need Not Be Proved**—The defendant-physician was convicted of performing a criminal abortion and appealed to the Supreme Court of Washington.

The burden was on the state, said the Supreme Court, to prove that the curettement was not necessary to preserve the woman's life. The evidence, continued the court, established the fact that the woman made unsuccessful attempts to commit an abortion by taking drugs and that she started out to find and did find, a physician who would perform the operation. There was ample competent evidence, in the opinion of the court that the defendant-physician operated on a healthy woman at her request, to procure an abortion and that she died in consequence thereof. The inference from the evidence, the court said, was irresistible that the operation was not necessary to preserve the life of the mother.

The trial court correctly charged the jury, the Supreme Court said, that it was not necessary for the state to prove that the woman was actually pregnant. Under the Washington statutes (Rem Rev Stat sec 2397), one who believing her to be pregnant, uses instruments or other means on a woman for the purpose of producing an abortion, or induces the woman to use an instrument or other means for such purpose, unless the operation is necessary to save the woman's life is guilty of manslaughter if she dies as a result of such operation, even though the woman is not in fact pregnant.

The Supreme Court could find no reversible error in the record and therefore affirmed the judgment of the trial court.—*State v Martin (Wash.)* 34 P (2d) 914

**Hospital, Charitable Liability for Injury to Patient**—The plaintiff fractured her leg and was taken to the defendant hospital for treatment. While the fracture was being set it was alleged, sparks emitting from a defective fluoroscope in use ignited gases and the plaintiff was injured from a resulting explosion. The plaintiff sued the hospital and when the trial court directed a verdict for the defendant, she appealed to the court of appeals of Ohio, Lucas County.

The defendant contended that it was a charitable corporation and was not for that reason liable. No claim was made in the case, said the court of appeals, that the hospital failed to use ordinary care in selecting and retaining any employee by whose carelessness or incompetence the plaintiff was injured. Manifestly, continued the court if the testimony in the case was true the hospital was being maintained and operated as a public, charitable institution and that fact constituted a complete defense to the plaintiff's suit. The plaintiff contended, however, that the trial judge had no authority to direct a verdict, and that the credibility to be given to the testimony should have been submitted to the jury. The burden rested on the defendant, said the court, to prove that it was a public, charitable organization and while this burden was met by the testimony of only one witness, his testimony was not disputed. There was nothing in the record tending to attack his credibility. Under the circumstances, said the court it was the duty of the trial court to direct a verdict for the defendant. The judgment of the trial court for the defendant was therefore affirmed.—*Walsh v Sisters of Charity of St Vincent's Hospital (Ohio)* 191 N E 791

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 10 14 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Academy of Pediatrics New York June 7 8 Dr Clifford G Grulee, 636 Church Street Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Atlantic City N J June 10 Dr Loring T Swaim 372 Marlborough Street Boston Secretary
- American Association for Thoracic Surgery New York June 3 5 Dr Duff S Allen 3720 Washington Boulevard St Louis Secretary
- American Association of Genito Urinary Surgeons White Sulphur Springs W Va June 6 8 Dr Henry L Sanford 1621 Euclid Avenue Cleveland Secretary
- American Association of Medical Milk Commissions Atlantic City N J June 10 11 Dr Harris Moak 360 Park Place Brooklyn N Y Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Longwood Drive Boston Secretary
- American Child Health Association Iowa City June 19 22 Dr Philip Van Ingen 50 West 50th Street New York Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C Wright 1601 35th Street NW Washington D C Secretary
- American Gastro-Enterological Association Atlantic City N J June 10 11 Dr Russell S Boles 1901 Walnut Street, Philadelphia, Secretary
- American Gynecological Society Hot Springs Va May 27 29 Dr Otto H Schwarz 630 South Kingshighway Boulevard St Louis, Secretary
- American Heart Association Atlantic City N J, June 11 Dr H M Marvin 50 West 50th Street New York, Acting Executive Secretary
- American Laryngological Association Toronto Canada May 29 31 Dr William V Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto Canada June 3 5 Dr Robert L Loughran Sharon Conn Secretary
- American Neurological Association Montreal Canada June 3 5 Dr Henry Alsop Riley 117 East 72d Street New York Secretary
- American Ophthalmological Society Hot Springs Va June 5 7 Dr J Milton Griscom 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5 8 Dr Ralph K Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Toronto Canada May 27 29 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiotherapy Association Atlantic City N J June 11 12 Miss Louise Jetter 17 East Styles Avenue Collingswood N J Secretary
- American Proctologic Society Atlantic City N J June 10 11 Dr Frank G Runyon 1361 Perkiomen Avenue Reading Pa Secretary
- American Psychiatric Association Washington D C May 13 17 Dr William C Sandv State Education Building Harrisburg Pa Secretary
- American Radium Society Atlantic City N J June 10 11 Dr Edward H Skinner 1103 Grand Avenue, Kansas City Mo Secretary
- American Society of Clinical Pathologists Atlantic City N J June 7 9 Dr A S Giordano 531 North Main Street, South Bend Ind Secretary
- American Surgical Association Boston June 6 8 Dr Vernon C. David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City N J June 7-8 Dr Oscar B Hunter 1835 Eye Street NW Washington D C, Secretary
- American Urological Association San Francisco, June 25 28 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary
- Associated Anesthetists of the United States and Canada, Atlantic City N J June 10 12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10 11 Dr Warren T Vaughan 808 Professional Building Richmond Va Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10 11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- California Medical Association Yosemite May 13 16 Dr F C Warnshuis 450 Sutter Street San Francisco Secretary
- Conference of State and Provincial Health Authorities of North America Atlantic City N J June 15 Dr A J Chesley State Department of Health St Paul Secretary
- Connecticut State Medical Society New Haven May 22 23 Dr C W Comfort Jr 27 Elm Street New Haven Secretary
- Florida Medical Association Ocala May 13 15 Dr Shaler Richardson 111 West Adams Street Jacksonville Secretary
- Illinois State Medical Society Rockford May 21 23 Dr Harold M Camp Lahl Building Monmouth Secretary
- Maine Medical Association York Harbor June 23 25 Miss Rebekah Gardner 22 Arsenal Street Portland Secretary
- Massachusetts Medical Society Boston June 3 5 Dr Alexander S Begg 8 The Fenway Boston Acting Secretary
- Medical Library Association Rochester N Y June 17 19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9 11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24 26 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary
- Mississippi State Medical Association Biloxi May 14 16 Dr T M Dye McWilliams Building Clarksdale Secretary
- Montana Medical Association of Helena July 2 3 Dr E G Balsam 208 1/2 North Broadway Billings Secretary
- National Association of Private Psychiatric Hospitals Washington D C June 1 Dr James M O'Neill St Vincent's Retreat Harrison N Y Secretary
- National Tuberculosis Association, Saranac Lake, N Y, June 24 27 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary

Nebraska State Medical Association Omaha, May 14 16 Dr R B Adams Center McKinley Building Lincoln Secretary  
New Mexico Medical Society, Albuquerque May 22 24 Dr L B Cohenour 219 West Central Avenue Albuquerque Secretary  
New York Medical Society of the State of Albany May 13 15 Dr Daniel S Dougherty 2 East 103d Street New York Secretary  
North Dakota State Medical Association Minot May 27 28 Dr Albert W Skelsey 204 Broadway Fargo Secretary  
Oklahoma State Medical Association Oklahoma City May 13 15 Dr L S Willour 203 Ainsworth Building McAlester Secretary  
Pacific Northwest Medical Association Spokane Wash June 27 29 Dr C. W Countryman 407 Riverside Avenue Spokane Wash Secretary  
Rhode Island Medical Society Providence, June 6 Dr J W Leech 167 Angell Street, Providence Secretary  
Society for the Study of Asthma and Allied Conditions Atlantic City N J June 10 11 Dr W C Spain 116 East 53d Street New York Secretary  
Society of Surgeons of New Jersey Atlantic City, N J May 15 Dr Walter B Mount 21 Plymouth Street Montclair Secretary  
South Dakota State Medical Association Pierre May 13 15 Dr John F D Cook Langford Secretary  
Texas State Medical Association of Dallas May 13 16 Dr Holman Taylor 208 Medical Arts Building Fort Worth Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below

### Archives of Ophthalmology, Chicago

13 321 522 (March) 1935

Transplantation of the Cornea V P Filatov Odessa U S S R, edited by Olga Sitchevska New York—p 321  
Short Studies on History of Ophthalmology I The Coming of the Ophthalmoscope into England B Chance Philadelphia—p 348  
Sympathectomy for Retinitis Pigmentosa A E MacDonald and K G McKenzie Toronto—p 362  
\*Essential Shrinkage of Conjunctiva in Case of Probable Epidermolysis Bullosa Dystrophica M Cohen and M B Sulzberger New York—p 374  
Cytoid Bodies A J McLean Portland Ore—p 391  
Pathologic Changes in Anterior Half of Globe in Cases of Obstruction in Central Vein of Retina B Samuels New York—p 404  
Orthoptic Treatment of Concomitant Squint J B Feldman Philadelphia—p 419  
Toxic Amblyopia Due to Tobacco and Alcohol Treatment with Vasodilators Report of Eight Cases F C Cordes and D O Harrington San Francisco—p 435

**Essential Shrinkage of Conjunctiva in Epidermolysis Bullosa Dystrophica**—Cohen and Sulzberger report the case of a 7 year old boy with the combination of atypical acquired epidermolysis bullosa dystrophica with ocular lesions. The cutaneous lesions were suggestive of both dermatitis herpetiformis and erythema multiforme. The ocular lesions involved both eyes and the acute exacerbations of the cutaneous and ocular conditions frequently occurred at about the same time. This, in addition to their clinical and histologic similarity, led to the conclusion that the ocular and cutaneous lesions were manifestations of the same underlying disease process. The presence of phlyctenae in the early course of the ocular lesions was due to the epidermolysis bullosa and the shrinking and scarring of the conjunctiva as well as the symblepharon were probably the result of the tendency to vesicle formation and the atrophying and scarring processes such as were present in the skin in this case. The necrotic corneal ulcer together with the formation of granulation tissue on its surface were probably the result of the epidermolysis bullosa in the conjunctiva or the cornea itself. The fissure formation between the epithelium and the connective tissue of the conjunctiva and the absence or diminution of elastic tissue fibers in the conjunctiva coincide with the histologic observations in cases of epidermolysis bullosa. The cutaneous and ocular lesions were exaggerated by the internal administration of iodides. Patch tests with iodides and bromides gave positive reactions twice and produced bullous eruptions. The etiology of the condition is unknown, the treatment is inadequate, and the prognosis as far as the eye

is concerned, is grave. In this case one eye had to be removed and the other is showing a gradual increase of the pathologic process. Instillations of olive oil are being used. Injections of neosphenamine seem to have succeeded in bringing the cutaneous process to a standstill and in improving the general health of the patient. These injections are being continued.

### Florida Medical Association Journal, Jacksonville

21 323 374 (Feb) 1935

Clinical Nature of Malignancies and Principles of Treatment J S Turberville Century—p 331  
Chorio-Epithelioma B Manhoff Jacksonville—p 335  
County Health Departments C C Applewhite, Columbia S C—p 339  
Early History of Vaccinations Against Smallpox in Southeastern Part of the United States V H Bassett Savannah, Ga—p 343

### Illinois Medical Journal, Chicago

67 197 292 (March) 1935

Medicine, the Last Fifty Years and the Next Fifty W A Pusey, Chicago—p 223  
Medical Economics J G Carr Evanston—p 228  
\*Unsaturated Fatty Acid (Vitamin F) Deficiency Mildred Oncken, Chicago—p 236  
Surgical Treatment of Retinal Detachment S J Meyer Chicago—p 239  
Diphtheria Immunization in Private Practice K G Woodward, Rockford—p 244  
Role of X Rays in Industrial Hygiene P G Dick Chicago—p 246  
Treatment of Rheumatic Heart Disease C J Lundy Chicago—p 251  
Placing the Responsibility for Increasing Cancer Mortality E G C Williams Danville—p 255  
Dr George Francis Suter 1869 1933 Beulah Cushman Chicago—p 259  
\*Treatment of Chronic Typhoid Carriers L Gulbrandsen Chicago—p 262  
Treatment of Ulcer of Cornea C F Yerger Chicago—p 267  
Body Temperature in Epileptics I Radef Dixon—p 270  
Facial Tularemia Diagnostic Difficulties of This Unusually Located Primary Lesion F Steigmann Chicago—p 271  
Systemic Infection from the Colon C J Drucek Chicago—p 275  
Heart Disease F J Jirka, Springfield—p 279  
Treatment for General Paralysis with Cerebral Lipoids and Tryparsamide E T Hoverson Chicago—p 284

**Unsaturated Fatty Acid Deficiency**—Oncken observes that until recently fats were not considered essential elements of the diet from an energy standpoint, but the work of the Burrs and of McAmis Anderson and Mendel discloses a new deficiency disease of utmost importance to a newer interpretation of many symptoms heretofore vague and of unidentified origin. Careful experiments showed that, if all neutral fat was excluded from the diet but compensating amounts of fat-soluble vitamins were returned in the form of essentially nonfatty concentrates, animals failed to grow properly. Before the animals become moribund, supplementing the diet with a small amount of linoleic or linolenic acids, or preferably both, results in the complete extinction of all the symptoms. Not only do these unsaturated fatty acids, and perhaps others, completely cure the fat deficiency symptoms but, if they are contained in the diet, they prevent the appearance of the deficiency syndrome. The normal function of the liver is in part concerned with the desaturation of fats the better to meet the requirements of the various cells of the body abounding in unsaturates, and contemporary food trends, through the large scale introduction of vitamin-depleted fatty acid extinguished fat supplies, violate and oppose the physiologic activities of the body. In some instances the substitution of liquid petrolatum for fat has taken place. Added to the proved vitamin-depleting property of liquid petrolatum about which innumerable references have appeared and its absolute valueless nutritive property due to its lack of absorption by the organism, there seems to be no need to the lurking carcinogenic property of liquid petrolatum, which has been repeatedly mentioned in medical literature but with equal regularity ignored. This perverted fat supply, fed liberally to the children and adults of a nation in place of the former vegetable oils expressed naturally, make the results of the Burrs take on a new significance.

**Treatment of Chronic Typhoid Carriers**—Gulbrandsen studied the effects of repeated roentgen exposures over the region of the liver in chronic fecal Bacillus typhosus carriers. Twelve carriers have been under observation. The period over which they have been known to be carriers varies from two to twenty-five years. In two instances there was no history of clinical typhoid. All were free from gallbladder or hepatic



disease, but in one patient the gallbladder had been removed five years before because of stones. From three to sixteen roentgen exposures were given over the region of the liver during the past two years. One third of the cases have been rendered free from *B. typhosus* for periods varying from ten to twenty-four months, one third have evidenced a reduction in the total *B. typhosus* output in the stool, and the others showed no change. The results obtained are encouraging enough to warrant further study, and the author recommends roentgen therapy as a possible means of controlling the carrier state.

### Maine Medical Journal, Portland

26: 15-30 (Feb.) 1935

The Summer Day Camp of Bangor. A. W. Fellows. Bangor—p. 18.  
Evolution of the Medical Examiner and His Present Day Problems.  
Part II. W. E. Freeman. Yarmouth—p. 22.

### New Orleans Medical and Surgical Journal

87: 589-652 (March) 1935.

The Acute Abdomen. J. M. T. Finney. Baltimore—p. 589.  
The Physician of Yesterday and Today. J. S. McLester. Birmingham, Ala.—p. 600.  
Lambliasis (Giardiasis). A. H. Little. Oxford, Miss.—p. 602.  
Early Diagnosis of Systemic Reaction to Heavy Metals. M. T. Van Studdiford. New Orleans—p. 606.  
Compression Fractures of Vertebrae. G. C. Battalora. New Orleans—p. 609.  
Acute Infection of Maxillary Sinus or Antrum of Highmore. G. W. Bounds. Meridian, Miss.—p. 612.  
Genito-Urinary Tuberculosis. E. Burns. New Orleans—p. 615.  
Recognition and Treatment of Primary Syphilitic Lesions. A. L. Culpepper and J. K. Howles. New Orleans—p. 618.  
Effect of Gonadokinetic Principle of the Pituitary Gland and Pregnancy Urine on Conception in Immature Albino Rat. Preliminary Report. W. B. McGee. New Orleans—p. 620.  
Retrocecal Appendixes. T. Wolford. Columbus, Miss.—p. 622.  
Some Iron-Containing Foods. O. W. Bethea. New Orleans—p. 624.

**Recognition and Treatment of Primary Syphilitic Lesions.**—Culpepper and Howles contend that the diagnosis of early syphilis is a laboratory and not a clinical procedure. They studied ninety cases, which represent all the positive primary lesions diagnosed by dark field examination in the hospital and clinic over a period of nine months, including genital and extragenital lesions. They endeavored to learn the effect of systemic antisyphilitic treatment on the dark field as well as its effect on the Wassermann reaction, using bismuth potassium tartrate in butyn, insoluble form, injected intramuscularly in doses of 2 cc each and neoarsphenamine intravenously in doses of 0.3 Gm. The bismuth preparation produced a negative dark field in twenty-two cases within an average of three and one-half days but it was still positive in four cases from one to eight days later. With neoarsphenamine ten cases were dark field negative within twenty-four hours and one was still positive after twenty-four hours and one dark field examination had changed from 3+ to 1+ within twenty-four hours. This comparison is considerably in favor of neoarsphenamine. In the Wassermann check, sixteen cases never became positive and six cases became negative after an average of four bismuth injections.

**Effect of Pregnancy Urine on Conception in Rats.**—McGee injected white female immature rats with two separate hormones and mated them when 100 days of age. Twenty received varying amounts (from 6 to 90 rat units) of a pregnancy urine hormone. Sixteen received from 6 to 120 rat units of a pituitary gland hormone. He observed that the administration of small amounts of pituitary gland hormone and pregnancy urine hormone to immature rats produced larger litters. Large and medium doses apparently inhibited conception. Microscopically it was found that ovaries from rats receiving small doses of the hormones were stimulated to produce many primordial follicles and follicle cysts. The ovaries from rats that had received large and medium doses were almost entirely replaced by lutein tissue. This undoubtedly reduced the fertility of the animals either by blocking ovulation, changing the ovum in some way so that its development was retarded, or by stimulating most of the primordial ova to develop very rapidly over a short period of time. The two hormones do not cause absolute sterility but inhibit fertility. This was proved by the fact that only one third of the animals became pregnant.

### Philippine Islands Med Association Journal, Manila

15: 61-114 (Feb.) 1935

Health Problems. Q. Paredes—p. 61.  
The Role of the Medical Profession in the Coming Philippine Commonwealth. G. Garcia. Manila—p. 66.  
X-Ray Mass Examination for Tuberculosis Diagnosis Among Fifty Nine Thousand and Seventy Seven Filipinos. S. A. Francisco and C. Ongpin. Manila—p. 72.  
Urinalyses on Athletes in Tenth Philippine Amateur Athletic Federation Games in 1934. N. Cordero and J. Concepcion with technical assistance of D. Samson and V. Limson. Manila—p. 83.  
Treatment of Acute Leprous Neuritis with Iodized Wightiana Ethyl Esters. Report of Cases. M. Lagrosa, J. M. Alonso, J. O. Tiong and A. Paras. Cebu—p. 87.  
Observations on Prophylactic Vaccination Against Typhoid Fever and Bacillary Dysentery. W. Vitug, Manila—p. 94.

### Review of Gastroenterology, New York

1: 261-360 (Dec.) 1934

Referred Digestive Symptoms in Disease Elsewhere. T. R. Brown. Baltimore—p. 261.  
Case of Megacolon. I. R. Whitaker. Boston—p. 270.  
Gastric Dystonia and Cellulose Deficiency. N. Fiessinger. Paris, France—p. 280.  
What the General Practitioner Should Know About Rectal Diseases. J. M. Lynch. New York—p. 289.  
Histamine and the Gastrointestinal Tract. B. Jablons. New York—p. 298.  
Primary Massive Liver Cell Carcinoma. S. J. Goldberg and H. Wallerstein. New York—p. 305.

2: 196 (March) 1935

Clinical Aspects of More Important Types of Human Constitution. L. F. Barker. Baltimore—p. 1.  
Curability of Cancer. E. S. Judd and M. T. Hoerner. Rochester, Minn.—p. 7.  
Congenitally Short Esophagus. L. H. Clerf and W. F. Manges. Philadelphia—p. 18.  
Idiopathic Ulcerative Colitis. Report of Unusual Case. T. H. Morrison. Baltimore—p. 24.  
Some Physical and Physiologic Factors Involved in Regulation of Gastric Emptying. J. E. Thomas. Philadelphia—p. 32.  
The Blood—Leukocyte Percentage and Arneith Count—as Test of Progress of Gallbladder Disease. M. Vauthey Vichy, France—p. 39.  
Relationship of Gastroenterologic Lesions to Nephrosis. A. S. Price. New York—p. 42.  
Control of Syphilitic Gastric Pains by Nerve Block. L. Abelson. New York—p. 52.

**Curability of Cancer.**—Judd and Hoerner believe that the treatment of cancer should be approached with more enthusiasm, for knowledge of malignant disease has increased steadily. One of the most useful observations that has been made is that the disease starts as a single focus. For this reason, removal of the tumor should afford complete relief if it is accomplished while the disease is in a fairly early stage. This is the feature that makes the disease curable. Not infrequently in performing an exploratory operation, one observes lymph nodes that appear to be involved, and they often are in a situation which precludes carrying out excision with a reasonable degree of safety. Such lymphatic structures, or even a distant nodular growth in the liver, may be of an inflammatory nature. Thus, the presence of a nodule of indeterminate nature should not contraindicate removal of the primary growth if this can be accomplished satisfactorily. Experience has often shown that after removal of the primary cancer the metastatic lesion may regress or at least remain quiescent for a considerable length of time. The grading of malignant tumors has been of great assistance in the treatment of cancer. The cellular structure is one of the chief factors in determining the nature and extent of the surgical procedure and the benefit to be derived from irradiation. Radium and roentgen therapy are no longer used merely for palliative purposes when lesions are in hopeless situations but are valuable adjuncts to the treatment of cancer, chiefly because the principles for their correct usage are getting to be understood. The best results from irradiation alone are limited to certain types of cancer. With other types, surgery supplemented by irradiation will give the patient the best opportunity for complete and permanent relief from the disease.

### Rhode Island Medical Journal, Providence

18: 35-50 (March) 1935

Sterility. Method of Investigation and Findings in Twenty Four Cases. M. Goldberger. Providence—p. 35.  
Report of Reference Committee. Special Session House of Delegates. G. W. Wells. Providence—p. 38.



## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Irish Journal of Medical Science, Dublin

No 110: 49-96 (Feb.) 1935

- The Differential (Double) Stethoscope C O Hawthorne—p 49  
Primary Tuberculosis of Lungs in Children Dorothy Price—p 54  
Prevention of Diphtheria C J McSweeney—p 76  
Orthopedic Problem in Ireland C. Somerville Large—p 82

## Journal of Hygiene, London

35: 1-160 (Feb.) 1935

- Ticks of Rodents and Their Nests and the Discovery That *Rhipicephalus sanguineus* Latr Is the Vector of Tropical Typhus in Kenya J I Roberts—p 1  
\*The Aronson Streptococcus F Griffith—p 23  
Failure of Brilliant Green and Telluric Acid as Selective Agents for Isolation of *Bacillus Typhosus* from Feces E S Horgan—p 38  
Frequency of Cancer Deaths in the Same House and in Neighboring Houses P Stocks—p 46  
Method of Expressing Silica Content of Lung D H Collins and J H Dible—p 64  
Precipitation Reaction Experiments with Antiserum Containing Two Antibodies H R Dean G L Taylor and Muriel E Adair—p 69  
Nose Opening Rays L Hill—p 75  
Investigation of Effects of Adverse Atmospheric Conditions Such as Are Encountered in Various Industries on Mental and Muscular Efficiency Gertrude E Glock—p 78  
\*Observations on Toxic Fractions of Scarletinal Streptococci C A Green—p 93  
South African Typhus A Piper and Helen Dau—p 116  
New Method for Measuring Carcinogenicity C C Twort and R L yth—p 125  
Utility of Lanolin as Protective Measure Against Mineral Oil and Tar Dermatitis and Cancer C C Twort and J M Twort—p 130  
Impetigo Contagiosa Its Epidemiology and Control J L Newman—p 150

**The Aronson Streptococcus.**—Griffith obtained the Aronson streptococcus (Neufeld type), which Lancefield places in a group containing chiefly streptococci of bovine origin, from human throats, but there was no evidence in any instance that it was producing disease, and it seems probable that it is not pathogenic for man. The results of his investigation of this strain are in agreement with those of Yoshoka, Killian and Lancefield. There are in existence other laboratory strains designated Aronson streptococcus. These have been found to exhibit specific characters identifying them with *Streptococcus pyogenes*. It is proposed that the name *Streptococcus Aronson* should be confined to strains possessing the characters of Aronson N (the strain obtained from Neufeld).

**Toxic Fractions of Scarletinal Streptococci.**—Among a series of strains of hemolytic streptococci from thirty-five cases of scarlatina in the first week of illness Green found fourteen to correspond with one or another of Griffith's serologic types I, II, III and IV. Of these fourteen strains twelve were selected for further examination and found to yield a true heat-labile exotoxin completely inactivated by heating for thirty minutes at 100 C. The concentration of exotoxin in 0.5 per cent dextrose broth cultures was at a maximum after an incubation of ninety-six hours and thereafter on further incubation progressively diminished. No qualitative difference could be detected among the exotoxins from the different strains the test criterion being the dermal reaction in Dick positive persons. Cultures of organisms of the same or different serologic type isolated from the same source and thereafter similarly treated yielded approximately equivalent amounts of exotoxin. Broth culture filtrates also contained an acid-insoluble toxic fraction, the concentration of which increased with the age of culture and which appeared to be identical with a similar acid-insoluble fraction derived from an alkaline extract of washed bacterial bodies. This acid-insoluble fraction was extremely resistant to heat three hours of boiling at 100 C. being required for inactivation. In this respect the acid-insoluble fraction corresponded to the bacterial endotoxins. The acid insoluble fractions from cultures of the same serologic type produced equivalent skin reactions in susceptible persons. These fractions from cultures of different serologic types differed qualitatively as determined by skin reactions. The reaction to crude filtrate was found to be the sum of the reactions to the exotoxin fraction and to the acid-insoluble fraction present in the filtrate.

## Journal d'Urologie Med et Chirurgicale, Paris

38: 1-96 (Jan.) 1935

- Solitary Cysts of Kidney L Lindenfeld—p 18  
\*Late Hereditary Syphilis of Kidneys B Valverde—p 36  
Erythrocyte Sedimentation Test in Urology R Bouchard Potocki—p 45  
Auto-Uro Therapy T Cimino—p 55  
Auto-Uro Therapy H Jausson—p 58

**Hereditary Syphilis of Kidneys.**—Late hereditary syphilis of the kidneys is a rare disease, according to Valverde. In all patients in whom a hematuria of doubtful cause is present, syphilis of the urinary apparatus must be considered. Careful history and the presence of a positive Wassermann reaction are important diagnostic aids. The results of antisyphilitic treatment are of decisive value. Hematuria of this nature is, however resistant to treatment, and an exacerbation may occur at the beginning. Antisyphilitic medication must not be abandoned because of this occurrence.

## Schweizerische medizinische Wochenschrift, Basel

65: 249-268 (March 16) 1935

- \*Meningo-Encephalitis in Mumps C Wegelin—p 249  
Acrodystonia H Iselin—p 252  
\*Quinine and Its Evaluation in Obstetrics D Hadjief—p 253  
Study of Growth Hormones During Different Developmental Stages of Animals by Means of Homo Implantation Method A Weber—p 254  
Respiratory Catalysis by Natural Reduction System and Intermediate Product of Melanin Formation E A H Friedheim—p 256  
Apparatus for Constant Cooling to Replace the Ice Bag E Curchod—p 259

**Meningo-Encephalitis in Mumps.**—Wegelin reports a case in which a boy, aged 8, several days after contracting mumps, developed a severe meningo-encephalitis with typical changes in the cerebrospinal fluid (lymphocytosis) and with paralysis and convulsions. The disease terminated fatally on the eighteenth day. Histologic examination revealed meningitis and encephalitis with lymphocytic infiltration partly of a hemorrhagic character and connected with destruction of nerve fibers, severe perivascular proliferation and fatty degeneration of the glia cells. The author thinks that these changes were the direct effects of the filtrable virus of mumps.

**Value of Quinine in Obstetrics.**—According to Hadjief the ecboic action of quinine was first discovered in connection with the quinine therapy of malaria, for it was observed that pregnant women who were treated with quinine for malaria developed genital hemorrhages and occasionally abortion resulted, and that quinine increased the menstrual flow and produced an increase in labor pains. The author maintains that the ecboic action of quinine involves no danger, if it is given in small doses. It reduces the intervals between the uterine contractions and intensifies and prolongs the contractions. It can be employed during all stages of the process of birth, particularly during the period of dilatation and of expulsion of the afterbirth. It has been found effective in atonic hemorrhages before and after the expulsion of the placenta. However, quinine is not suited for the induction of labor. Quinine can be used as an abortifacient and during premature birth and surgical delivery. The combined administration of quinine and pituitary extracts has been proved efficient in many obstetric clinics. The combination preparation can be used also for inducing labor in pregnancies that have continued past term.

## Polinico, Rome

42 541-596 (March 25) 1935 Practical Section

- New Orientation in Study of Endocrine Glands. Sensitivity and Sensitization to Ovarian Hormones in Women Sexually Active and in Menopause. R Lugena—p 541  
\*Intravenous Vaccine Treatment of Undulant Fever F Giugni—p 548  
Large Hydatid Cyst of Douglas Pouch A Ventura—p 557

**Intravenous Vaccine Treatment of Undulant Fever.**—Giugni found that pronounced febrile reactions may be obtained in patients with undulant fever by injecting antimelitensis vaccine intravenously. He began with several injections of from 5 to 10 million micro-organisms. After an interval of from two to five days the dosage was increased to from 50 to 300 million micro-organisms. No less than eight and no more than ten injections were given to each patient. The injections were well tolerated in all cases and were not dangerous even when

the patient was in a grave condition. After a pronounced reaction the fever subsided in all patients and the size of the liver and spleen was rapidly reduced. In some patients a dose of from 200 to 300 million micro-organisms was required to obtain the necessary reaction. Despite the number of injections given, only one or two produced the greatest febrile reaction. When the vaccine was injected during defervescence, the reaction was slow. The author suggests the use of high doses because of their ability to reduce the fever and to combat the disease itself, provided there are no contraindications, such as organic lesions of vital organs. Cure was rapid and constant.

### Beiträge zur klinischen Chirurgie, Berlin

161 177 336 (March 6) 1935 Partial Index

Lipophagic Granuloma Resulting from Traumatic Fat Necrosis D. Vannucci and C. Montagnana —p. 177  
Multiple Myeloma and Metastatic Tumors of Bone Marrow A. Horstsch —p. 195

\*Kauffmann's Diuresis Test of Cardiac Function S. Frey —p. 254  
Panaritiums of Bones, Joints and Tendons E. Hudnesh —p. 264

**Kauffmann's Diuresis Test of Cardiac Function**—The technique of the test, according to Frey, is as follows. The patient is asked to maintain a horizontal position in bed to drink 150 cc of fluid hourly and to pass urine every hour. The test is begun in the morning one or two hours after awakening in order to avoid the physiologic diuresis. At the end of four hours the foot of the bed is raised 25 cm and the test resumed after two hours. The hourly passage of urine is measured and its specific gravity determined and the amounts passed in the horizontal position and with the lower limbs raised are compared. Kauffmann states that the elevation of the feet in healthy subjects does not effect diuresis. The amount of urine is likewise not increased in patients with high grade cardiac edema. Cardiac patients without manifest edema but suspected of having latent edema react to the test by an increase in urine excretion. These patients are likewise distinguished by the fact that they absorb hypodermically injected solution of salt more slowly than do normal subjects. The same holds true of renal edema. The test is valuable in recognizing latent edema regardless of its etiology. The author has subjected many patients to the test and considers it valuable in the recognition of latent weakness of the cardiac muscle. A critical attitude toward the test as well as the use of all clinical methods of investigation is a prerequisite for arriving at a reliable estimate of the cardiac function.

### Zentralblatt für Gynäkologie, Leipzig

59: 545 608 (March 9) 1935

Rape, Pregnancy, Abortion and Criminal Code K. Holzapfel —p. 546  
Sterilization Methods and Legal Sterilization P. Thiessen —p. 554

\*Pregnancy Blood in Treatment of Glandular Cystic Hyperplasia P. N. Damm —p. 567

Further Contribution to Criticism of Modern Prophylaxis of Bleorrhoea of the New Born H. Hellendall —p. 572

Treatment with Entire Endocrine Glands or with Hormones? H. Offergeid —p. 575

Behavior of Cerebrospinal Fluid in Cancer of Female Genitalia A. Maschütz and Mazkevitch —p. 577

**Pregnancy Blood in Treatment of Glandular Cystic Hyperplasia**—Damm shows that, if hormone therapy is to be employed in glandular cystic hyperplasia which is the result of the persistence of the follicle and of the lack of corpus luteum formation either the corpus luteum hormone can be directly substituted (to effect a cessation of the hyperproliferation and induce a secretory phase) or the pituitary luteinization hormone can be administered to cause bursting of the persistent follicle and thus influence the formation of the corpus luteum. Although the substitution therapy usually counteracts the bleeding the subsequent menstruations are never normal, for as a rule there develops a shorter or longer amenorrhoea, after which the patient has a relapse. The stimulation therapy has the disadvantage that the pituitary luteinization hormones must be given in large quantities and that during storage the preparations quickly lose their efficacy. The author resorted to the intravenous injection of pregnancy blood in patients with glandular cystic hyperplasia. He administered 400 cc of pregnancy blood and, in view of the results he obtained with this treatment he concludes that the administration of pregnancy blood is the ideal treatment for

glandular cystic hyperplasia not only because a strong influence is exerted on the persisting follicle but also because the intravenous injection permits the administration of larger and consequently more effective doses of hormone than does the intramuscular or subcutaneous injection of the hormones.

### Novy Khirurgicheskiy Archiv, Dnepropetrovsk

32 291 600 (Nos 127 128) 1934 Partial Index

Colloidosmotic Tension of Blood Serum in Surgical Diseases M. P. Sokolovskiy —p. 308

Effect of Quartz Lamp Irradiation on Healing of Wounds I. E. Kazakevich and A. A. Petrova —p. 316

\*Walled Off Perforations of Gastric Duodenal Ulcer M. M. Vikker —p. 407

Lung Abscess and Its Relation to Cancer of Lung I. I. Rybak —p. 479

\*Radical Treatment of Pulmonary Suppuration S. I. Spasokukotskiy and S. G. Gyskuni —p. 499

### Walled-Off Perforations of Gastric-Duodenal Ulcer—

According to Vikker, spontaneous closure of a perforated ulcer occurs not infrequently. The closure of the perforation is favored by certain conditions, among them absolute rest of the patient. A walled off perforation presents a fairly definite clinical picture. Boardlike rigidity of the right upper abdominal quadrant following an acute attack of pain in a man with a history of ulcer is characteristic of the condition. The rather frequent mild form of closed perforations is usually diagnosed as acute cholecystitis. Operative intervention is indicated in all clear cut cases of closed perforations in the first twenty-four hours especially if the pain persists. A case of closed perforation seen in a late stage requires an individual approach, as in any late case of peritonitis. In all cases suspected of closed perforation a long period of rest in bed and a dietetic regimen are obligatory.

**Radical Treatment of Pulmonary Suppuration**—Spasokukotskiy and Gyskuni report a series of ninety-nine cases of pulmonary suppuration. Of these, eighty-six were postpneumonic, seven postoperative and embolic, one malignant, and one developed on the basis of an echinococcus, one on the basis of actinomycosis and one in a congenital cyst of the lung. The authors advocate the radical method of treatment. Suppuration of lung tissue is complicated as a rule by pleuritis, which is erroneously considered the primary disease. They urge a two step operation because one cannot be sure of formation of limiting adhesions even in cases of six months duration. The two-stage method with tamponade in between is urged for two reasons: to prevent infection of the pleural cavity as well as the formation of a gas phlegmon of the subcutaneous connective tissue. The authors stress the efficacy of blood transfusion in the preoperative treatment.

### Ugeskrift for Læger, Copenhagen

97 293 320 (March 7) 1935

\*Bovine Pulmonary Tuberculosis Twenty Six Cases in Copenhagen F. Tobiesen, K. A. Jensen and H. C. A. Lassen —p. 293

Medical Indications and Conditions for Blood Transfusion M. C. Lottrup —p. 300

Clinical Aspects and Prognosis of Premature Children A. Friedländer —p. 302

Moving Picture as Psychotraumatic Experience in Childhood O. Bruel —p. 305

Conorrhoea and Its Complications Among Inhabitants of Greenland in Julianehaab District L. Folke —p. 309

Traumatic Periarthritis with Peculiar Course Case H. Heidemann —p. 311

**Bovine Pulmonary Tuberculosis**—Tobiesen and his co-workers report that ten of the twenty-six patients suffering from bovine pulmonary tuberculosis and treated in Copenhagen hospitals from 1931 to 1933 were children less than 5 years of age, no patient was more than 32. Most of the cases appeared to be of alimentary origin, and in no case was there evidence of even probable infection from another person. The lung processes as revealed on roentgen examination did not seem to present any peculiarities distinguishing them from the characteristic changes seen in the different age groups of pulmonary tuberculosis in general. In eighteen cases tubercle bacilli were cultivated only from the stomach lavage water. Six patients died before April 1934 of these, three were less than 5 years of age, two were between 5 and 15 and one was more than 15.

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## FEVER THERAPY

RESULTS FOR GONORRHEAL ARTHRITIS, CHRONIC  
INFECTIOUS (ATROPHIC) ARTHRITIS, AND  
OTHER FORMS OF "RHEUMATISM"

PHILIP S HENCH, MD  
CHARLES H SLOCUMB, MD

AND

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ROCHESTER, MINN

Those diseases which medicines do not cure, iron (the knife) cures, those which iron cannot cure, fire cures, and those which fire cannot cure are to be reckoned wholly incurable

This last of the hippocratic aphorisms might be taken as the source of the mandate accepted by some of the advocates of therapeutic hyperpyrexia, for it is their somewhat optimistic opinion that certain diseases which medicines or surgery cannot cure may be cured in the fires of fever therapy and that those which are not cured thereby are at the moment incurable. Since the days of Hippocrates, fever has been a major concern of physicians, most of whom have looked on it as a defensive mechanism against disease. An altered regard for fever was initiated by Claude Bernard, Virchow and others, who demonstrated supposedly harmful physiologic and pathologic reactions thereto.<sup>1</sup> Thus began the era of antipyresis by medical and physical means.

That fever, however, must serve some very useful purpose, or nature would not have retained it so tenaciously as a reaction process to invasion of harmful substances was the conclusion of Welch<sup>2</sup> and others who, in the past forty years, have fostered a return of the former idea of fever's beneficence. The current development of fever therapy is a testimonial to the wide acceptance of their views. Under certain conditions, and within certain limits, hyperthermia is a state not to be prevented but to be fostered. Various methods for its more or less safe production are being increasingly elaborated. The day of pyretotherapy, of "friendly fever," is already well advanced.

### METHODS OF PRODUCING THERAPEUTIC FEVER

Many old and new methods are being advocated for fever therapy. Since the sixteenth century, curative effects in syphilis and various forms of rheumatism have been ascribed by the Japanese to frequent bathing in very hot volcanic water. The temperature of the water being from 113 to 128 F, it has been esti-

mated that fevers of from 103 to 105 F were produced thereby.<sup>3</sup> It has become the fashion to regard the febrile reactions of foreign protein therapy as the modern forerunner of fever therapy. Some ascribed the benefits of such reactions to other factors than the fever produced and tried to avoid the latter. As a result of Wagner-Jauregg's success with malarial therapy in syphilis, however, the febrile component of analogous reactions has regained prestige, and the use of dead organisms (*Bacillus coli* or *typhosus*) having become supplanted by the use of live (malarial) organisms, other febrile reactions, which were presumably more benign, were suggested: those of rat bite fever and relapsing fever. While certain definite results have been obtained, these various methods have the disadvantage that their reactions, once initiated, are not always entirely controllable. Hence the modern view favors a return to physical, in place of bacterial, methods of producing fever.

Steps in the development of pyretotherapy by physical means, as traced by several,<sup>4</sup> include the use of hot baths by Philips<sup>5</sup> (1883), by Schamberg and Tseng<sup>6</sup> (1927) and by Mehrtens and Pouppirt<sup>7</sup> (1929), of hot air by Rosanoff<sup>8</sup> (1927) and Walinski<sup>9</sup> (1928), of high frequency diathermy currents by Neymann and Osborne<sup>10</sup> (1929) and by King and Cocke<sup>11</sup> (1930), of radiotherapy by Whitney<sup>12</sup> (1928), Hosmer<sup>13</sup> (1928), Carpenter and Page<sup>14</sup> (1930) and Hinsie and Blalock<sup>15</sup> (1931), of humidified, electrically heated cabinets by Kahler and Knollmayer<sup>16</sup> (1929), Berris<sup>17</sup> (1933) and Simpson, Kishig and Sittler<sup>18</sup> (1933).

3 Neymann, C. A. and Osborne, S. L. The Development of Hyperpyrexia. *Arch. Phys. Therap.* 15:149-155 (March) 1934.

4 Simpson, W. M. Neymann and Osborne.

5 Philips, W. H. Hydrotherapy. *Columbus M. J.* 2:389-402 1883-1884.

6 Schamberg, J. F. and Tseng, H. W. Experiments on the Therapeutic Value of Hot Baths with Special Reference to the Treatment of Syphilis. *Physiologic Observations. Am. J. Syph.* 11:337-397 (July) 1927.

7 Mehrtens, H. G. and Pouppirt, P. S. Hyperpyrexia Produced by Baths. Its Effect on Certain Diseases of the Nervous System. *Arch. Neurol. & Psychiat.* 22:700-708 (Oct.) 1929.

8 Rosanoff, A. J. A Simple Thermotherapeutic Technic, with Special Reference to Fever Treatment of Neurosyphilis. *Am. J. Psychiat.* 7:489-492 (Nov.) 1927.

9 Walinski, F. Ueber kunstliche Hyperthermie auf physikalischen Wege und deren therapeutische Verwendung. *Med. Klin.* 24:488 (March 30) 1928.

10 Neymann, C. A. and Osborne, S. L. Artificial Fever Produced by High Frequency Currents. *Preliminary Report, Illinois M. J.* 56:199-203 (Sept.) 1929.

11 King, J. C. and Cocke, E. W. Therapeutic Fever Produced by Diathermy with Special Reference to Its Application in the Treatment of Paralysis. *South M. J.* 23:222-228 (March) 1930.

12 Whitney, W. R. Radiotherapy. *General Electric Rev.* 35:410-412 (Aug.) 1932.

13 Hosmer, Helen R. Heating Effects in a High Frequency Static Field. *Science* 68:325-327 (Oct. 5) 1928.

14 Carpenter, C. M., and Page, A. B. The Production of Fever in Man by Short Radio Waves. *Science* 71:450-452 (May 2) 1930.

15 Hinsie, L. E. and Blalock, J. R. Leukocytes in General Paralysis Treated by Radiotherapy. *Psychiat. Quart.* 5:432-440 (July) 1931.

16 Kahler, H. and Knollmayer, F. Ueber die Anwendung von kunstlicher Hyperthermie als Ersatzmittel der experimentellen Fiebertherapie. *Wien. klin. Wchnschr.* 42:1342-1344 (Oct.) 1929.

17 Berris, J. M. The Treatment of Arthritis by Artificial Fever. *Preliminary Report of Twenty Cases. J. Michigan State M. Soc.* 32:355-358 (June) 1933.

18 Simpson, W. M., Kishig, F. K. and Sittler, E. C. Ultra High Frequency Pyretotherapy of Neurosyphilis. A Preliminary Report. *Ann. Int. Med.* 7:64-75 (July) 1933.

From the Division of Medicine (Drs. Hensch and Slocumb) and the Section on Fever Therapy (Dr. Popp), the Mayo Clinic.

1 Reimann, H. A. Significance of Fever and Blood Protein Changes in regard to Defense Against Infection. *Ann. Int. Med.* 6:362-374 (Sept.) 1932. Simpson, W. M. Artificial Fever Therapy. *Proc. Staff Meet. Mayo Clin.* 8:567-571 (Sept. 19) 1934.

2 Welch, W. H. The Cartwright Lecture on the General Pathology of Fever. *M. News* 52:365-371, 393-405, 539-544, 565-568 1888.

## RATIONALE OF FEVER THERAPY

It has long been noted that the altered conditions incident to some intercurrent, unrelated, generally febrile disease are at times antagonistic to the continuation of a primary illness. Authentic instances are recorded wherein a patient, with for example a previously progressive chronic arthritis, has rather suddenly experienced a prolonged remission, at times a cure the unexpected gift of an otherwise unwelcomed intercurrent disorder. It has been observed clinically and experimentally that the lowering of body temperature diminishes the resistance of a host, human or otherwise, to certain bacterial infections. There is experimental evidence to support the contention that high temperatures exert a bactericidal and bacteriostatic effect on certain germs in vitro. These observations provided the impetus for a trial of hyperpyrexia in the treatment of various diseases, including arthritis.

## PHYSIOLOGIC REACTIONS TO FEVER THERAPY

Regardless of the method used, whether diathermy, radiotherapy, hot baths or heated cabinets, the resultant hyperthermia is characterized by more or less identical physiologic effects. These have been summarized by Fatherree<sup>19</sup> and others<sup>20</sup> as follows:

**Bacteriolysis**—Gonococci generally at a temperature of from 106 to 107 F (Carpenter Boak Mucci and Warren<sup>21</sup>).  
Streptococci no data.

**Blood Flow**—Pulse rate increased up to from 130 to 150 beats per minute (Bazett,<sup>22</sup> Bierman,<sup>23</sup> Bishop, Horton and Warren<sup>24</sup>).

**Circulatory rate** increased (Bazett,<sup>22</sup> Bierman,<sup>23</sup> Kissin and Bierman<sup>25</sup>).

**Cardiac output** increased minute volume output (Bierman<sup>23</sup>).

**Blood pressure** initial rise, subsequent fall (Bierman and Fishberg,<sup>26</sup> Bishop, Horton and Warren<sup>24</sup>).

**Blood volume** no change, or slight concentration (Bierman and Fishberg,<sup>26</sup> Bischoff, Long and Hill<sup>27</sup>).

**Viscosity** no change, if intake is encouraged (Bierman and Fishberg,<sup>26</sup> Tenney<sup>27</sup>).

**Nail-bed capillaries** increased in number and size (Tenney<sup>27</sup>).

**Blood Cellular Elements**—Erythrocyte count generally no change (Tenney<sup>27</sup>).

Erythrocytes, sedimentation rate little or no change (Nicholls, Hansson and Stansby<sup>28</sup>), increased (Tenney,<sup>27</sup> King,<sup>29</sup> Moen, Medes and Chalek<sup>30</sup>).

Leukocyte count initial fall, subsequent rise to 15,000 per cubic millimeter (Bierman,<sup>23</sup> Warren and Wilson<sup>31</sup>).

Leukocytes increased rate of phagocytosis (Warren and Wilson<sup>31</sup>).

**Blood Chemistry**—Non-nitrogenous elements (urea, uric acid, creatinine) no change (Karr and Nasset<sup>32</sup>) or slight increase (blood concentration), (Neymann and Osborne,<sup>3</sup> Simpson, Kislig and Sittler<sup>18</sup>).

Sugar, phosphorus, plasma lipoids, serum calcium no change or slight increase (blood concentration, Neymann and Osborne,<sup>3</sup> Simpson, Kislig and Sittler,<sup>18</sup> Bierman,<sup>23</sup> Walinski,<sup>33</sup> Bischoff, Maxwell and Hill,<sup>34</sup> Bischoff, Ullmann, Hill and Long,<sup>35</sup> McQuarrie and Stoesser,<sup>36</sup> Hopkins<sup>37</sup>).

Inorganic phosphorus converted to organic form (Bischoff, Maxwell and Hill,<sup>34</sup> Bischoff, Ullmann, Hill and Long<sup>35</sup>).

Serum protein no change (Moen, Medes and Chalek<sup>30</sup>) or increase (Karr and Nasset<sup>32</sup>).

Acid-base equilibrium altered in the direction of slight alkalosis (Bischoff, Long and Hill,<sup>26</sup> Bischoff, Maxwell and Hill,<sup>34</sup> Bischoff, Ullmann, Hill and Long,<sup>35</sup> Hopkins<sup>37</sup>).

Chlorides may be markedly dropped (Simpson<sup>38</sup>).

Oxygen content and capacity of venous blood increased (Bischoff, Maxwell and Hill,<sup>34</sup> Bischoff, Ullmann, Hill and Long,<sup>35</sup> Goldfelder<sup>39</sup>).

Carbon dioxide combining power decreased (Bischoff, Long and Hill,<sup>26</sup> Bischoff, Maxwell and Hill,<sup>34</sup> Bischoff, Ullmann, Hill and Long,<sup>35</sup> Hopkins,<sup>37</sup> Nasset, Bishop and Warren<sup>40</sup>).

**Blood-Immune Bodies**—Agglutinins variable data—rise (Reimann<sup>41</sup>) or fall (Ecker and O'Neal<sup>41</sup>).

Complement no change (Jung and Day<sup>42</sup>), reduced (Bierman and Fishberg<sup>26</sup>).

Opsonic index no change (Jung and Day<sup>42</sup>).

**Gastric Secretion**—Loss of chlorides (Simpson, Kislig and Sittler<sup>18</sup> Simpson<sup>38</sup>).

**Sweat**—Loss of from 18 to 26 Gm of sodium chloride in from 3 to 4 liters of sweat in each session (Simpson, Kislig and Sittler<sup>18</sup>).

Increased lactic acid content (Bierman and Fishberg<sup>26</sup>).

**Urine**—Amount generally temporary oliguria (Karr and Nasset<sup>32</sup>).

Reaction Unchanged or slightly alkaline (Karr and Nasset<sup>32</sup>).

**Metabolic Rate**—Increased 7 per cent per degree of fever (Berris,<sup>17</sup> Neymann and Osborne,<sup>20</sup> Bierman,<sup>23</sup> Tenney<sup>27</sup>).

**Electrocardiogram**—Contractions of lowered voltage (Bishop, Horton and Warren,<sup>24</sup> Wiggers and Orías<sup>43</sup>).

Many of the reactions are of little or no importance from the standpoint either of resultant discomfort or of relief. The benefits of fever therapy presumably arise from (1) a direct bacteriolytic or bacteriostatic effect due to the influence of heat itself on bacteria (without necessarily implying formation of immune

19 Fatherree T J. Personal communication to the authors.  
20 Neymann, C A, and Osborne S L. Physiology of Electro-pyrexia. *Am J Syph & Neurol* 18: 28-36 (Jan) 1934. Bierman William and Fishberg Ella H. Some Physiologic Changes During Hyperpyrexia Induced by Physical Means. *J A M A* 103: 1354-1357 (Nov 3) 1934.

21 Carpenter C M, Boak Ruth A, Mucci, L A, and Warren S L. Studies on the Physiologic Effects of Fever Temperatures. *J Lab & Clin Med* 18: 981-990 (July) 1933.

22 Bazett H C. Circulation in Pyrexia. *J A M A* 97: 1271-1274 (Oct 31) 1931.

23 Bierman, William. Radiotherapy. Fever Induced by Short Radio Waves. *Brit J Syph Med* 7: 155-158 (Dec) 1933.

24 Bishop F W, Horton C B, and Warren S L. A Clinical Study of Artificial Hyperthermia Induced by High Frequency Currents. *Am J M Sc* 184: 515-533 (Oct) 1932.

25 Kissin Milton and Bierman William. Influence of Hyperpyrexia on Velocity of Blood Flow. *Proc Soc Exper Biol & Med* 30: 527-530 (Jan) 1933.

26 Bischoff Fritz, Long M Louisa and Hill Elsie. Studies in Hyperthermia. Acid Base Equilibrium in Hyperthermia Induced by Short Radio Waves. *J Biol Chem* 90: 321-329 (Jan) 1931.

27 Tenney C F. Artificial Fever Produced by the Short Wave Radio and Its Therapeutic Application. *Ann Int Med* 6: 457-468 (Oct) 1932.

28 Nicholls Edith E, Hansson K G, and Stansby, W J. Treatment of Rheumatoid Arthritis with Hyperthermia Produced by a High Frequency Current. *J Bone & Joint Surg* 16: 69-74 (Jan) 1934.

29 King J C. Diathermy Hyperpyrexia in Chronic Afebrile Diseases. *South M J* 25: 813-818 (Aug) 1932.

30 Moen J K, Medes Grace and Chalek I. The Relative Effects of Diathermy and Infection on the Plasma Proteins. Plasma Viscosity and Suspension Stability of the Blood in Dogs. *J Lab & Clin Med* 19: 571-581 (March) 1934.

31 Warren S L, and Wilson K M. The Treatment of Gonococcal Infections by Artificial (General) Hyperthermia. *Am J Obst. & Gynec* 24: 592-598 (Oct) 1932.

32 Karr J W and Nasset E S. Physiologic Effects of High Frequency Current. Nonprotein Nitrogen Partition and Secretion of Urine in Anesthetized Dogs. *Am J Physiol* 107: 170-177 (Jan) 1934.

33 Walinski, Franz. Ueber das Verhalten des Blutzuckers und Schweißzuckers bei künstlicher hyperthermie. *Deutsche med Wochenschr* 2: 1475-1476 (Sept) 1932.

34 Bischoff Fritz, Maxwell L C, and Hill Elsie. Studies on Hyperthermia. III. The Phosphorus Equilibrium. *J Biol Chem* 90: 331-339 (Jan) 1931.

35 Bischoff Fritz, Ullmann H J, Hill Elsie and Long M Louisa. Studies on Hyperthermia Induced by High Frequency Electric Current. *J Biol Chem* 86: 675-686 (Feb) 1930.

36 McQuarrie Irvine and Stoesser A V. Influence of Acute Infection and of Artificial Fever on Plasma Lipoids. *Proc. Soc. Exper Biol & Med* 29: 1281-1283 (June) 1932.

37 Hopkins, H. Chemical Changes in Blood Induced by Hyperpyrexial Baths. *Arch Neurol & Psychiat* 31: 597-604 (March) 1934.

38 Simpson W M. Influence of Radiotherm. Pyretotherapy on Chloride Metabolism. *J A M A* 100: 67-68 (Jan 7) 1933.

39 Goldfelder Anna. Radiotherapy on Oxygen Content and Capacity in Human Blood. The Saturation Point of Hemoglobin with Oxygen. *Arch Phys Therap* 14: 339-340 (June) 1933.

40 Nasset, E S, Bishop F W, and Warren S L. Physiological Effects of High Frequency Current. I. Respiratory Metabolism and Certain Changes in the Blood of Anesthetized Dogs. *Am J Physiol* 96: 439-448 (Feb) 1931.

41 Ecker E E and O'Neal M M. Effect of Hyperpyrexia Induced by Ultra High Frequency Current on B Typhosus Agglutinin and Complement. *Am J Pub Health* 22: 1050-1054 (Oct.) 1932.

42 Jung Ruth E, and Day A A. Effect of Diathermy on the Concentration of Complement and Normal Opsonins. *Proc. Soc. Exper Biol & Med* 28: 1080-1081 (June) 1931.

43 Wiggers C J and Orías Oscar. The Circulatory Changes During Hyperthermia Produced by Short Radio Waves (Radiothermia). *Am J Physiol* 100: 614-628 (May) 1932.

bodies), (2) an indirect bacteriolytic or bacteriostatic effect resulting from increasing formation or mobilization of immune bodies, (3) a local effect from vasodilatation, providing an augmented blood supply to inflamed tissues, and (4) a general effect from the heightened metabolism incident to fever. An arthritic patient may be helped by any one of these factors acting alone or in combination. It must be admitted that data regarding all these factors, particularly the second, the augmentation of immune bodies, are meager and contradictory. Until more work is done, conclusions are somewhat presumptuous.

Some of the reactions to fever therapy are of no significance as far as benefits are concerned but account

*Reported Contraindications to Fever Therapy*—The following conditions have been considered to be contraindications to fever therapy: advanced age, myocardial and renal insufficiency, marked hypotension, active tuberculosis, aortic aneurysm, rapidly progressive late neurosyphilis, and abnormal conditions of the skin which interfere with adequate sweating.

#### THE APPLICATION OF FEVER THERAPY TO THE ARTHRITIDES

Modern methods of fever therapy were applied to arthritic patients about three years after the initial use of such methods in syphilis. The results of fever therapy for chronic infectious (atrophic) arthritis were

TABLE 1—*Reported Results of Fever Therapy in Chronic Nonspecific Infections (Atrophic, Rheumatoid, Proliferative) Arthritis*

Report	Author	Method Used	Dose of Fever Recommended (Fahrenheit)	Total Number and Frequency of Fever Sessions Used	Results per Cent					Comment
					Patients Treated	"Cured" Complete Relief Symptom Free	Marked Relief	Moderate Relief	Little or No Relief	
1	Markson and Osborne <sup>45</sup>	Diathermy	7 to 8 hours at 103 to 104	8 (1 a week)	6	0	33	50	17	
2	Kling <sup>46</sup>	Diathermy	2 to 3 hours at 102 to 103	•	•	•	•	•	•	Sometimes 'most striking result' in some only temporary relief
3	Speed <sup>47</sup>	Diathermy	4 hours at 102 to 103	10 (1 every 2 to 3 days)	•	•	•	•	•	
4	Carpenter and Warren <sup>48</sup>	Radiotherapy and diathermy†	•	•	•	•	Some	Some	•	
5	Tenney <sup>49</sup>	Radiotherapy	3 to 4 hours at 104 to 106 (rectal)	•	16	25	62½	•	13	
6	Cecil <sup>50</sup>	•	•	•	•	•	Some	•	•	Results disappointing
7	Berris <sup>51</sup>	Heated cabinets	2 to 6 hours at 102	9	11	18	36	23	13	
8	Simpson, Kislüg and Sittler <sup>52</sup>	Radiotherapy and heated cabinets†	5 hours at 105 to 106 (rectal)	10 or less (1 every 3 to 7 days)	•	•	•	•	•	'Gratifying results in some
9	Kohn and Warren <sup>53</sup>	•	•	1 or 2	43	•	•	80½	•	Relapses relieved by further treatment
10	Markson and Osborne <sup>47</sup> (second report)	Diathermy	8 to 10 hours at 104 or more	8	19	21	16	26	37	Complete relief in four cases for 15 to 21 months
11	Kovacs <sup>50</sup>	•	Not over 104	•	•	0	50½	•	50	Failures and encouraging results equally divided
12	Auclair <sup>52</sup>	Diathermy and radiotherapy	•	•	•	•	•	•	•	
13	Nicholls, Hansson and Stainsby <sup>54</sup>	Diathermy	5 hours at 104½ (oral)	1 to 5 (1 a week)	12	0	0	25	75	
14	Osborne and Markson <sup>49</sup> (third report)	Inductotherm	8 hours at 104	8 to 20 (1 every 7 days)	•	•	70	•	•	
15	Simpson <sup>52</sup>	Radiotherapy and heated cabinets†	5 hours at 104 to 105 (rectal)	2 to 8 (1 every 7 to 14 days)	40	•	•	•	•	

• Data incomplete.

† Method preferred.

• Where the figures are placed between the columns 'marked relief' and 'moderate relief' the degree of relief obtained was not definitely stated.

for unpleasant side-actions. Most notable of these is that reported by Simpson and his colleagues <sup>52</sup> marked loss of chlorides from blood and tissues. Patients may lose from 18 to 26 Gm. of chlorides in the 3 to 4 liters of sweat exuded during each session of fever. Thus the amount of chloride lost in sweat may exceed its total quantity in the blood. As a result, free hydrochloric acid disappears from the gastric juice and the blood chlorides may fall 40 mg. or more (100 mg. in one case) per hundred cubic centimeters of blood. Simpson feels that this loss of chlorides is largely responsible for the symptoms of exhaustion, nausea, vomiting, abdominal cramps and muscular twitching that sometimes occur during or after fever sessions, and that these symptoms can be practically eliminated by supplying large quantities (from 2 to 4 liters) of chloride-containing fluids, such as iced 0.6 per cent saline solution orally.

first reported in 1931 by Markson and Osborne <sup>45</sup> results for gonorrheal arthritis were first reported in 1932 by Carpenter and Warren <sup>48</sup> and by Bishop, Horton and Warren <sup>24</sup>. Since then, fever therapy has also been used in a very few cases of senescent (hypertrophic) arthritis, gouty arthritis, traumatic arthritis, and neuritis, including sciatica, myositis (fibrositis) and bursitis.

#### FEVER THERAPY IN CHRONIC INFECTIOUS (ATROPHIC) ARTHRITIS

Fifteen reports, by ten groups of workers, on experiences with fever therapy in chronic nonspecific infectious (atrophic, rheumatoid, proliferative) arthritis have appeared since 1931. Methods and results are

<sup>45</sup> Markson D. E., and Osborne, S. L. The Treatment of Arthritis by Sustained Fever Therapy. A Preliminary Report of Six Cases. *Illinois M. J.* 60: 397-403 (Nov.) 1931.

<sup>46</sup> Carpenter C. M., and Warren, S. L. Artificially Induced Fever in the Treatment of Disease. *New York State J. Med.* 23: 997-1001 (Sept. 1) 1932.

<sup>44</sup> Simpson, Kislüg and Sittler <sup>52</sup> Simpson <sup>52</sup>

summarized in table 1. In some reports data are meager and are frankly based on preliminary impressions.

**Method**—Production of fever by means of diathermy ("superdiathermy") was the method used by four groups of workers.<sup>47</sup> Radiothermy was used by Tenney.<sup>27</sup> Of those who have used more than one method, diathermy is preferred to radiothermy by Carpenter and Warren<sup>46</sup> at Rochester, N. Y., whereas Simpson and his co-workers<sup>48</sup> at Dayton, Ohio, prefer air conditioned cabinets to radiothermy. Heated cabinets were used by Berris.<sup>17</sup> Recently, Osborne and Markson<sup>49</sup> and Merriman, Holmquest and Osborne<sup>50</sup> have substituted the use of the "inductotherm" for diathermy.

Those who favor diathermy do so because of the presumably greater expense of radiothermy and the danger of burns from arcing inherent in the latter

expensive and cumbersome apparatus, there is a tendency on the part of some to be content with even simpler methods and to advocate the induction of fever by multiple electric pads and heating blankets,<sup>51</sup> or by long immersion in a hot tub. Thus Coulter,<sup>52</sup> who primarily favors hyperpyrexia by diathermy, uses hot baths to lower the cost of treatments.

The bath water is at an initial temperature of 110 F, except for nervous patients, when it is 106 F. The patient generally remains in the bath one hour. When his temperature has risen to 104 F, the temperature of the bath is reduced to this temperature, 104 F. At the end of one hour in the tub, the patient's fever is maintained for several hours by blankets and hot water bottles.

Coulter considers this method of producing fever simple but not as comfortable as by diathermy, and fever is not maintained as long. Kovacs'<sup>53</sup> plan of hyperpyrexia baths is essentially similar to that of Coulter.

**Dosage of Fever**—The recommended "dosages" of fever have differed considerably (fig 1). Some believe that two, four or six hours at from 102 to 103 F will suffice for one session, for example, King,<sup>29</sup> who favors diathermy, Speed,<sup>47</sup> who favors diathermy, and Berris,<sup>17</sup> who favors heated cabinets. Others recommend from five to eight hours at 104 to 105 F. Markson and Osborne<sup>45</sup> (diathermy), Nicholls, Hansson and Stainsby<sup>28</sup> (diathermy), and Simpson<sup>48</sup> (heated cabinets). Temperatures above 105 F are recommended for patients with chronic infectious arthritis by but few, such as by Tenney,<sup>27</sup> who favors radiothermy. Kovacs<sup>53</sup> believes that such patients do not tolerate well temperatures of more than 104 F.

The great desideratum in fever therapy is to obtain and to maintain a degree of fever that will actually kill, or at least seriously retard the growth of, organisms in vivo and yet be essentially harmless to the tissues of the host. In gonorrheal arthritis, as will be seen later, data on the thermal death time of various strains of gonococci in vitro and in vivo have been determined, and an effective dose of fever has apparently been established. This is not so in chronic infectious (atrophic) arthritis. The cause of the latter disease is of course not yet definitely identified, though it is believed by many to be a streptococcus of some sort, probably of the viridans or hemolytic type. Until information is available concerning the thermal death time of the various arthrotropic streptococci under suspicion, the dosage of fever for this disease can be at the most but guesswork.

**Number and Frequency of Fever Sessions**—Earlier workers tried to make two or three sessions of fever suffice, when results were frequently unsatisfactory and symptoms continued, the number of sessions was gradually increased, some insisting that from ten to twenty sessions were required.<sup>54</sup> Recently there has been a tendency to accept the experience of the majority, who favor a total of six to eight sessions of fever as one course of treatment, though some investigators still feel that a smaller number may give as good results. Thus Simpson is of the opinion that two or three treatments, with an interval of one or two weeks intervening, are apparently as effective as a greater number.

#### SCALE OF DOSAGE FOR FEVER THERAPY

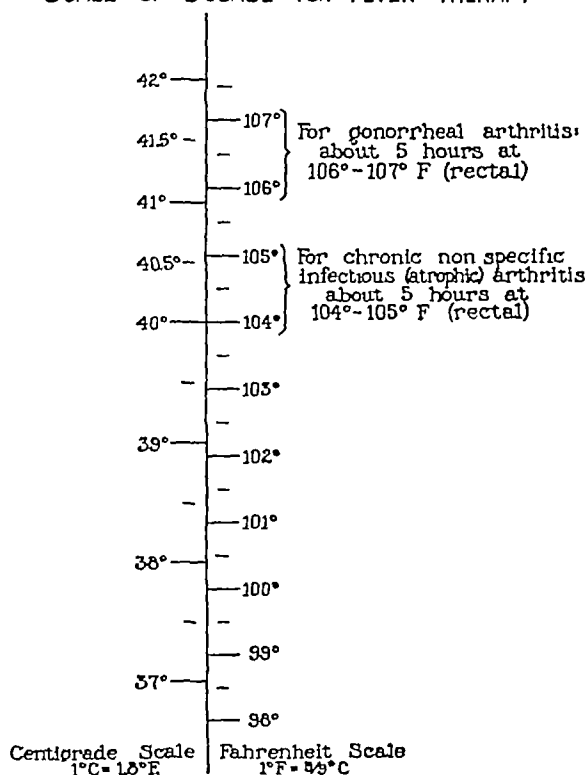


Fig 1—Scale of dosage in fever therapy for gonorrheal arthritis and chronic nonspecific infectious arthritis. The authors estimate dosage in terms of rectal temperature (about 1 degree F higher than the oral temperature). Doses recommended by some investigators are based on oral temperatures; those recommended by others are based on rectal temperatures.

method. This danger can be avoided with care, according to the protagonists of radiothermy, and they insist that patients' reactions to radiothermy are less exhausting and severe than to long sessions of diathermy. Simpson and his colleagues<sup>48</sup> were quite as able to develop and to maintain the desired levels of fever by means of air conditioned cabinets ("Kettering Hypertherm") as with radiothermy, the use of which they have therefore discarded. As a further reaction to

47. Nicholls, Hansson and Stainsby<sup>28</sup>; King<sup>29</sup>; Markson and Osborne.<sup>45</sup> Speed, J. S. in discussion on King, J. C. South. M. J. 25:817-818 (Aug.) 1932; Markson, D. E. and Osborne, S. L. The Treatment of Arthritis by Electropyrrexia. Illinois M. J. 64:231-237 (Sept.) 1933.

48. Simpson<sup>1</sup>; Simpson, Kislig and Sittler.<sup>11</sup>

49. Osborne, S. L. and Markson, D. E. Electropyrrexia. A Résumé of Therapeutic Applications and Technique. Ann. Int. Med. 7:1391-1397 (May) 1934.

50. Merriman, J. R., Holmquest, H. J., and Osborne, S. L. A New Method of Producing Heat in Tissues. The Inductotherm. Am. J. M. Sc. 187:677-682 (May) 1934.

51. Wilgus, S. D. and Lurie, Leah. The Fever Treatment of Paresis by Means of the Diathermy Current and the Electric Blanket. Illinois M. J. 60:341-344 (Oct.) 1931.

52. Coulter, J. S. The Treatment of Arthritis. Internat. J. Med. & Surg. 40:115 (Jan.) 1933.

53. Kovacs, Richard. Physical Therapy in Chronic Arthritis. M. Jour. & Record 138:372 (Nov. 15) 398 (Dec. 6) 1933.

54. Speed<sup>47</sup>; Simpson, Kislig and Sittler.<sup>11</sup>; Osborne and Markson.<sup>45</sup>

Sessions have been given by some as often as every two to three days, by others only every seven to fourteen days. The usual schedule is one session twice a week. A second course of fever may be advised if symptoms of arthritis persist after an interval of two or three months.

**Results**—In considering results reported to date it must be realized that each worker has in general treated only a few patients, only two of the fifteen reports being concerned with more than twenty patients. Percentages of "cures" refer to those patients who were reported as obtaining "complete relief," as becoming "symptom free" for a considerable period of time, or as "cured." "Cures" were obtained by Tenney<sup>27</sup> in 25 per cent of sixteen cases, by Berris<sup>17</sup> in 18 per cent of eleven, and by Markson and Osborne<sup>55</sup> in 21 per cent of nineteen. "Some" of King's<sup>20</sup> patients were cured. The results of Markson and Osborne have varied, presumably with experience. In their first report<sup>48</sup> 33½ per cent, or two of six patients, were markedly relieved but none were cured, in their second report<sup>55</sup> 16 per cent, or three, of nineteen patients were markedly relieved by fever induced by diathermy, and 21 per cent, or four patients, were completely relieved for as long as fifteen to twenty-one months. According to their third report,<sup>49</sup> 70 per cent of an unstated number of patients were markedly relieved by the use of the "inductotherm" but none were classified as cured.

It would appear that from 25 to 50 per cent of the patients treated in the various series received only moderate relief, and that no relief was obtained in from 13 to 37 per cent of cases reported by some, and in from 50 to 75 per cent of cases reported by others. Particular attention should be given to the reports of the two larger series that of Kohn and Warren,<sup>56</sup> who treated forty-three patients, and that of Simpson, who treated at least forty patients. No "cures" are reported by either, but 80 per cent of Kohn and Warren's patients obtained some relief (marked or moderate), and a majority of Simpson's patients obtained either marked or moderate improvement.

To others the results of fever therapy for chronic infectious arthritis have been frankly disappointing. Thus, Cecil<sup>57</sup> believes that the wave of enthusiasm for hyperthermia is not justified. In a limited series (number not stated) no benefit was noted by some, and only a temporary effect was noted by others, in a few cases improvement was apparently permanent. Of twelve patients treated by Nicholls, Hansson and Stainsby,<sup>58</sup> none were cured and none were markedly relieved. Only 25 per cent (three patients) were moderately relieved and 75 per cent (nine) received no apparent benefit.

**Summary of Results**—Because several of the investigators have omitted figures, a summary of their total experience cannot be given. Fairly complete data are given (in reports 1, 7, 10 and 13 in table 1) concerning forty-eight cases in which 13 per cent of patients were listed as cured or completely relieved, 18 per cent markedly relieved, 29 per cent moderately relieved, and 40 per cent not benefited. When one adds to these data the figures given in reports 5, 9 and 15 in this table, it would appear that of this total of 147 patients about 7 per cent (ten) were considered

as cured or as completely relieved from the activity of the disease. Sixty-six per cent (ninety-eight patients) obtained variable degrees of improvement and 27 per cent (thirty-nine) obtained no appreciable relief. Of those who were variably improved, probably half or less were relieved markedly, the others were benefited moderately.

One may therefore conclude that of all patients with chronic infectious (atrophic) arthritis concerned in these reports approximately 10 per cent (7 per cent minimum and 13 per cent maximum) became symptom free, about 25 per cent were markedly relieved, about 35 per cent were moderately relieved, and about 30 per cent (27 per cent minimum and 40 per cent maximum) received no benefit. In other words, a third of the patients were markedly or completely relieved and two thirds obtained only moderate relief or none at all.

Experience has been insufficient to determine finally which method of production and what dose of fever are most desirable. The analysis of cases has included but scant data on the duration, extension and degree of activity of the arthritic process under treatment. To date there is no clear cut evidence that results are dependent on one particular method or that a "correct dose" has been definitely established. Similarly, wide differences are apparent in the results by the various methods and doses now employed.

#### FEVER THERAPY FOR GONORRHEAL ARTHRITIS

Since 1932, nine reports have appeared, from six groups of workers, on the effect of fever therapy on gonorrheal arthritis. An analysis of these experiences is given in table 2. As in reports on chronic infectious (atrophic) arthritis, data at present are meager and incomplete, and the number of patients treated by each group of investigators is small, from two to twelve. The same diversity in methods for producing fever is apparent. Regardless of the method used, the reports indicate that rapid sterilization of the joints and the genito-urinary tract can be accomplished if the patient's temperature can be elevated long enough to reach or exceed the thermal death point of the gonococcus.

**Fever Sessions, Dose, Number, Frequency**—Some of the handicaps present in the problem of treating chronic atrophic arthritis are not present in the treatment of gonorrheal arthritis. The causative organism of the latter disease is known, and the thermal death time of the organism having been determined, the matter of dosage can be estimated with considerable accuracy and confidence. The thermal death time of fifteen or more strains of gonococci in vitro has been found by Carpenter, Boak, Mucci and Warren<sup>21</sup> to be about five hours at from 105.8 to 107.6 F. A few strains are more resistant and need the same temperature for longer periods or a higher temperature for shorter periods. Such information is of the greatest help in estimating the dose effective in killing these organisms in vivo. Thus it is recommended by those who have obtained the best results in gonorrheal arthritis that each dose of fever be at least five hours at 106.7 F (reports 1, 2 and 4, table 2). Others have used an approximate dose (from three to five hours at 104 to 106 F).

The majority have found that only one to three sessions of fever of five hours at about 106.7 F are necessary. When smaller doses of fever were used (from two to six hours at 102 to 103.5 F) from four to six sessions were necessary, and even then the results were not as good as when higher temperatures were reached and maintained. Sessions were given every three to seven days.

55. Markson and Osborne (footnote 47 last reference).  
56. Kohn L. A. and Warren S. L. Preliminary Report on the Treatment of Chronic and Subacute Infectious Arthritis by Artificial Fever. *J. Clin. Investigation* 12:971 (Sept.) 1933.  
57. Cecil R. L. Rheumatoid Arthritis. A New Method of Approach to the Disease. *J. A. M. A.* 100:1220-1227 (April 22) 1933.



**Results**—The effects of fever therapy on gonorrheal arthritis have been much more striking than on chronic infectious arthritis. Warren and his collaborators, Carpenter, Bishop, Horton and Wilson,<sup>58</sup> have reported that for the small number of patients treated by them the results have been "very encouraging." Those treated by Carpenter and Warren<sup>46</sup> were "usually cured," although in one case there was complete failure after seven hours of heat at 106.7 F. In this case the thermal death point of the gonococcus isolated from the joint was much higher than the amount of fever given the patient. In those treated by Bishop, Horton and Warren<sup>24</sup> acute arthritis subsided rapidly, redness and tenderness disappeared, and mobility was gradually restored, chronic gonorrheal arthritis became painless and some mobility was regained.

These gratifying results have been corroborated from several sources. Thus Tenney<sup>27</sup> concluded that hyper-

The majority of patients treated have had acute or subacute gonorrheal arthritis but, in addition to Bishop, Horton and Warren,<sup>24</sup> Kovacs<sup>60</sup> has also noted "good results even in stubborn chronic gonorrheal arthritis."

**Summary of Results**—As data are incomplete, the total number of cases concerned in these nine reports cannot be calculated. Of thirty-three cases mentioned, data on results in twenty-four cases can be tabulated. Of these twenty-four patients with gonorrheal arthritis, apparently twenty-two (92 per cent) were promptly and "completely relieved" or "cured." Failure resulted in only two cases (8 per cent) and was due, as stated, to an inadequate dose of fever.

#### FEVER THERAPY FOR OTHER FORMS OF ARTHRITIS AND "RHEUMATISM"

Those forms of joint diseases which have so far come within the scope of fever therapy have been

TABLE 2—Reported Results of Fever Therapy in Gonorrheal Arthritis

Report	Author	Method Used	Dose of Fever Recommended (Fahrenheit)	Total Number and Frequency of Fever Sessions Used	Patients Treated	Results per Cent				Comments
						Cured	Marked Relief	Moderate Relief	Little or No Relief	
1	Carpenter and Warren <sup>46</sup>	Diathermy and radiotherapy†	5 to 7 hours at 106.7	1 or 2	*	*	*	*	*	Gonorrheal arthritis usually cured
2	Bishop, Horton and Warren <sup>24</sup>	Diathermy and heated cabinet	6 hours at 106.7 to 107 (rectal)	2	9	*	*	*	*	'Results very encouraging, joints become painless'
3	Tenney	Radiotherapy	3 to 4 hours at 104 to 106 (rectal)	*	*	*	*	*	*	Acts almost as a specific
4	Warren and Wilson <sup>21</sup>	*	5 hours at 106.7 (rectal)	1 or 2	2	100				
5	Berris <sup>17</sup>	Heated cabinet	2 to 4 hours at 106 to 106.8	4 to 6	2	50			50	Case of extremely active gonorrheal infection unrelieved; case 'probable gonorrheal arthritis of 6 months duration completely relieved'
6	Simpson, Kislig and Sittler <sup>18</sup>	Radiotherapy and heated cabinet†	5 hours at 10 to 106 (rectal)	*	*	*	*	*	*	Results gratifying
7	Atsatt and Patterson <sup>59</sup>	Diathermy and heated cabinet	2 to 6 hours at 103.5 (oral)	*	8	85		22		'In failure temperature given was too low'
8	Kovacs <sup>60</sup>	*	*	*	*	*	*	*	*	'Good results even in stubborn chronic gonorrheal arthritis'
9	Simpson <sup>1</sup>	Radiotherapy and heated cabinet	5 hours at 106 to 106.8 (rectal)	One every 7 days	12	100				Results uniformly successful in acute cases

\* Data incomplete

† Method preferred

thermia acts almost as a "specific" for gonorrheal arthritis. He advocates a temperature of 106 F for three to four hours and believes that the thermal death point of the organism is generally about 104 F. Simpson, and his colleagues Kislig and Sittler,<sup>18</sup> who have treated twelve patients, stated that "the results were uniformly successful." Seven of eight patients treated by Atsatt and Patterson<sup>59</sup> were completely relieved after from one to five sessions of fever, even though the doses of fever were smaller (five hours or less at temperatures not more than 103.5 F) than those deemed necessary by others. Their one patient who was not relieved was admittedly given a temperature that was too low. An inadequate amount of fever was also the probable cause of failure in the treatment by Berris<sup>17</sup> of one patient with "extremely active gonorrheal infection."

chiefly cases of chronic nonspecific infectious arthritis and gonorrheal arthritis. However, certain other types of "rheumatism" have also been similarly treated. There are, of course, many types of arthritis. Aside from arthritis due to specific infections, trauma and gout, the two major types are commonly designated as chronic "infectious" (atrophic, proliferative or rheumatoid) arthritis and chronic senescent (hypertrophic, degenerative or osteo-) arthritis. Differentiation of these two more common types is important, as their course and the prognosis are quite different and it is likely, therefore, that their causes are not identical.<sup>61</sup>

**Senescent (Hypertrophic) Arthritis**—Although senescent (hypertrophic) arthritis is not generally characterized by as widespread, as deforming or as painfully

58. Bishop, Horton and Warren. 4. Warren and Wilson. 21. Carpenter and Warren.

59. Atsatt, R. F. and Patterson, Luella E. The Use of Electropyrrexia in Gonorrheal Arthritis. *Physiotherapy Rev.* 13: 144-146 (July-Aug.) 1913

60. Kovacs, Richard and Kovacs, Joseph. Physical and Constitutional Measures in Chronic Arthritis. *New York State J. Med.* 33: 1148-1154 (Oct. 1) 1933

61. Primer on Rheumatism. Chronic Arthritis. Chicago, American Medical Association, 1934. Hench, P. S. and Jepson, P. N. Differential Diagnosis and Medical and Orthopedic Care of Several Different Forms of Chronic Arthritis. *M. Clin. North America* 10: 563-595 (Nov.) 1926

progressive lesions of joints as may appear in chronic infectious (atrophic) arthritis, the disability and pain that it produces may at times be most annoying and constitute a considerable handicap. At the onset of symptoms of this disease its victims are generally more than 40 years of age, often more than 50, a time when physicians prefer to apply conservative measures and hesitate to provoke sudden and marked alterations in an accustomed vascular status. Nevertheless, in a number of cases of "hypertrophic arthritis," fever therapy has been employed with reported safety.

Of forty-seven patients with "hypertrophic arthritis" who were treated by Tenney<sup>27</sup> with radiotherapy, three (6 per cent) became "symptom free" in an unspecified time, thirty-eight (82 per cent) were "improved," and six (12 per cent) were unimproved. Berris<sup>17</sup> subjected four patients, from 49 to 76 years of age, who had "osteo-arthritis" of from three to twenty years' duration to artificial fever therapy by means of heated cabinets. Each patient was subjected to from seven to twelve sessions of fever at 101 to 102 F for two to three hours. A woman, aged 76, who had suffered with arthritis for twenty-three years, obtained "marked relief from nocturnal pain" and lost her painful sensitivity to changes in weather. The other three patients obtained little or no improvement. Among those treated by King<sup>29</sup> were patients with "hypertrophic arthritis," who obtained relief from pain, and increased articular mobility, by means of diathermy hyperpyrexia for two to three hours at 102 to 104 F.

According to Simpson,<sup>1</sup> however, patients with hypertrophic arthritis are poor subjects for this form of therapy, as many of them have cardiovascular and renal insufficiency. Simpson treated twenty-three (?) patients with this type of arthritis, with disappointing results. They did not seem to tolerate the treatments well and any relief obtained was transient.

Summarizing this rather small total experience in the treatment of hypertrophic arthritis by fever therapy we find that, of the total of seventy-four patients enumerated in the various reports to date, only three (4 per cent) became symptom free, thirty-nine (53 per cent) obtained "improvement," and thirty-two (43 per cent) experienced little or no relief.

**Gouty Arthritis**—A man, aged 44, with chronic gout of three years' duration, was treated by Berris<sup>17</sup> with fever therapy when rest, physical therapy and diet had failed to relieve him and after he had been unable to walk for four months. Six treatments of two hours each at 103 F were given over a period of three weeks. He obtained complete relief and was able to walk without pain after the second treatment. Auclair<sup>62</sup> is also credited with good results in the treatment of gout. No details are given.

**Traumatic Arthritis**—Berris<sup>17</sup> also treated two patients with traumatic arthritis. "Complete relief" was obtained in both cases. The first was a case of lumbosacral injury of three months' duration, on account of which the patient had been bedridden for six weeks, without relief from strapping of the back and baths. The second was one of traumatic sacro-iliac arthritis associated with constant pain of two years' duration, which was not relieved by a belt. Each patient received five treatments.

**Miscellaneous Types of "Arthritis"**—Results in cases designated simply as "arthritis," "chronic arthritis" or "mixed arthritis" without any further attempt at differ-

entiation have not been included in the foregoing analyses. Fifteen patients with "chronic infectious and noninfectious arthritis" were treated by Bishop, Horton and Warren<sup>24</sup> with an average of less than two sessions of fever in each case. All were "definitely benefited." Twenty patients with "mixed infectious and hypertrophic arthritis" were included among those helped by Simpson<sup>1</sup>. For his patients with "chronic arthritis" who were so treated, Kinsella<sup>63</sup> noted only "temporary relief." Coulter,<sup>62</sup> however, concluded that fever therapy is a valuable adjunct in the treatment of "certain cases of arthritis."

Great success was claimed by Auclair<sup>62</sup> in his treatment of eighty patients with "rheumatism" of various types "ankylosing arthritis, various forms of monarthritis, even arthritis of the hip, polyarthritis, infectious monarthritis, gout, sciatica and neuritis, neuralgia, torticollis, lumbago and vertebral arthritis." There were supposedly only seven complete failures.

**Neuritis, Sciatica, Myositis, Bursitis**—In addition to cases ascribed to Auclair, a few patients with neuritis, myositis and bursitis have been treated by Tenney. Of six patients with neuritis so treated, five became symptom free and one was improved. Of eight patients with myositis, two became symptom free and six were improved. Of four patients with bursitis, two became symptom free and two were improved.

#### FEVER THERAPY AT THE MAYO CLINIC

**Material and Method**—In 1932 Sheard, Pratt and Hench<sup>64</sup> treated a number of patients with arthritis by localized radiotherapy. Instead of subjecting the patient's entire body to the high frequency current, the apparatus was so arranged that only the affected joint came within the electric field. Thus it was hoped to avoid systemic reactions and yet affect perhaps the viability of the presumed invading organisms through a marked local hyperthermia. Results seemed inconclusive and, on the whole, inadequate.

In October 1933 four "Kettering hypertherm cabinets" were installed through the courtesy of Mr. Charles F. Kettering, director of the research laboratories of the General Motors Corporation and Dr. Walter Simpson of Dayton, Ohio. Since then, with the collaboration of Dr. Arthur U. Desjardins, we have treated therewith sixty-six patients who had chronic, nonspecific infectious (atrophic) arthritis and sixteen who had gonorrheal arthritis.

**Application of Method Apparatus**—The Kettering hypertherm is a large air conditioned cabinet (fig 2) through which heated humidified air is forced by a gentle current induced by a pair of electric blowers. The air is heated by three electric-strip heaters of a total of 1,500 watts and the heat of the cabinet is controlled by a thermostat. It is humidified by a container of water heated by a pair of electrodes and its humidity is controlled at about 35 to 40 per cent by a humidostat. The walls of the cabinet are made of celotex, an adequate insulator, and the cabinet's superstructure fits snugly into position on its couchlike base, preventing any escape of heat. Small sliding doors in the sides of the cabinet give access by which the patient's protective covering of blankets can be rearranged, his skin temperature noted or his rectal temperature taken. The rectal temperature is taken every ten to fifteen minutes, mouth temperatures are not reliable because the patients frequently sip cold water.

**Management of Patient**—General physical examination of the patient is supplemented by a special detailed examination

62. Auclair, cited in Results from Use of Electropyrrexia in France Paris letter J A M A 101 1401 (Oct 28) 1933

63. Kinsella R A Types of Chronic Rheumatism, J A M A 101 345 348 (July 29) 1933

64. Sheard Charles Pratt C R and Hench P S Unpublished data

of his joints (fig 3) and by certain chemical analyses. He is admitted for treatment in the morning without breakfast and is wheeled on the couch-like base into the cabinet proper, which has previously been heated to about 125 F. The patient having become accustomed to this temperature in a few minutes, the temperature is permitted to rise to about 145 F. The patient's temperature begins to rise and after about thirty to forty-five minutes, he may begin to be restless. Sedatives are then given, but sparingly. In the early stage of a session of fever, 3 grains (0.2 Gm) of sodium amylal or from 1½ to 3 grains (0.1 to 0.2 Gm) of pentobarbital sodium is given. Later codeine rarely

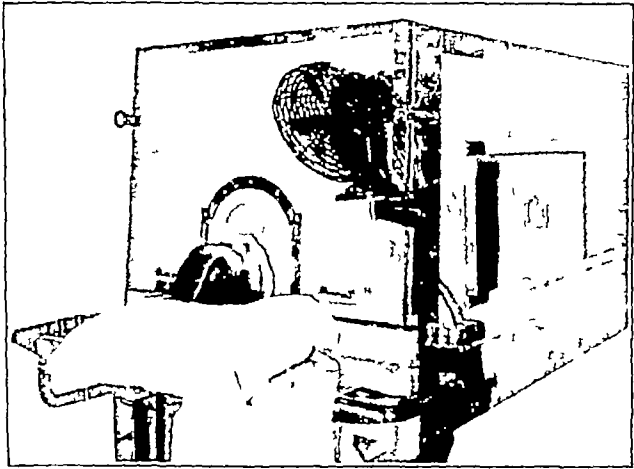


Fig 2—A patient in the Kettering hypertherm

morphine, is sometimes given hypodermically. Others have sought to minimize the "restless period" by giving patients as a routine rather large doses of amylal and morphine, together just before the beginning of the treatment or at the onset of the restlessness, or at both times. It is our belief, however, that the depressing reactions, cyanosis and impending collapses reported by some are frequently due not so much to the patient's reaction to fever as to his reactions to excessive amounts of the sedatives themselves perhaps in conjunction with fever. Using minimal amounts of sedatives at intervals during sessions of fever we have had practically no experience with significant depression of vascular tone or mental irritability.

After about an hour the patient's temperature has generally risen to the desired level that is to be maintained. It can be raised faster, but only with great discomfort to the patient. We consider the optimal rectal temperature for cases of chronic infectious arthritis to be about 104 to 105 F for five hours, and for cases of gonorrheal arthritis to be about 106 to 106.8 F for five hours (figs 1, 4 and 5). When the patient's rectal temperature has reached the desired level, additional blankets are placed over him. The temperature of the cabinet can then be adjusted to maintain the bodily temperature at this level for the required number of hours. The patient's head which is of course outside the cabinet, is cooled by an adjacent electric fan and by frequent sponging with cold water. He is encouraged to sip iced 0.6 per cent saline solution more or less continuously, and from 3 to 4 liters is prescribed to prevent symptoms of chloride depletion. The drink does not taste objectionably salty to the patient who is being treated by fever therapy.

Patients vary considerably in their ability to tolerate fever therapy. A nervous, apprehensive patient may soon request that treatment be stopped and may need considerable jollying and encouragement from the attendant, with recourse to sedatives as necessary. Many patients relax and go to sleep for short periods. Music by means of a radio or phonograph serves to distract and to soothe some, to irritate few. The attendant's personality is a real factor in procuring an adequate and well borne session of fever. Seeing a complacent patient already in the cabinet will sometimes suffice to allay a candidate's apprehension. When the required dose of fever has been given the patient is removed from the cabinet and allowed to rest until his temperature returns to normal (in from sixty to

ninety minutes), after which he takes a warm, and then a cool, shower and is allowed to go home. We have found hospitalization generally unnecessary.

**Psychic Reactions to Fever Therapy**—Of sixty-six patients with chronic infectious arthritis and sixteen with gonorrheal arthritis, only six of the former and none of the latter were unable to tolerate the sessions of fever. Three of these six were unable to complete the initial session and three abandoned treatment after two or three sessions because of discomfort, which in most cases is due to a poor tolerance to heat. In some cases the patient's reaction to heat seems inconsequential but a psychic reaction is noted, a degree of claustrophobia, and patients insist that they "want to get out of the cabinet." One of our patients, who had previously been subjected to febrile reactions from typhoid vaccine given as foreign protein therapy, said he preferred them to cabinet hyperthermia because although he got more relief from the latter, he could enjoy with the former "the luxury of thrashing around freely in bed."

MAYO CLINIC

FEBRILE THERAPY RECORD

CLINIC No.

X 89

AGE 47

DIAGNOSIS *Chronic Infectious Arthritis*

TEMP.	PULSE	BLOOD PRESS.	RESPIR.	URIC ACID	SWEAT	STOMACH	RECTAL	REMARKS											
TIME	TEMP.	TIME	PULSE	TIME	BLOOD PRESS.	TIME	RESPIR.	TIME	URIC ACID	TIME	SWEAT	TIME	STOMACH	TIME	RECTAL	TIME	REMARKS		
7:45 AM	101.2	8:00 AM	100	8:15 AM	110/70	8:30 AM	20	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	102.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	102.5	10:00 AM	110	10:15 AM	120/80	10:30 AM	22	10:45 AM	0.5	10:55 AM	None	11:00 AM	Good	11:15 AM	103.0	11:30 AM	Blanket	11:45 AM	Restless
11:55 AM	104.0	12:00 PM	120	12:15 PM	130/90	12:30 PM	24	12:45 PM	0.5	12:55 PM	None	1:00 PM	Good	1:15 PM	104.0	1:30 PM	Blanket	1:45 PM	Restless
1:55 PM	105.0	2:00 PM	130	2:15 PM	140/100	2:30 PM	26	2:45 PM	0.5	2:55 PM	None	3:00 PM	Good	3:15 PM	105.0	3:30 PM	Blanket	3:45 PM	Restless
3:55 PM	106.0	4:00 PM	140	4:15 PM	150/110	4:30 PM	28	4:45 PM	0.5	4:55 PM	None	5:00 PM	Good	5:15 PM	106.0	5:30 PM	Blanket	5:45 PM	Restless
5:55 PM	107.0	6:00 PM	150	6:15 PM	160/120	6:30 PM	30	6:45 PM	0.5	6:55 PM	None	7:00 PM	Good	7:15 PM	107.0	7:30 PM	Blanket	7:45 PM	Restless
7:55 PM	108.0	8:00 PM	160	8:15 PM	170/130	8:30 PM	32	8:45 PM	0.5	8:55 PM	None	9:00 PM	Good	9:15 PM	108.0	9:30 PM	Blanket	9:45 PM	Restless
9:55 PM	109.0	10:00 PM	170	10:15 PM	180/140	10:30 PM	34	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	109.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	110.0	12:00 AM	180	12:15 AM	190/150	12:30 AM	36	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	110.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	111.0	2:00 AM	190	2:15 AM	200/160	2:30 AM	38	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	111.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	112.0	4:00 AM	200	4:15 AM	210/170	4:30 AM	40	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	112.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	113.0	6:00 AM	210	6:15 AM	220/180	6:30 AM	42	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	113.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	114.0	8:00 AM	220	8:15 AM	230/190	8:30 AM	44	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	114.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	115.0	10:00 PM	230	10:15 PM	240/200	10:30 PM	46	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	115.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	116.0	12:00 AM	240	12:15 AM	250/210	12:30 AM	48	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	116.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	117.0	2:00 AM	250	2:15 AM	260/220	2:30 AM	50	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	117.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	118.0	4:00 AM	260	4:15 AM	270/230	4:30 AM	52	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	118.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	119.0	6:00 AM	270	6:15 AM	280/240	6:30 AM	54	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	119.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	120.0	8:00 AM	280	8:15 AM	290/250	8:30 AM	56	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	120.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	121.0	10:00 PM	290	10:15 PM	300/260	10:30 PM	58	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	121.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	122.0	12:00 AM	300	12:15 AM	310/270	12:30 AM	60	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	122.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	123.0	2:00 AM	310	2:15 AM	320/280	2:30 AM	62	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	123.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	124.0	4:00 AM	320	4:15 AM	330/290	4:30 AM	64	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	124.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	125.0	6:00 AM	330	6:15 AM	340/300	6:30 AM	66	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	125.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	126.0	8:00 AM	340	8:15 AM	350/310	8:30 AM	68	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	126.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	127.0	10:00 PM	350	10:15 PM	360/320	10:30 PM	70	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	127.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	128.0	12:00 AM	360	12:15 AM	370/330	12:30 AM	72	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	128.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	129.0	2:00 AM	370	2:15 AM	380/340	2:30 AM	74	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	129.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	130.0	4:00 AM	380	4:15 AM	390/350	4:30 AM	76	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	130.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	131.0	6:00 AM	390	6:15 AM	400/360	6:30 AM	78	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	131.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	132.0	8:00 AM	400	8:15 AM	410/370	8:30 AM	80	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	132.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	133.0	10:00 PM	410	10:15 PM	420/380	10:30 PM	82	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	133.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	134.0	12:00 AM	420	12:15 AM	430/390	12:30 AM	84	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	134.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	135.0	2:00 AM	430	2:15 AM	440/400	2:30 AM	86	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	135.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	136.0	4:00 AM	440	4:15 AM	450/410	4:30 AM	88	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	136.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	137.0	6:00 AM	450	6:15 AM	460/420	6:30 AM	90	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	137.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	138.0	8:00 AM	460	8:15 AM	470/430	8:30 AM	92	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	138.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	139.0	10:00 PM	470	10:15 PM	480/440	10:30 PM	94	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	139.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	140.0	12:00 AM	480	12:15 AM	490/450	12:30 AM	96	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	140.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	141.0	2:00 AM	490	2:15 AM	500/460	2:30 AM	98	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	141.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	142.0	4:00 AM	500	4:15 AM	510/470	4:30 AM	100	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	142.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	143.0	6:00 AM	510	6:15 AM	520/480	6:30 AM	102	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	143.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	144.0	8:00 AM	520	8:15 AM	530/490	8:30 AM	104	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	144.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	145.0	10:00 PM	530	10:15 PM	540/500	10:30 PM	106	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	145.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	146.0	12:00 AM	540	12:15 AM	550/510	12:30 AM	108	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	146.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	147.0	2:00 AM	550	2:15 AM	560/520	2:30 AM	110	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	147.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	148.0	4:00 AM	560	4:15 AM	570/530	4:30 AM	112	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	148.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	149.0	6:00 AM	570	6:15 AM	580/540	6:30 AM	114	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	149.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	150.0	8:00 AM	580	8:15 AM	590/550	8:30 AM	116	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	150.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	151.0	10:00 PM	590	10:15 PM	600/560	10:30 PM	118	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	151.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	152.0	12:00 AM	600	12:15 AM	610/570	12:30 AM	120	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	152.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	153.0	2:00 AM	610	2:15 AM	620/580	2:30 AM	122	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	153.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	154.0	4:00 AM	620	4:15 AM	630/590	4:30 AM	124	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	154.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	155.0	6:00 AM	630	6:15 AM	640/600	6:30 AM	126	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	155.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	156.0	8:00 AM	640	8:15 AM	650/610	8:30 AM	128	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	156.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	157.0	10:00 PM	650	10:15 PM	660/620	10:30 PM	130	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	157.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	158.0	12:00 AM	660	12:15 AM	670/630	12:30 AM	132	12:45 AM	0.5	12:55 AM	None	1:00 AM	Good	1:15 AM	158.0	1:30 AM	Blanket	1:45 AM	Restless
1:55 AM	159.0	2:00 AM	670	2:15 AM	680/640	2:30 AM	134	2:45 AM	0.5	2:55 AM	None	3:00 AM	Good	3:15 AM	159.0	3:30 AM	Blanket	3:45 AM	Restless
3:55 AM	160.0	4:00 AM	680	4:15 AM	690/650	4:30 AM	136	4:45 AM	0.5	4:55 AM	None	5:00 AM	Good	5:15 AM	160.0	5:30 AM	Blanket	5:45 AM	Restless
5:55 AM	161.0	6:00 AM	690	6:15 AM	700/660	6:30 AM	138	6:45 AM	0.5	6:55 AM	None	7:00 AM	Good	7:15 AM	161.0	7:30 AM	Blanket	7:45 AM	Restless
7:55 AM	162.0	8:00 AM	700	8:15 AM	710/670	8:30 AM	140	8:45 AM	0.5	8:55 AM	None	9:00 AM	Good	9:15 AM	162.0	9:30 AM	Blanket	9:45 AM	Restless
9:55 AM	163.0	10:00 PM	710	10:15 PM	720/680	10:30 PM	142	10:45 PM	0.5	10:55 PM	None	11:00 PM	Good	11:15 PM	163.0	11:30 PM	Blanket	11:45 PM	Restless
11:55 PM	164.0	12:00 AM	720	12:15 AM	730/690	12:30 AM	144	12:45 AM	0.5	12:55 AM	None								

from 20 to 40 mm of mercury in the systolic pressure, and 37 per cent showed a drop of from 20 to 50 mm of mercury in the diastolic pressure. Throughout the treatment a tendency of the pulse pressure to increase gradually was usually apparent. When the systolic pressure drops below 80 mm of mercury and the pulse pressure below 30 mm of mercury treatment should be discontinued at once.

The body weights of 100 patients (eighty-two with arthritis, eighteen with other complaints) were taken

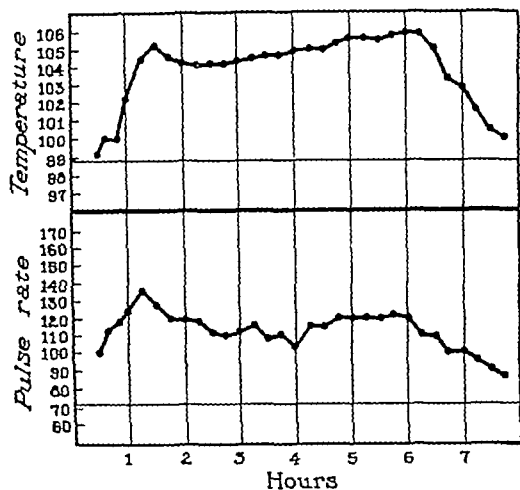


Fig. 4—Readings of temperature and pulse rate during a session of fever for chronic infectious arthritis

before and at the conclusion of their courses of fever therapy. Contrary to popular notion the majority did not lose weight. 79 per cent gained from one-half to 6 pounds (0.2 to 2.7 Kg), 21 per cent lost similar amounts. Loss of weight was due in most instances to vomiting or to inability to take a sufficient quantity (from 3 to 4 liters) of fluids. Nausea complicates treatment in about 20 per cent of cases. Vomiting occurs immediately after the sessions of fever in about 10 per cent of cases, the vomiting often terminates the nausea. In about 3 per cent of cases, protracted anorexia and nausea and frequent vomiting may be encountered for from twenty-four to forty-eight hours, but this condition can be promptly overcome by the intravenous administration of from 500 to 1,000 cc of 10 per cent dextrose and 10 per cent saline solution.

When care is taken and the patient is kept covered with a light cotton blanket, burns on the skin are not observed at body (rectal) temperatures of from 104 to 105 F, but when a rectal temperature of from 106 to 107 F is necessary, as in cases of gonorrheal arthritis, superficial vesicles may develop on the skin if the patient does not remain covered.

**Chemical Reactions to Fever Therapy**—Determinations of blood lactic acid, made in twenty cases before and after treatment, were within normal limits. Determinations of blood urea in sixty cases, made before and after treatments, were within normal limits. Determinations of blood chlorides in eighty-two cases before and after treatment were within normal limits (Chlorides by mouth were given to all. The 21 per cent of patients who lost weight are included in the latter group). Counts of erythrocytes in 100 cases showed no appreciable variation except in two cases, in which there was a drop of about 500,000 cells per cubic millimeter immediately after the first session. In each

of these cases the lowered level attained after the first treatment was maintained for the remainder of the series of treatments. Leukocyte counts were made before and after treatments in eighty cases. There was an increase ranging from 2,000 cells to as much as three times the original count in 69 per cent of the cases. The greatest variation occurred usually in sessions demanding higher temperatures. In the remaining 31 per cent the counts after treatment varied slightly from those before treatment. Determinations of values for hemoglobin were made in 100 cases; there were no appreciable differences before and after treatment.

#### AUTHORS' RESULTS WITH FEVER THERAPY FOR CHRONIC INFECTIOUS ARTHRITIS

In order to evaluate the results as judiciously and as independent of the patient's subjective reactions as possible, a detailed examination was made, eight characteristics of each affected joint being noted on a special form. At intervals between sessions of fever and at the end of the course a similarly detailed reexamination was made (fig. 3). After a period of from six to fourteen months since the last session of fever, the present status of sixty patients (thirty-six men and twenty-four women) has been determined. Their average age was 36 years (the youngest was 10, the oldest 61). The average duration of arthritis was six and a half years (from one month to seventeen years). The activity of the disease was mild (grade 1) in seven cases, moderately severe (grade 2) in forty-five cases, and severe (grade 3) in eight cases. Thus most of them were ambulatory, but painfully so. The joints involved were few (extension grade 1) in fifteen cases, several (extension grade 2) in thirty-three cases, and many (extension grade 3) in twelve cases.

**Immediate Results**—At the immediate conclusion of the course of treatment 17 per cent (ten patients) had experienced marked (grade 3) improvement, 46 per cent (twenty-eight patients) had obtained moderate

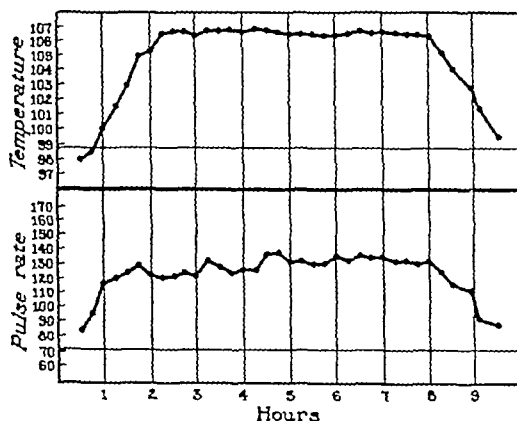


Fig. 5—Readings of temperature and pulse rate during a session of fever for gonorrheal arthritis

(grade 2) but not striking improvement, 27 per cent (sixteen patients) had obtained but slight (grade 1) relief, and 10 per cent (six patients) had received no relief. None were relieved completely.

According to Pope,<sup>65</sup> "arthritis may have their pains and stiffness greatly increased at first" with fever therapy. Our patients experienced no aggravation of symptoms.

<sup>65</sup> Pope, Curran. A Clinical Study of Pyretotherapy (Fever Treatment). Kentucky M. J. 30: 593-605 (Nov.) 1932.

Some have stated that patients who have obtained only moderate relief on the immediate conclusion of their course may with some confidence look for improvement to increase, and that they must not expect to note a full effect for several months. Our evidence does not wholly support this optimism. Of the six patients who were not improved at the end of their session, none were better six months or more later. Of the fifty-four patients who had received variable degrees of improvement, thirty-three later lost some

TABLE 3—*Fever Therapy for Chronic Infectious Arthritis*  
*Relation of Authors' Results to Duration of Disease*

Cases	Duration of Arthritis Years	Improved per Cent	
		Grade 2	Grade 3
8	1 year or less	37	50
7	1 to 2	43	20
25	3 to 5	16	8
16	6 to 10	31	6
4	Over 10	0	20

ground, nine lost only part of what they had gained but twenty-four lost it all. Twelve patients were able to maintain, but noted no augmentation of, improvement. Only nine of the sixty patients noted progressive improvement.

**Later Results**—At the time of the present inquiry, generally eight to eleven months, and in no case less than six months after completion of treatments, the later results of fever therapy are as follows. Fifty per cent (thirty patients) were apparently no better than before fever therapy, 12 per cent (seven patients) had obtained but slight (grade 1) relief, 20 per cent (twelve patients) had obtained definite (grade 2) though not outstanding improvement, and 18 per cent (eleven patients) had obtained marked (grade 3 to 3+) improvement. While none were entirely symptom free or considered themselves "cured," three of the last eleven patients were "practically well." A man, aged 48, whose moderately active and rather extensive arthritis had been of eighteen months' duration, "can now do most anything" and is "almost normal." Another man, aged 32, who had had arthritis only six months before treatment, has had "no swelling and very little pain or stiffness since." He attends dances frequently and walks freely. A third man, aged 48, considers himself "practically cured." Whereas he "couldn't do anything before the treatments," he "can do almost everything now without pain." Not one of these three patients had had any treatment of any sort since fever therapy over a year ago.

Practically all the patients had experienced exacerbations of variable degrees since fever therapy, even those who had obtained and maintained considerable relief. All but ten of the sixty patients had seen fit to resume treatments of variable types since fever therapy. Two of them had accepted foreign protein treatments by means of typhoid vaccine given intravenously. One was not relieved thereby, the other declared he got more relief from them than from fever therapy.

**Relation of Results to Number of Sessions of Fever**—Although an attempt was made to give each patient six treatments, the number of treatments varied. A few felt sufficiently improved after three sessions and wished to postpone the rest. Others who noted but little improvement with the earlier sessions persisted and took the full course. Of the sixty patients, thirty-eight had six sessions, one had seven, five had five, four had four, and twelve had three sessions. Although

results doubtless depend in part on giving a reasonable number of sessions, other factors, such as the duration and activity of the disease, are more important. This is evidenced by the fact that of those who had only three sessions, 50 per cent obtained notable (grade 3 to 3+) improvement, whereas none of those who had five sessions and only 13 per cent (five of thirty-eight patients) of those who got six sessions obtained similar relief.

#### RELATION OF RESULTS TO DURATION, ACTIVITY, AND EXTENSION OF THE ARTHRITIS

As with all other forms of treatment for chronic infectious arthritis, the results of hyperthermia depend to a marked extent on the duration and activity of the disease, and more so on these factors than on whether the patient has four or six fever sessions. Thus the shorter the duration of the arthritis (table 3) and the less its activity (table 4), the more chance there was that the patient would receive an impressive (grade 3) response. There were exceptions, of course, and occasional cases of short duration resisted therapy more stubbornly than some of longer duration.

The number of joints involved was not an apparent factor in the result. Notable results were received as often by those with many affected joints as with few.

**Relation of Result to Age of Patient**—The age of the patient when treated bore no obvious relationship to the effect of treatment. The group of patients in the decades between the third and sixth, inclusive, shared alike in obtaining both the moderate and marked results.

#### AUTHORS' RESULTS IN FEVER THERAPY FOR GONORRHEAL ARTHRITIS

Sixteen patients have completed their courses of treatment, thirteen were men, three women. Their average age was 31 years (the youngest was 15 and the oldest 59). Nine were suffering from acute and seven from chronic, gonorrheal arthritis. All had experienced acute arthritis shortly after the onset of an acute urethral or pelvic infection. In ten cases urethral smears made at the clinic were positive for gonococci, in six cases smears were negative here but reliable reports of recently positive smears were given.

TABLE 4—*Fever Therapy for Chronic Infectious Arthritis*  
*Relation of Authors' Results to Degree of Activity*  
*of Disease*

Cases	Activity of Disease	Grade	Improved, per Cent	
			Grade 2	Grade 3
7	1		14	57
4	2		25	18
8	3		37	0
0	4			

us. The average duration of arthritis was thirteen days in acute cases, twelve months in chronic cases.

At the beginning of treatment at the clinic the activity of the arthritis was very severe (grade 4) in five cases, severe or marked (grade 3) in four, moderate (grade 2) in five, and mild in two. Many of the joints were exquisitely tender, markedly swollen and indurated, and they were held completely or almost entirely immobile because of pain. The joints were thus in general much more painfully affected than in the cases of chronic infectious arthritis. The joints involved were generally few (one or two) in about twelve cases, but more numerous in four.

**Immediate Results**—In our earlier cases from five to seven sessions of fever were given. In later cases, at least of the acute type, from three to four sessions were given, as this number seemed to suffice, as it also did in cases of chronic gonorrheal arthritis. Relief, which is sometimes marked, is often noted after the first session. Of the sixteen patients, on conclusion of their last session of fever, 32 per cent (five) were completely relieved of all signs and symptoms of arthritis (table 5). An additional 37 per cent (six patients) were also completely relieved except for rather insignificant residual stiffness, slight (grade 1) pain of a joint on motion or walking, or slight (grade 1) residual tenderness. Nineteen per cent more (three patients) were markedly relieved (grade 3), and one patient (6 per cent) was moderately relieved. Only one patient (6 per cent) did not obtain benefit, a case of residual chronic gonorrheal arthritis of seven months' duration, with roentgenographic evidence of destructive arthritis and with marked stiffness of the knee but with only a little tenderness and a normal sedimentation rate.

As would be expected, patients with acute arthritis, whose disease is of shorter duration, received somewhat more striking results than those with chronic gonorrheal arthritis, especially those with considerable residual stiffness and destruction of joint tissues. Of those with acute arthritis, 88 per cent were promptly

The status of the patients has changed but little and they have lost none of their improvement. Thus five of them (45 per cent) are still symptom free. Five (45 per cent) are markedly relieved and experience but slight, occasional aching. The one who was unrelieved at the end of the sessions of fever has seen but little improvement (grade 1).

#### COMMENT

Since our results with the Kettering hypertherm are approximately the same as those obtained with other methods, we agree with Simpson that the use of properly heated cabinets should replace more elaborate methods. Certainly this method is simpler and less expensive than radiotherapy. Simplification of methods to avoid danger and expense and to increase the sphere of hyperthermia's usefulness is highly desirable. We regard as justified the lessening popularity of radiotherapy and "superdiathermy" in favor of heated cabinets. Simplification must not be carried, however, to the point of therapeutic ineffectiveness. There is already a tendency to propose methods of supposed "fever therapy" incapable of providing adequate degrees of fever or of producing much more than the local thermic reactions of ordinary physical therapy.

The results in gonorrheal arthritis are in striking contrast with those in nonspecific infectious arthritis, the figures in the two groups being almost the converse of each other. Of patients with gonorrheal arthritis, well over two thirds are promptly "cured" and practically none go without considerable relief. Of patients with chronic infectious arthritis, about two thirds get little or no relief and only a third are benefited significantly. It is a point for debate how far fever therapy is justified in cases of chronic infectious arthritis if it but infrequently provides more than relief of grade 2. Many less expensive, more available and less strenuous forms of therapy do that much almost as a routine. Based on experiences to date, it seems only fair to tell a candidate for fever therapy who has chronic infectious arthritis that his chances for having the progress of his disease stopped sharply are probably no more than one in five, if that much, and that his chances of receiving little or no benefit are about 50 per cent. If his condition is of long duration or markedly active, or if he has practically ignored older and more orthodox measures, it would seem best to postpone a trial of fever therapy in favor of current therapy of proved usefulness. But it is in just such long-standing and severe cases that one turns in hope to new methods. If the victim has tried other measures faithfully with but little success, if he understands the likelihood of relief, and if he can afford the treatments without undue financial sacrifice, then a trial of hyperthermia seems quite justified. It must be remembered, however, that success is more frequent in cases of short duration and of moderate activity.

Regardless of the apparatus or method used, such therapy will probably never be inexpensive or cheap, for its physiologic effects are potent and it must always be completely under control. The constant presence of trained attendants is required, with a physician either in attendance also or within immediate call.

In gonorrheal arthritis, results are so striking and apparently so superior to those obtained by other methods that one can prescribe fever therapy as the method of choice with considerable assurance. Even though the cost is a matter of consideration, the prompt relief obtained and the avoidance of crippling deformities

TABLE 5—Immediate Results of Fever Therapy for Gonorrheal Arthritis

Relief Grade	Acute Arthritis per Cent	Chronic Arthritis per Cent	Average for Both Groups per Cent
4	44	14	32
3+	44	29	37
3	12	29	18
2		14	8
1			
None		14	6
Total cases	9	7	16

"cured" or practically so (grade 3+ and grade 4 improvement), being relieved of all significant pain, swelling, tenderness and stiffness. Of the seven patients with chronic gonorrheal arthritis, whose disease was of three, three, six, seven, eight, fourteen and thirty-six months' duration respectively, all were markedly relieved but the one previously mentioned. One was completely relieved and two others were practically relieved. Of these seven patients, three had marked stiffness and destructive arthritis, in each case of a knee, two still had considerable active inflammation, with tenderness, redness and pain. After treatment these symptoms subsided completely, leaving only residual stiffness, as was to be expected. As noted, the one patient with marked residual stiffness but with little if any active disease was not benefited.

These figures apply to the effect of fever therapy on articular infections. In the majority of cases, genital infections were likewise benefited and urethral smears became negative. At times, however, the urethral infections were resistant and extra sessions of fever or other treatment such as the Elliott regimen, had to be used. For details concerning this phase of the problem, reference is made to the paper by Desjardins, Stuhler, and Popp.<sup>66</sup>

**Later Results**—In eleven of the sixteen cases, from three to fourteen months has elapsed since treatment

<sup>66</sup> Desjardins, A. U., Stuhler, L. G., and Popp, W. C. Fever Therapy for Gonococcal Infection. *J. A. M. A.* 104: 873 (March 16) 1935.

mity, formerly so often a feature of gonorrheal arthritis, fully justify the expense. In a case of doubtful etiology, in which gonorrhea is suspected but cannot be proved, the patient should be given the benefit of the doubt and subjected to two or three adequate sessions of fever. If a striking result is obtained promptly, the chances are that the cause was indeed the gonococcus. Even in cases of old, chronic gonorrheal arthritis in which the continued presence of viable gonococci may seem remote and secondary invaders are under greater suspicion, a trial of a few sessions of fever is nevertheless in order, and particularly if appreciable degrees of inflammatory activity (tenderness, swelling, and pain on motion) still accompany the residual deformity. The "fire" may finally be stopped by fever therapy, but fever therapy should be looked on as a "fire brigade" and not a "corps of carpenters"; it may extinguish the fires of gonorrhea but will not restore the architecture of a joint. Therefore, when a process is practically burned out except for residual stiffness, fever therapy is probably not indicated.

The difference between results for the two types of arthritis would seem to support the contention that in gonorrheal arthritis, fever therapy exerts a direct (sterilizing) effect but that in nonspecific infectious arthritis its effect is largely if not entirely indirect. If the latter disease is bacterial in origin, its causative germ (streptococcus or otherwise) is obviously not one mortal to the degrees of fever available in clinical hyperthermia. A corollary of this would be that if any of the supposed arthrotropic bacteria put forth as being the primary etiologic agent are found capable of being fairly readily killed *in vitro* at temperatures available in fever therapy, they are probably not the cause of the disease and claims for them should be discarded. Such a conclusion seems only logical. Practically nothing is known about the thermal death time of streptococci, a field for immediate investigation if rational dosage in hyperthermia is to be attempted. Indeed, similar investigations on the thermal death time of all organisms pathogenic to man would seem indicated to determine their susceptibility not to a few minutes of intense heat *in vitro* but to several hours at lesser temperatures *in vivo*. It would be a grim joke if of all such pathogenic organisms only one was susceptible to the direct action of hyperthermia. Fever therapy may yet prove "specific" for more than the gonococcus.

#### SUMMARY AND CONCLUSIONS

A survey of experiences with fever therapy for various types of arthritis indicates that results have been quite variable. No one method has been proved clearly superior to all others, and a laudable process of simplification of methods is in progress.

Of cases of chronic, nonspecific infectious (atrophic) arthritis, "cures" have been reported in from 0 to 25 per cent, marked relief in from 0 to 7 per cent, moderate relief in from 25 to 50 per cent, and no relief in from 13 to 75 per cent. We have estimated that, of the total number of patients treated, an average of about 10 per cent were reported as becoming symptom free, about 25 per cent reputedly obtained marked relief, about 35 per cent obtained moderate relief, and about 30 per cent obtained no relief.

The results in our cases have not equaled these general averages but have approximated the more modest estimates. Of our sixty patients with chronic infectious arthritis none were completely relieved, 18 per cent were markedly relieved, 12 per cent were moder-

ately relieved, 20 per cent were but slightly benefited and 50 per cent were not relieved. Thus a total of 30 per cent received significant benefit and 70 per cent got little or no relief.

The value of fever therapy for chronic infectious arthritis cannot yet be fully appraised. Further clinical experience is necessary as well as further investigation on the thermal death time of supposedly etiologic bacteria. In the meantime, a trial of fever therapy in selected cases is justified.

Of cases of gonorrheal arthritis, "cures" have been reported in from 50 to 100 per cent, with complete relief occurring in a total average of 92 per cent. Only occasional patients are not markedly benefited.

Our results in sixteen cases of gonorrheal arthritis confirm those of others. About 90 per cent of our patients were essentially cured or markedly relieved. Adequate fever therapy seems to provide a direct sterilizing action on affected joints.

Since one may expect from adequate fever therapy a fairly rapid and essentially complete recovery in the majority of cases of acute gonorrheal arthritis (with out the articular residues that so frequently occur in spite of other measures), and since even in cases of chronic, but still active gonorrheal arthritis considerable benefit can often be obtained, the prompt use of this form of therapy is recommended.

#### THE DIAGNOSIS AND TREATMENT OF BLACK SPIDER BITE

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During the last seven years, fifty-two cases of black spider bite have been treated at the Fresno County General Hospital. Most of the cases were admitted during the summer and early fall. The number treated each year was as follows: 1928, 6, 1929, 3, 1930, 3, 1931, 6, 1932, 11, 1933, 12, 1934, 11.

In the average case the patient was an adult male who had been bitten on the penis or scrotum while sitting in an outdoor privy. In some cases, however, there was a history of having been bitten on the foot while putting on a shoe in the morning or on the back or arm after getting into the blankets at night.

The patient when brought to the hospital shortly after being bitten complains of pain and swelling at the site of the injury with pain throughout the body, particularly in the extremities, which become cramped and spastic. This is soon followed by severe pain over the abdomen and rigidity of the abdominal muscles, with nausea and frequently vomiting. Sometimes he complains of burning of the soles of the feet. There is anxiety, headache, ringing in the ears and dizziness. The blood pressure is elevated as much as 35 or 40 mm.

If the injury is slight, only tenderness and cramping of the muscles of the extremities may be noted. The location of the bite determines the rapidity of the abdominal involvement. When the lower extremities or the scrotum are bitten there is more rapid development of abdominal symptoms. The spasm of the muscles in the extremities is always noted previous to the abdominal symptoms.

The physician's attention is particularly drawn to the severe pain in the abdomen. On palpation he finds a



tender abdomen without any point of localization and a rigidity that at times is boardlike and makes him suspicious of a ruptured peptic ulcer

The spider that is responsible for this syndrome is *Latroctes mactans*, the female of which species is known as the Black Widow. It is a large shiny black spider with spherical body and long slender legs. On the ventral side of the abdomen is an hour glass shaped red or yellow spot. The dorsal surface is usually marked by one or more small red dots.

This spider is common in many of the Southern states, where it is found around refuse heaps and in stables and outbuildings but occasionally also in houses both in the country and in cities.

J T Vaughan<sup>1</sup> of Ashland, Va., who has had ten cases, recently writes "These cases are quite a new thing in this part of Virginia. I have two explanations for this. First, the past two years have been very dry and second, the state board of health has installed sanitary privies and a large number of bites have occurred in privies. Apparently the spider, seeking a damp place, stays in privies."

It is generally considered that the bite of the black widow spider is very dangerous if not fatal. In the records of the Fresno County General Hospital, however, there have been no deaths in adults from black spider bite. Bogen,<sup>2</sup> who compiled records of sixty cases seen at the Los Angeles General Hospital, says that among them there was no mortality. According to him there have been twelve deaths recorded in the literature but no autopsy was performed in any cases so that death might have been due to some other cause.

Kobert<sup>3</sup> considers that certain factors might modify the effect of black spider bite. He points out that the poison of the spider may become exhausted after several bites so that for a while little may be left for succeeding bites and also that the poison might enter a blood or lymph vessel with dangerous results or it might remain in the upper layers of the epithelium and do no harm.

There are several other factors that might affect the outcome.

1 It is likely that individual resistance varies greatly, one person being more susceptible than another to the toxin injected by the spider.

2 Since the toxin has a quantitative effect, the size of the individual bitten is an important factor. The amount of poison that would be relatively harmless in an adult might conceivably be fatal in an infant or small child. In children the symptoms are more severe and the outlook is grave. It is a common opinion among physicians practicing in Fresno that fatal cases of black spider bite are not uncommon in small children. In young children there is a rapid development of convulsions, which are extremely difficult to control.

3 While the prognosis in adults is favorable, nevertheless improper treatment may alter the outcome. Alcohol seems to be contraindicated and fatal cases have been reported that may be due to this cause.

A M Cornwell<sup>4</sup> of Lincolnton N C, in referring to an article published by him in 1931 says "It is inter-

esting to note that since the above paper was given I have had a death from spider bite. This case is interesting from the fact that the man was partially intoxicated at the time he received his spider bite. He was fishing on the banks of a river and became rather suddenly and seriously ill and his partner discovered one of the black widow spiders up his pants leg, unknown to him. Three days later the man was dead despite all our efforts to save him, having had the classic symptoms of arachnidism."

The successful management of cases of black spider bite depends on two factors correct diagnosis and proper treatment.

#### DIAGNOSIS

It is essential that a correct diagnosis be made, otherwise the patient might be subjected to a surgical operation for an acute condition of the abdomen such as ruptured gastric ulcer. If one is on guard it is always possible to differentiate between the abdominal symptoms in spider bite and those of an acute condition of the abdomen. There is generally a history of having been bitten by a black spider and there is no previous ulcer history. The patient is not in shock and the temperature and pulse are normal. The blood examination shows a slight elevation of the white count, with little increase in polymorphonuclear leukocytes.

#### TREATMENT

In former years many different forms of treatment were employed. For some reason, strychnine was given and the discomfort and pain of the patient was thus unduly prolonged. The most valuable form of treatment was the administration of sedatives, chiefly morphine.

Bogen has advocated the use of blood serum obtained from patients after recovery from spider bite and also the administration of tetanus antitoxin. These measures have not seemed to be necessary in the average case and were not used in this series.

The most rational form of treatment is one based on the clinical picture, which resembles hypertension in the adult and eclampsia in the child, viz., intravenous administration of magnesium sulphate. This treatment was mentioned by Bogen as having been used once in a series of sixty cases described by him in 1932. He says that "the intravenous injection of a 10 per cent solution of magnesium sulphate was given in one instance, with some apparent relief of symptoms." He makes no further comment about it.

The first extensive use of magnesium sulphate in the treatment of spider bite was made in 1933 by De Asis.<sup>5</sup> He treated successfully four cases of bites by the red spider (*Katipo*), a member of the *Latroctes* family occurring in the Philippines. It was his report which prompted us to apply this treatment to the bite of the black widow spider.

Since the appearance of his paper, the routine treatment for patients admitted with black spider bite at the Fresno County General Hospital has been as follows:

- 1 The patient is immediately put to bed and iodine is applied to the site of the bite.
- 2 A soap suds enema is administered, and fluids are given freely by mouth.
- 3 Morphine sulphate is given hypodermically to control the pain and sodium amytal to insure rest.

<sup>1</sup> Vaughan J T. Personal communication to the authors. Arachnidism. Report of Two Cases. Virginia M. Monthly 57: 806 (March) 1931.

<sup>2</sup> Bogen Emil. Poisonous Spider Bites. Ann. Int. Med. 6: 375-388 (Sept.) 1932. Arachnidism. Arch. Int. Med. 38: 623-632 (Nov.) 1926.

<sup>3</sup> Kobert R. Beitrage zur Kenntniss der Giftspinnen. Stuttgart. Ferdinand Enke 13: 191-1901 quoted by Riley and Johannsen.

<sup>4</sup> Riley C V and Johannsen O. A Handbook of Medical Entomology. Ithaca N Y. Comstock Publishing Company 1915.

<sup>5</sup> Cornwell A M. Personal communication to the authors. Arachnidism. South. Med. & Surg. 93: 885 (Dec.) 1931.

<sup>6</sup> De Asis Cesario. "Red Back Spider Bite and Magnesium Sulphate Treatment. Clinical Study of Four Cases. Am. J. Trop. Med. 14: 33 (Jan.) 1934.

4 Magnesium sulphate, a 20 cc ampule of 10 per cent solution, is given intravenously, to be repeated as required to overcome the hypertension and the spasticity of the muscles

Results with this form of treatment have been very satisfactory. Last summer we used it in eleven cases. It was never necessary to give more than one dose of magnesium sulphate. The patients were usually free from symptoms within twenty-four hours.

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## THE EFFECT OF OIL OF PEPPERMINT ON THE EMPTYING TIME OF THE STOMACH

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The effect of oil of peppermint on gastric secretion in man and dog is described and balloon tests of gastric motility after oil of peppermint are reported elsewhere.<sup>1</sup> Our previous work showed that oil of peppermint diminished gastric acidity. It was important, therefore, in the analysis of the factors concerned in such a diminution of acidity to investigate the effect of the oil of peppermint on the emptying time of the stomach.

Wallace and Jackson<sup>2</sup> found that oil of peppermint in the intestine influences gastric secretion by reflex action. Meyer and Gottlieb in their textbook<sup>3</sup> state that carminatives increase the muscular activity of the alimentary canal. Muirhead and Gerald<sup>4</sup> found that small amounts of volatile oils increase the motility of isolated segments of intestine and that larger doses decrease it. In Cushny's textbook<sup>5</sup> it is stated that volatile oils relax the musculature of the stomach and intestine. Gunn<sup>6</sup> likewise reported that carminative volatile oils depress the motility of isolated stomach and intestine. Rehfuess and his associates<sup>7</sup> gave 100 Gm. of "soft creamy wafers with strong peppermint flavor" and noted increased acid secretion but delayed emptying of the stomach. "Soft creamy wafers of strawberry flavor" were given as a control. Samples of gastric contents were taken every fifteen minutes till the stomach was empty. Plant,<sup>8</sup> using dogs with gastric and intestinal fistulas, reported that spirit of spearmint brought into the intestinal loop increases its tone and contraction. Later Plant and Miller<sup>9</sup> published experi-

ments on segments and strips of intestine in vitro. Small doses of peppermint increased their motility and tone, larger amounts inhibited it. Stross<sup>10</sup> reported that menthol inhibited motility and depressed and abolished the tonus of isolated pieces of intestine. Arnold<sup>11</sup> found a paralyzing action of peppermint on the stomach and a stimulating action on the intestine. Sommerfeld, Kuenzel and Todd<sup>12</sup> observed under the fluoroscope that peppermint increased the amplitude and vigor of the contractions of the stomach.

### METHODS

The methods used in this investigation were as follows:

1 *The Balloon Method*—A balloon<sup>13</sup> and a stomach tube were introduced through the mouth into the stomach of patients (with duodenal ulcers) or normal students who had been without food for twelve hours. In dogs with a gastrostomy, the balloon and stomach tube were introduced through the cannula.<sup>14</sup> The contractions of the resting stomach were recorded by a water manometer in the usual way. After a sufficient control period, oil of peppermint in amounts varying from 2 to 100 cc was injected at one time, at intervals, or by continuous drip (all through the stomach tube). The usual amount given was from 2 to 4 cc, but 100 cc was given only once to a dog. Oil of peppermint, U. S. P., was used.

2 *Duodenal Cannula Method*—A dog with a wide metal cannula in the stomach and another one in the duodenum was kept on a standard diet. He had been without food but with water for from eighteen to twenty-four hours preceding each experiment. Before the test, the stomach and duodenum were emptied by opening the two cannulas. If food was found in the stomach, no test was done. A rubber tube 40 cm long was introduced distally into the duodenum and jejunum through the duodenal cannula and was connected with a funnel that was covered with a wire mesh. The dog was fed 250 Gm. of fresh hamburger with 100 cc of water. After that, the duodenal cannula was opened and the mixed gastric and duodenal secretions were collected. The following day, oil of peppermint was introduced into the stomach immediately after the meal. This was done through a small tube in the gastric cannula. The volume of secretions was measured every ten minutes and the liquid part returned into the intestine through the funnel and rubber tube. The amount of undigested meat was measured and not returned.

3 *Fluoroscopy*—The patients were six young women from Mandel Clinic who had no gastro-intestinal complaints and were all normal, except possibly patient 4, who had gastroptosis without symptoms. They had been without food for nineteen hours. The subjects received a barium sulphate-milk meal and the stomachs were examined before the fluoroscope at ten minute intervals until emptying was complete. The oil of peppermint was added to the barium meal or given in capsules, always in the dose of 2 cc. There was no difference in results noted between the two modes of giving the oil of peppermint. Controls with 2 cc of olive oil instead of oil of peppermint were made.

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Valuable assistance in the technical part of this work was given by Mr. Arthur Pilon.

From the Gastro-Intestinal Laboratory, Department of Physiology, the Department of Roentgenology and the Stomach Study Group, Michael Reese Hospital.

1 (a) Meyer, Jacob, Scheman, Louis, and Necheles, Heinrich. *Studies on the Action of Oil of Peppermint on the Secretion and Motility of the Stomach in Man*. Arch. Int. Med. to be published.

(b) Necheles, Heinrich, and Meyer, Jacob. *On the Inhibition of Gastric Secretion by Oil of Peppermint*. Am. J. Physiol. **110**: 686 (Jan.) 1935.

2 Wallace, G. B., and Jackson, H. C. Am. J. Physiol. **8**: xvii, 1903.

3 Meyer, H. H., and Gottlieb, R. Pharmacology. Translated by J. Taylor Halsey. Philadelphia, 1915, p. 211.

4 Muirhead, A. L., and Gerald, F. G. J. Pharmacol. & Exper. Therap. **8**: 253 (May) 1916.

5 Cushny, A. R. Pharmacology and Therapeutics, ed. 7, 1918, p. 39.

6 Gunn, J. W. C. J. Pharmacol. & Exper. Therap. **10**: 39 (Aug.) 1920.

7 Miller, R. J., Bergheim, Olaf, Rehfuess, M. E., and Hawl, T. B. Am. J. Physiol. **53**: 65 (Aug.) 1920.

8 Plant, O. H. J. Pharmacol. & Exper. Therap. **10**: 39, 1921.

9 Plant, O. H., and Miller, G. H. J. Pharmacol. & Therap. **27**: 149 (March) 1926.

10 Stross, Arch. f. exper. Path. u. Pharmacol. **95**: 1922.

11 Arnold, W. Monatsschr. f. Kinderh. **30**: 225 (June/July) 1925.

12 Sommerfeld, W. A., Kuenzel, W. M., and Todd, T. W. J. Lab. & Clin. Med. **17**: 151 (Nov.) 1931.

13 Carlson, A. J. The Control of Hunger in Health and Disease, Chicago, University of Chicago Press, 1916 and 1919, p. 35.

14 Kestner, O. Die Methodik der Dauerfisteln des Magen-Darmkanals in Abderhalden's Handbuch der biologischen Arbeitsmethoden.

## RESULTS

1 *The Balloon Method*—The results were entirely negative. There was no change in the height, type or frequency of the normal hunger contractions in man or dog when small and probably physiologic doses of oil of peppermint were used. Neither was there a change noted between the duration of the intervals of rest and the activity of the stomach.<sup>2a</sup> Fifteen tests were performed on thirteen patients with peptic ulcer and five tests were done on a gastrotomized dog. In man, less than 10 cc of oil of peppermint and in the dog less than 4 cc produced no change in motility in eleven trials, and in only one instance did motor depression occur. Large quantities decreased motility in six tests and produced no change in another two.

2 *Duodenal Cannula Method of Kestner*—In three duplicate tests with meat-water alone and meat-water plus oil of peppermint, it was found that while the stomach emptied semidigested food and secretions into the duodenum for three and one-half hours after the feeding of meat and water only, this process was practically terminated in the case of meat and water plus 2 cc of oil of peppermint in two and one-half hours. In the case of the control most of the undigested meat was emptied by the stomach in the first three hours after feeding, and most of the secretion and the digested meat were likewise poured out of the duodenal cannula during the first three hours, while in the same experiment, with the addition of the oil of peppermint, the bulk of the nondigested meat and secretion plus digested meat appeared within the first two hours after feeding.

From table 1 it is apparent that there is a slight diminution in the digestion of meat in the stomach under the influence of oil of peppermint (18 per cent) and less secretion of digestive juices (26 per cent).

3 *Fluoroscopy*—The barium-oil of peppermint mixture was taken easily. There was a slight complaint by a few of the subjects against the strong peppermint flavor. When the oil of peppermint was given in gelatin capsules, the patient noted the taste (or odor) of oil of peppermint after a few minutes.

TABLE 1—Emptying Through Duodenal Cannula

Hours After Feeding	Liquid, Cc		Solid, Cc	
	Control	Peppermint	Control	Peppermint
1	266	273	39	92
2	373	290	65	73
3	248	50	66	12
3½	30	39	0	0
Total	917	682	150	177

In all six subjects there was antiperistalsis during or after the first twenty minutes, which the subjects noticed as nausea. After that peristaltic waves were seen running from the middle of the body of the stomach toward the pylorus, which quickly emptied the stomach. In controls with olive oil (2 cc) no antiperistalsis or nausea was noticed. The emptying time of the stomach varied from 240 to 260 minutes in subjects 1, 2, 3, 5 and 6, and was 310 minutes in subject 4 (gastroparesis without symptoms). Olive oil did not appreciably change the emptying time of the stomach as compared to the control, except in subject 4. Oil of peppermint produced a shortening of the emptying time of from 100 to 145 minutes, expressed as percentage of the controls, from —42 to —49 per cent, with an

average of —46 per cent. It is interesting to note that subject 4, although having a longer emptying time with barium alone (310 minutes, as compared to the other five subjects with from 240 to 260 minutes), had the same reduction of emptying time after barium-oil of peppermint as the other five subjects.

Since some of us have had the experience that peppermint candy or peppermint cordial gives relief after too heavy a meal, this was put to a test in one of the subjects. The ordinary barium meal was given and the emptying time determined (240 minutes). In the next tests, immediately after drinking the barium meal the

TABLE 2—Emptying Time of the Stomach in Six Normal Female Subjects (In Minutes)

Subject	Date of Test, 1933	Barium Control	Barium Plus Olive Oil	Barium + Oil of Peppermint	
				Time	Per Cent Change
1	12/16 to 12/30	240	215	140	—42
2	12/16 to 12/30	250	225	130	—48
3	12/16 to 12/26	260	220	140	—46
4	12/16 to 12/26	310*	230	165	—47
5	12/16 to 12/26	240	210	140	—42
6	12/16 to 12/26	235	220	145	—40
Average 1 to 6		249	220	148	—46

\* Omitted from average of barium controls

subject chewed up a roll of chocolate candy, and on the following day a roll of peppermint candy of the same brand and size, the two of which the patient liked equally well. While after the chocolate candy there was hardly any change (210 minutes), there was a considerable diminution of emptying time after the peppermint candy (150 minutes, i. e., —38 per cent). Similar results were obtained after the patient took 100 cc of 7 per cent alcohol (195 minutes) and 100 cc of 7 per cent alcohol plus 2 cc of oil of peppermint (135 minutes, i. e., —44 per cent).

## COMMENT

Peppermint as oil of peppermint, in peppermint candy or in alcohol, undoubtedly has a decided motor action on the stomach as compared to the controls olive oil, chocolate candy and alcohol. It is not easily explainable why this peculiar action was not found in the balloon tests. It is believed that the following may explain it. The hungry stomach has already its own rhythm and the oil of peppermint is not able to augment it. Action on an empty stomach is probably different from that on a full stomach, during hunger and after meals. The tests done on the dog (meat plus oil of peppermint) point to this, but further experimentation will be needed to clear up this point more thoroughly.

The surprising shortening of the emptying time of the stomach with oil of peppermint explains the popular use of oil of peppermint and its use as a constituent of a great number of official and proprietary stomach remedies. The shortening of emptying time after peppermint candy and peppermint alcohol explains the popular habit in this country of offering peppermint candy or peppermint cordial after dinners. In view of our experimental observations, this habit seems to be useful especially after a heavy meal with high fat content, which delays the emptying of the stomach. Oil of peppermint may counteract this delay and make the person feel less full and distended. In a previous paper<sup>2a</sup> it was reported that oil of peppermint diminishes gastric acidity. This may add to the beneficial action of the drug in heartburn after meals.

Rehfuß's<sup>7</sup> results are contrary to our observations, but the great amount of candy eaten and the high pep-

permin content of it may explain this. It was found in our tests that oil of peppermint may produce antiperistalsis. Rehfuess did only one such test on one subject.

The shorter emptying of the stomach does not appreciably diminish the digestion of meat (—18 per cent, table 1), although it slightly depresses gastric and duodenal secretions (—26 per cent, table 1). Another observation made in the course of this work by the roentgenologists is worth mentioning. At fluoroscopic examinations of patients, when the observer is waiting for the duodenal bulb to fill, there is often a delay in the emptying of the barium from the stomach into the duodenum by pylorospasm. When a small amount of oil of peppermint is given in gelatin capsules, immediately after solution of the gelatin the barium empties into the duodenum. This study is being continued.

#### SUMMARY

Dogs fed oil of peppermint with a meat meal showed shortening of the emptying time of the stomach as compared to the control of three and one-half hours, observed with the duodenal cannula method of Kestner.

In six normal young female subjects the addition of 2 cc of oil of peppermint to a barium-milk meal shortened the emptying time of the stomach by 46 per cent (fluoroscopy). Peppermint candy and peppermint flavored alcohol had the same effect in one of these subjects.

Twenty-Ninth Street and Ellis Avenue

## ARTIFICIAL FEVER THERAPY IN THE TREATMENT OF CORNEAL ULCER AND ACUTE IRITIS

### PRELIMINARY REPORT

E. L. WHITNEY, M.D.

DETROIT

Ophthalmologists for over twenty years have used nonspecific proteins in the treatment of certain eye diseases. The height of fever produced has served at least in part, as a guide to the degree of the reaction. In the use of typhoid vaccine, Howard noted several years ago that fever was essential to a good result. In the last year my associates and I have had an opportunity to use artificial fever alone as a means of therapy in a sufficient number of eye conditions to warrant reporting the results thereby obtained.

Kettering hyperthermia<sup>1</sup> machines were installed more than a year ago in our clinic for experimental work in the treatment of syphilis (principally neurosyphilis), multiple sclerosis, gonorrhea, pelvic peritonitis and arthritis. This apparatus consists of an air conditioned cabinet with which the patient's temperature can be elevated rapidly and maintained at a desired level and carefully controlled for an extended period of time. The entire body, excepting the head, is placed in the cabinet. Mild sedatives are used to keep the patient as comfortable as possible. An electric fan cools the head.

Eight cases presenting varying types of corneal ulcer and six cases of acute iritis are here reported. The results suggest that there is merit in this form of fever therapy, in which the height of the fever and its duration are under such perfect control. Some of the

patients received different types of medication during the fever treatment as well as before, while others had fever therapy only.

### ARTIFICIAL FEVER THERAPY IN CORNEAL ULCER

**CASE 1—History**—H. S., a man, aged 36, a laborer, while passing through a building where scrap wood was being unloaded, Aug. 2, 1934, felt a small particle fly into his right eye. He was sent to the factory hospital, where a foreign body was removed from the cornea and the eye was padded. An ulcer developed which was treated at the factory for thirteen days before he was sent to our outpatient clinic. Another twelve days of treatment followed. This consisted of atropine 1 per cent, silver nitrate 1 per cent to the lids, saline irrigations and 1:5000 corrosive mercuric chloride ointment. Since no improvement occurred the patient was admitted to the Henry Ford Hospital for artificial fever therapy.

**Examination**—There was a central corneal ulcer 2 mm in diameter. The edges were irregular and moth eaten simulating the dendritic type of ulcer. The iris was well dilated with atropine. The general physical examination was negative.

**Course**—August 29 the patient was placed in the fever cabinet and a rectal temperature range of from 103.6 to 106.4 F was maintained for five hours. The ulcer began to improve and in four days after this single treatment it was healed.

**Subsequent Course**—November 2, five weeks after the previous discharge from the hospital, the patient returned with a recurrence of the ulcer. Another fever treatment on November 3 was given with a rectal temperature range of from 105.6 to 106.8 F for five hours. The patient was discharged the next morning and returned on November 8 for his third treatment. The fever range was again from 105.6 to 106.6 F for five hours. Following these treatments there was definite improvement and by November 13 the ulcer was again healed. During the second recurrence no other medication was given except fever therapy. The patient has remained well to the present time.

**CASE 2—History**—J. L., a man, aged 45, a laborer, was injured Aug. 15, 1934. He noticed an eye irritation and went to the factory first aid station where no foreign body was found. A corneal ulcer developed which was treated at the factory hospital for four days. August 19 he was referred to us for treatment.

**Examination**—The conjunctiva showed marked chemosis. There was a central corneal ulcer 3 mm in diameter with undermined smooth margins. Hypopyon and iritis were present. The eyeball showed normal tension to finger palpation. The general physical examination including blood, urine and search for focal infection, was negative.

**Course**—The patient was treated with mild silver protein 10 per cent atropine 1 per cent and hot compresses with saline irrigation. No foreign protein was administered. Fever therapy was instituted the next morning with a rectal temperature range from 104.6 to 106 F for two hours. This seemed to have no effect on the ulcer. Four days later a second fever treatment was given with a rectal temperature from 104.6 to 106 F for four hours. The ulcer did not progress after this but since there was no observable improvement the electric cautery was used. A third fever treatment was given on the sixth day following which the ulcer began to heal and in two weeks was entirely well.

**CASE 3—History**—A. W., a man, aged 25, a laborer, worked around blast furnaces and said that he often got something in his eyes. Once previously he had a corneal ulcer in the left eye which persisted for three weeks before it healed. He complained of a similar condition.

**Examination**—There was a small ulcer near the limbus at 6 o'clock and just above this was a larger one with irregular margins and bad appearance. The lids were inflamed. The pupil was regular and not unduly contracted. The iris was not injected. The vision was not reported. No etiologic factor could be found.

**Course**—The patient was first seen June 30, 1934, when treatment in the outpatient department was instituted. This treat-

From the Division of Ophthalmology, Henry Ford Hospital.  
1 Through the courtesy of Dr. Charles F. Kettering.

ment consisted of atropine 1 per cent, silver nitrate to the lids, metaphen in oil 1 500, saline irrigations, and corrosive mercuric chloride 1 5,000. These medications were used over the period from June 30 to July 23, when the patient reported either daily or every other day for treatment. As progress was unsatisfactory, fever therapy was tried. July 23 the patient was given a treatment with the fever ranging from 105 to 106 F., rectally, for five hours. There was immediate improvement and in eight days the ulcer was healed. August 11 the vision was 6/30. Prior to this attack the patient states that his vision was also 6/30, when an examination elsewhere was made for glasses. Slit lamp examination revealed a rather marked interstitial scarring in the area of the healed ulcer.

**CASE 4—History**—H L, a man, aged 26, a dentist, was cleaning teeth, when a piece of tartar flew into the right eye. He washed the eye and gave no further consideration to it. Early the next morning he came to us complaining of pain and photophobia.

**Examination**—There was a small abrasion seen on staining with fluorescein at the center of the cornea. No foreign body was found. The lids were treated with 1 per cent silver nitrate and 1 5,000 corrosive mercuric chloride, and the eye was padded. In three days a definite ulcer formed in spite of daily antiseptic treatment. The ulcer was about 1 mm in diameter and had an infiltrating edge. It was thought best to admit him to the hospital for fever therapy. His general physical examination was essentially negative.

**Course**—Fever therapy was given, April 30 1934. The rectal temperature range was from 104.4 to 106.6 F for five hours. Two days later the ulcer was healed. During this post-therapy period the patient was using 15 per cent mild silver protein and 1 1,000 metaphen alternating hours during the day.

**CASE 5—History**—M K, a woman, aged 55 a housewife came to the hospital, Sept 28, 1928, with a small catarrhal ulcer of the left eye. October 5 she appeared with a similar ulcer on the right eye. April 2 1934 another marginal ulcer developed on the right eye. This was treated with 2 per cent silver nitrate and 25 per cent mild silver protein in glycerin, and water was used to flood the entire eyeball while the lids were held apart for from one to two minutes at each treatment. Corrosive mercuric chloride 1 5,000 was also used. The pupil was kept dilated with homatropine. April 19 seventeen days later, the actual cautery was resorted to. May 2, within twenty-four hours three more ulcers had appeared. It was decided to admit the patient to the hospital for fever therapy. She had been for several years under the care of the metabolic division of the hospital and was receiving proper diet and thyroid extract for a recognized hypothyroidism. No focus of infection was found. No protein therapy was given.

**Examination**—The right eye at the time of the first fever therapy presented three marginal ulcers at 11, 3 and 5 o'clock. The original one at 9 o'clock had practically healed. The general appearance of the cornea was steamy, the epithelium edematous and rough. Tension to finger palpation was normal. The pupil was well dilated with atropine.

**Course**—The patient was admitted immediately for fever therapy. The fever ranged from 105 to 107 F, rectally. The duration of the treatment was four and a quarter hours. Two days later the ulcers were receding but there was still much infiltration of the corneal margin. There was, however, no longer any pain. After another two days a second treatment was given in which the fever range was from 104.2 to 107.2 F., rectally, for five hours. Two days after this treatment the ulcers were practically healed. May 18 the eye was quite clear and the patient went home.

**CASE 6—History**—T W, a man aged 65, a laborer had been struck in the left eye with a piece of steel in February 1934. This was removed and a roentgenogram was negative for further foreign body in the eye. He recovered from this without apparent difficulty and was comfortable until ten days before admission, when the eye became sore and inflamed.

**Examination**—The cornea had a hazy appearance and on staining there were several small points of ulceration. The

iris was swollen and discolored. The vision was not recorded. Roentgen examination was again negative for a foreign body. A general physical examination was negative.

**Course**—Atropine 1 per cent was instilled and a satisfactory dilatation of the pupil obtained. No other medication was employed. July 5, 1934, fever therapy was given and a rectal temperature range of from 105.4 to 106.2 F for five hours was obtained. The patient did not tolerate this treatment well, as there was a marked fall in blood pressure with an associated hematemesis, suggesting a myocardial failure. July 6, the patient was much improved physically. The corneal epithelium was intact and the cornea presented less infiltration. July 13, the corneal epithelium was still healed but there was scarring. The patient returned August 8, for a check of his glasses. The vision of the affected eye was less than 6/60, because of the interstitial scarring.

**CASE 7—History**—S J, a boy, aged 15 years, in school, came to the hospital, October 9, with an ulcer of the left eye. It began five days before, when he noticed photophobia, pain, lacrimation, and the feeling of a foreign body in the eye. This eye had been injured previously but the scar had not interfered with vision as a refraction and glasses had given a vision of 6/6 according to his hospital record. There was a history of a swollen knee in 1931, and a tonsillectomy in 1924. His mother had died of tuberculosis.

**Examination**—There was a breaking down of the old corneal scar in the upper quadrant of the left eye. Infiltration had extended, occupying the upper half of the cornea. The physical examination revealed some tonsillar tags and carious teeth. The chest was clear, and the blood and urine were normal.

**Course**—The pupil was dilated with atropine and the lids were treated with 1 per cent silver nitrate. The boy was admitted to the hospital the next day, October 10, for fever therapy. The rectal temperature range was from 101.8 to 102.8 F, for five hours. It was impossible to increase the fever at this treatment. October 15 there was improvement, and on October 16 the ulcer was practically healed, one small point still taking a stain. October 18 there was still a small area not healed. The patient was returned for another fever treatment. October 19. Again the temperature could be raised only to from 102 to 103.2 F for five hours. October 25 the cornea was entirely healed. The boy returned November 14 and later had the tonsil tags removed and the carious teeth extracted. His vision one month later was 6/6.

**CASE 8—History**—R W, a man, aged 37, a laborer had ulceration of the right cornea which started in January 1934, and of the left eye, which started in April 1934. These ulcers have continued to the present time, January 1935. Before coming to the Henry Ford Hospital Clinic the man had been thoroughly treated. Various standard treatments, including chemical and actual cauterization had been tried. Foci of infection, including tonsillectomy, had been carefully checked. Incidentally, with the tonsillectomy, his asthma disappeared and has not returned.

Oct 27, 1934, Dr R J Coyle of Windsor, Ont, referred the patient to this clinic for artificial fever therapy.

**Examination**—The lower half of the left cornea presented a destruction of the epithelium with scarring and vascularization and an actively advancing margin. The right eye presented a similar picture, with the right half of the cornea practically gone. The vision was 6/30 in each eye. The lens, iris and fundus of each eye appeared normal. The general physical examination was practically negative. The basal metabolic rate was —14 per cent. The sinuses were clear. The tonsils were small recurrent tags. The urinary tract was normal. Both upper and lower jaws were edentulous. X-ray films showed no retained root fragment. The blood Wassermann reaction was negative and there was no anemia. Skin reactions were negative for allergy. There was no suggestion of tuberculosis.

**Treatment**—Thirteen fever treatments were given, extending from Oct 27 to Dec. 13, 1934. Some of these were given at intervals of from three to four days, while others were a week or so apart. The temperature range for each treatment was from 104 to 106 F for a period of five hours. After these treatments no very definite change could be seen in the eyes, and fever therapy was finally abandoned.

## ARTIFICIAL FEVER THERAPY IN ACUTE IRITIS

**CASE 1—History**—R J, a man, aged 46, a salesman, for the past twelve years had had eight attacks of iritis in the left eye and one in the right. Some of these were very severe, causing great congestion and even hemorrhages. He stated that leeches had been employed. A careful search for foci of infection was made in past attacks. This attack in the left eye had been in progress one week.

**Examination**—The iris was well dilated with atropine. Old points of adhesions were seen on the anterior surface of the lens. There were no hemorrhages. The fundus was normal. Tension to finger palpation was normal. The right eye was not involved. The vision with glasses was 20/50 right and 20/200 left. The general physical examination, including a blood Wassermann test, was negative. It was decided to try fever therapy.

**Course**—Fever therapy May 7 1934, gave a rectal temperature of from 105 to 107 F for five hours. The eye was examined two days later and there were still some precipitates present, but there was less pericorneal injection and the iris was less swollen. May 14 a second fever treatment was given. The temperature range was from 104 to 106 F for five hours. The eye was examined four days later and there was quite definite improvement. No further treatments were necessary. One month later the man appeared with an acute cold and four months later with another, but each time there was no evidence of iritis.

**CASE 2—History**—P M, a man aged 34, a laborer, was referred to us May 2, 1932, for treatment of the right eye. He stated that sand was blown into it at the factory. There was pain, photophobia, and the feeling of a foreign body in the eye. The duration was ten days. An acute iritis was found. Physical examination revealed chronic tonsillitis, gingivitis and chronic prostatitis. There was a negative Wassermann reaction. While he was in the hospital atropine and typhoid vaccine were used. The iritis cleared in ten days. The prostatitis was later treated in the outpatient department. Jan 2 1935 the patient was returned to us again with a similar complaint and condition of the right eye.

**Examination**—The cornea was infiltrated and dull, there was deep pericorneal injection and tenderness. The iris was swollen and not dilated.

**Course**—On this admission the iris was dilated with atropine, and fever therapy was given at once. The rectal temperature range was from 105.4 to 107.6 F for five hours. The following day the iris was much less edematous, the cornea was much clearer, and the pain and tenderness had largely subsided. Two days later the inflammation had practically subsided and the patient was discharged from the hospital to return to work.

**CASE 3—History**—A H, a girl, aged 14, in school, seen March 7 1934, complained of pain and redness in the left eye. This had been present for some time and had been treated elsewhere. She had been a patient in 1933, when glasses were fitted. At that time there was no history of previous difficulty except that of blurred vision, which the glasses corrected.

**Examination**—The pupil of the left eye was well dilated and there were no adhesions. Pericorneal injection was present and there were precipitates in the anterior chamber. Further examination revealed tonsil and adenoid tags as the only possible focus. A tuberculin test was not made at this time. The Wassermann reaction was negative.

**Course**—The patient was given an ampule of calcium gluconate intravenously and atropine instillation. The eye looked better and there was no pain on the succeeding day. By March 16, nine days later under calcium gluconate therapy, there had been slow improvement, but precipitates still persisted. Artificial fever therapy was then instituted. March 17 a treatment was given with a temperature range of from 104.6 to 105.6 F rectally for five hours. There was further evidence of improvement noted on March 19. A second treatment was given on March 22. The rectal temperature was raised to from 104.6 to 106 F for five hours. By March 25 the iritis had cleared quite well except for a few remaining precipitates. At this time the left disk was found to be quite hyperemic and the vision reduced to 6/30. Visual fields were not altered. The

right eye was normal. A neurologic consultation was negative. The patient had no reaction to 0.1 mg of old tuberculin intracutaneously. By June 4 the optic neuritis had improved and the vision was 6/75 without glass correction. The patient returned recently and there is no residual evidence of either optic neuritis or iritis. The vision in each eye is 6/75.

**CASE 4—History**—W B, a man aged 53, a laborer, complained of pain, inflammation and difficult vision in the right eye for about two months. He stated that no injury to the eye had occurred. There had been no previous attacks.

**Examination**—There was marked ciliary injection, the iris was muddy looking and there was marked infiltration of the cornea. The tension was normal to finger palpation and the pupil was not dilated. The general examination revealed malnutrition and possible arthritis of the knee and shoulder joints. There was no focus found in the tonsils, sinuses, teeth or prostate. The blood Wassermann reaction was negative.

**Course**—April 9 1934 fever therapy was given and a rectal temperature of from 105.2 to 106.4 F for five hours was obtained. The next day the eye looked improved. Atropine 1 per cent was instilled. April 13 there was further improvement. The patient did not return until two weeks later, when the condition was worse again. Another fever treatment was given on April 27 and a rectal temperature range of from 105 to 107 F was obtained. The patient never returned following this second treatment. A recall letter has failed to locate him.

**CASE 5—History**—J D D, a man, aged 47, an engineer seen in December 1927, had an acute attack of iritis in the left eye. Examination showed an infection in the tonsils. These were removed and along with atropine and salicylates the iritis cleared in three weeks. He returned in August 1930 with a recurrence. A search for a focus was negative. This time typhoid vaccine was used and the eye improved in one week. In October 1933 there was a third recurrence. This time calcium gluconate intravenously was used and the eye cleared in four days. The fourth attack came on Feb 17, 1934 and the right eye became involved, February 20. Under atropine and calcium gluconate the eyes subsided rapidly. A fever treatment was subsequently given in an effort to see whether it might be of value in avoiding a recurrence. February 27 a rectal fever was obtained ranging from 105.4 to 106.4 F. A second treatment was proposed but not carried out. The comment from the patient, contained in a letter dated April 10 1934 was to the effect that this treatment impressed him as the best of any form of treatment given him.

**CASE 6—History**—E J M, a man aged 34, a laborer, seen May 26, 1934 stated that oil had been splashed in the right eye one week before. The eye was painful, and marked photophobia and lacrimation were complained of. There was a history of a gonorrheal infection eighteen years before. In 1926 he was admitted to the hospital with a diagnosis of chronic arthritis, tonsillitis and prostatitis. The prostatitis was treated and the patient disappeared.

**Examination**—The right eye presented a marked injection with a steamy cornea and a tonometer reading of 90. It was felt that this was a secondary glaucoma superimposed on an acute iridocyclitis. The general examination disclosed chronic tonsillitis, a normal prostate and a negative Wassermann reaction. Dental roentgenograms were also negative.

**Course**—The first fever treatment was given immediately. A rectal temperature of from 104 to 105.8 F was maintained for four hours. There was definite improvement the following day. The second fever therapy three days later, May 29, gave a rectal temperature of from 105 to 106 F for five hours. The next day there was still marked improvement. By June 9 fourteen days after the first treatment practically all injection had gone and the tension was 20. By June 12 the fundus could be readily seen and gross objects noted. June 21 the vision was 6/30 without glasses. A tonsillectomy was done, June 27. No subsequent report is available.

## SUMMARY

1 *Corneal Ulcers*—Eight cases of corneal ulcer were treated and are reported in an attempt to evaluate their response to artificial fever therapy. The results



may have been influenced by the necessity of continuing other forms of therapy at the same time. Nonspecific protein therapy was purposely omitted.

Four of these cases presented a history of trauma, three were considered catarrhal and one Mooren's ulcer. A general physical examination was done on each patient in an attempt to check any etiologic or associated factors.

Patient 1 was treated twenty-five days without healing, and after one fever treatment was well in four days. Five months later a recurrence was twice treated by fever and promptly healed, without any local medication.

Case 2 seemed to heal more rapidly after the electric cautery was applied.

Case 3 was treated medically twenty-three days before fever therapy and healed in eight days after one treatment.

Case 4 seemed to make more progress after one fever treatment than before with medical therapy alone.

Case 5, with catarrhal ulcers, healed with fever therapy in eight days, after having had medical treatment alone for one month.

Case 6, probably a catarrhal ulcer, responded quickly after one fever treatment.

Case 7 seemed to improve after each fever treatment.

Case 8, Mooren's ulcer, after thirteen fever treatments made no response.

**2 Acute Iritis**—Six cases of acute iritis were treated. A general physical examination was made in each case to determine any etiologic factors. Little help was obtained from these surveys. Atropine was used in all cases. No nonspecific proteins or salicylates were given. Calcium gluconate was used in two cases before fever therapy was instituted.

Cases 1 and 5 are of the chronic recurring type. Fever therapy was given to determine its effect on recurrences. Time is required to decide the final result.

Patient 2 returned after two and one-half years with a second attack. This subsided promptly after one fever treatment.

Case 3 improved as to the iritis, but an optic neuritis did not respond until after tonsil and adenoid tags were removed.

Patient 4 was inadequately treated, owing to lack of cooperation.

Case 6 was most striking. A severe iridocyclitis, with secondary glaucoma, responded quickly and favorably to fever therapy.

#### CONCLUSION

Prompt healing of some corneal ulcers after fever therapy is a striking fact. Local treatment is quite adequate in many cases, but fever treatment has hastened healing when local measures have seemed to be making little progress. This is particularly true in cases in which systemic stimulation is indicated.

The production of artificial fever in acute iritis is of definite value. Recovery is hastened. Further observation is necessary to determine the effect it has in preventing recurrences.

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**How to Become Fat or Thin**—Eating about 500 calories a day more than you spend will result in a gain of about a pound a week. Eating about 500 calories a day less than you spend will reduce your weight about a pound a week.—Sherman H. C. Food and Health New York, Macmillan Company, 1934.

## TREATMENT OF GONORRHEA IN THE FEMALE

BY MEANS OF SYSTEMIC AND ADDITIONAL PELVIC HEATING

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We have found that the combination of systemic temperature elevation with simultaneous additional pelvic heating constitutes a method of treatment rapidly effectual in gonorrhea in the female. Our work is based on the fact that the gonococcus can be killed by temperatures that are not injurious to body tissues. The important considerations are the temperatures produced in the tissues in which the organism exists and the duration of the temperature elevation.

We have treated twenty-three female patients with gonorrhea whose subsequent course we have been able to follow closely. Ten of these patients previously had local chemical treatment, which had failed to cause the disappearance of gonococci. Eighteen of our twenty-three cases were complicated by salpingitis, six in the subacute and twelve in the chronic stage. In all these eighteen salpingitis cases, gonococci were found in smears of the secretions obtained from the cervix. In nine, gonococci were also obtained from the urethra. Of the five other patients, two suffered from gonorrheal arthritis (gonococci were found in the cervical and urethral secretions of both), one patient had an acute cervicitis only, one an acute urethritis with an accompanying Bartholinitis, another suffered from a combination of gonorrheal cervicitis, urethritis and proctitis.

These patients received an average of a little less than three treatments each. This caused the complete disappearance of gonococci in nineteen of the twenty-three cases. In two of the remaining four cases the gonococci disappeared from the cervix (after two treatments each) but persisted in the urethra, from which they disappeared after the coagulation of Skene's ducts. One patient with cervicitis, to whom a single treatment was administered, received a few subsequent applications of silver nitrate, which were sufficient to cause the disappearance of some persisting organisms. In one case, complicated by the presence of a severe gonorrheal proctitis, the organisms disappeared from the cervix and urethra but persisted in the rectum. In the two months subsequent to the treatment, nine smears revealed no gonococci in the secretion from the urethra and the cervix. However, the continued discharge from the rectum of pus containing numerous gonococci indicated the persistence of the proctitis. Immediately after a menstrual period two months subsequent to the treatments, the patient observed a return of the vaginal discharge. On examination, a purulent secretion was seen issuing from the urethra. It contained numerous pus cells loaded with gonococci. This appeared to be a reinfection of the urethra from the rectal discharge. The cervix remained clean. This case well illustrates the value of combined local and systemic temperature elevation. Evidently the organisms existed at a point in the alimentary tract beyond the region of high local temperature produced by the technic we employ.

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In all our other cases, frequently repeated examinations have failed to reveal the recurrence of gonococci.

With the disappearance of the gonococci, the abnormal discharges usually cease. From the urethra no discharge can be expressed, or only a very scant milky discharge, which microscopically contains many epithelial cells, a few leukocytes and Doderlein bacilli. The cervical secretion becomes clear, mucoid, and in most instances scant. In a few multiparous patients with lacerated eroded cervixes a moderate discharge persisted. Cervical smears continued to contain a moderate number of leukocytes, not clumped mucus and sometimes a number of bacteria, especially gram-negative bacilli and gram-positive cocci. These gram-negative bacilli were often seen in large numbers immediately after the disappearance of the gonococci. In some cases the abnormal secretions disappeared while gonococci were still present. In several cases enlargement of a Bartholin gland disappeared after the treatment, and secretion could no longer be expressed from its duct.

During the first treatment in cases presenting salpingitis or arthritis there is usually a cessation of pain which may or may not subsequently recur. In most cases, pain is absent after the second treatment. In five salpingitis cases there was a later recurrence of pain without fever, although no gonococci could be found. The pain disappeared in two of these cases after a week of rest in bed. In two other cases the pain was relieved by ordinary pelvic diathermy treatments. In one case our combined treatment was repeated five weeks later with relief of pain.

Pelvic examination within a few days after treatment usually reveals a marked diminution of pelvic tenderness but little change in the size of the adnexal masses. From seven to ten days after treatment there is usually an increased mobility of the uterus and some shrinkage of the inflammatory masses. About two weeks after treatment the adnexal masses become very much smaller. Five of our eighteen cases of salpingitis still presented some enlargement of the adnexa when examined several months after treatment. Two of these had been in the subacute stage when treated and the other three in the chronic stage. These masses were very much smaller than they had been originally. In only one of these five cases was the residual mass as large as a tangerine orange. This patient had had repeated attacks for eight years. She entered the hospital with a mass in the right lower part of the abdomen extending to an inch above the anterosuperior iliac spine. There was a smaller mass on the left side. She received a total of eight treatments, following which the adnexal masses subsided but did not disappear. Her only complaint now is polymenorrhea, which has persisted since a year before the treatment.

A fairly typical case history is that of F. L., aged 23, who was admitted to the gynecologic service at the Beth Israel Hospital, Nov. 9, 1933, complaining of abdominal pain and irregular vaginal bleeding. The menstrual periods occurred at intervals of from one to three months and were of five days' duration, with a normal flow and no pain. She had had two induced abortions. For the past six months there had been a greenish vaginal discharge. Two weeks before admission, at the time menstruation was expected, she began to have vaginal spotting, followed by pain in the lower part of the abdomen. Six days before admission the pain became more severe and clots were passed from the vagina. The temperature on admission was 100.6 F.

Thereafter there was a daily elevation a little over 100 F., until the first treatment was administered on her sixth day at the hospital, after which her temperature was normal. Examination on admission revealed tenderness in the lower part of the abdomen and marked tenderness on the right side of the pelvis. There was moderate vaginal bleeding. The leukocyte count was 14,000, with 74 per cent polymorphonuclears. Hemoglobin was 59 per cent and red blood cells numbered 3,300,000. The red blood cell sedimentation (Weiss modification of Fahraeus test) was 75 mm in forty-five minutes (over 10 mm is abnormal). Cervical and urethral smears contained intracellular gram-negative diplococci. Examination on November 10 elicited pain on moving the uterus. There was a tender mass on the right side, somewhat fixed, also a smaller mass on the left. The diagnosis of gonorrheal salpingitis was made. The vaginal bleeding ceased, but when the first fever treatment was administered, November 14, there was still considerable pain in the lower part of the abdomen. During the first treatment the pain disappeared and did not recur during the patient's stay in the hospital. However, gonococci were still recovered from the cervical secretion, so that a second treatment was administered two days later. Smears from urethra and cervix thereafter did not reveal any gonococci on repeated examination (November 18, 19, 20, 21, 22, 23, 27 and 29, December 1, 4 and 11, January 15 and 28, February 5, and March 5). The red blood cell sedimentation on November 15 was 56 mm, on the 19th 22 mm, on the 20th 16 mm. On January 15 it was within the normal range, 6 mm. Examination on November 18 elicited no pain. There was a definite thickening in the region of both adnexa and also in the culdesac of Douglas. There was moderate mobility of the uterus. The rectovaginal septum was indurated, especially toward the left. November 23 a discharge note described the uterus, anterior, as freely movable, the right adnexa were not palpable, the left were somewhat enlarged and tender, there was a thickening in the region of both sacro-uterine ligaments. When seen in the follow-up clinic, December 4, the patient felt perfectly well. The adnexa were palpable and slightly tender. Jan. 15, 1934, she was feeling well. She had just had a normal painless menstruation. No discharge was present. The adnexa were slightly thickened, the right twice the normal size and somewhat fixed. February 5 there was no pain or discharge, the left adnexa were a little larger than normal, fixed and not tender. March 5 the patient felt very well, but the left adnexa were still a little enlarged.

We have observed in other subacute salpingitis cases, as in the one just described that the subsidence of the inflammatory process after treatment is paralleled by a return toward normal of the rate of red blood cell sedimentation. This was noted by us previously in cases of pelvic inflammation treated by radiotherapy.<sup>1</sup>

In cases complicated by salpingitis, our best results have been obtained in the subacute and chronic stages. We prefer to wait for a period of about two weeks after the onset of an acute tubal infection.

The technic we now employ consists in the use of pelvic diathermy while the patient lies within a hood containing carbon filament lamps. By means of diathermy alone it is possible to maintain a temperature

1 Bierman, William and Horowitz, E. A. General Hyperthermia with Heat Localization by Radiotherapy in the Treatment of Pelvic Inflammatory Disease. *New York State J. Med.* 33: 218-223 (Feb. 15) 1933.

in the vagina of 108 F, which is 85 degrees above the normal. The temperatures in the bladder and rectum are usually elevated to within 15 degrees of the vaginal temperature.<sup>2</sup> The temperature of the tissue of the cervix, as indicated by a thermocouple needle inserted into it, becomes elevated to within about 15 degrees F of the temperature registered by the vaginal electrode thermometer. The additional use of a cabinet surrounding the body, containing photothermal lamps, causes a rapid elevation of general body temperature, because of the prevention of heat loss from the body and the introduction of further heat energy into it.<sup>3</sup> This combined use of heat by diathermy and phototherapy is usually sufficient to cause an elevation of the systemic temperature (as indicated by the temperature of the mouth) to from 105 to 106 F, within the period of about one and one-half hours. The vaginal temperature, as indicated by a thermometer in the vaginal electrode, is then easily raised to 111 or 112 F. These temperatures are maintained for a period varying from three to four hours.

The sensations of the patient undergoing treatment are those usually experienced during hyperpyrexia induced by high frequency currents. There is sometimes a sensation of pelvic warmth, but the patient is usually conscious only of a diffuse heating of the entire body. During the period of transition from normal temperature to 104 F there is usually restlessness and general discomfort for which morphine or one of the barbiturates may be given. There is no pain at any time.

We have accepted for treatment only patients in good general condition, without cardiovascular or pulmonary disease or marked obesity. Treatments are not administered four days before the expected time of menstruation, during the period, or for three days afterward. Pregnant patients with gonorrhea have not been treated.

The only ill effects experienced by our patients have been the weakness and malaise complained of by some patients for a few days after treatment, herpes labialis, and in a few cases areas of coagulation of the vaginal mucosa. No serious ill effects were experienced in any case, nor was there aggravation of the pelvic inflammatory condition in any of our cases of salpingitis.

The idea of combined systemic and still higher local temperature elevation occurred to us five years ago.<sup>4</sup> We described a technic for accomplishing this by means of short waves<sup>5</sup> and reported the clinical results obtained by the use of this technic.<sup>1</sup> As we used the short wave radiation only for the purpose of temperature elevation and not for its maintenance, the differentially increased pelvic heating disappeared during the period in which the systemic temperature elevation was maintained only by means of the cabinet containing photothermal lamps. We subsequently attempted to maintain an increased temperature within the pelvis by means of diathermy applied to the hyperthermic patient after she had been transferred from the short wave machine (radiotherm), applying diathermy by means of a vaginal electrode and a suprapubic one. With this technic the current that it was necessary to employ

sometimes caused painful induration in the fatty tissues of the suprapubic region. We therefore abandoned this technic, until we determined to increase the area of our dispersive electrode. The employment of two large plates, one on the abdomen and the other under the back, as dispersive electrodes, was not always sufficient to prevent injury to the subcutaneous fat, even though we used a flannel pad soaked in a 10 per cent salt solution under the plates. We found it desirable to add two other plates about 3 inches wide and 5 inches long, applied to the outer aspect of each thigh.<sup>6</sup> These four dispersive plates were connected together to one terminal of the diathermy machine while the vaginal electrode was connected to the other terminal. With these large areas of application of the surface electrodes, overheating of the subcutaneous fat does not occur.

We ordinarily employ from 1,800 to 3,000 milliamperes of current as indicated by the hot wire meter. The current strength is varied to produce desired changes in the vaginal temperature. We found that a vaginal temperature between 111 and 112 F (as indicated by the thermometer in the vaginal electrode) may ordinarily be maintained for a period of three and a half hours without causing tissue damage. A special vaginal electrode with rounded blunt edges minimizes the danger of mucosal burns.

The heat tolerance of human tissue has been determined by several workers. Kolmer and Liebesny<sup>7</sup> found that the diathermic coagulation of the scrotum of dogs did not occur below 113 F. Kyaw<sup>8</sup> demonstrated by the application of diathermy that 112 F was the highest temperature that was tolerated by the human urethra without necrosis. Lavake<sup>9</sup> found that 113 F developed in the cervix by means of diathermy was the highest temperature that did not cause a slough. Roblee and Royston<sup>10</sup> state that the threshold of living cell tolerance to heat is slightly over 112 F.

We observed that coagulation of the vaginal mucous membrane was produced in some cases by temperatures over 113 F or sometimes by 112 F, maintained for a period longer than three and one-half hours. In these cases healing occurred within from four to six weeks, leaving areas that appeared normal.

To permit a prolongation of pelvic heating and to reach tissues beyond the posterior fornix, we insert a large electrode into the rectum and maintain it there for a period of from one and one-half to one and three-fourths hours prior to the insertion of the vaginal electrode. If the rectal diathermy is maintained for a period longer than one and three-fourths hours, some patients will develop pain in the rectum which may persist for several days.

A method that may be used to prolong the period of pelvic heating and yet avoid damage to the vaginal mucous membrane is to circulate cool water through the vaginal electrode. The temperature of the electrode may be lowered a few degrees without appreciably lowering the temperatures produced in the cervix and other pelvic tissues.

Our present technic is a satisfactory one but, undoubtedly, further improvements will be made in

2 Horowitz E. A. Derow D. and Bierman William. Temperature Determinations in the Female Pelvis During Diathermy. *Am J M Sc* 189 555-566 (April) 1935.

3 Bierman William. The Effect of Photothermal Radiations upon Cutaneous and Subcutaneous Temperature. *Arch Phys Therapy* 14 717-721 (Dec) 1933.

4 Letter from Dr. Bierman to Dr. W. R. Whitney April 12 1930.

5 Bierman William and Schwartzschild Myron. General Hyperthermia with Heat Localization by Radiothermy. *Proc Soc Exper Biol & Med* 29 439-441 (Jan) 1932.

6 Duncan I. G. Treatment of Gonorrhea in Women with Special Reference to the Use of Diathermy in Tubular Infections. *Memphis M J* 8 150-153 (Oct) 1931.

7 Kolmer W. and Liebesny P. Experimentelle Untersuchungen uber Diathermie. *Wien klin Wchnschr* 33 945-946 (Oct 21) 1920.

8 Kyaw. Thermopenetration bei Gonorrhoe. *Deutsche med Wchnschr* 47 962-963 (Aug 18) 1921.

9 Lavake R. T. Diathermy with Metal Electrode as a Possible Adjuvant in the Treatment of Gonorrhea in Women. *Surg Gynec & Obst* 41 31-35 (July) 1925.

10 Roblee M. A. and Royston G. D. The Treatment of Pelvic Inflammation by Medical and Surgical Heat. *Am J Obst & Gynec* 24 381-389 (Sept) 1932.

the course of time. Illustrative of the improvements in our technic is the fact that our first eleven cases in this series required an average of 33 treatments, while an average of 22 treatments sufficed to accomplish our objective, the disappearance of the gonococci, in the last eleven cases. Four cases required only one treatment. The average of the number of treatments required was considerably raised by the one case described with the huge pelvic mass extending to well above the anterior superior spine of the ilium.

The degree of systemic temperature elevation may be varied by modifying the intensity of the photothermal energy and of the diathermy current applied to the body. It is dangerous to permit the systemic temperature to go above 107 F. We determined the systemic temperature by means of a clinical thermometer inserted under the tongue. In heating of the entire body, we have found that the mouth temperature averages 0.7 F lower than the rectal temperature. At times the mouth temperature may be higher and at times more than 2 degrees lower than the rectal temperature.<sup>11</sup> In addition to the frequent systemic and local temperature observations, it is necessary to note constantly the general condition of the patient (color, character and frequency of the pulse rate and respiratory rate and the like).

There are various strains of gonococci. This may account for the different reports of the thermal death period of these organisms. Thus Corbus and O'Connor<sup>12</sup> stated that it was possible to destroy gonococci instantly at 45 C (113 F), while Schofield<sup>13</sup> found that at this temperature thirty minutes was necessary. Boerner and Santos<sup>14</sup> stated that the time required was thirty-seven minutes, and Van Putte<sup>15</sup> that it was more than six hours. Carpenter and Boak<sup>16</sup> showed that there were great differences in the thermal death times of different cultures of gonococci. From their in vitro studies of the organisms isolated from a given individual they could definitely predict the temperature and time required to kill these organisms in vivo. At the upper limit of systemic temperature elevation to which the human subject could be exposed with reasonable safety (41.5 C) the time required to kill all the organisms varied with different strains of gonococci from six to twenty-six hours.<sup>17</sup> To maintain a systemic temperature of 41.5 C for more than six hours is trying for the patient and difficult for the doctor. The bacteriologic complexities of the investigation of the thermal death times of organisms isolated from each clinical case, particularly in view of the fact that one patient may harbor several different strains, makes it impracticable to use this procedure for ordinary purposes.

The time required to kill the gonococcus diminishes greatly at higher temperatures. Boerner and Santos<sup>14</sup> found that at 44 C gonococci were destroyed in half

the time required at 42 C and in less than one-third the time required at 41 C. As the organisms are localized in a definite part of the body in pelvic infections, the logical therapeutic procedure would create a temperature elevation within the safe upper limits of tissue tolerance in the region harboring the organisms. We have found this upper limit to be 44.5 C (112 F) and believe that the combination of systemic temperature elevation with coincidentally higher local pelvic temperatures accomplishes this with maximal effectiveness.

Any method that produces a definite rise in pelvic temperatures is of value in the treatment of gonorrhea. The best procedure for pelvic heating, heretofore, has been diathermy. While diathermy does produce substantial temperature elevations in the pelvis, the upper limit of maintained temperature is usually not beyond 108 F, and the temperature gradient from this region to other parts of the body is so sharp that the average elevation of mouth temperature is no more than 0.7 F. It is possible by means of diathermy to produce a vaginal temperature elevation to 110 F or higher, but this temperature level cannot be sustained for long periods by diathermy alone.

In our experience the temperature elevations produced by the Elliott method do not equal those produced by diathermy, yet good results have been obtained with the Elliott treatment by Holden and Gurnee<sup>18</sup> and by others. The Elliott treatment uses a soft rubber vaginal applicator distended by the circulation within it of hot water, at a temperature of from 120 to 130 F.

With all thermal procedures it is possible that the effects other than the direct bactericidal one may be responsible for a definite improvement. These effects include the induction of an active hyperemia with the increase of blood and lymph flow, the increase in the number of leukocytes and the acceleration of their phagocytic activity.<sup>11</sup> These factors, as well as the attenuating influence on the gonococci of a temperature elevation insufficient to exert a direct lethal effect, may also account for the fact that such organisms as remain succumb more readily to the action of the ordinarily employed germicidal solutions.

The local measures that have been applied for the heat treatment of female gonorrhea include not only the Elliott hot water bag and pelvic diathermy, which have been mentioned, but also the use of hot vaginal douches or irrigations and the application of various heated instruments. Guttman<sup>19</sup> treated the urethra and the cervix by means of sounds electrically heated to 130 F. Diathermy was applied within the urethra and the cervix by Cumberbatch and Robinson,<sup>20</sup> who used metal rods as active electrodes. A temperature of 114 F was developed within tissues in contact with the active electrodes and maintained for ten minutes. Treatments were repeated twice a week. Corbus and O'Connor<sup>12</sup> used a similar technic except that the treatments were of thirty minutes' duration and were administered once in from seven to ten days. Duncan,<sup>6</sup> using a small Chapman vaginal electrode equipped with a thermometer, applied vaginal temperatures up to 110 F for from thirty to forty-five minutes each day. This requires a powerful diathermy machine using a

11 Bierman, William, and Fishberg, Ella H. Some Physiologic Changes Occurring During Hyperpyrexia Induced by Physical Means. *J. A. M. A.* 103: 1354-1357 (Nov. 3) 1934.

12 Corbus, B. C., and O'Connor, V. J. Diathermy in the Treatment of Genito-Urinary Diseases. St. Paul: Bruce Publishing Company, 1925.

13 Schofield, F. S. The Effects of Temperature on the Viability of the Gonococcus. *J. Urol.* 17: 581-591 (June) 1927.

14 Boerner, R., and Santos, C. Ueber eine neue Art von Elektroden zur Behandlung der Gonorrhoe mittels diathermie. *Med. Klin.* 10: 1062 (June) 1914.

15 Van Putte, P. J., cited by Van Leeuwen, T. M. The Treatment of Gonorrhea by Diathermy. *Internat. Clin.* 1: 38-42 (March) 1927.

16 Carpenter, C. M., Boak, R. A., Mussi, L. A., and Warren, S. L. The Thermal Death Time of *Neisseria Gonorrhoeae* in Vitro. *J. Lab. & Clin. Med.* 18: 981-990 (July) 1933.

17 Warren, S. L., Boak, R. A., and Carpenter, C. M. A Correlation Between the In Vitro Thermal Death Time of the Gonococcus and the Febrile Period Required at 41.5° C. for Cure. Read at the Fourth Annual Fever Conference, April 27, 1934.

18 Holden, F. C., and Gurnee, W. S. The Elliott Treatment. *Am. J. Obst. & Gynec.* 22: 87-96 (July) 1931.

19 Guttman, Eugene. Ueber die Heizsondenbehandlung der weiblichen Gonorrhoe. *Monatschr. f. Geburtsh. u. Gynak.* 48: 428-443 (Dec.) 1918.

20 Cumberbatch, E. P., and Robinson, C. A. Treatment of Gonococcal Infection by Diathermy. *Brit. M. J.* 2: 54-56 (July 14) 1923.

continuously increasing current strength (up to 3,500 milliamperes) Two European workers have reported cures of female gonorrhea following a single prolonged vaginal diathermy treatment Kyaw<sup>21</sup> applied vaginal diathermy at least three or four hours continuously, sometimes giving a total of nine hours of treatment in a single day Temperatures between 106 and 109.4 F were maintained in the vagina Van Putte<sup>22</sup> administered vaginal diathermy treatments of five hours' duration, developing a temperature of 104 F in the vagina

Chronic gonorrhea in the female has been treated by means of systemic fever produced in various ways Patients have been inoculated with the plasmodium of malaria or injected with one of a number of pyrogenic substances In addition, therapeutic fever has been produced by physical measures, such as hot baths, radiant heat and high frequency currents With malaria, a series of from nine to twelve fever bouts has usually been employed The malaria treatment has been reported by different workers to cure between 66 and 83 per cent of female patients with chronic gonorrhea<sup>23</sup>

In those cases in which gonococci were still present at the end of malaria treatment, a short period of local (chemical) treatment usually resulted in cure<sup>24</sup> Most of these cases had previously failed to respond to local treatment Warren and Wilson,<sup>25</sup> who induced therapeutic fever by means of high frequency currents, cured three of six cases of chronic female gonorrhea by a single fever treatment of five hours at 106.5 F The three cases in which gonococci persisted became negative after a few local treatments

#### SUMMARY

A method for intense prolonged heating of the female pelvic organs has been found rapidly effectual in the treatment of gonorrheal infections A systemic temperature elevation of from 105 to 106 F is produced by means of pelvic diathermy and phototherapy during a period of from one and one-half to one and three-fourths hours With the use of a special vaginal electrode equipped with a thermometer, the vaginal temperature is maintained between 111 and 112 F for three and one-half hours A special arrangement of four dispersive electrodes is necessary The treatment is painless but there is discomfort from the systemic fever Constant watchfulness throughout treatment is imperative An average of less than three treatments caused the complete disappearance of gonococci in nineteen of twenty-three patients treated In two of the remaining cases the cervix was freed from gonococci after two treatments but not the urethra In these two cases, coagulation of Skene's ducts cleared up the urethra A case of cervicitis treated once was not freed from gonococci In one case a reinfection of the urethra occurred from a persistent gonorrheal

proctitis Patients with salpingitis or arthritis were relieved from pain after one or two treatments Abnormal discharges rapidly disappeared Inflammatory masses subsided, but some adnexal enlargement persisted in five of eighteen cases of salpingitis The treatment is strenuous and patients with cardiovascular or pulmonary disease should not be subjected to it No serious ill effects were experienced by any of our patients

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## THE DIAGNOSIS OF TRICHINOSIS

WITH ESPECIAL REFERENCE TO SKIN AND PRECIPITIN TESTS

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AND

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Regardless of the fact that trichinosis has been studied for more than eighty years as a human disease, it still remains often difficult to diagnose clinically Observers who have had the opportunity to study cases occurring in epidemics have noted the varying clinical course of the disease, and clinicians unanimously agree that it is the sporadic case and the milder forms of the disease which are particularly confusing and which often pass unrecognized by the attending physician<sup>1</sup> From recent statistical studies, it now appears that trichinosis is a common disease in this country and, further, the majority of cases seem to be of the milder forms As a specific example, Queen,<sup>2</sup> by artificial digestion of diaphragms from 344 consecutive necropsies in Rochester, N Y, found fifty-nine (17.5 per cent) parasitized with *Trichinella spiralis* None of these cases had a history of trichinosis, although some gave a vague "rheumatic" history In a second series of fifty-eight cases in Boston, sixteen (27.6 per cent) were found positive by Queen, using the same method

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1 Reports include the following

- Albert H. An Epidemic (Fourteen Cases) of Trichinosis Due to Eating Boiled Ham with Special Reference to the Occurrence of Eosinophilia *Am J M Sc* 140 167 (Aug.) 1910  
Alexander M E. Trichiniasis Endemic and Sporadic with a Review of the Present Status of the Treatment of the Disease *ibid* 106 567 (April) 1923  
Aldridge F C. An Outbreak of Trichinosis in Pennsylvania *ibid* 181 312 (March) 1931  
Willett J C and Pfanz C L. Trichinosis. An Outbreak Involving Twenty Cases and One Death *J A M A* 94 1060 (April 5) 1930  
Salzer, B F. A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy *ibid* 67 579 (Aug 19) 1916  
McDonald E. P. and Weddell, K C. Epidemic of Trichinosis *ibid* 62: 449 (Feb 9) 1929  
Thompson W G. Trichinosis. A Clinical Study of Fifty Two Sporadic Cases *Am J M Sc* 140 157 (Aug) 1910  
Cummings W T. and Carson G R. Trichinosis. A Study of Fifteen Cases, *J A M A* 67 806 (Sept. 9) 1916  
Kratz F. Vorläufiger Bericht über die Trichinen-Epidemie in Hedersleben Berlin klin Wchnschr 2 509 (Dec.) 1865 Die Trichinen-Epidemie zu Hedersleben Beitrag zur Pathologie und Therapie der Trichinen-Krankheit Leipzig W Englemann 1866  
Zorkendorfer C. Ueber die Aetiology einer Massenerkrankung in Teplitz-Schönau nach dem Genuß von Fleisch und Wurstwaren (Trichinose und Miltzbrand) *Ztschr f Heilk* 15: 435 1894  
Garland J A. Clinical Study of Trichinosis with Case Reports, Boston M & S J 188 773 (May 17) 1923  
Mancusi Ungaro L. Mild Forms of Trichinosis *J M Soc New Jersey* 26 671 (Oct.) 1929  
Conner L A. Atypical Clinical Forms of Trichinosis, *Ann Int Med* 3 353 (Oct.) 1929  
Herzberg E. and Vitenson, I. Unsuspected Trichinosis *Brit M J* 1 650 (April 5) 1930  
2 Queen F B. The Prevalence of Human Infection with *Trichinella spiralis* *J Parasitol.* 18 128 (Dec) 1931

21 Kyaw (footnote 8) Thermopenetration bei weiblicher Gonorrhoe, Deutsche med Wchnschr 48: 902 903 (July 7) 1922

22 Van Putte, P J. Diathermy in the Treatment of Gonorrhea in Women *Am J Phys Therapy* 9 164 166 (Sept.) 1931

23 Lenzman R. Ueber Behandlung der chronischen Gonorrhoe durch Malariabehandlung Deutsche med Wchnschr 52 1608 1610 (Sept 17) 1926 Weigand, Hans. Malariabehandlung der weiblichen Gonorrhoe Zentralb f Gynäk. 53 2834-2838 (Nov 9) 1929 Kruspe M. Unsere Erfahrungen mit Malaria und Saproviton *Arch f Dermat. u Syph* 157: 125 140 1929 Nast O. and Riebe, W. Ueber die Behandlung der weiblichen Gonorrhoe durch Impfmalaria *Dermat. Ztschr* 60: 427-437 (April) 1931 Hanow B. Erfahrungen über die Malaria und Pyriforbehandlung bei Lues und Gonorrhoe *ibid.* 63 173 188 (Feb) 1932

24 Nast and Riebe<sup>23</sup> Hanow<sup>23</sup>  
25 Warren S L. and Wilson K M. The Treatment of Gonococcal Infections by Artificial (General) Hyperthermia *Am J Obst & Gynec* 24 592 598 (Oct) 1932

of diagnosis. More recently Riley and Scheffley<sup>3</sup> reported their results of examining cadavers for trichinosis at the anatomy laboratory of the University of Minnesota Medical School. In one series of 116 cadavers, twenty (17.9 per cent) were positive, while in a second series of fifty cadavers ten (20 per cent) were positive.

During the past three years we have observed thirty-five cases of sporadic trichinosis at the Boston City Hospital and in the environs of Boston. The correct diagnosis of trichinosis was made in eleven of these cases when first seen. In the remaining twenty-four cases, other diagnoses were made, and trichinosis was not suspected until additional histories were obtained, further laboratory data made available, skin and precipitin tests performed, and the clinical courses of the cases closely observed. We will present a brief analysis of certain clinical aspects of these cases and also an evaluation of the methods used today in diagnosing this disease, with particular reference to the value of skin and precipitin tests.

#### LIFE CYCLE OF TRICHINELLA SPIRALIS

The signs and symptoms that may occur in trichinosis are best understood if a brief descriptive review is given of the life cycle of the parasite. Infected meat ingested by man is first digested in the stomach with the freeing of the larvae from their cysts. They pass into the small intestine within the first twenty-four hours, where they mature and copulation takes place. The female burrows beneath the surface of the mucosa, and as early as the fourth day larvae are deposited in the lymph spaces. Thence the young parasites pass into the blood stream, to be carried to all parts of the body. These young worms then penetrate the skeletal muscles, where further development takes place and they become encysted. Larvae may enter the circulation from the intestine for several weeks, the number rapidly declining after the first two weeks. The varied clinical course of the disease is understood when it is realized that trichinosis is a blood stream infection and that larvae may lodge in other tissues than skeletal muscle. It is only in the skeletal muscle that they develop fully. The larvae were first found in the blood of a human being in 1909 by Herrick and Janeway.<sup>4</sup> Larvae, first demonstrated in the spinal fluid by Van Cott and Lintz,<sup>5</sup> have been found by several other workers.<sup>6</sup> Frothingham<sup>7</sup> demonstrated, at autopsy, the larvae in a mesenteric lymph node, the lungs, heart, liver sinusoids, brain and pancreas. Subsequently, others found the larvae in the brain at autopsy.<sup>8</sup>

Graham<sup>9</sup> found embryos in a section of rat's artery. Prym<sup>10</sup> observed the living parasite in pericardial fluid, in esophageal and pharyngeal muscles, and in the bone marrow. Larvae have been recovered from the gall bladder,<sup>11</sup> pleural exudate, milk of a nursing woman, mammary gland, placenta, pus from the external auditory canal (Salzer<sup>1</sup>), and from the pus of a furuncle.<sup>1</sup> One of us (D. L. A.) has repeatedly recovered living embryos from the peritoneal fluid of infected mice, although they were not found in placentas.<sup>12</sup> Finally, they have been detected in the muscles belonging to the bones of the middle ear, in those of the soft palate, in the external sphincter ani, and in the muscles of the urethra.<sup>14</sup>

#### ANALYSIS OF THIRTY-FIVE CASES

**Preliminary Diagnoses.**—Following are the preliminary diagnoses made after a history had been taken and a complete physical examination done, with laboratory data incomplete: trichinosis (eleven), acute nephritis (six), "upper respiratory infection" (six), typhoid (three), pelvic inflammatory disease (three), poliomyelitis (two), gastro-enteritis (two), tuberculous meningitis (two), colitis, angioneurotic edema, erysipelas, undulant fever, tetanus, occupational conjunctivitis, influenza, peripheral neuritis, lead poisoning, scarlet fever, arthritis, hypotension, rheumatic endocarditis, syphilis and tuberculosis. The correct diagnosis of the twenty-four incorrectly diagnosed cases depended on further laboratory data, additional history, or observation of the clinical course.

**Gastro-Intestinal Symptoms.**—Gastro-intestinal symptoms are prominent in the disease picture, but in eleven of the thirty-five cases, or 31.4 per cent, they were entirely absent. Table 1 shows the symptoms that were present in twenty-four of the cases. Aldridge<sup>1</sup> reported an epidemic of twenty-nine cases, and, in twenty, gastro-intestinal symptoms were absent.

In a few cases the time interval was known between the ingestion of the infected pork products and the onset of gastro-intestinal symptoms. In four cases the onset was within twenty-four hours and in three cases within forty-eight hours. Diarrhea lasted eight weeks in one patient and seven weeks in a second. One patient had nausea and vomiting for four and one-half weeks. In a majority of the cases it was striking how acutely the gastro-intestinal symptoms began and how abruptly they ended.

One of us (D. L. A.) has observed the disease in a pig fed trichinella larvae. Seven months later the animal was fed larvae again, and a violent but short-lived diarrhea ensued of from one to two days' duration, then the animal appeared symptom free. It appears that the animal's gastro-intestinal tract was "sensitized" following the first infection and rapidly expelled the worms after the second infection. This is in accord with the experimental work of Ducas<sup>15</sup> and McCoy.<sup>16</sup>

3 Riley W. A. and Scheffley C. H. Trichinosis of Man. *Com. mon Infection* J. A. M. A. **102**: 1217 (April 14) 1934.

4 Herrick W. W. and Janeway T. C. Demonstration of Trichinella Spiralis in the Circulating Blood in Man. *Arch. Int. Med.* **3**: 263 (April) 1909.

5 Van Cott J. M. and Lintz William. Trichinosis. *J. A. M. A.* **62**: 680 (Feb. 28) 1914.

6 Reports have appeared by Bloch Leon. Trichinosis. *J. A. M. A.* **65**: 2140 (Dec. 18) 1915; Elliott A. R. Trichinosis. Report of a Case with Trichina Larvae in the Spinal Fluid. *ibid.* **66**: 504 (Feb. 12) 1916; Cummings N. T. and Carson G. R. A Case of Trichinosis with Embryos in the Spinal Fluid. *ibid.* **66**: 1856 (June 10) 1916.

7 Meyer Jacob. Trichinosis. A Report of Three Cases Simulating Meningitis with the Finding of Trichina Larvae in Spinal Fluid. *ibid.* **70**: 588 (March 2) 1918.

8 Frothingham Channing. The Lesions Caused by Trichina Spiralis in Man. *J. V. Research* **15**: 483 1906.

9 Observations have been reported by Hassan G. B. and Diamond J. B. Trichinosis Encephalitis. *Arch. Neurol. & Psychiat.* **15**: 34 (Jan.) 1926.

10 Gruber G. B. and Gumpel E. Ueber Gehirnveränderungen bei menschlicher Trichinose. *Verhandl. d. deutsch. path. Gesellsch.* **22**: 219 1927.

11 Fund E. R. and Mosteller Ralph. Trichinosis. Demonstration of the Parasites in the Brain. *J. A. M. A.* **102**: 1220 (April 14) 1934.

9 Graham J. V. Beiträge zur Naturgeschichte der Trichina Spiralis. *Arch. f. mikr. Anat.* **50**: 219 1897.

10 Prym P. Ueber Trichinose beim Menschen. *Centralbl. f. allg. Pathol. u. path. Anat.* **3**: 4189 1923.

11 Horlich, S. S. and Bicknell R. E. Trichinosis with Widespread Infestation of Many Tissues. *New England J. Med.* **201**: 816 (Oct. 24) 1929.

12 Friedreich N. Beobachtungen über Trichinosis. *Deutsches Arch. f. klin. Med.* **9**: 459 1872.

13 Augustine D. L. Studies on the Subject of Prenatal Trichinosis. *Am. J. Hyg.* **19**: 115 (Jan.) 1934.

14 Condie D. F. in Watson's Practice of Physic. Philadelphia, Blanchard & Lea 1853. p. 830.

15 Ducas R. Immunité dans la trichinose. *thesis Paris Journe. et Cie* 1921.

16 McCoy D. R. Immunity of Rats to Reinfection with Trichinella Spiralis. *Am. J. Hyg.* **14**: 484 (Sept.) 1931.

It is possible that some of the diarrhea and gastrointestinal upsets seen in patients, which are not followed by other symptoms, occur in persons who have had a previous trichinosis infection

**Muscle Pains and Aches**—There were twenty-six of the thirty-five patients who complained of muscle pains and aches during the course of their infections. It is significant that four patients had diarrhea but no muscle pain, and thirteen patients had muscle pains but no diarrhea. Of the thirteen patients without diarrhea, five had nausea and vomiting.

**Eye Signs and Symptoms**—The eye signs and symptoms are of importance in the diagnosis of trichinosis. Wetz<sup>17</sup> explains the facial edema on a basis of toxicity

TABLE 1—Gastro-Intestinal Symptoms Present in Twenty-Four of the Thirty-Five Cases of Trichinosis

Symptoms	Number of Cases
Diarrhea	12
Abdominal pain and cramps	7
Vomiting	7
Nausea	6
Constipation	3

and local obstruction. The edema of the eyelids and face may simulate sinusitis.<sup>18</sup> Carter<sup>19</sup> presents an excellent discussion of the ocular manifestations of trichinosis. Table 2 shows the signs and symptoms that we have observed. In our series there were nineteen patients with signs and symptoms referable to the eyes, while in sixteen they were absent.

**Chills and Fever**—Much has been written concerning the temperature in trichinosis; it has been described in detail by Blumer.<sup>20</sup> The temperature curve is not unlike that of typhoid, declining by lysis. The accompanying chart illustrates the temperature, pulse and respiration in two patients with a moderately severe infection. Eight of our patients gave a history of chills.

**Skin Manifestations**—The skin manifestations in trichinosis are relatively uncommon and seldom commented on. Two patients had a maculopapular eruption on the abdomen closely resembling "rose spots." Two others had an erythematous lesion not unlike that found in scarlet fever. There was one case each of erythema multiforme and furunculosis. In one patient small, elevated, erythematous lesions developed under the skin of both palms.

**Respiratory Signs and Symptoms**—The respiratory signs and symptoms occurring in trichinosis have been described by Minot and Rackemann.<sup>21</sup> Nine of their cases (88 per cent) "showed respiratory signs or symptoms, or both, severe enough to lead to a serious consideration or actual diagnosis of a purely pulmonary condition during the first few days the patients were in the hospital." MacKenty<sup>22</sup> had cases presenting severe edema of the larynx, and intubation was necessary in one. In our series, two patients had a cough productive of bloody sputum, two had dyspnea, presumably due to the invasion of the diaphragm and

intercostal muscles by larvae, two had a severe cough, one had râles at the right base, and two had pain on respiration.

**Cardiovascular Complications**—The cardiovascular complications occurring in trichinosis are taken up in detail elsewhere.<sup>23</sup> Myocarditis is one of the most serious complications. It appears to be related to the invasion of the myocardium by larvae.<sup>24</sup> In our series of thirty-five cases there were two deaths with a complicating myocarditis, one proved at autopsy. The reaction in the cardiac muscle is not specific. It is an active, cellular infiltration, usually focal, but distributed throughout the myocardium with the production of necrotic and fragmented fibers. Death from myocarditis usually takes place between the fourth and eighth weeks. Dyspnea occurred in two patients because of myocardial failure. In seventeen cases, from one to five electrocardiograms were taken. Three patients showed evidence of myocardial changes with inversion of the T waves, especially in lead 2. These changes were not permanent. Another case showed a transient intraventricular block, and two others presented marked right ventricular preponderance.

In one patient a permanent right hemiplegia developed during the course of the disease. One had a complicating thrombophlebitis of the saphenous vein of the lower leg.

Cheney<sup>25</sup> has called attention to the occurrence of extreme hypotension in trichinosis. In twelve of our patients a hypotension developed with a systolic pressure of less than 100 mm of mercury and a diastolic pressure as low as 38. The average diastolic pressure in these twelve cases was 50 mm of mercury.

**Neurologic Signs and Symptoms**—Since larvae are found in the spinal fluid and have been observed in the brain, it is not unusual to see cases presenting neurologic manifestations. Hassin and Diamond<sup>8</sup> describe a case of encephalitis in which the parasite was

TABLE 2—Ocular Signs and Symptoms Observed in Nineteen of the Thirty-Five Cases

Signs and Symptoms	Number of Cases
Puffiness of eyelids	17
Injection of conjunctivae	6
Pain on movement or pressure	3
Photophobia	3
Burning and itching	2
Hemorrhage into sclerae	1
Retinal hemorrhage	1

recovered from the brain at autopsy, and Meyer<sup>9</sup> reports cases simulating meningitis. In two of our patients there was absence of deep reflexes, absent muscle pains and signs of an acute infection, and the diagnosis of poliomyelitis was made. A third patient had a stiff neck, drowsiness became a symptom, and there were signs of an acute infection. Meningitis was the tentative diagnosis.

**Sources of Infection**—The sources of infection were learned in fifteen cases, as follows: cooked pork sausage (six), pork chops (three), raw pork sausages (two), boiled ham (two), uncooked salt pork (one), and raw pork sandwiches (one).

17. Wetz, Wilhelm. Zur Klinik der Trichinose. Klin. Wchnschr. 10: 938 (May 16) 1931.

18. Pratt, E. L. Trichinosis Simulating Frontal Sinusitis. A Report of Three Cases. J. A. M. A. 65: 1277 (Oct. 9) 1915. Thomas, J. B. and Cooper, W. Trichinosis with Predominant Symptoms Referable to Eyes and Frontal Sinuses. Am. J. Ophth. 7: 511 (July) 1924.

19. Carter, L. E. Trichinosis and Its Ocular Manifestations. J. A. M. A. 93: 1420 (Nov. 8) 1930.

20. Blumer, George. Trichinosis. Nelson. Loose Leaf Living Medicine. New York. Thomas Nelson & Sons. 2: 453. 1920.

21. Minot, G. R. and Rackemann, F. M. Respiratory Signs and Symptoms in Trichinosis. Am. J. M. Sc. 150: 571 (Oct.) 1915.

22. MacKenty, J. E. Trichinosis of the Upper Respiratory Passages with Report of Cases. Manhattan Eye, Ear and Throat Hospital Report 10: 115 (Feb.) 1909.

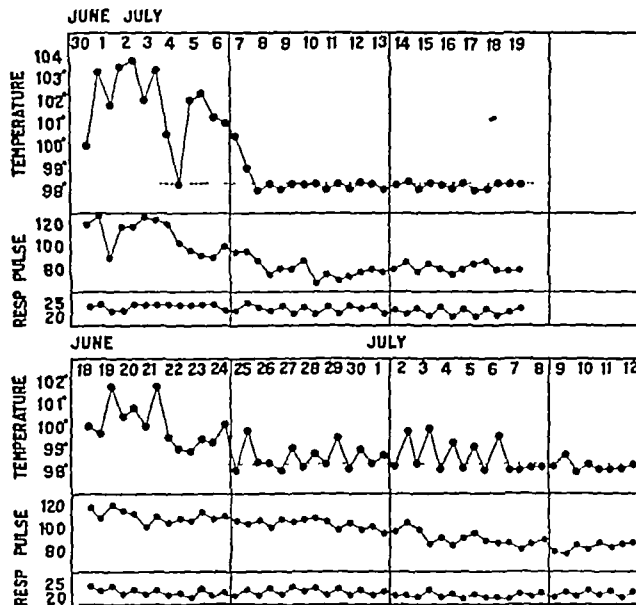
23. Spink, W. W. Cardiovascular Complications of Trichinosis. Arch. Int. Med. to be published.

24. Zoller, Heinz. Ueber die Herzmuskelerkrankung im Verlauf der Trichinose. Virchows Arch. f. path. Anat. 263: 430. 1927. Spink, W. W. Clinical and Pathological Observations of the Heart in Trichinosis. J. Clin. Investigation 13: 708 (July) 1934. Dunlap, G. L. and Weller, C. V. Pathogenesis of Trichinosis Myocarditis. Proc. Soc. Exper. Biol. & Med. 30: 1261 (June) 1933.

25. Cheney, Garnett. Sporadic Trichinosis with Extreme Hypotension. J. A. M. A. 86: 1004 (April 3) 1926.



**White Blood Cell Count and Eosinophilia**—Much has been written concerning the white blood cell count and eosinophilia in trichinosis since Brown<sup>26</sup> first called attention to their diagnostic importance. The white blood cells in trichinosis are not greatly increased. In our cases they ranged usually between 7,000 and 17,000 cells per cubic millimeter, in one case they reached 34,000 per cubic millimeter. As is well recognized, the occurrence of an eosinophilia in the blood of a suspected case of trichinosis is the most helpful aid in diagnosis. Twenty-two of our cases, or 62.8 per cent, were first diagnosed trichinosis because of the presence of an eosinophilia. One patient had 89 per cent eosinophils. Every patient except three had an eosinophilia when the blood was first examined. A count of 4 per cent may be considered the upper normal limit. In the three patients who did not have an eosinophilia, secondary infections were present. One had an ulcer on the foot, the second had a complicating furunculosis, and the third had bronchopneumonia. Elsewhere,<sup>27</sup> attention has been called to the effect of



The daily temperature, pulse and respiration in two cases of trichinosis

secondary infections on the eosinophilic level in trichinosis. In two of the foregoing cases the secondary infection subsided, and simultaneously there was a rise of eosinophils in the blood. The third patient died of pneumonia. Eosinophilia in trichinosis usually begins in the second week, and sometimes not until the third week of the infection, reaches its height in the third to fourth weeks, and then gradually declines. It may persist for several weeks and, in slight degrees, for months. It is commonly held that the eosinophilia is absent during the early stages of the disease and declines rapidly in fatal cases a few days before death. One of us (W. W. S.) has observed in animal experiments that the eosinophilia does not occur until the muscles are invaded by the parasite.

**Skin and Precipitin Tests**—Serologic and skin tests have been employed only recently in the diagnosis of

trichinosis and have been found of great value in doubtful cases. Bachman<sup>28</sup> demonstrated with laboratory animals that precipitins can be detected about the thirtieth day after infection, whereas a delayed type of skin reaction was produced within a week after infection. Stoll,<sup>29</sup> Hunter,<sup>30</sup> and Swineford and Waddell<sup>31</sup> have reported successful applications of these tests in a few cases of human trichinosis.

In a critical study of the value of such tests in diagnosing trichinosis, Augustine and Theiler<sup>32</sup> confirmed the results of Bachman with animal experiments. They also found the precipitin test to be reliable in detecting established trichinosis in swine and man. False positives were obtained in individuals who had recently received quinine treatment for malaria. Certain of the arsenical compounds used in treating syphilis, and corrosive mercuric chloride also appear to affect this reaction in a similar manner. The skin test was found to be positive about the fourteenth day of infection and was of the immediate type in both swine and human beings. There is no evidence that the presence of other parasites influences either of these reactions.

Recently McCoy, Miller and Friedlander<sup>33</sup> used a somewhat different antigen from that employed by the authors previously mentioned. Their results were essentially similar to those of Augustine and Theiler.<sup>32</sup> According to McCoy and his associates, about 90 per cent of persons ill with trichinosis will show a positive skin test to the trichinella antigen.

More recently, Kilduffe<sup>34</sup> reported the use of the skin test on thirty-three individuals with trichinosis. His conclusions to the effect that it possesses no advantages over the finding of an eosinophilia must be discounted, because he used an antigen in a dilution of 1 to 100, read the reactions at the end of twenty-four hours, and classified his reactions according to the method used by Bachman in laboratory animals.

Maternowska<sup>35</sup> recently reported that the skin test in man and animals was specific, and Friedlander,<sup>36</sup> after several years' experience with the skin test at San Francisco and Rochester, N. Y., considers it a valuable aid in the diagnosis of the disease.

The antigen used in our series of cases was prepared according to the method of Bachman.<sup>28b</sup> The skin test was made by injecting 0.1 cc. of a 1:10,000 dilution of the trichinella antigen intradermally into the inner surface of the forearm. A similar amount of Coca's solution (the diluent of the antigen) was injected into the other arm as a control. The test was read within five minutes. Typically, a blanched wheal makes its appearance within this time. This rapidly increases in size until after one hour it has reached its maximum of from 10 to 20 mm. in diameter. Occasionally pseudopodia are formed, running out from the wheal. Also a pronounced erythema usually appears promptly about the wheal. After twenty-four hours the reaction

28. Bachman, G. W. (a) A Precipitin Test in Experimental Trichinosis. *J. Prev. Med.* 2:35 (Jan.) 1928. (b) An Intradermal Reaction in Experimental Trichinosis. *ibid.* 2:513 (Nov.) 1928.

29. Stoll, H. F. Trichinosis. *J. A. M. A.* 82:791 (March 9) 1929.

30. Hunter, G. W. Human Trichinella Spiralis Infections and the Bachman Precipitin Test. *Am. J. Hyg.* 13:311 (Jan.) 1931.

31. Swineford, Oscar, Jr. and Waddell, W. W., Jr. Trichinosis Five Cases in One Family with Results of Skin Tests. *Virginia M. Monthly* 59:28 (April) 1932.

32. Augustine, D. L. and Theiler, Hans. Precipitin and Skin Tests as Aids in Diagnosing Trichinosis. *Parasitology* 24:60 (March) 1932.

33. McCoy, O. R., Miller, J. J., Jr. and Friedlander, R. D. The Use of an Intradermal Test in the Diagnosis of Trichinosis. *J. Immunol.* 24:1 (Jan.) 1933.

34. Kilduffe, R. A. The Bachman Intradermal Reaction in Human Trichinosis. *Am. J. M. Sc.* 186:802 (Dec.) 1933.

35. Maternowska, I. Intradermale Hautreaktion bei Trichinose. *Zentralblatt f. Bakt.* 129:284 (Aug.) 1933.

36. Friedlander, R. D. The Present Status of the Diagnostic Intradermal Test for Human Trichinosis. *Am. J. M. Sc.* 186:121 (July) 1934.

26. Brown, T. R. Studies on Trichinosis. *Bull. Johns Hopkins Hosp.* 8:79 (April) 1897. Studies on Trichinosis with Especial Reference to the Increase of the Eosinophilic Cells in the Blood and Muscle the Origin of These Cells and Their Diagnostic Importance. *J. Exper. Med.* 3:315 (May) 1898.

27. Spink, W. W. The Effects of Vaccines, Bacterial and Parasitic Infections on Eosinophilia in Trichinosis Animals. *Arch. Int. Med.* 64:805-817 (Nov.) 1934.



may have disappeared entirely, but usually a faint, pink, circumscribed area from 5 to 8 cm in diameter remains at the site of the reaction

In the present series, thirty-three of thirty-four patients gave positive skin tests. One patient was in a moribund condition and gave a negative skin test but a positive precipitin test. Eight patients gave negative skin tests on entry to the hospital, but from two to three weeks after the onset of the illness the tests became positive. This test has proved of great diagnostic value in patients who have acute gastro-enteritis, with skin tests at first negative for trichinosis but later becoming positive. A positive skin test has been noted as early as the fourteenth day after infection, but in most cases a positive reaction was not obtained until the seventeenth day. We have not found the size of the skin reaction, or the rate with which it appears and decreases, to bear a constant relationship to the severity or duration of a trichinosis infection. It has been observed that a few apparently normal individuals give positive skin tests. This may be explained by the fact that some people are hypersensitive to any protein injected into the skin, or the reaction may be due to a previously unrecognized trichinosis. Theiler, Spink and Augustine<sup>37</sup> observed that patients may show a positive skin reaction seven years after an infection with *Trichinella spiralis*. Thus, it is not possible by means of the skin test to distinguish between acute trichinosis infections and those which occurred some years previously. It was also observed that precipitins may be present in the blood serum after that length of time but are demonstrable only in flocculation tests.

The precipitin test is performed by overlaying 0.5 cc of serum in a small tube with an equal amount of a 1:100 dilution of the antigen. A control test is run in a second tube with the same amount of serum overlaid with Coca's solution. The tubes are placed in a water bath at 37.5 C for one hour. A positive test shows a white ring at the junction of the antigen and serum. Occasionally the ring may be formed immediately, and more often within an hour.

The precipitin test was performed in only nineteen of the cases, and it was positive in all of them, as was the skin test. The precipitin test usually became positive at the end of the fourth week of the infection. So far, we have not found a constant relationship between the duration or severity of an infection and the size of the ring or the time it takes for it to form. It has been noted that in a few doubtful cases the control tube may show a ring as well as the tube with the patient's serum and antigen. We are unable to explain this. The skin tests in these cases were also doubtful. We have continued to do precipitin tests on a few of the patients included in this series and have noted no change in the appearance of the reaction one year after the infection.

**Biopsies**—Another diagnostic aid in trichinosis is that of excising a small piece of skeletal muscle and examining it microscopically for parasites. In thirteen of the thirty-five cases, biopsies were done. Twelve were interpreted as positive for trichinosis, and one was negative. However several showed only chronic inflammation and no parasites. We believe that the biopsy is an unnecessary procedure not only because of the uncertainty of finding parasites in a small piece of muscle but also because precipitin and skin tests are as

reliable as the procedure of biopsy, which is, of course, an inconvenience to the patient. To illustrate how difficult it is to find larvae in muscle biopsies, one of us (D. L. A.) infected a pig, and later more than eighty bits of muscle were examined microscopically without finding the parasite. It was only after the diaphragm, masseter muscles and part of the tongue were ground up and digested in artificial gastric solution that a few larvae were found in the sediment.

**Spinal Fluid, Blood and Stool Examinations**—Practically all textbooks of medicine and those concerning laboratory procedures mention as an aid in diagnosis the finding of larvae in either the spinal fluid, the blood or the stools. Our experience is that, in any case, such observations are rare and of little value as practical diagnostic procedures. In none of our cases were we able to demonstrate larvae in the stools. Lumbar punctures were done in three cases and no parasites were seen in the cerebrospinal fluid. In two cases a careful, unsuccessful search was made for the larvae in the blood.

#### COMMENT

It is emphasized again that trichinosis is not an uncommon disease. Its recognition and correct diagnosis depend on a careful history of the patient's illness. In thirteen of our cases it was learned that other members of the family were ill. The most reliable laboratory procedure is the careful study of blood smears for eosinophilia. Mildly ill persons and sporadic cases constitute a serious phase of the trichinosis problem. It is in these cases that the skin and precipitin tests are of great value. Patients with slight fever, a slight eosinophilia, and vague aches and pains extending over a period of several weeks should have skin and precipitin tests done for trichinosis. Finally, it should be remembered that trichinosis is a public health problem. The best available method for reducing the incidence of the disease is the thorough cooking of all pork products.

#### SUMMARY

1 Thirty-five sporadic cases of trichinosis occurring in and around Boston during the past three years were analyzed.

2 The most reliable diagnostic clinical aid in these cases was the presence of an eosinophilia.

3 The skin test usually becomes positive about the seventeenth day of the infection, and the precipitin test usually at the end of the fourth week. These tests are of especial diagnostic aid in the early stages of the disease, when they are first negative and later become positive. Mild, sporadic and chronic cases of trichinosis were often detected only by these tests.

4 Other laboratory procedures, such as searching for the parasite in the stools, blood and spinal fluid, are time consuming, and the larvae are only rarely found.

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**Disturbingly Lopsided**—And whether any one thinks more clearly and deeply than before about the social problems that face humankind and whether people as a whole are as contented and happy as they were in simpler times may well be doubted. Invention of course is an inevitable part of science, in so far as the scientist continually has to improvise things to help his researches, but the trouble comes when business takes both science and engineering into partnership and then through mass production abetted by the psychology of modern super-salesmanship makes the distribution of the economic benefits disturbingly lopsided.—Cushing Harvey. *The Humanizing of Science*, *Science* 81:137 (Feb. 8) 1935.

<sup>37</sup> Theiler, Hans. Spink, W. W. and Augustine, D. L. Unpublished data.

## A METHOD OF EVALUATING CARDIAC PAIN IN CHILDREN

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Pain is a valuable symptom in the diagnosis of cardiac conditions. In angina pectoris, for example, one patient may complain of a viselike constriction of the chest and another may merely experience a deep dull sensation that he dismisses as a transient numb feeling over the heart. This variation of response, as well as the different descriptions given by patients,<sup>1</sup> makes pain an equivocal symptom. However, it is not to be expected that all patients will give the same response to a given pathologic condition nor even is it seen in the same individual at all times. Much of this apparent difficulty in the evaluation of pain can be overcome by taking a careful history and estimating the patient's sensitivity to pain by past experience.

We have long been perplexed by the child who complains of a pain over the heart. A complete history of this disorder or an attempt to make the child fully describe these sensations has often given no substantial additional information. In a few cases the diagnosis was clear after the parents gave the story of an acute chorea, an impending decompensation or an attack of arthritis, and in even fewer did an examination of the child reveal anything of note. Often a brief neuropsychiatric testing would demonstrate this symptom to be another manifestation of a "nervous" child. We were distressed, however, in a small group of children to find that this complaint was an early symptom of a severe carditis or that it ushered in a fatal endocarditis. Out of this confusion it was hoped that a means could be found to differentiate those cases in which cardiac pain was apparently a harmless symptom from those in which it was associated with an advancing pathologic process. Libman's<sup>2</sup> test appeared to fill these requirements, consequently it was used.

After a long study of this subject Libman devised a simple method of testing the pain response of a patient. Both of the examiner's thumbs are pressed against the mastoid bones, then the forefingers are slipped forward against the tips of the styloid processes. Normally, pressure over the mastoid causes no pain, which may be used as a control reading. The same amount of pressure applied to the styloid tips is painful to a few but painless to most individuals. The pressure should be applied in one direction, since rubbing the bones evokes the painful response of rubbing the periosteum. From the responses obtained from this test, Libman divided patients into different classes.

## METHOD

One hundred children of the cardiac follow-up clinic of Cook County Hospital were used for these experiments. Children under 6 years of age were eliminated from this series, as it was believed that they might not fully understand the presence of minor cardiac sensations. They may complain freely of acute pain over the heart, as in an acute pericarditis, but palpitation,

tachycardia and dull aches over the heart are rarely mentioned. The series represents an unselected group of 100 children between the ages of 6 and 15, 53 per cent were boys and 47 per cent were girls, 82 per cent were white and 18 per cent were Negroes.

All children were asked three questions: "Do you ever have a pain over your heart?" "Do you ever feel anything over your heart or left chest?" When an affirmative answer was given to these questions they were asked, "What does it feel like?" When a negative reply was given to the first two questions, the child was asked whether he experienced anything over his heart that felt or sounded like palpitation. Gentle tapping with the forefinger over the precordium and lightly striking the top of a metal bedside table with the blunt end of a fountain pen were believed to be close imitations of palpitation. Since these were highly suggestive procedures, children who gave affirmative answers to the latter question were questioned closely to ascertain if the sensations they felt might actually be palpitation.

Sensitivity to pain was tested by pressure over the mastoid process and then over the styloid process. This pressure was gradually increased, depending on the response of the child. When the patient did not complain, the pressure was the maximum that could be obtained by first pressing both thumbs together and then the forefingers, thus insuring a uniform stimulus. Several physicians of the clinic repeated these tests on some of the children and obtained the same responses that we had previously recorded. Before making the test, the examiner must be certain that there is no local disease in the region of the mastoid, otitis media, mastoiditis, enlarged postauricular glands, painful scars of old mastoidectomies, and skin abrasions or lesions preclude testing that area. In one child we had to confine the test to the right side, as he had just recovered from an otitis media and a mastoiditis, but this did not hinder the experiment, in fact, his results fit in well with the others of his group.

Three classes of responses were obtained and recorded. Those children who gave no evidence of pain in either region were designated class 1. Children showing a mild response of pain, who after questioning admitted slight degrees of pain or who volunteered the remark "It hurts a little" were placed in class 2. The third class consisted of those who evinced great pain during the test or who complained so bitterly when the pressure was applied that maximal amounts could not be used. Each class was in turn divided into two groups, P, those who had cardiac sensations and A, those who had none. Activity, as noted, includes pyrexias of more than 99.4 F or pulse rates of from 110 to 130 for an average of three months or more, a recurrence of an articular inflammation, chorea or endocarditis, an increasing dyspnea or a threatening decompensation necessitating a return to the hospital or a convalescent home, or a rapid enlargement of the heart size.

## RESULTS

The largest and most interesting group were the sixty-four patients who comprised class 1. Of this group, fifty-four did not complain of or notice any cardiac sensations (1 A) while ten did (1 P). Of the former group, forty, or 74 per cent, had inactive lesions, the remaining fourteen, or 26 per cent, showed activity. Unmistakable signs of activity were present in nine of the ten patients (90 per cent) of class 1 P. Three of these children had died, two of decompensated rheumatic carditis and one of bacterial endocarditis.

From the Department of Medicine, Northwestern University Medical School, and the cardiac follow-up clinic of Cook County Hospital.  
1. Sutton, D. C. and Lueth, H. C. Diseases of the Coronary Arteries. St. Louis: C. V. Mosby Company, 1932.  
2. Libman, Emanuel. Observations on Individual Sensitiveness to Pain. J. A. M. A. 102: 335-340 (Feb. 3) 1934.

Persistent tachycardia, from 110 to 128 per minute, and a prolonged fever were present in two cases. One patient is still convalescing from an acute endocarditis, another has had a prolonged pyrexia for months, and a third showed a recent extension to the aortic valve from an old mitral stenosis, accompanied by an enlargement of the left heart border. A youth with hypertension has maintained a systolic pressure of more than 190 mm of mercury for the past two years. There is but one case in group 1 P in which no ascertainable signs of an active rheumatic infection are present.

Class 2 gave the widest distribution of cases to its subdivisions. Eighteen of these children, or 72 per cent, experienced no pain or distress whatever, six had active lesions, while twelve were inactive. Only seven, or 28 per cent, noted cardiac sensations (2 P), and the distribution of activity and inactivity was nearly equal, that is, three and four.

Eleven patients formed the last group, or class 3. As these were the children who reacted most violently to painful test stimuli, it is not surprising that all but one complained of cardiac distress. Four of these ten (3 P) showed active carditis, while six did not. The only one who did not complain of cardiac distress (3 A) had an inactive cardiac lesion.

The relationship of cardiac sensitivity and activity for the entire group is noteworthy. Twenty-seven per cent of the patients complained of cardiac sensations, and active endocarditis was seen in 36 per cent of the cases of this series.

#### COMMENT

Numerous objections to this type of experimentation naturally arise. Some might object that leading and too pointed questions were asked the children concerning their cardiac symptoms. True as this might at first seem, any considerable experience with children will show that great ingenuity is required to get a good history. The imitation of palpitation by tapping on the patient's chest was used with such good results in reticent or illiterate adult patients that it was tried on children, among whom it seems to enjoy a similar success. Uniform pressure was applied in all but a few cases, and even when different examiners tested the same patient a uniform response was always noted. This pain stimulus, therefore, must be approximately equal in all tests.

Classification of the groups on the basis of response was arbitrary, and consequently some difficulty arose concerning "borderline" cases. As class 1 and class 3 were quite definitely fixed, most of the questionable cases were put in class 2. This may in part explain the great variety of response found in the latter group. Also, activity and inactivity were more or less definitely separated. A fever with a mean temperature curve of more than 99.4 F for a period of three months, or a pulse rate of from 110 to 120 over the same period of time, was accepted as an active rheumatic infection. A spread of the valvulitis to a new valve, a change in cardiac contour with the appearance of new murmurs or an alteration of heart tones, the presence of irregularities, such as gallop rhythm, dropped beat or auricular fibrillation, was evidence of an active carditis. While admitting that we may have overlooked cases of silent endocarditis from the list of active cases, we also wish to call attention to the great difficulty in their diagnosis.<sup>4</sup>

Pain in rheumatic heart disease of children has been variously discussed by different authors. Most of them mention pain and give the classic description of either the pain of an acute pericarditis or that of the decompensated heart.<sup>4</sup> Coombs<sup>5</sup> in his lucid monograph of this disease mentions in addition to the types just cited an anginal type, seen presumably in older children and adults, as well as milder dull pains, which he attributes to myocarditis. On the whole, there appear to be few references to "heart pain" in children; the work of Swift and Hitchcock<sup>6</sup> is the exception in this respect. They find it to be a common symptom in the child with a rheumatic fever and caution the practitioner that he must inquire after this symptom in children or it will be missed. The acute arthritic pains are often so severe that the mild cardiac pains are often overlooked. They found the intensity of precordial pain to be roughly proportional to the severity of cardiac damage. Individual sensibility to pain in this work was determined entirely by subjective means.

Libman's test is unique in that it makes it possible, in a number of cases, to determine a subjective symptom—pain—in an objective way. It is of course impossible to consider every complaint of every child, especially of those who are neurotic, and this pain sensitivity classification was therefore decided on. Unlike Libman, we did not call those children hypsensitive who experienced no pain on pressure over the bony prominences, as they constituted 64 per cent of the entire group. They were merely called class 1. The presence of heart sensations, i. e., pain or palpitation, in the group who normally do not complain of pain on pressure over a bony region is usually accompanied by active cardiac disease in the majority of cases. Despite the seemingly small number of cases in class 1 P, the large proportion showing active disease, as well as the degree and the severity of the lesions, seems to establish this rule. Only three deaths occurred in this entire series, all of which came from this subdivision. Even the other two groups in which cardiac pain was noted showed a much higher percentage of cardiac damage than any single group not presenting this symptom. A total of thirty-six patients had demonstrable pathologic changes of the heart, while a total of twenty-seven patients complained of precordial symptoms, again illustrating the close parallelism between cardiac damage and pain.

The disposition of the other cases is not so conclusive. In class 1 A about three fourths of the cases are inactive. This is about what is to be expected in a group of children who tolerate pain well and have no sensation about the anterior chest wall. Perhaps those cases which are active in this group represent hearts in which the rheumatic infection is progressing at such a slow rate that the pain mechanism is not involved. Class 2 presents such widely divergent results that no analysis is attempted. This is not surprising when it is remembered that it is not actually a class but merely an aggregation of those cases which fit in neither class 1 nor class 3.

Those children who were hypersensitive, class 3, experienced pains about the heart in 91 per cent of the cases. Pain over the heart (3 P) was about equally

<sup>4</sup> Ladd, Maynard. *Acute Rheumatic Fever in Children*. In *Alt Isaac Pediatrics*. Philadelphia W. B. Saunders Company 6 50 1925.  
<sup>5</sup> White, P. D. *Heart Disease*, New York Macmillan Company 1932.  
<sup>6</sup> P. 331. Lewis Thomas. *Diseases of the Heart*, New York Macmillan Company 1933.

<sup>5</sup> Coombs C. F. *Rheumatic Heart Disease*. New York William Wood & Company 1934 pp. 144-153.

<sup>6</sup> Swift, H. F. and Hitchcock C. H. *Cardiac Pain in Rheumatic Fever*. J. A. M. A. 80: 678-683 (March 3) 1928.

divided between those having active disease (four) and those having none (six), thus giving rise to two explanations of the origin of pain in this class. In the first group it was probably the end result of active infection over a long period of time which made the child not only sensitive to pain over the heart but to all painful stimuli while the second group may be considered neurotic children without any active lesion. The single patient in class 3 A is also of this type. As might be further anticipated, seven, or 63 per cent, of the entire group had no demonstrable pathologic condition.

#### CONCLUSIONS

1 Children who do not experience pain after a simple pressure test usually do not complain of cardiac pain.

2 Those who complain of cardiac pain and not of pain after the pressure test almost always have demonstrable cardiac disease.

3 Those who complain of severe pain following pressure on a bony area usually complain of cardiac pain and often do not have any active cardiac lesion.

4 In the course of an acute rheumatic infection, cardiac pain and palpitation are valuable symptoms for the diagnosis of carditis. Unless they are specifically sought for, they will be frequently overlooked.

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## STERILITY AND THE X-RAYS

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Every dermatologist knows and has known for a long time that the x-rays in sufficient doses interfere with the spermatogenic function of the testicle or destroy it entirely. Consequently, when he uses this modality about the genital organs for therapeutic purposes he is careful to protect these organs from any possibility of being affected by the x-rays.

In my practice, however, I have had a few patients who, in spite of such protection, became sterile although previously fertile, and, as far as could be determined by the most painstaking investigation, this was the sole cause for the sterility. I would emphasize that the cases referred to were not treated by general practitioners or those who only occasionally employ the x-rays but generally by expert and experienced dermatologists, fully aware of the danger, and, according to the patients' statements, adequately protected the genitals. In most of the cases the x-rays had been given for some dermatologic condition about the thighs or perineum. As just mentioned, some of these patients had been of proved fertility before the application of the rays, either by reason of having impregnated their wives or from condom examinations, yet after such application condom specimens were found either to be absolutely devoid of any spermatozoa alive or dead or contained but few live or dead spermatozoa.

Purely as a result of this clinical experience, and ignoring for the time being any theoretical considerations, it has occurred to me that perhaps the protection usually given is not adequate enough and that somewhere there might be a leakage which allows the rays to get at the testicle in spite of such protection.

I will therefore report a few cases in which the patients had been perfectly fertile before and now have

azoospermia, and then a few cases in which the patient came on account of sterility and, as far as could be determined, there was no other reason for the azoospermia except a previous application of the x-rays. In the second series of cases, however, there is no scientific proof that the organs were normal previous to the treatment, as no condom examinations had ever been made before such treatment.

**CASE 1**—J. L. S. consulted me for sterility in September 1925. At that time he had been married two and a half years and his wife had a miscarriage a year before as the result of an automobile accident. Since then he had received roentgen treatments from a prominent dermatologist for a period of five months for psoriasis. The dermatologist informed me that protection had been used and that the dose of x-rays was too small to influence the testicles. Nevertheless, condom specimens examined by me and others were absolutely negative for spermatozoa. He never had a venereal disease. Feb. 6, 1926, after several negative condom examinations, I aspirated the right testicle and found no spermatozoa in the aspirated testicular fluid showing that the azoospermia was testicular in origin. All condom examinations were made within an hour after coitus and after ten days' continence.

**CASE 2**—R. L. was seen July 15, 1932, for sterility. In 1927 he received roentgen treatments for ringworm near the testicle without any protection whatever. Nevertheless a Huhner test (searching for spermatozoa in the female genitals after coitus) made three years later by a competent gynecologist showed numerous live spermatozoa in the female genitals. Four months after this examination, in January 1931, he again received roentgen treatments by another dermatologist for a rash on the abdomen and side, but now the testicles were protected. Six months after these treatments he came to me and a condom specimen showed absolutely no spermatozoa, neither of course did a Huhner test on his wife. I put him on increasing doses of the anterior lobe of pituitary extract, which he took for about six months, but spermatozoa never reappeared in the specimens. In a follow-up letter he informed me that another condom specimen examined by Dr. Hagner in Washington also proved negative.

**CASE 3**—This patient came for sterility in 1933. His condom specimens showed a few dead spermatozoa as well as a few very lively ones. It seems that the spermatozoa produced by the testicles were about normal but that their number was markedly diminished. The specimens were examined about one and a half hours after coitus and after ten days' continence. His history shows that his semen as examined several times by a prominent gynecologist in 1932, was absolutely normal. He then submitted to six roentgen treatments to the perineum for pruritus and after that the condom specimens were abnormal. The dermatologist had used a protective device to the testicles. I put him on increasing doses of the anterior lobe of pituitary extract with the result that another specimen examined five months later was absolutely normal. All know, of course, that even in normal cases there are variations with regard to the number of spermatozoa found in a specimen and that once in a while the number may be far below normal, but in this case repeated specimens taken each time after a long period of continence showed a marked diminution in the number so that the condition cannot be considered accidental.

**CASE 4**—N. R. was seen in 1925 for sterility. At the time he had been married five years but his wife had had a miscarriage four years before his visit to me. He never had any venereal disease and coitus was normal. About one year after his wife's miscarriage he received roentgen treatments once a week for a period of five months for a skin disease in both groins. The testicles were protected. Several condom specimens examined within a short time after coitus and after long periods of continence always showed absolute azoospermia.

#### DOUBTFUL CASES

**CASE 1**—M. S. consulted me for sterility in 1931. He had been married four and a half years, but during the first year he employed contraceptive measures. He never had venereal disease or a swollen testicle. Coitus was normal. About a

year after marriage a dermatologist applied x-rays to the testicle for a skin disease. Altogether he had five treatments. Repeated condom examinations thereafter were negative for spermatozoa and no spermatozoa were found by me on aspirating the testicles. He did not reply to my follow-up letter.

In this case, however, it is not known whether the patient had been sterile prior to the roentgen treatments as he had employed contraceptive measures till then. It is true that there were not present any of the usual causes for azoospermia, nevertheless this must be considered a doubtful case.

CASE 2—J F had had three roentgen treatments to the scrotum in 1925, although, he said, the testicles were protected. A year later he married and for the first three years used contraceptive measures. His wife then went to Dr Vineberg for sterility, who found azoospermia in a condom specimen and referred him to me. Several condom specimens examined by me showed the same condition. The patient never had any venereal disease or any other causative factor to account for the sterility. Here again, as a condom specimen was never examined prior to these treatments, a definite conclusion cannot be drawn.

#### COMMENT

The number of cases recited is few, but it is only recently that I have investigated this matter, and many of my cases of male sterility date back many years, so that it was impossible to get in touch with them. I have no doubt, however, that there were more cases, especially as my histories show many cases of azoospermia in which no cause could be found for the condition. Of course some of these were probably congenital in origin, but there might have been some due to the cause under discussion, but as before said, I could not communicate with the patients. It is also suggestive to note that in many of these cases the testicles as palpated were not small or atrophic but appeared perfectly normal.

Ordinarily it would have been more scientific to wait till I had obtained a larger number of cases to report, but sterility is such a very serious condition often causing the most intense suffering and unhappiness and at times leading to divorce, that I consider it more humane to call attention to this warning at the earliest possible time rather than wait for more cases to develop.

It must be recognized that different testicles react differently to the influence of the x-rays, some being much more sensitive than others, so that what might be adequate protection in some cases would not at all be for others. While I was discussing the condition with a prominent and experienced dermatologist, he informed me that he used a heavy piece of rubber for protection and that although he admitted that some of the x-rays might penetrate this rubber sufficiently to develop a film, not enough would penetrate to affect the testicles. However, in discussing the matter with an expert roentgen therapist, I was informed by him that an ordinary piece of rubber was not, in his opinion, adequate protection, and in order to obtain such protection it was necessary to add a lead plate as well as an aluminum plate to the device.

It might be objected that in the foregoing discussion no mention is made of the dosage of x-rays received by the patient. In the first place, in most of the cases reported, all my information came through the patient himself, who obviously could give no information on this point. But the question of dosage is entirely aside from my purpose in this paper. As before said, the cases were treated by expert dermatologists who at the time considered the dosage given plus the local protec-

tion adequate enough to prevent any testicular damage, and it is my object to show that at times this is not the case.

#### CONCLUSIONS

In some cases the testicles are so sensitive to the action of the x-rays that doses which are ordinarily considered harmless may cause sterility. The protective devices ordinarily employed to shield the testicles from the action of the x-rays when applied near the genitals may not be adequate enough to prevent such harm.

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## ENTEROGENOUS CYSTS OF THE DUODENUM

### REPORT OF A CASE AND REVIEW OF THE LITERATURE

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Cysts and diverticula of the gastro-intestinal tract have been noted frequently in the literature. They represent a congenital abnormality that presents a problem to the clinician in diagnosis and to the surgeon in treatment. Although diverticula of the duodenum are not infrequent, cysts of the duodenum have been noted in the literature only six times. The present case is reported in the belief that every additional report of a condition so rare may be utilized in obtaining a more prompt recognition and better understanding of future cases.

#### REPORT OF CASE

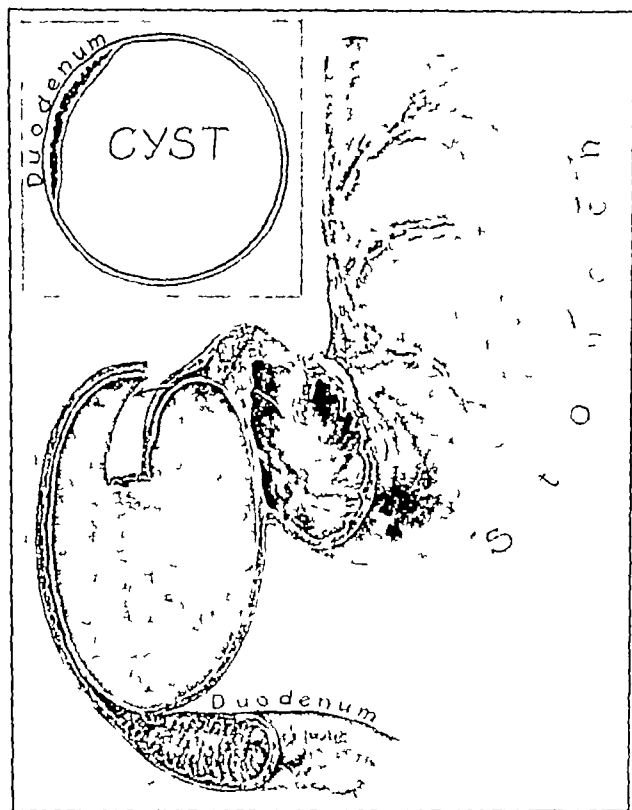
*History*—H. S., a white girl, aged 15 years, admitted to the medical service of the Duke Hospital, Sept. 21, 1931, complained of intermittent attacks of abdominal pain and vomiting of twenty-two months' duration. Her birth and development had been normal, although she had always been frail. At the age of 6 months and also at 2 years she had attacks of unexplained hematemesis and melena. At the age of 3 years she complained of vague abdominal pain and on one occasion passed gross blood in the urine. These vague abdominal pains continued intermittently, and when she was 7 the appendix was removed. Ten days after this operation severe abdominal pain recurred, felt most acutely in the right flank and upper part of the abdomen. She was at first thought to have a kidney stone, although this diagnosis was later changed to tuberculosis of the kidney. After several months all symptoms disappeared, and she remained in good health for five years. Twenty-two months prior to admission she began complaining of intermittent attacks of dull aching pain in the right upper part of the abdomen, often accompanied by vomiting. Associated with these she felt a lump in the upper part of the abdomen on the right side, which disappeared between attacks. These attacks lasted for from one to two days and recurred at intervals of from seven to thirty days up to the time of admission. The pain was never cramping nor was there any characteristic radiation. It was thought that the vomitus was bile tinged at times. It had never contained blood since the attacks in infancy, and food residue had not been noted. She had never been jaundiced. There had been no urinary or menstrual symptoms. Bowel movements had always been regular and there had been no blood, pus or mucus in the stools.

*Physical Examination*—The temperature was 37.2 C (99 F), the pulse 92, the respiration rate 22, and the blood pressure 118 systolic, 80 diastolic. She was 152 cm tall and weighed

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416 Kg. She was rather small but normally developed and was in no discomfort. The skin was pale and somewhat sallow but not jaundiced. There were palpable axillary and epitrochlear lymph nodes. The abdomen was flat and moved freely with respiration. Under the right costal margin there was a slight visible fulness. In this area on palpation an indefinite moderately tender mass in the region of the gallbladder could be felt. It seemed to be smooth, about 10 cm. in diameter, and did not descend with respiration. It could not be felt in the flank. The abdomen otherwise was normal and the remainder of the general physical examination was negative.

The blood showed a hypochromic anemia (red blood cells 4,460,000, hemoglobin 8.5 Gm., 60 per cent Sahli color index 0.68, white blood cells 7,400). The Wassermann reaction of the blood was negative. The urine showed no abnormalities. Repeated stool examinations were negative for blood, pus, mucus and parasites.



Relation of the cyst to the duodenum and stomach. The cyst occupies a submucous position in the lower and anterior wall of the duodenum and bulges into the duodenal lumen compressing it into a narrow slit.

A plain roentgenogram of the abdomen showed a rounded, smooth, soft tissue mass on the right side of the vertebral column extending from the eleventh dorsal to the third lumbar vertebra. On fluoroscopic examination the mass did not descend during inspiration. A pyelogram on the right side showed normal kidney calices and demonstrated no connection between the mass and the kidney. Roentgenograms of the barium sulphate filled stomach and duodenum showed no abnormality. With a barium sulphate enema the colon filled normally and showed the hepatic flexure to be pushed down by the mass. Cholecystograms showed a small normally filled gallbladder, which contracted well after the fat meal.

**Clinical Course**—The patient remained in the hospital nine days, during which time she was afebrile and free from all symptoms. After the first day the mass in the right upper part of the abdomen, which was indefinite on the first examination, could no longer be felt. As an operation was not agreed on, she returned home, October 1.

**Readmission**—The patient was readmitted, November 11, with a history of having had four days after discharge, a severe attack of pain in the right upper part of the abdomen,

with repeated vomiting of two days' duration. Since then she had had repeated less severe, though similar, attacks. Examination showed essentially the same condition as on the first admission. An indefinite mass in the right upper part of the abdomen could be felt as on the first examination. Operation was performed, November 21. The preoperative diagnosis was choledochus cyst.

**Operation**—The abdomen was opened through a right rectus incision. General abdominal examination was negative except for the right upper quadrant. The upper third of the duodenum was markedly dilated and it was impossible to empty the dilated part either into the stomach or into the lower part of the intestine. The distended area felt like a cyst. This cystic mass was surrounded by the vessels and muscles of the duodenum and seemed to protrude through the pylorus and into the lower 2 or 3 cm. of the stomach. The remainder of the stomach was normal in size and appearance. From external examination it was impossible to determine the relationship of the duodenal lumen to this cystic mass. The gallbladder was not distended and the common bile duct was normal in size. The stomach was opened just above the pylorus to permit inspection of the interior of the stomach and duodenum. The lumen of the duodenum was then seen to lie on the upper dorsal side of the cyst as a flattened mucous membrane lined channel, and the cystic mass seemed to lie within the duodenal wall, as shown in the accompanying illustration. It was evidently impossible to excise the cyst, which was so closely associated with the wall of the duodenum and the pancreas, and possibly with the pancreatic duct, the ampulla of Vater, and the bile duct. The cyst was aspirated and a thin, clear, slightly greenish fluid was obtained. This suggested the presence of bile pigments, although the fluid did not have the appearance of bile and on subsequent chemical examination it was negative for bile pigments.

The cyst was opened from within the duodenum, the incision going through the mucous membrane, submucosa, fibromuscular wall of the cyst and the mucous lining of the cyst. Examination of the interior of the cyst showed no communication with the lumen of the intestine. The muscular wall of the intestine apparently went entirely round the cyst and the duodenal lumen. Working from within the stomach an anastomosis, which would admit two fingers, was made between the cyst and the duodenal lumen. The incision in the wall of the stomach was then closed. The abdominal incision was closed in layers with catgut, silkworm gut stay sutures and silk for the skin.

**Postoperative Course**—Recovery after operation was uneventful and the patient left the hospital free from symptoms on December 10. She was readmitted to the hospital twelve days later having had another attack similar to those suffered before operation. This began on the day prior to admission and lasted for three days. Two weeks later she had another attack of twelve hours duration with a chill and elevation of temperature to 38 C (100.4 F) and a pulse rate of 128. Two days later an erythematous patch appeared on the left cheek and numerous lesions of herpes simplex on the lips. These lesions lasted about a week, during which time she was afebrile and without abdominal symptoms. She was discharged free from symptoms Jan. 21, 1932. Her mother wrote, Jan. 4, 1934, that since the last date she had been free from all digestive symptoms except for an attack of pain in the right upper quadrant and vomiting of twelve hours' duration in November 1932.

#### REVIEW OF PREVIOUSLY REPORTED CASES

Sanger and Klopp<sup>1</sup> in 1880 reported the case of a new-born child who had died during a difficult delivery. The viscera were transposed. The abdomen contained five cysts, one from an accessory liver, one from an accessory bile duct and three from the intestine. One of the latter had its origin in the duodenum. This duodenal cyst was about the size of a walnut and microscopically was composed of all the normal layers of the duodenal wall.

<sup>1</sup> Sanger, M. and Klopp, A. Zur anatomischen Kenntniss der angeborenen Bauchsteine. Arch. f. Gynak. 16: 415 1880.



Roth<sup>2</sup> in 1881 reported the case of a new-born male infant who died a few minutes after delivery. The abdomen was tremendously distended and contained a large pedunculated thin walled cyst arising in the duodenum. The cyst did not communicate with the lumen of the intestine. The cyst wall was found to contain all the layers of the normal intestine. This patient also had an enterogenous cyst in the right posterior mediastinum situated close to the esophagus and evidently derived from it.

Meyer<sup>3</sup> in 1919 reported the case of a female infant, aged 3 weeks. Birth was normal and first feedings were retained. At the age of 13 days she began vomiting after each feeding and when seen at the age of 3 weeks she was emaciated and dehydrated and was not retaining any of her feedings. No abnormal abdominal changes were noted. The diagnosis of pyloric stenosis was made and the child died four days later, no operation having been performed. At autopsy the pylorus and first portion of the duodenum were found dilated and in the medial wall of the duodenum was a cyst the size of a hen's egg. This extended from the pylorus to the ampulla of Vater and bulged into the lumen of the duodenum obstructing it. No communication between the lumen of the duodenum and that of the cyst could be demonstrated. Microscopically the cyst wall was composed of the normal layers of intestine, and the cyst was seen to occupy a submucous position in the duodenal wall.

Wagh<sup>4</sup> reported the fourth case in 1923. The child, a female infant, aged 19 days, had been regurgitating food immediately after feedings since birth and had been steadily losing weight. In the two or three days prior to examination she had not retained any of her feedings. On examination she was found to be undernourished. A firm, indefinitely rounded mass could be palpated on the right side of the abdomen extending from the iliac fossa to the costal margin. At operation a cystic mass presented on the outer surface of the colon and displaced the hepatic flexure and transverse colon anteriorly. The peritoneum lateral to the hepatic flexure was incised and a retroperitoneal cyst was shelled out as far as the midline. Here the cyst was found to be intimately connected with the posterior wall of the duodenum. Examination of the duodenum showed its second portion stretched like a ribbon across the anteromedial aspect of the cyst. The cyst was opened, no communication was demonstrated with the lumen of the duodenum and the cavity of the cyst was packed with gauze, which was brought out through the abdominal incision. Following removal of the gauze the child did well for six weeks, at which time it began to vomit again. One week later at a second operation the cyst was found to have refilled. It was evacuated and its wall sutured to the aponeurosis of the abdominal wall. The child died six days later of pneumonia. Microscopic section of a portion of cyst wall removed at the first operation showed it to be composed of an inner circular and outer longitudinal muscular coat.

Maddox<sup>5</sup> reported the fifth case in 1927 in a 3 months old child whose sex was not recorded. Since the age of 6 weeks the patient had vomited following feedings and had not gained in weight. On examina-

tion the child was found to be undernourished and dehydrated. Gastric peristalsis was visible in the epigastrium, and a movable mass 6.25 cm by 4.3 cm was palpable in the region of the pylorus. At operation the first portion of the duodenum was found to end in a large fusiform cystic tumor the size of a goose egg. From the lower pole of this mass emitted the attenuated third portion of the duodenum. The child's condition was too poor to permit further operation and it died sixteen hours later. At autopsy the mass seen at operation was found to be a thin walled cyst, which projected into and obliterated the lumen of the duodenum. Microscopically its wall was composed of an inner layer of poorly developed columnar epithelium, a middle layer containing scattered plain muscle fibers with no differentiation into circular or longitudinal layers and an outer adventitious coat.

Smith<sup>6</sup> reported the sixth case in 1930. The patient, a 2 weeks old female infant, had vomited after practically every feeding since birth and had not gained in weight. The vomitus did not contain bile, and greenish stools had been passed. Examination revealed an undernourished baby with a distended abdomen. At times there was visible gastric peristalsis and it was thought that a tumor was present beneath the right costal margin. A tentative diagnosis of congenital pyloric stenosis was made. At operation two weeks later the first portion of the duodenum was found to be enormously distended. It was decided to perform a duodenojejunostomy. When the supposedly distended intestine was incised a large amount of serous fluid escaped, revealing the true condition—a cyst in the anterior wall of the duodenum. There was no communication between this cyst and the intestinal lumen. The stomach was opened and dilators were passed with ease through the pylorus and the upper part of the duodenum. The stomach was closed and the cyst drained externally. The child died one week later. At autopsy the cyst was found to be reduced to the size of a pea.

#### ETIOLOGY

As emphasized by Evans,<sup>7</sup> there can be little doubt that cysts which reduplicate all the layers of the normal intestine have their origin in defects of development of the intestinal tract. Lewis and Thyng,<sup>8</sup> in a study of the embryo of the pig, rabbit and man, regularly found knob-like diverticula along the entire intestinal tract. These diverticula appeared first in the duodenum and later along the entire small intestine, being most numerous in its terminal portion. In only one embryo were they found in the colon. Similar diverticula were also found along the bile ducts and probably explain the origin of the choledochus cyst, a condition that we had suspected in our patient. They found that these diverticula may persist, degenerate and disappear, or become detached in the form of epithelial nodules or cysts.

It is easy to understand how a cyst thus formed may occupy any position within the intestinal wall—submucous, intermuscular or subserous—or that it may occupy any position around the intestinal wall—mesenteric, antimesenteric or any intervening segment. A cyst on the mesenteric border in addition may lose its attachment to the intestine and occupy any position between the two layers of the mesentery.

<sup>2</sup> Roth M. Ueber Missbildungen im Bereich des Ductus Omphalo-

mesentericus. *Arch f path Anat.* 86: 371 1881.

<sup>3</sup> Meyer Curt. Ein Beitrag zur Kenntnis der Enterocyste im

Sauglingsalter. *Ztschr f Kinderh.* 21: 272 1919.

<sup>4</sup> Wagh O S. Congenital Cyst of the Duodenum. *Surg. Gynec. &*

*Obst.* 37: 785 (Dec.) 1923.

<sup>5</sup> Maddox Kempson. Cyst of Duodenum Simulating Pyloric Obstruc-

tion. *M J Australia* 1: 900 (June 18) 1927.

<sup>6</sup> Smith R E. A Case of Enterocystoma of the Duodenum Simulat-

ing Congenital Pyloric Stenosis. *Guy's Hosp Rep* 80: 463 (Oct.) 1930.

<sup>7</sup> Evans Arthur. Developmental Enterogenous Cysts and Diverticula.

*Brit J Surg* 17: 34 (July) 1929.

<sup>8</sup> Lewis F T and Thyng F W. The Regular Occurrence of

Intestinal Diverticula in Embryo of the Pig Rabbit and Man. *Am J*



## DIAGNOSIS

In none of the cases reported has the diagnosis been made before operation. Waugh considered his patient to have a duodenal obstruction from an unknown abdominal tumor. Smith diagnosed his patient as having a congenital pyloric stenosis. Meyer's patient was thought to have pylorospasm, while we thought our patient had a choledochus cyst. All the patients had a palpable abdominal tumor except that of Meyer, and all the patients except ours were infants. The most important diagnostic points are the presence of a tumor in the region of the duodenum and the signs and symptoms of duodenal obstruction.

## TREATMENT

Unless the duodenal cyst is in a favorable position, it is not likely that excision will be possible. Some form of drainage of the cyst will be necessary. In the two cases in the series in which attempts to correct the abnormality were undertaken, the cyst was drained externally. In one case the cyst refilled after two months and the child died following a second operation. In the other, the child died one week following operation.

We believe that, in those cases in which excision is not possible, the procedure of choice is permanent internal drainage of the cyst into the intestinal tract. This can be accomplished, as in our case, by an anastomosis between the cyst and the duodenal lumen. The drainage might be accomplished as well by an anastomosis between the cyst and the jejunum, provided a jejunojejunostomy is also performed. With the latter method of treatment the diverticulum resulting from the anastomosis would be less likely to become filled with intestinal contents. We thought that the three attacks which occurred in our patient following operation were caused by this complication, and we considered using the latter plan of treatment as outlined if the attacks had continued. We now feel that our patient, having been free from symptoms for fifteen months,<sup>9</sup> will require no further surgical treatment, since the resulting duodenal diverticulum has been continually compressed by the normal duodenal musculature that surrounds it. The palpable mass has not been present since operation.

## SUMMARY

1 A cyst of the duodenum was successfully treated by anastomosis with the intestinal tract.

2 Six cases of this rare condition have been collected from the literature, with a mortality of 100 per cent.

3 Three of the collected cases were treated surgically, two by external drainage.

4 The operation of choice seems to be permanent internal drainage into the intestinal tract.

5 There are two methods of accomplishing this, one having been used in the case here reported.

6 No case has been diagnosed before operation or autopsy. The symptoms are those of duodenal obstruction, with a palpable mass in the right upper part of the abdomen.

7 An embryonic diverticulum is the probable origin of the cyst.

8 Choledochus cysts probably have a similar origin from the persistence of diverticula that occur along the bile ducts during embryonic life.

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<sup>9</sup> A recent note from the patient's mother states that she has been entirely free from symptoms since November 1932.

## APIOL POLYNEURITIS

## REPORT OF A CASE

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AND

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Prior to 1931, cases of polyneuritis caused by apiol had never been reported. The first reports came from Holland<sup>1</sup> and Yugoslavia.<sup>2</sup> Later cases were reported from Germany, France and other European countries.<sup>3</sup> A careful perusal of the British and American literature did not reveal such reports.

## REPORT OF CASE

Mrs. H. F., aged 25, admitted to the Harrisburg Hospital Aug. 10, 1934, with an irrelevant family and past history, complained of diarrhea, chills and fever, pain and swelling in the ankles and abdominal pain. July 20, 1934, she had attempted to terminate an early pregnancy by taking eighty-nine capsules of Savatin and fifty emmenagogue tablets over a period of two or three days. Savatin is a proprietary preparation, each capsule containing 2 minims (0.13 cc.) of apiol, 1 minim (0.06 cc.) of oil of tansy, and 1½ minims (0.1 cc.) of oil of savin. The following day a severe gastroenteritis developed with nausea, vomiting and generalized abdominal pain. Diarrhea followed on the next day and persisted until the middle of August. Chills, fever and sweats occurred later, with an extremely painful and swollen throat. On admission to the hospital, she was prostrated with a high fever and a relatively slow pulse. In the succeeding few days, an intractable tympanitis, severe epistaxis and a generalized rash resembling arsenical poisoning developed. At this time she complained of marked numbness in both hands and feet, which was followed by a pronounced hyperesthesia and the loss of power in the distal extremities. Masses suggesting condylomas appeared in the perineum, but studies with the dark field did not reveal spirochetes. The blood Wassermann reaction was negative. The urine revealed a few granular and hyaline casts, with a slight amount of albumin; the blood count showed a moderate leukopenia.

Read before the Philadelphia Neurological Society, Oct. 26, 1934.  
1. ter Braak, J. W. G. Een epidemie van polyneuritis van bijzonderen oorsprong, *Nederl. tijdschr. v. geneesk.* 75: 2329-2339 (May 2) 1931.

2. Stanojević, L., and Vujčić, V. Ueber gehäufte toxische Polyneuritiden nach Gebrauch eines Abtreibungsmittels. *Med. Klin.* 27: 1821 (Dec. 11) 1931. Rechnitz, E. Toxic Polyneuritis from Apiol Capsules Used to Produce Abortion. *München med. Wchnschr.* 79: 100 (Jan. 15) 1932.

3. These include:  
Reuter, A. Use of Apiol as Abortifacient as Cause of Characteristic Form of Polyneuritis. *Klin. Wchnschr.* 11: 286 (Feb. 13) 1932.  
Jagdhoff, H. Severe Polyneuritis Following Use of Apiol as Abortifacient. *Deutsche med. Wchnschr.* 58: 623 (April 15) 1932. Severe Polyneuritis Caused by Tricresyl Phosphate. *Content of Capsules of Apiol as Abortifacient.* *Verhandl. d. deutsch. Gesellsch. f. inn. Med. Kong.* 44: pp. 423, 1932.

Hellmuth, L., and Grün, R. Polyneuritis Following Subacute Poisoning with Apiol Taken to Produce Abortion. *Case, Deutsche med. Wchnschr.* 58: 695 (April 29) 1932.

Wittke, J. Toxic Polyneuritis from Apiol. *Med. Welt.* 6: 916 (June 25) 1932.

Auer, A. Polyneuritis from Apiol Used as Abortifacient. *Fortschr. d. Therap.* 8: 634 (Oct. 25) 1932.

Gsell, O., and Luthy, F. Polyneuritis Caused by Triorthocresyl Phosphate. *Content of Capsules of Apiol Used as Abortifacient.* *Schweiz. med. Wchnschr.* 62: 577 (June 18) 1932.

Guttman, L. Peripheral Paralysis Caused by Presence of Neurotoxic Poison, Tricresyl Phosphate Contained in Abortifacient Apiol. *Med. Klin.* 28: 716 (May 20) 1932.

Kastan, M. Neuritis Resulting from Use of Apiol as Abortifacient. *Deutsche med. Wchnschr.* 58: 1288 (Aug. 12) 1932.

Roger, H. Apiol Polyneuritis. *Rev. neurol.* 1: 1427 (June) 1932.

Misgeld, J. Polyneuritis Caused by Use of Apiol. *Deutsche med. Wchnschr.* 58: 1925 (Dec. 2) 1932.

Nikolitch, A., and Alfandary, I. Polyneuritis After Use of Apiol as Abortifacient. *Encéphale* 28: 116 (Feb.) 1933.

Mann, Paralysis of Extremities Following Use of Apiol as Abortifacient. *Three Cases.* *Arch. f. Psychiat.* 98: 282, 1932.

Horowitz, F. Polyneuritis from Apiol Used as Abortifacient. *Cluj med.* 14: 152 (March 1) 1933.

Girard and Gamaleia. Polyneuritis Caused by Apiol. *Rev. méd. de l'est.* 61: 454 (June 15) 1933.

Geithner, R. Multiple Neuritis Caused by Use of Apiol as Abortifacient. *Two Cases.* *Deutsche med. Wchnschr.* 59: 773 (May 19) 1933.

Examination of the urine and feces for arsenic was negative. The neurologic examination, made August 27, showed the following:

The mentality was quite clear. The patient was cooperative and answered questions slowly but accurately.

Examination of the cranial nerves was entirely negative in every detail. There was a slight weakness of the shoulder girdle muscles on both sides, perhaps more marked on the right side than on the left. There was no visible or palpable atrophy and there were no tremors. A very definite weakness of the biceps, triceps and supinators in both forearms was apparent. There was a pronounced weakness of the muscles of the right hand with little atrophy of the interossei. The power in the left hand was somewhat better, but there was much atrophy of the interossei in the muscles of the thenar eminence. The weakness in the hands was strikingly greater than in the forearms, and in the latter it was much greater than in the arms. The biceps and triceps reflexes were bilaterally abolished. There was tenderness all over the nerve trunks of the upper extremities, and this was most marked in the arms. There was a complete loss of sense of position and vibration up to the elbow on both sides. Touch was likewise diminished over the same area, while the tests for pain and temperature gave at times variable responses, especially in the most distal parts of the extremities. Pain and temperature were inaccurately preserved, while at other times the response was one of overaction.

The musculature of the trunk could not be tested satisfactorily as the patient was too weak to sit up. The abdominal reflexes could not be obtained.

There was no appreciable wasting nor were there tremors in any groups of the muscles in the lower extremities. She was unable to move the ankle joint in any direction, nor could she move any toes. She was barely able to flex the knees or the hips. The feet were supported by a pillow to prevent them from dropping. The knees and achilles jerks were entirely abolished. There was barely any response to plantar irritation. There was a very marked tenderness on pressure all over the nerve trunks, which was more pronounced in the calves of the legs and on pressure over the feet. The sense of vibration and position was entirely abolished in the feet, and the sense of vibration was entirely abolished as far as the knees. The response to pain and temperature was similar to that of the upper extremities, the hypalgesia and hypothermalgesia extending to about the upper third of the legs.

The neurologic examination was repeated October 24. At this time the patient was still paralyzed in both hands and feet, although there was a slight improvement in the motor power of the arms and legs. There was no appreciable improvement in the sensory status for vibration, deep position, tactile discrimination, pain, temperature and light touch. The biceps, triceps, knee jerks and ankle jerks were still abolished. Nerve trunk tenderness was still present but less marked. Electrical tests were not made.

#### COMMENT

The subject of polyneuritis following the use of apiol is well described by ter Braak and Carrillo,<sup>4</sup> who collected thirty-seven cases from the literature and reported thirteen cases from Holland. According to these authors the average clinical course is as follows: Several days following the ingestion of the apiol preparation, variable gastro-intestinal symptoms appear, which subside in two or three days. A period of latency may then prevail, which may last from two to three weeks, with an average of seventeen days. Cramps appear suddenly in the muscles of the legs at the end of this period, and this is followed on the next day or two by paresthesia and weakness of the feet. About a week later paresthesias and weakness appear in the hands. The weakness then becomes progressively greater, while the pain and paresthesia diminish in intensity. About two weeks after the onset of the neuritis there is usually found considerable weakness

and some atrophy of the muscles of the hands and of the feet, while the more proximal muscles are affected but slightly, if at all. Pain and objective sensory changes are absent or are only slight. The biceps and triceps reflexes are preserved, the patellar reflexes are somewhat increased, while the achilles reflex is absent. There are usually found diminished responses to faradic stimulation and some other evidences of electrical reaction of degeneration. Fibrillary tremors are not observed. Spinal fluid studies and other laboratory investigations are negative.

The condition becomes stationary after two or three weeks, while the atrophy and electrical reactions of degeneration become more pronounced. It is not until a half year after the appearance of symptoms that improvement really begins, but eventually these patients make an almost complete recovery. Ter Braak and Carrillo stress the importance of the latent period, the purely motor character of the neuritis, and the predilection for the symmetrical and distal muscle groups.

Our case differs somewhat from the European variety. At the outset there were severe gastro-intestinal symptoms and marked skin and mucous membrane reactions, which are not mentioned in the literature. The duration of the latent period was twenty-one days. The neurologic involvement was somewhat more extensive than in the cases reported in the European literature, appearing, however, pre-eminently motor, distal and symmetrical. The fact that our patient ingested an exceedingly large dose of the drug in a short period of time may help to account for the severity of the symptoms.

All the cases reported would tend to show that the process is limited to the peripheral nerves and that there is no involvement of the central nervous system. The cause of this neuritis is not due to apiol<sup>5</sup> but to triorthocresyl phosphate, which is contained in the abortifacient Apiol, which is an extract of parsley, is in itself nontoxic. The fact that triorthocresyl phosphate is capable of producing neuritis has been known for a long time. In 1899 Lorot<sup>6</sup> described a case of polyneuritis following the use of creosote phosphate in the treatment of pulmonary tuberculosis. Similar cases were reported by Loewenfeld,<sup>7</sup> Wertheim Salomonson,<sup>8</sup> Huet,<sup>9</sup> Sanz<sup>10</sup> and Bertolani.<sup>11</sup> Lastly, the Jamaica ginger paralysis in the United States in 1930<sup>12</sup> also was traced to triorthocresyl phosphate. It is interesting to note that the clinical course of the cases treated for pulmonary tuberculosis, the cases of Jamaica ginger paralysis<sup>13</sup> and those due to the ingestion of apiol show

<sup>5</sup> van Itallie L., Harmsma A. and van Esveld L. W. Chemical and Pharmacologic Study of Apiol Preparations. Occurrence of Polyneuritis Following Their Use as Abortifacients. Arch. f. exper. Path. u. Pharmacol. 165: 84, 1932. Kalbfleisch L. Peripheral Neuritis Due to Triorthocresyl Phosphate Content of Apiol. ibid. 171: 439, 1933.

<sup>6</sup> Lorot F. Les combinaisons de la creosote dans le traitement de la tuberculose pulmonaire. Paris thesis, 1899.

<sup>7</sup> Loewenfeld L. Ueber Lahmungen nach dem Gebrauche von phosphorsaurem Kreosot. Centralbl. f. Nervenh. u. Psychiat. 26: 237, 1903.

<sup>8</sup> Wertheim Salomonson J. K. A. Toxische Polyneuritis bei einem Phthisiker. Neurol. Centralbl. 1900 p. 555.

<sup>9</sup> Huet W. G. Neuritis verurteilt durch Creosotum phosphoricum. Neurol. Centralbl. 26: 60, 1907.

<sup>10</sup> Sanz F. Un caso de neuritis por el fosfato de creosota. Siglo med., 1908.

<sup>11</sup> Bertolani A. Le paralisi da fosfato di creosota. Riv. sper. di frenat. 40: 113, 1914.

<sup>12</sup> Smith M. I., Elvold, E. and Frazer, W. H. Pharmacological Action of Certain Phenol Esters, with Special Reference to Etiology of So-Called Ginger Paralysis. Pub. Health Rep. 45: 2509 (Oct. 17), 1930.

<sup>13</sup> Smith M. I. and others. Pharmacological and Chemical Studies of the Cause of So-Called Ginger Paralysis. Preliminary Report. Pub. Health Rep. 45: 1703 (July 25), 1930.

Patients Suffering from Paralysis Due to Drinking Jamaica Ginger. South M. J. 23: 371 (May), 1930. Harris Seale Jr. Jamaica Ginger Paralysis (Peripheral Polyneuritis). South M. J. 23: 375 (May), 1930.

Burley B. T. The 1930 Type of Polyneuritis. New England J. Med. 202: 1139 (June 12), 1930. Merritt H. H. and Moore N. Peripheral Neuritis Associated with Ginger Extract Ingestion. New England J. Med. 203: 4 (July 3), 1930.

<sup>4</sup> ter Braak J. W. G. and Carrillo R. Polyneuritis from Presence of Triorthocresyl Phosphate in Apiol Used as Abortifacient. Deutsche Ztschr. f. Nervenh. 123: 86, 1932.

most the same characteristics. The cases of jamaica ginger paralysis show more extensive weakness, more intense and widespread atrophy, and more markedly affected tendon reflexes. Our case resembled strikingly the jamaica ginger type of paralysis.

The pathogenesis of triorthoresyl neuritis would appear to depend on the selective action of the toxic substance on myelin sheaths of the peripheral nerves with secondary degeneration of the axis cylinders (perikillar neuritis). This was shown experimentally especially on chickens by ter Braak and Carrillo<sup>4</sup> and by Smith and Lillie<sup>14</sup> and in the clinicopathologic investigations in jamaica ginger paralysis by Jeter,<sup>15</sup> Turley<sup>16</sup> and Goodale and Humphreys<sup>17</sup>. In addition to the peripheral nerves of the extremities, triorthoresyl is reported to have caused retrobulbar neuritis.<sup>18</sup>

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## Clinical Notes, Suggestions and New Instruments

### A SIMPLIFIED APPARATUS FOR THE APPLICATION OF SUCTION AND PRESSURE TO THE LOWER EXTREMITIES IN PERIPHERAL VASCULAR DISEASE

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Vascular disease of the lower extremities, sufficient to cause symptoms of impaired circulation, is in the majority of cases of the arteriosclerotic type, such cases outnumber many times those presenting vascular spasm. Whereas symptoms due to vascular spasm can often be promptly alleviated by measures undertaken to relax the spasm, those having organic occlusion respond little to such measures, and results are usually discouraging.

One selected small group of arteriosclerotic cases presenting such changes as intermittent claudication, trophic lesions and other physical signs of organic occlusion were systematically treated over varying intervals of from three to six months by such measures as hyperthermia induced by the intravenous injection of typhoid vaccine, by Buerger's exercises, alternate hot and cold applications, the systematic use of a tourniquet to induce passive hyperemia, the hypodermic injection of acetylcholine, the intravenous injection of calcium gluconate and the oral administration of iodides, sodium salicylate, calcium lactate and theobromine. Differentiation between spasm and organic occlusion was made on the basis of history, general physical examination and vasodilator response to nerve block or the application of heat.<sup>1</sup> It was my experience that the patients in this group were mostly unimproved at the end of several months of systematic treatment.

The work of Landis and Gibbon<sup>2</sup> on the effects of alternate suction and pressure on blood flow in the lower extremities seemed to indicate that this method had greater promise of definite benefits than any method heretofore in use. An apparatus was therefore constructed, based on their suggestions

<sup>14</sup> Smith, M. I. and Lillie, R. D. Histopathology of Triorthoresyl Phosphate Poisoning. Etiology of So-Called Ginger Paralysis. Arch. Neurol. & Psychiat. 26: 976 (Nov.) 1931.

<sup>15</sup> Jeter, Hugh. Autopsy Report of a Case of So-Called Jake Paralysis. J. A. M. A. 96: 112 (July 12) 1930.

<sup>16</sup> Turley, L. A. Neuropathology Found in Cases of Jake Paralysis. J. Oklahoma M. A. 23: 193 (June) 1930.

<sup>17</sup> Goodale, R. H. and Humphreys, Margaret B. Jamaica Ginger Paralysis. Autopsy Observation. J. A. M. A. 96: 14 (Jan. 3) 1931.

<sup>18</sup> Juhász-Schäfer, A. Retrobulbar Neuritis Resulting from Use of Apol as abortifacient. Klin. Monatsbl. f. Augenheilk. 89: 361 (Sept.) 1932. abstr. Klin. Wchnschr. 11: 1232 (July 16) 1932.

Read before the New York Surgical Society, March 27, 1935.  
From the Medical Department of the New York Post-Graduate Hospital.

<sup>1</sup> Gibbon, J. H. Jr. and Landis, E. M. Vasodilatation in the Lower Extremities in Response to Immersing the Forearms in Warm Water. J. Clin. Investigation 11: 1019 (Sept.) 1932.

<sup>2</sup> Landis, E. M. and Gibbon, J. H. Jr. The Effects of Alternate Suction and Pressure on Blood Flow to the Lower Extremities. J. Clin. Investigation 12: 925 (Sept.) 1933.

Many details are shown in the accompanying illustrations. A rotary pump with a capacity of 10 cubic feet per minute, driven by an electric motor of one-fourth horse power, is connected with a chamber of sheet metal 76 cm long, 28 cm square at the open end and 28 cm by 34 cm at the closed end. To the margins of a round opening 15 cm in diameter, through semiflexible rubber of 1 inch thickness used to close the smaller end of the chamber, is vulcanized a pneumatic rubber cuff similar to that

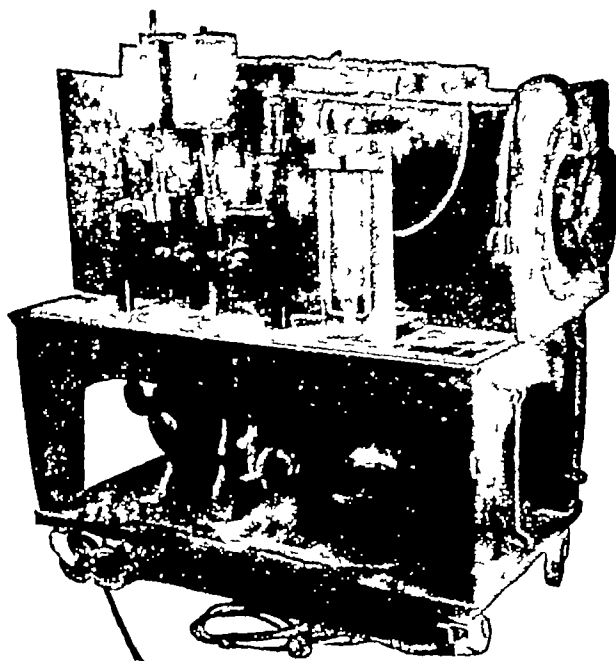


Fig. 1—Appearance of simplified apparatus for application of suction and pressure to the lower extremities in peripheral vascular disease.

used with sphygmomanometers. This is 6 inches in length and tapers to approximate the thigh. Its outer wall is fairly heavy, its inner wall lighter and more flexible. Air is introduced into the cuff through a pressure bulb and is regulated so as to exert the minimal pressure necessary to seal the junction with the thigh. This new design has obviated previous difficulties with leaks due chiefly to variation in the size of thighs.

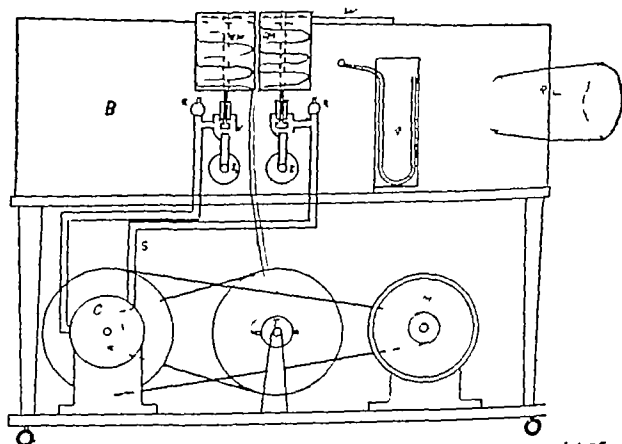


Fig. 2—Diagram of apparatus. EM, electromagnets; R, regulating valves; G, mercury gauge; B, box; I<sub>1</sub>, inlet to box; I<sub>2</sub>, outlet; P, pressure pipe; S, suction; C, compressor; T, timer for EM; M, motor; RC, rubber cuff; W, vacuum glass.

Following Landis's suggestions as to optimal periods a negative pressure is produced within the chamber for twenty-five seconds followed by a positive pressure for five seconds. Thus far pressures of from 110 to 120 mm negative and from 80 to 110 positive have been used. A rapid reversal of air current is obtained through the use of valves operated by electromagnets as noted in figure 2. The electromagnets are activated from a switch on a cam driven through a reducing gear from the

pump. The motor and pump operate continuously throughout the treatment, the pressure within the apparatus being maintained at the desired height through the use of relief valves which in turn can be regulated to produce any pressure within the apparatus that may be desired.

The design of the apparatus differs mechanically from that of Landis and Gibbon in several respects. (a) Relief valves are used, which can be regulated to produce any pressures desired, (b) the pump operates continuously, (c) the use of adhesive plaster with the cuff is eliminated and a regulated pneumatic pressure is applied, (d) alternation from negative to positive pressure is produced directly from a single motor by means of electromagnets operating a valve system rather than by a second motor to rotate the four-way valve as described by them, (e) duration of the periods of negative and positive pressures can be readily changed by adjusting the cam.

Results of treatment thus far have been encouraging. Further experience is necessary, however, to evaluate conclusively this method of therapy.

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#### A LABORATORY TEST OF "HOXIN" AS A CLAIMED CANCER CURE

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One of the difficulties in connection with various claims that substances which are cures for cancer have been discovered is to obtain an adequate experimental test of these substances on cancer in laboratory animals.

This brief communication records such tests of a substance called "Hoxin," advanced by Mr. Harry Hoxey of Philadelphia as a cure for cancer. This substance is used for treatment in two forms: (a) as a solution administered orally for internal cancer, (b) as a powder placed directly in contact with external cancer.

The laboratory material used consisted of mice inoculated with a malignant tumor, No. 15091a, reported on by Cloudman.<sup>1</sup>

##### INTERNAL TREATMENT

**EXPERIMENT 1**—Thirty mice were inoculated subcutaneously with tumor 15091a, Nov. 13, 1934. Beginning on the same day they were given as the sole liquid element in their diet a solution of "Hoxin" designated as of "X" strength. On the sixth day (November 18) this strength was doubled to "2X." These mice all died of cancer.

Controls consisted of twenty mice similarly inoculated but whose liquid diet was tap water. These mice also all died of cancer.

**EXPERIMENT 2**—Nov. 30, 1934, fifteen mice were placed on a diet the liquid element of which was a "full strength" (8X) solution of "Hoxin." On the following day they were inoculated with tumor 15091a. The tumor grew progressively in all of them. They all showed healthy growing tumors at death. These animals were weighed before the treatment began. Under it they lost weight rapidly and showed generally a very poor physiologic response.

Controls consisted of five mice whose liquid diet was tap water. Otherwise treatment was the same. These mice lost no weight but also died with actively growing tumors present.

**EXPERIMENT 3**—Nine mice were kept for three weeks on a diet the sole liquid element of which was a 6X solution of "Hoxin." They were then inoculated with tumor 15091a. They all grew the tumor rapidly and died of it.

The obvious conclusion is that internal treatment with "Hoxin" has no preventive or curative effect on mice inoculated with tumor 15091a.

##### EXTERNAL TREATMENT

**EXPERIMENT 4**—Ten mice were inoculated with tumor 15091a, Nov. 13, 1934. November 21 they showed palpable masses. Under pentobarbital sodium the skin over the tumor was cut and a small incision was made in the tumor mass. On this

incision an amount of powder "sufficient to cure a human epithelioma" was placed. These mice all died of cancer. A violent reaction to the powder was obtained. Hard lumps, apparently necrotic and inflammatory, were observed near and around the tumor, and selective elimination of tumor cells was not apparent.

Ten controls treated in exactly the same way except for the powder showed no such reaction but died of cancer.

**EXPERIMENT 5**—Ten mice were inoculated with tumor 15091a, November 13 and on November 22 had their tumor masses treated as in experiment 4. At death they all had healthy growing tumors.

**EXPERIMENT 6**—Ten mice were inoculated with tumor 15091a, Nov. 13, 1934, and (without pentobarbital sodium) were treated with powder, November 23. At death, all showed healthy growing tumors. In several of these mice, marked corrosion and destruction of normal tissue was noted. In one (mouse 6) the destruction of normal tissue had extended through the walls of the pericardial cavity and peritoneum and had affected the surface of the liver, causing adhesions.

No such destruction of normal tissue and no inflammation or necrosis were noted in the controls.

The conclusion is that direct application of powdered "Hoxin" does not "cure" mice inoculated with tumor 15091a.

In addition there is no sign of selective action for tumor tissue, and actual destruction of normal tissue may be extensive.

## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE THERAPEUTIC USE OF ESTRO- GENIC SUBSTANCES

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BALTIMORE

*NOTE*—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—ED

Estrogenic substances are those which produce estrus directly. There are other substances, notably the gonadotropic principles of the anterior pituitary lobe, that can produce estrus indirectly through their activating effect on the ovarian follicles. The present article deals with the therapeutic applications of estrogenic substance itself. This name is chosen as a generic term in preference to the others commonly employed, to avoid possibly misleading implications as to chemical constitution, source or function and to emphasize that such principles produce estrus, and not menstruation, which is a very different thing.

It would be out of the question to attempt a collective review of the vast literature of the subject within the limits of a short paper, so that this article is offered rather as a summary of conclusions and impressions gained from a fairly extensive survey of the literature and a reasonably large clinical experience. For an excellent summary of the literature on estrogenic substances, the reader may be referred to the special article published by the Council on Pharmacy and Chemistry.<sup>1</sup>

In spite of the remarkable advances made in reproductive physiology, there is still much confusion on many points, even among scientific investigators so that

From the Roscoe B. Jackson Memorial Laboratory.  
<sup>1</sup> Cloudman, A. M. *Am. J. Cancer* 16: 568-630 (May) 1932.

<sup>1</sup> Estrogenic Substances. Theelin, report of the Council on Pharmacy and Chemistry, *J. A. M. A.* 100: 1331-1338 (April 29) 1933.

it is not surprising that the therapeutic application of these new advances is anything but clearly defined. Every one feels that gynecologic organotherapy is, on the whole, extremely disappointing, and yet the feeling is universal that it is in this direction that one must look for improvement in methods of treating the functional gynecologic disorders. Adding to this the great frequency of these disorders, and the fact that no other satisfactory treatment is known, it becomes easy to understand why the harassed clinician will continue to employ endocrine therapy in spite of its questionable value for many indications. To paraphrase a popular automobile slogan, When better methods are found, the clinician will use them.

In the meantime it behooves the clinician to make his organotherapy as rational as possible, and this can be done only by familiarizing himself with at least the elements of reproductive physiology and endocrinology. It seems unavoidable to include in this paper a discussion of some forms of treatment which are admittedly unsatisfactory and inadequate but which the clinician, without loss of dignity and self respect, will often use for the simple reason that they are for the present the best available to him.

#### PHYSIOLOGIC BASIS FOR ESTROGENIC THERAPY

While the physiology of estrogenic substance is considered in other articles of this series it seems advisable to set forth, in epitomizing fashion, the major premises on which this discussion of therapeutic applications is based.

1 Estrogenic substance is an active principle of the growing ovarian follicle, although found in many other body tissues and fluids, such as the placenta, the amniotic fluid, and the urine of pregnant women.

2 The physiologic effect of estrogenic substance on the endometrium is to produce growth and hyperemia but not secretory activity.

3 The corpus luteum formed after rupture of the follicle (usually about the middle of the intermenstrual interval) continues, in the human being at least, to secrete estrogenic substance, but in addition produces another hormone, "progesterin," to which is due the secretory activity of the endometrial gland epithelium so characteristic of the premenstrual or preovulatory phase of the cycle.

4 The actual bleeding of menstruation, according to the weight of present evidence, is brought about by an abrupt withdrawal of estrogenic substance, bringing about partial destruction and desquamation of the endometrium, with resulting hemorrhage.

5 Certain nonmenstrual types of bleeding may be produced by similar drops in the blood level of estrogenic substance.

6 Both follicle ripening and the secretion of estrogenic substance, on the one hand, and luteinization and the production of progesterin, on the other, are due to the influence of the gonadotropic hormones of the anterior hypophysis.

7 There is practical unanimity among investigators that estrogenic substance is not a stimulant of ovarian activity, the evidence indicates that sufficiently large or prolonged dosage inhibits ovarian activity, because of the depressing effect of estrogenic substance on the secretion of the anterior pituitary gonadotropic hormones.

8 While there is some difference of opinion on this point, the work of the great majority of the best investigators indicates that estrogenic substance is responsible for the normal rhythmic contractility of the uterine musculature and that progesterin is an inhibitor of this property.

#### PREPARATIONS AVAILABLE

It seems impossible to avoid the use of trade names in the discussion of the estrogenic substances available for clinical use. Indeed, unless this is done, this article might mean very little to the average reader. The better manufacturers appear to be making an honest effort to supply the profession with substances of genuine estrogenic potency, and their laboratories have shown a commendable willingness to cooperate both with clinicians and with laboratory workers in the investigation of the many problems of gynecologic endocrinology. That their ultimate purpose is commercial need not necessarily be considered an objection, though it naturally explains the uncritical attitude sometimes shown in their interpretation of clinical results.

None of the estrogenic preparations have as yet been accepted by the Council on Pharmacy and Chemistry, although their use in clinical practice is widespread. For the present, the safest course for the practitioner is to employ only preparations made by manufacturers of recognized standing. Because most of the estrogenic material employed in this country is made by two large American manufacturers and one German firm, it seems worth while to enumerate the preparations made by these, as they are representative of general types. No attempt can be made to pass judgment on the comparative potency or therapeutic efficacy of these preparations, nor is there any implication that any of them is superior to products made by other American or foreign firms. On the other hand, the notorious general unreliability of certain manufacturers of organ extracts would seem a safe indication as to the probable unreliability of the estrogenic substances which they manufacture.

*Preparations for Oral Administration*—Of the older forms of whole ovarian substance, ovarian residue and corpus luteum extracts, little need be said. They are now commonly accepted as being inert or almost inert, containing little or none of the active hormones, with the further disadvantage that even this little is largely nullified by the digestive juices.<sup>2</sup> There would seem to be no reason for their employment at the present day, when preparations of demonstrated laboratory potency are readily available. The following preparations of the estrogenic substances are the ones most widely employed in this country.

Theelol (P. D. & Co.), a trihydroxy derivative of theelin, marketed in capsules of 50 rat units each.

Amniotin (Squibb) in gelatin capsules each containing 1,000 international units.

Progvnon (Schering), in tablets of 45 rat units. This product is claimed to be a placental extract, in which the estrogenic substance is not reduced to the crystalline state, it is said to contain, in addition, certain placental lipoids.

*Preparations for Hypodermic Administration*—These are as follows:

Theelin (P. D. & Co.), an aqueous solution of the crystalline theelin of Doisy, in 1 cc. ampules of 167 international units.

Theelin in oil (P. D. & Co.) in 1 cc. ampules with a potency of 1,000 international units.

Ammiotin (Squibb), in 1 cc ampules, each containing either 2,000 or 8,000 international units in corn oil

Progyonon (Schering) in 1 cc ampules of 25 rat units of estrogenic substance in aqueous solution

Progyonon B (Schering), in 1 cc ampules, of 10,000 or 50,000 international units of hydroxyestrin benzoate in sesame oil

**Unit of Dosage**—The unit of dosage commonly employed in this country is the Allen-Doisy rat unit, defined as the quantity of active principle, divided and given in three injections at four hour intervals, necessary to induce estrus within three days, as judged by the presence of cornified cells in vaginal smears, in ovariectomized sexually mature rats of a standard weight ( $140 \pm 20$  Gm). The international unit, now coming into use, is that dosage necessary to produce an effect, under identical conditions, equal to that of 0.1 microgram (0.0000001 Gm) of a standard preparation of crystalline theelin. According to the report issued by the League of Nations<sup>2a</sup> the international unit is about one-third the Allen-Doisy rat unit<sup>2b</sup>

#### ROUTES OF ADMINISTRATION

From the point of view of the patient, the most convenient plan of estrogenic therapy is undoubtedly the oral. It should be remembered, however, that the digestive juices apparently have a destructive effect on estrogenic substance and that approximately five times the effective hypodermic dosage must be used when the substance is administered orally. As estrogenic products are quite expensive, the hypodermic route will often be chosen, especially in view of the greater precision as to the dosage absorbed by the patient.

For long continued use, and especially when smaller amounts are necessary, the oral route possesses many advantages. This is especially true in the treatment of the menopausal symptoms.

As the estrogenic substances are absorbed through the vaginal mucous membrane, they are sometimes administered by vaginal suppositories. There is always much uncertainty, however, as to the amount actually absorbed, especially as the suppositories are not infrequently lost from the vagina. Because of this and because of the disagreeableness of this method to many women, it has not achieved any great vogue. Nor has the nasal spray method, suggested by Pratt and Smeltzer.<sup>3</sup> Furthermore, with the increasing development of oral therapy, there would seem to be no advantage in either the vaginal or the nasal method.

#### INDICATIONS

**Amenorrhea**—While the treatment of amenorrhea by estrogenic substances is notoriously unsatisfactory, it is in this condition, perhaps more often than any other, that they are employed, so that a fairly full discussion of this subject may not be omitted from this paper. The limitations of estrogenic substance in the relief of amenorrhea are at once apparent if one will bear in mind that although such products are certainly capable

of producing estrus in animals, the latter phenomenon is very different from menstruation in women. No amount of estrogenic substance can produce in the endometrium the sequence of histologic changes characterizing the menstrual cycle, for always the secretory phenomena dependent on the presence of progesterin are lacking. It has been suggested that in some cases the giving of large amounts of estrogenic substance may build up the endometrium so that in spite of existing deficiency of the corpus luteum hormone (progesterin) the histologic cycle, with the culminating premenstrual secretory phase, may be completed. There is, however, no scientific evidence for this, and clinical results make it questionable.

The second important shortcoming in estrogenic therapy of amenorrhea is the fact, already emphasized, that there is no activating effect on the ovary itself, so that such therapy is purely substitutional and applies to one particular cycle, with no reason to expect reestablishment of the regular menstrual rhythm.<sup>4</sup> Here again it has been stated by some that theelin may stimulate the anterior hypophysis and thus activate the ovarian function, but the weight of available evidence is exactly to the contrary.

In the treatment of amenorrhea, it must be remembered that this disorder may be a symptom of many possible underlying conditions, usually constitutional, occasionally local. A very complete investigation is necessary before one can arrive even at an intelligent surmise as to the mechanism involved. The correction of a causative constitutional factor, when this can be found, makes unnecessary any direct organotherapy of the amenorrhea. In other cases, notably those of thyroid origin, the administration of thyroid may be all that is necessary. Speaking generally, the primary form of amenorrhea is much more intractable to treatment than is the secondary.

Aside from the hypothyroid group, the two types in which direct ovarian organotherapy is most often employed are the hypogonadal and hypopituitary, the assumption being that in the first the secretory defect involves the ovaries, while in the second it is the activating function of the anterior lobe which is at fault. In some cases clinical evidence makes such diagnoses plausible, in others blood and urine hormone studies seem to justify them.

With reference to the wisdom of qualitative and quantitative hormone studies when practicable there would seem to be no doubt, although as yet they have added very little to therapeutic success. The value of a single blood hormone determination is very doubtful, and the rather large amounts of blood necessary for the tests make their frequent repetition impracticable as Neumann<sup>5</sup> and others have emphasized. The interpretation of the results of urine hormone study is often difficult, because of uncertainties as to the factors governing the renal excretion of the hormones and also ignorance of whether the excreted hormones represent a real excess or whether they have already fulfilled a function in the body. There is no doubt that the excellent studies now being prosecuted on blood and urine hormoneology in many clinics will yield valuable results, but those thus far obtained would not seem to justify

<sup>2a</sup> League of Nations Conference on the Standardisation of Sex Hormones Quarterly Bulletin of the Health Organization Special Number January 1935 p. 121

<sup>2b</sup> In comparing the potencies of the various commercial preparations and in calculating dosage it should be kept in mind that the different firms employ different ratios for the comparative potencies of the rat unit and international unit. Thus Parke Davis and Company considers the rat unit to be about 3.3 times as large as the international unit. The Schering Corporation indicates that one rat unit is equivalent to five international units while E. R. Squibb and Sons considers the rat unit to be eight times the international unit. For a discussion of assay methods the reader is referred to the report of the Council on Pharmacy and Chemistry<sup>1</sup> and to the report of the League of Nations.<sup>2a</sup>—Ed.

<sup>3</sup> Pratt J. P. and Smeltzer M. Endocrinology 13: 320-326 (July-Aug.) 1929

<sup>4</sup> Novak Emil Brit. M. J. 2: 553-557 (Sept. 23) 1933 Am. J. Obst. & Gynec. 24: 319-329 (Sept.) 1932

<sup>5</sup> Neumann H. O. Zentralbl. f. Gynak. 56: 391-394 (Feb. 13) 1932



insistence on such studies in all cases encountered by the clinicians for whom this article is chiefly intended. In the recent paper by Frank and his associates<sup>6</sup> "emphasis is placed on the accurate size up of the individual studied and on other laboratory aids which help in the recognition and evaluation of congenital and acquired endocrine stigmas." This paper may be referred to as an excellent summary of the *hormonology* of the menstrual disorders.

So far the comments on the ovarian therapy of amenorrhea have been entirely adverse, and perhaps not a great deal would be lost if the discussion stopped at this point. And yet the harassed clinician is always insistent on some plan of procedure in the management of amenorrhea, especially as the amenorrheic patient is herself so worried about her condition and so anxious for its correction. This is particularly true because of the prevalent belief of the public that menstruation is essential to health and well being and that absence of the function, with its supposed retention of harmful substances in the system, may bring about serious results.

After a thorough study of the patient in an effort to determine the cause of the symptom, one of the greatest services the physician can render is to impress on the patient the essential harmlessness of the amenorrhea *per se* and to explain to her in the simplest possible fashion the real meaning of menstruation, emphasizing especially that its purpose is not to rid the body of harmful substances. In many patients, especially those approaching the middle period of life or those in whom sterility is not a complicating problem, nothing more is necessary.

When, for one reason or another, treatment is called for, there can be no objection to efforts at ovarian therapy, so long as one appreciates its limitations. The administration of the estrogenic principles alone may at times be followed by bleeding, though a closer simulation of the normal hormone sequence would be obtainable by following the estrogenic substance with the corpus luteum hormone. The latter is not yet available commercially, though in a number of reported cases a typical menstrual period, with its typical sequence of proliferative and secretory changes in the endometrium, was produced by this combined therapy in women who had been castrated a number of years previously.<sup>7</sup> Enormous dosages, however, were necessary. In Kaufmann's case, for example, 320,000 mouse units (about 65,000 rat units) of the estrogenic principle, followed by 90 rabbit units of progestin, was required, while in the other reported observations similarly huge doses were found necessary.

These studies would indicate that the usual therapeutic doses of estrogenic substance are ridiculously small, for ordinarily not more than 100 units daily for perhaps from six to twelve days (by the hypodermic route) has been employed. Even this dosage is expensive for the patient, while amounts of estrogenic substance that might fairly be considered adequate would be prohibitive to all except a few patients. One of the existing problems of American manufacturers is to produce these estrogenic principles at a very much lower cost, perhaps comparable to their low cost in

Germany, and it is encouraging to learn that there is a prospect of improvement along this line in the near future.

Another difficulty lies in the present unavailability of progestin, which is found only in corpora lutea, a large amount of which is required to produce a small amount of the active principle. For the present the nearest approach to progestin for clinical purposes—though admittedly an unsatisfactory one—is the so called anterior pituitary-like gonadotropic hormone of the urine of pregnant women (sometimes designated *prolan*). This substance has been discussed more fully in another article of this series. Suffice it to say here that some clinicians advocate the administration of this substance immediately following the completion of the course of estrogenic substance already suggested, an average dosage by the intramuscular route being 150 or 200 rat units daily for five or six injections. Others administer the two substances synchronously. As the anterior hypophysis is unquestionably the activator of the ovary, the hope for the intelligent treatment of amenorrhea is in the development of a really gonadotropic preparation for clinical use. The evidence indicates that the present day anterior pituitary-like preparations do not fill the bill.

Many clinicians prefer to use estrogenic substance by the oral route, though it should be remembered that the effective dose by mouth is about five times the hypodermic dose. If the cost of production of the estrogenic principles can be very materially lessened, the oral route will probably become the popular one. For amenorrhea, however, in which the object should be to give the patient the benefit of the largest dose possible at the lowest possible cost, the hypodermic route has definite advantages in spite of certain rather obvious objections. A combination of the oral and hypodermic methods is often employed.

This general plan of treatment is offered very unenthusiastically, because it will usually be unsuccessful. There are, of course, a considerable number of reports in the literature as to the success of ovarian therapy, but the dispassionate reader will immediately recognize that most of these are highly uncritical. In many reports, for example, the statement is made that estrogenic treatment was followed by bleeding, with no comment on whether there was periodic recurrence of the bleeding. In the minority of cases in which such recurrence is reported, it is difficult to explain this on the basis of any known physiologic facts, especially as the ovary itself is not stimulated by the estrogenic substance.

To say that it is impossible for estrogenic substance in any dosage ever to reestablish menstruation would be an extreme statement, in view of ignorance as to the hormone mechanisms involved. Such an occurrence, however, is so rare that the factor of coincidence cannot be eliminated, and the "post hoc propter hoc" sequence cannot be assumed. If these remarks appear unduly pessimistic, I can say only that I know of no gynecologist of standing who is not unenthusiastic about the treatment of amenorrhea by estrogenic substances. On the other hand, I know of few who do not often resort to organotherapy for amenorrhea because they know of no treatment that offers any more prospect of success.

Frank and his associates<sup>6</sup> cite a number of cases in which spontaneous reestablishment of the menstrual

6 Frank, R. T., Goldberger, M. A. and Spielman, Frank. Present Endocrine Diagnosis and Therapy. *J. A. M. A.* 103: 393-402 (Aug. 11) 1934.

7 Claiberg, C. Zentralbl. f. Gynak. 57: 1461-1468 (June 24) 1933. Kaufmann, C. *Ibid.* 57: 42-46 (Jan. 7) 1933.



function occurred, suggesting that many supposedly successful therapeutic results are explainable on this basis. While this is unquestionably true, my observation has been that in the usual type of endocrinopathic amenorrhea of long duration spontaneous reestablishment of the function is uncommon, so that the unwillingness of both physician and clinician to hang to this hope is understandable and justifiable. As with certain types of almost hopeless cancer, he will do the best he can with the admittedly unsatisfactory methods available to him. If a sly dig is permissible, reference may be made to the "Queries and Minor Notes" columns of the erudite JOURNAL, in which so frequently advice is sought as to the treatment of endocrinopathic amenorrhea. I do not recall an instance in which the answer omitted suggestions as to organotherapy, though always with a fair statement of its limitations and inadequacy.

**Functional Uterine Bleeding**—While the estrogenic substances have been used by some gynecologists in the treatment of functional bleedings, and while this plan is recommended in the literature of some manufacturers, it does not seem logical. In general, this menstrual disorder is due to a relative increase in estrogenic substance and a corresponding absence of progesterin, though it is true that the actual bleeding may well be due to periodic drops in follicular secretion, because of the reciprocal effects of the latter on the anterior hypophysis. However, it would scarcely seem possible to ward off the drop indefinitely by supplying estrogenic substance artificially. Furthermore, a much more frequently successful plan in the management of such cases is available in the administration of the anterior pituitary-like gonadotropic hormones derived from the urine of pregnant women (antuitrin S or follutein), as suggested by Novak and Hurd.<sup>8</sup> This subject is considered more fully in another article of this series.

**Menopausal Vasomotor Symptoms**—This indication for the employment of estrogenic substances appears to have achieved much more widespread acceptance than any other. It should, first of all, be emphasized that the majority of menopausal women need no organotherapy whatever, for either the symptoms are very slight or they are controllable by such simple measures as reassurance, insistence on the avoidance of physical or mental stress or worry, and perhaps the use of such simple nerve sedatives as the bromides. In a minority of cases, however, and not infrequently also in the artificial menopause, produced by radium therapy or operation, the symptoms may be so distressing as to call for efforts at relief.

While such plans of treatment as hypophyseal irradiation are advocated by some, organotherapy is certainly the first thought of almost all practitioners. There is a considerable measure of rationale in the plan. For example, it has been shown by hormone studies that in at least some phases of the menopause a diminution in secretion of estrogenic substance occurs (Zondek<sup>9</sup>), and it is in this phase that the characteristic vasomotor symptoms are apparently most pronounced. Again, the removal of granulosa cell ovarian tumors which produce large amounts of estrogenic factor and only this substance, is apt to be followed by characteristic menopausal

symptoms, even in old women who had already experienced a normal menopause many years previously (Novak, Schulze, Dworzak).

It is scarcely necessary to stress the difficulty in the interpretation of subjective symptoms or of eliminating the ever-possible psychic factor. A measure of objective evidence is available, however, in the number of the vasomotor flushes that constitute the most characteristic menopausal symptom, and there would seem little doubt that therapy with estrogenic substance is of real, though very variable and inconstant value for this group of symptoms. It is only fair to state, however, that some excellent gynecologists have little confidence in any endocrine treatment of the menopausal symptoms. I do not share the extreme pessimism expressed in this regard in the recent paper of Frank, Goldberger and Spielman.<sup>10</sup>

Many plans of carrying out the treatment have been employed. As the required dosage is apparently not large, the oral route is more frequently applicable here than with certain other indications, though in severe cases the hypodermic method is probably more efficacious. Severinghaus<sup>10</sup> has recently made a study of the comparative efficacy of the various routes of administration of estrogenic substance and finds both the hypodermic and the oral methods successful, although the latter requires five times the dosage of the former.

When the menopausal symptoms are not very severe, one of the oral preparations (theelol, amniotin oral, progynon) will probably be the method of choice, the dosage averaging from 100 to 200 rat units a day. When the vasomotor flushes come thick and fast, more striking results are obtained from the daily injection of 50 rat units of one of the aqueous or oily solutions.<sup>2b</sup> Such medication is not necessarily expensive to the patient, because the organotherapy need usually be resorted to only from time to time, when the severity of the symptoms seems to necessitate it.

**Gonorrheal Vaginitis in Children**—An interesting therapeutic application of biologic knowledge has recently been suggested in the management of this, one of the bugbears of gynecologic practice. It has long been known that estrogenic substance is capable of producing very pronounced proliferation of the vaginal epithelium in immature laboratory animals, with desquamation after discontinuance of the injections. In view of this fact, the suggestion was made by Lewis<sup>11</sup> that the estrogenic preparations might prove of value in the treatment of gonorrheal vaginitis in children, and this was apparently borne out in the cases in which the method was tried. Since then, favorable results have been reported by Brown,<sup>12</sup> Huberman and Israeloff,<sup>13</sup> and others, although the method is too new to warrant sharply defined opinions.

That proliferation of the vaginal mucosa can be produced in children by this method permits of no doubt, the two chief questions now being (1) the rapidity and permanence with which the gonococcus can be made to disappear, and (2) the possibility of any injurious by-effects. With reference to the latter, the objection

<sup>10</sup> Severinghaus E. L. The Relief of Menopause Symptoms by Estrogenic Preparations J A M A 104 624 (Feb 23) 1935

<sup>11</sup> Lewis R. M. Am J Obst & Gynec 26 593 599 (Oct) 1933

<sup>12</sup> Brown Joseph. Treatment of Gonorrheal Vaginitis in Immature Girls J A M A 102 1293 1294 (April 21) 1934

<sup>13</sup> Huberman John and Israeloff H. H. Therapeutic Value and Effects of Amniotin in Gonorrheal Vaginitis in Children J A M A 103 18 21 (July 7) 1934

<sup>8</sup> Novak, Emil and Hurd G. B. Am. J. Obst. & Gynec. 22 501 512 (Oct) 1931

<sup>9</sup> Zondek Bernhard. Die Hormone des Ovariums und des Hypophysenvorderlappens. Berlin Julius Springer 1931

has been raised that the injection of estrogenic substance might produce harmful effects on the child's ovary, through the medium of the anterior hypophysis, though this seems unlikely with the recommended dosage. Experimental studies have shown a rather rapid restitution of ovarian function in animals even when large and prolonged dosage had brought about extreme ovarian impairment (Hisaw et al.)

The fear that the pelvic hyperemia produced by estrogenic substance may predispose to uterine and tubal pelvic extension of the vaginal infection is probably more apparent than real, though only time and the continued employment of this plan of treatment can decide this point. Enlargement of the breasts may occasionally be noted during the treatment, but this is transitory. So far as I know, vaginal bleeding has not been observed, though theoretically one might expect it to occur occasionally after the cessation of the injections.

The great advantage claimed for the method is the rapid disappearance of the infecting organisms, so resistant to all other known methods of treatment. Of his seven patients, Brown<sup>12</sup> states that four showed negative smears at the end of ten days, while six were negative at the end of twenty days and all seven at the end of thirty days. The method is now being tried out on a large scale in several clinics and it should not be long before the results of such studies will permit of a more accurate evaluation than is now possible.

For the present it can be said that the method is one of great promise, that its employment in the treatment of the gonorrheal vaginitis of children is proper, but that it should be combined with careful bacteriologic study, in order to check on the rapidity of disappearance of gonococci and especially to determine whether or not the patient may escape the relapses so characteristic of this disease.

The dosage recommended by Lewis is 50 rat units hypodermically each day the average total amount administered being 2100 units. The duration of treatment in his cases averaged twenty-one days. Local treatment is not used.

**Hemophilia**—In 1931, and in papers since then, Birch<sup>14</sup> has advocated the use of ovarian extracts in the treatment of hemophilia, stating that estrogenic substance was found to be absent from the urine of a number of hemophiliac patients though present in the urine of normal males. The beneficial results of the treatment, as reported by her, seemed rather surprising in that they were often obtained from the oral administration of ovarian preparations commonly believed to be almost inert. Theelin, an admittedly potent preparation, she found to be "not so good as whole ovary." A number of other authors reported similarly good results from the treatment.

A recent thorough study of the question by Brem and Leopold,<sup>15</sup> however, seems to discredit Birch's observations quite completely. They were not able to demonstrate the presence of the estrogenic hormone in the urine of normal males, and they urge that, if this substance really holds hemophilia in abeyance, it should be present in the urine of all normal males. Furthermore, in a case of hemophilia that they studied, they

failed to observe any reduction in the coagulation time of the blood or any hemostatic effect from the use of an estrogenic substance of known potency. They look on the symptomatic treatment of hemophilia and the employment of blood transfusions as still the method of choice in the treatment of this disease.

**Other Indications**—Dysmenorrhea has been treated with the estrogenic principles, either empirically or on the basis of Kennedy's<sup>16</sup> view that the symptom is due to degenerative changes in Frankenhauser's ganglion as a result of deficiency of estrogenic substance. This work, however, is unsupported by any confirmatory evidence, and there is, on the other hand, much evidence to indicate that this factor is the normal stimulant of uterine contractility, so that its use in dysmenorrhea appears irrational. When there is an associated hypoplasia of the uterus, the use of estrogenic substances, because of their effects on the blood supply and development of the uterus, would seem proper. When such treatment is used, the substances should be given after menstruation and in the midinterval period rather than just before the expected date of a period.

Sterility is often an accompaniment of endocrinopathic amenorrhea, and its endocrine treatment is on an even more unsatisfactory scientific basis than that of the latter, so that it seems scarcely worth while to theorize on this subject in this short paper. Though it is possible that deficiency of follicular secretion may occasionally be the cause, treatment on this basis is in the nature of a "shot in the dark" and will rarely be successful. Even if pregnancy occurs, it is difficult to eliminate the factor of chance. The kraurosis of the vulva occasionally seen in women at the menopause is looked on as probably due to withdrawal of the follicular hormone, and ovarian therapy is resorted to by most gynecologists, but the results are rarely striking.

The condition of painful breasts or "mastoplasia" is said by Cutler<sup>17</sup> to be favorably influenced by the oral administration of ovarian residue, while Whitehouse<sup>18</sup> believes that the hypodermic use of estrogenic substance is to be preferred. Aside from uncertainty as to the rationale of these methods, it is hard to believe that any worth while benefit could come from the oral administration of ovarian residue, generally believed to be practically inert. That the ovarian hormones are responsible for the development of certain benign conditions of the breast seems unquestionable, in the light of such recent investigations as those of Lewis, Geschickter and Hartman, but excess of estrogenic substance appears to be most often the responsible factor, so that such therapy would seem illogical.

**The Concept of "Antihormones"**—The recent suggestion of Collip and his co-workers that the continued administration of various hormones excites the formation of antihormones so that there is a diminution or loss of the characteristic response to these hormones, is one which must arrest the attention of everyone interested in endocrinology. In spite of the high standing of these investigators, it is only fair to state that judgment must be reserved until their results are con-

14. Birch, Carroll L. Proc. Soc. Exper. Biol. & Med. 28: 752 (April) 1931. Hemophilia and the Female Sex Hormone. J. A. M. A. 97: 244 (July 25) 1931. Hemophilia. ibid. 99: 1566 (Nov. 5) 1932.  
15. Brem, Jacob and Leopold J. S. Ovarian Therapy. J. A. M. A. 102: 200-202 (Jan. 20) 1934.

16. Kennedy W. P. Brit. M. J. 1: 746-748 (April 23) 1932.  
17. Cutler, Max. The Cause of Painful Breasts and Treatment by Means of Ovarian Residue. J. A. M. A. 96: 1201 (April 11) 1931. Relation of Chronic Mastitis, Cysts and Papillomas to Cancer of the Breast. ibid. 99: 2152 (Dec. 24) 1932.  
18. Whitehouse H. B. Surg. Gynec. & Obst. 58: 278-286 (Feb.) 1934.

firmed Hisaw, another excellent investigator, in some as yet unpublished studies (personal communication), has observed somewhat similar results, but his investigations indicate that these, species-specific reactions are to be interpreted as antibody effects rather than as anti-hormone reactions<sup>19</sup>

## SUMMARY

Estrogenic therapy is of little value in the treatment of endocrinopathic amenorrhea, although in many of these it is often resorted to because of the lack of any other treatment which is any more rational or any more effective

The weight of evidence indicates that in the treatment of menopausal symptoms, proper allowance being made for difficulties in the interpretation of the therapeutic results, the estrogenic substances are of real though variable value

The treatment of gonorrheal vulvovaginitis in children by means of injections of estrogenic substance is a promising method, though much more experience with it is necessary before worth while conclusions can be drawn as to the rapidity and permanence of the bacteriologic cure, and the possible harmful by-effects of the method

At present it seems that the treatment of hemophilia with estrogenic preparations will not live up to early expectations, though here again further experience with the plan must be awaited

While estrogenic therapy is at times employed for various other indications, as enumerated in the paper, the rationale is usually poorly defined and the results are ordinarily disappointing<sup>20</sup>

26 East Preston Street

19 Further discussion of antihormones will be found in other articles of this series H M Evans J A M A 104 464 (Feb 9) 1935 P E Smith J A M A 104:548 (Feb 16) 1935 and J B Collip 104:827 (March 9) 916 (March 16) 1935—Ed

20 Additional references The following list is far from being exhaustive, containing only such papers as I have referred to in my article together with a small number of references to other papers and the most important books dealing with the general subject

Allen, Edgar Sex and Internal Secretions Baltimore Williams & Wilkins Company 1932

Anspach B M and Hoffman J Am J Obst & Gynec 26:147 160 (Aug) 1933

Brown R L and Albright, Fuller New England J Med 209 630 632 (Sept 28) 1933

Campbell A D Canad M A J 27:347 352 (Oct) 1932

Clauberg C Die weiblichen Sexualhormone in ihren Beziehungen zum Genitalkyklus und zum Hypophysenvorderlappen Berlin Julius Springer 1933

Engelbach, W Endocrine Medicine Springfield Ill C C Thomas 1933

Fluhmann C F Am J Obst & Gynec 26:764-775 (Nov) 1933 (collective review) Ann Int Med G 1212 1224 (March) 1933

Frank R T The Female Sex Hormone, Springfield Ill. C C Thomas 1929

Geist S H and Spielman Frank Am J Obst. & Gynec 23:697 701 707 (Jan) 1932

Hamblen E C Virginia M Monthly 60 286 290 (Aug) 1933 50:464-474 (Nov) 1932 Endocrinology 15:184 194 (May June) 1931

Hartman C G Am. J. Obst. & Gynec. 27:564 569 (April) 1934

Kaufmann C Klin Wchnschr 12 1557 1562 (Oct 7) 1933

Keene, F E. and Payne R. L. South M J 27:108 113 (Feb) 1934

Kurzrok, Raphael Endocrinology 16 366 368 (July Aug) 1932

Leonard S L Meyer R K. and Hisaw F L Endocrinology 15:17 24 (Jan Feb) 1931

Mazer C and Goldstein L Clinical Endocrinology of the Female Philadelphia W B Saunders Company, 1932

Novak Emil and Reynolds S R M The Cause of Primary Dysmenorrhea J A M A 98:1466-1472 (Oct. 29) 1932

Robson J M Recent Advances in Sex and Reproductive Physiology Philadelphia P Blakiston's Son & Co 1934

Rock J New England J Med 208 362 368 (Feb 16) 1933 210 1303 1310 (June 21) 1934

Schröder R Der mensuelle Genitalkyklus des Weibes und seine Störungen Vnt Stoeckel Handb d Gynak vol. 1 2d half Munich J F Hergmann 1928

Severinghaus E L and Evans J S Am. J. M Sc 178 638-644 (Nov) 1929

Smith, G V and Rock, J Surg Gynec & Obst 57 100-103 (July) 1933

Werner A A. and Collier W D J A M A 101:1466-1472 (Nov 4) 1933

## Therapeutics

## THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M D

CHICAGO

NOTE.—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.—Ed

## THERAPY OF IRITIS (IRIDOCYCLITIS) AND OF CHOROIDITIS

OUTLINE BY DR SANFORD R GIFFORD

Inflammation of the uveal tract may involve chiefly the anterior segment of the eye (iridocyclitis) or the posterior segment (choroiditis). While the search for the cause and the systemic treatment are conducted along the same principles for the two conditions, the local measures indicated in iritis are of little value in choroiditis, i e., when the anterior segment is not involved

## DIAGNOSIS

Differentiation between acute iritis and acute glaucoma (q v) is of the greatest importance, as the treatment of the one is diametrically opposite to the treatment of the other, so that an error in diagnosis may produce most serious results

## Characteristics of Acute Iritis and of Acute Glaucoma

	Acute Iritis	Acute Glaucoma
1 Pupil	Of affected eye smaller Reaction sluggish Posterior synechiae	Semidilated or dilated Reaction absent
2 Anterior chamber	Deep	Shallow
3 Tension	Usually decreased	Greatly increased
4 Vision	Slightly impaired	Greatly impaired
5 Pain	Referred to eye and region of ophthalmic division of fifth nerve only	Much more severe and may spread to second and third divisions of the fifth nerve

## TREATMENT

1 Causal.—As delay of a few days in instituting the proper treatment may mean permanent loss of vision, a thorough search for the cause should be undertaken promptly. If at all possible, one should make, on the day the patient is first seen, a blood Wassermann test, roentgen examination of the teeth and examination of the throat and the nose, and should take a sinus roentgenogram whenever the nasal examination indicates the latter. Syphilis (q v) is the cause of from 20 to 25 per cent of cases of acute iritis. Focal infection (q v) of the tonsils in children, and of the teeth and sinuses and the prostate in adults, is next in order. In chronic iritis, tuberculosis (q v) is responsible for from 10 to 40 per cent of cases.

In cases, therefore, in which syphilis and tuberculosis can be ruled out, attention must be concentrated on the finding of the focus of infection and its prompt eradication, if at all possible. Even though this may precipitate a temporary increase in the symptoms of

iritis, it is often followed by rapid and complete relief. When, in acute cases, removal of infected teeth or tonsils does not give relief within a few days, one must search further without loss of time. Retained infected dental roots or infected areas of bone in mouths from which all teeth are said to have been removed should be searched for. The focus may be found in the genito-urinary tract in the form of gonorrheal or non-gonorrheal infection which should receive appropriate treatment. If not found elsewhere the intestinal tract and its adnexa (gallbladder or appendix) may be suspected as the source of the infection. For the therapy of these various forms of focal sepsis the sections dealing with these will have to be consulted.

Removal of the cause is of importance in the interest not only of cure but also of prevention of recurrences, which otherwise are only too common.

2 *Local Measures*—These are indicated in iritis, not in choroiditis.

#### *Atropine Ointment*

R Atropine sulphate	0.20 Gm
Distilled water	1.00 cc
Hydrous wool fat	2.00 Gm
White petrolatum	7.00 Gm

Mix with careful trituration and dispense in collapsible tube with eye

tip. Label: Apply to affected eye every eight hours.

(a) Mydriasis must be secured promptly in iritis and maintained until all symptoms of inflammation have disappeared, chiefly in order to prevent permanent posterior synechiae. In moderately severe cases, from 5 to 10 drops of a 1 per cent solution of Atropine Sulphate instilled every two to three hours and as soon as maximal dilatation has been secured three times daily suffice to produce this result. An ointment containing 2 per cent of the alkaloid might be preferable because of more continuous action in producing the desired effect. When the solution is used, absorption—which occurs through the cornea—is favored if the patient is recumbent and the lids are held open, so that the cornea is kept flooded. To avoid systemic poisoning, finger pressure should be maintained during this time on the lacrimal sac by the patient himself. The preliminary use of 2 per cent Cocaine Hydrochloride solution promotes the effect of the atropine as well as the patient's comfort. If this procedure does not succeed in producing mydriasis, one should not hesitate to make a single application of a small particle of the powdered alkaloid salt in the sac. If mydriasis is not secured promptly by these means, one must employ subconjunctival injection of 0.2 cc above and below the limbus of a mixture of 2 per cent Atropine Sulphate 1 part, and Solution of Epinephrine 2 parts, following the application of 2 per cent Cocaine Hydrochloride solution.

The mydriasis should be continued for at least two weeks after all symptoms have disappeared, to prevent recurrence.

Rise in intra-ocular tension and secondary glaucoma should be watched for and its presence suspected when pain sets in and failure of vision unaccounted for by opacities in the media, occurs. For its management, see Therapy of Glaucoma.

Atropine conjunctivitis may occur in susceptible individuals within a day or two. It consists of conjunctival congestion and chemosis with redness of the lid often spreading to the cheek, so as to resemble erysipelas. It calls for the discontinuance of the atropine, the use of Solution of Epinephrine diluted to one-fourth strength (1:4,000) and the application of cool compresses.

Calamine lotion may be applied to the inflamed skin. If mydriasis is still imperative, 1 per cent Scopolamine Hydrobromide solution should be employed, of which one drop at a time should be instilled with the same precautions as for atropine, as toxic symptoms occur in many persons.

(b) Heat may well be combined with the use of the mydriatic. This is perhaps best applied by pouring, by means of a spoon, a saturated solution of Boric Acid, as hot as can be tolerated, over the closed lids for fifteen minutes every three or four hours. Small heating lamps may be effectually used.

(c) Leeching is employed instead of the heat in cases in which there is much hyperemia and severe pain. Two leeches are applied near the external canthus of the eye. To make the leech bite where one desires, the animal is confined by means of a small wide mouth bottle applied with its mouth down to the area. After the leeches have dropped off, the bleeding is encouraged by means of sterile hot sponging.

3 *Systemic Measures*—(a) Salicylates should be employed in large doses, such as are given in the treatment of rheumatic fever (q.v.), to secure the analgesic and antiphlogistic effect of this drug. Slight nausea or tinnitus should not be considered an indication for lessening the dose nor albuminuria excepting in patients with preexisting nephritis. Hence the urine should always be examined before administration of the drug is commenced. The dose that produces the desired effect should be maintained for four or five days then cut to half and continued for several days after all symptoms of inflammation have subsided. When salicylate is not well borne, especially if it produces emesis, Neocinchophen (0.3 Gm tablets) should be given in 1 Gm doses eight to ten times a day. It is also a useful succedaneum to salicylate in long drawn out cases, provided it is not employed in cases in which liver disorder is known to be present and a careful watch for toxic symptoms is exercised.

(b) Proteotherapy should be employed in severe cases and in those resistant to salicylates which should then be stopped at least for a day or two, to permit the febrile reaction to take place unchecked, so that one can judge whether a reaction of sufficient intensity has been secured. Typhoid-paratyphoid vaccine is injected intravenously in a dose of 30 million organisms to begin with. This is increased to 50, 60 or 70 and even 100 million at subsequent injections, depending on the resulting reactions. To measure such dosage, it is necessary to employ a tuberculin syringe and to dilute the commonly used vaccine which contains 1,000 million organisms per cubic centimeter, to one tenth. This is done by drawing up 0.1 cc of the vaccine in the syringe which is then filled with physiologic solution of sodium chloride to 1 cc and the solution is mixed by means of an air bubble. A dose of 0.3 cc. of this dilution will contain 30 million organisms. The intervals between injections depend on the reaction. In critical conditions the next injection may be given when the patient has been free from fever for twenty-four hours or when the blood count has returned to normal for the same length of time. In general, the best interval between injections is two fever-free days.

Confinement in bed is, of course, necessary in all severe cases and especially during the time of salicylization or of proteotherapy.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING REPORTS HOWARD A. CARTER, Secretary

### ILLINOIS INFRA-RED LAMP ACCEPTABLE

Manufacturer Illinois Surgical Supply Company Chicago

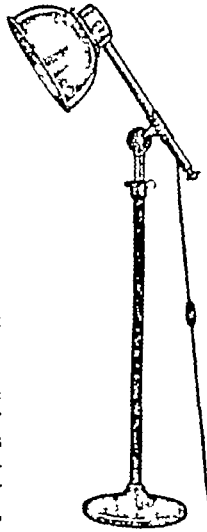
The heating element of this lamp is a single bar type about 23½ inches long and 1½ inches in diameter and is made of ceramic material and resistance wire. Its rated capacity is about 500 watts. The burner is mounted in a 10 inch polished aluminum reflector 6 inches deep.

The upright and reflector are mounted on a flat base weighted to prevent tipping. The cross bar, supported on a hinge joint, has a freedom of motion of 7½ inches and can be rotated through an arc of almost 180 degrees. The upright may be extended to a distance of 22 inches. The maximum height is 72 inches.

One unit was tested for physical efficiency in a laboratory acceptable to the Council. When connected to a 110 volt line the current reading was 4 amperes or 448 watts. A plane in the air 70 cm in diameter 1 meter from the edge of the reflector and perpendicular to the center line through the heating element was surveyed for radiation distribution. Within a smaller area 50 cm in diameter directly in front of the heating element, the radiation distribution was relatively uniform and free from hot spots. In this 50 cm circle the radiant energy was 48 per cent more than at the remaining part of the 70 cm circle on the periphery. For such a small unit, the radiation distribution is quite satisfactory.

The unit was tried out in a clinic acceptable to the Council. From a clinical standpoint the lamp was found to be satisfactory for treatment when infra-red radiation is indicated.

The Illinois Infra-Red Lamp therefore is included in the Council's list of accepted devices.



Illinois Infra Red Lamp

### VIBRATHERM NOT ACCEPTABLE

Manufacturer The Vitaphore Company Los Angeles

According to the firm this device appears to have unlimited possibilities. It is recommended for afflictions such as frequent night rising, bladder weakness, backaches and headaches, arm, leg and foot pains, sciatica, neuritis, chronic constipation, piles (hemorrhoids), lack of energy, worry and fears, sexual impotence, irritability, insomnia, decreased mental efficiency, and pelvic disorders.

The device is a vibratory massage outfit and operates only on alternating current. The unit submitted to the Council was examined along with the advertising matter. The front page of the circular 'Your Key to Health, Youth, Vitality' carries the statement 'Why You Are Old at Forty' giving one the impression that the answer is enclosed. On the same page it is stated 'Prolong Your Life—Without the Use of Drugs or the Recourse to Surgery'.

On the next page the manufacturer makes the statement that women have a pseudo prostate gland attached to the neck of the bladder and the same causes which interfere with the function of the male prostate cause similar disorders in women. Farther on on the same page it is stated that slowing up and retention of acid, caustic and poisonous material causes irritation and congestion. Then the firm writes that further neglect may compel the recourse to surgery which destroys all hope of ever again enjoying normal vigorous vitality and in bold, vigorous type it states that not one man in a hundred need face that ordeal.

On the next page, we are told "The years of research for the correct method to remove the cause of pelvic disorders, led to the invention of the VIBRATHERM."

Under the heading "Dilation" some very striking statements are set forth, and the claim is made that through their machines "a perfect therapeutic treatment is created." On pages 8 and 9 of the pamphlet under the illustration of the Vibratherm, the statement is made that "Vibratherm treatments taken in the privacy of your home will be fully as effective as those being given by physicians using our professional model."

Then there is given a great list of testimonials from men who say they have been cured by the machine as well as from physicians who have used it in their practice. As a final reminder on the back cover is given a list of the diseases for which one should use Vibratherm.

Nothing in the way of evidence has been submitted to substantiate the aforementioned doubtful statements.

In view of the unwarranted and misleading claims in the advertising matter the Council on Physical Therapy voted to omit the Vibratherm from its list of accepted devices.

### ELLIOTT TREATMENT MACHINE ACCEPTABLE

Manufactured for and distributed by the Treatment Regulator Corporation Detroit and the A. S. Aloe Company St. Louis

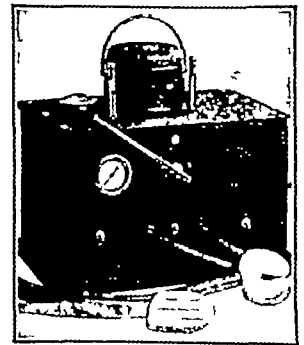
The Elliott Treatment Machine is recommended for applying heat therapy for the treatment of inflammatory diseases of the pelvis. Treatment is accomplished by prolonged and sustained application of heat. Hot water, the temperature of which may be controlled by the physician, is circulated through anatomically shaped distensible applicators made of latex.

The machine measures approximately 17 by 11¼ inches at the bottom and 15 inches in height and weighs 25 pounds. A copper water tank holds a little over 2½ quarts of water. The top of the water tank is made of cast bronze and supports a motor, which operates on either alternating or direct current. The unit requires about 150 watts of power.

The motor propels a dual action centrifugal turbine, which is immersed in the water in the tank at all times. The centrifugal action of this pump creates a continuous pressure or outflow of the water and at the same time a continuous and steady suction for the return flow from the applicators. Each part of the pump is made of cast bronze.

The machine is an electrical device which serves two purposes: first, to heat water by electricity to a desired temperature between 100 and 130 F.

automatically maintaining such temperature as desired by thermostatic control; and, second, to pump that water through a length of hose to a rubber-bag type of applicator, withdrawing the water at the same time through another hose, thus distending that bag to fit the walls of the orifice under treatment at a constant pressure. The entire unit is quite compact, easily operated, and provided with a handle so that it may be carried without difficulty. It comes equipped with one vaginal bag and one prostatic bag.



Elliott Treatment Machine

This unit was investigated in clinics acceptable to the Council on Physical Therapy for the conditions recommended, such as inflammatory diseases of the pelvis attended by pain, backache, menstrual irregularities and chronic exhaustion. Since the evidence for the efficacy of the Elliott Machine is not complete in the treatment of sinus and eye infections, recommendation is withheld for the present. The unit was found to give good service and was superior to the hot water douche.

This machine is not accepted by the Council for the purpose of replacing those thoroughly substantiated methods used by the rank and file of the profession for the majority of mild pelvic infections, which in the past have yielded to conventional

forms of therapy. The unit's greatest value, in the opinion of the Council, will be found in the larger clinics or hospitals where the mass of material will enable a careful selection of cases requiring this form of treatment.

In view of the favorable report, the Council voted to include the Elliott Treatment Machine in its list of accepted devices for one year.

## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
PAUL NICHOLAS LEECH, Secretary

#### THROMBOPLASTIC SUBSTANCES THROMBOPLASTIN SOLUTION-ARMOUR OMITTED FROM N N R

In view of the lack of evidence for the therapeutic value of thromboplastic substances other than those designed for external use the Council in 1930 voted to omit from New and Nonofficial Remedies preparations of thromboplastin designed for subcutaneous or hypodermic administration and revised the general article Fibrin Ferments and Thromboplastic Substances to omit any reference to such use. At present, therefore, only products intended for local use stand accepted. These are

Kephalm Armour  
Fibrogen Local Merrell  
Thromboplastin Solution-Armour  
Thromboplastin Local Lederle  
Thromboplastin Local-Squibb

During the past year there was submitted a thromboplastin for local use. In the consideration of this product a member of the Council suggested that this type of preparation might contain tetanus or Welch bacillus. In view of this, the Secretary of the Council wrote to manufacturers of various thromboplastic substances for information concerning evidence for the sterility of their products. Several of these replies were not entirely satisfactory and the Council's referee prepared a report asking the Council to authorize the Secretary to write to the manufacturers of accepted products requesting that they make satisfactory tests for the sterility of their products. Before this report could be submitted to the Council, information was received concerning an untoward incident in a large eastern hospital.

During the past four years there were observed in the institution referred to four cases of B. Welchii and three cases of B. tetani postoperative infections. It was reported to the Council that most of these occurred after prostatectomy. The occurrence caused a thorough reinvestigation of all the surgical procedures of the institution. The operating rooms were quarantined, the instruments were autoclaved in a central sterilizing room, and the efficiency of the autoclaves was controlled by temperature and pressure automatic records. Nevertheless a postoperative infection appeared from time to time. Late in 1934, according to the statement made to the Council, it seemed advisable to take a culture of Thromboplastin Armour which had been used in the prevention of postoperative bleeding. To the surprise of the investigator the Thromboplastin was found to contain B. subtilis, Staphylococcus aureus, B. proteus, enterococcus and B. Welchii. This information was communicated to the Council.

As a result of this incident, a bacteriologic examination of samples of commercial thromboplastic preparations was made for the Council. The work was carried on under the supervision of one of the members of the Council, who himself made cultures from six of the samples. The following is a report summarizing the procedure and results of the examination.

#### Report on Bacteriologic Examination of Thromboplastic Preparations

All of the specimens except one were in unopened containers purchased on the open market by the Secretary or his agents in Chicago and other cities. Four bottles of Armour's Throm-

boplastin Solution and two bottles of Squibb's Thromboplastin were received through the Secretary from Dr. Gregory Schwartzman of New York.

The containers were opened with sterile precautions and material was withdrawn for stains and cultures. Cultures were made on blood agar plates, dextrose infusion broth and cooked meat medium. These were incubated aerobically and anaerobically at 34 or 37.5 C. The amounts of each preparation used for the inoculation of tubes containing about 10 cc. of liquid mediums were 0.01, 0.1 and 1 cc. Loopsful were streaked on plates. Animals were inoculated with a few of the cultures. No attempt was made to identify all the bacteria in all the cultures.

I. Thromboplastic preparations of Armour & Co., Chicago. Thromboplastin Solution-Armour. Listed in New and Nonofficial Remedies, 1934 p. 209. Six 25 cc. bottles examined. Each bottle had a cellophane cover over a bakelite screw cap.

- (1) Thromboplastin Solution Armour 25 cc. bottle Lot No. 101119. Expiration date Nov. 10 1935. Numerous bacteria, about 1000 colonies per cubic centimeter as determined from plates. Various types of spore bearing bacilli. No gas formers. No cocci found.  
(13) Thromboplastin Solution Armour 25 cc. bottle Lot No. 101175. Expiration date Dec. 19 1935. Numerous bacteria, gram negative and gram positive spore bearing bacilli possibly eleven different varieties. No cocci found. B. Welchii (or a closely related organism) isolated from anaerobic culture. This organism was pathogenic for a guinea pig.

The following specimens in unopened bottles were received from Dr. Schwartzman.

- (C) Thromboplastin Solution Armour Lot No. 101176 25 cc. bottle. Expiration date Oct. 11 1935. Numerous varieties of aerobic and anaerobic bacteria chiefly spore bearing bacilli. A gas forming organism resembling B. Welchii found in anaerobic cultures.

- (D) Thromboplastin Solution Armour Lot No. 101176. Expiration date Oct. 11 1935. Many varieties of aerobic and anaerobic spore-forming bacilli. Streptococcus viridans? Diphtheroids. Anaerobic bacillus resembling B. Welchii present.

- (E) Thromboplastin Solution Armour, Lot No. 101173. Expiration date June 6 1935. 25 cc. bottle. Several varieties of aerobic and anaerobic spore-forming bacilli. Gas forming anaerobic bacillus resembling B. Welchii.

- (F) Thromboplastin Solution Armour Lot No. 101176. Expiration date Oct. 11 1935. 25 cc. bottle. Several varieties of gram negative and gram positive spore bearing bacilli in aerobic and anaerobic cultures. Colonies of gram positive cocci. Gas forming organism resembling B. Welchii in anaerobic cultures.

Cultures of the Armour preparations had a putrid cheesy odor. There were terminal spore-bearing bacilli in the anaerobic cultures. Mice were inoculated with material from five of these cultures. None developed tetanus.

II. Thromboplastic preparations of Ciba Company Inc., New York. None listed in New and Nonofficial Remedies.

- (7) Coagulen Ciba (Sterilized). Carton of five 5 cc. ampules. Control No. 41863. No expiration date. One ampule examined. Sterile.

- (8) Coagulen Ciba (Sterilized). Carton containing one 20 cc. ampule. Control No. 43163. No expiration date. Sterile.

- (12) Coagulen Ciba (Sterilized). Control No. 39443. No expiration date. One ampule examined from carton of five. Sterile.

- (17) Coagulen Ciba (Sterilized). Carton with one 20 cc. ampule. No expiration date. Control No. 28253. Sterile.

III. Thromboplastic preparations of Lederle Laboratories, Inc., Pearl River, New York.

- (4) Thromboplastin Local Lederle. Listed in New and Nonofficial Remedies 1934 p. 210. 20 cc. vial. Lot No. 118 H 1585 A. Expiration date 5/1/36. Sterile.

- (16) Thromboplastin Local Lederle. Lot No. 118 H 1619 A. Expiration date 6/3/36. 20 cc. vial. Sterile.

IV. Thromboplastic preparations of William S. Merrell Co., Cincinnati.

- (5) Fibrogen Local Merrell No. 92. Listed in New and Nonofficial Remedies 1934 p. 208. 7 cc. bottle. Expiration date Nov. 1934. Sterile.

- (6) Fibrogen Oral Merrell No. 89. Not listed in New and Nonofficial Remedies. Lot No. 4 K 8022. Expiration date March 1936. Cartons of 3 cc. vials. Sterile.

- (10) Fibrogen Local Merrell No. 92. Lot No. 4 F 5939. Expiration date December 1935. 7 cc. bottle. Sterile.

- (15) Fibrogen Oral Merrell No. 89. Lot No. 4 B 1624. Carton of 3 cc. vials. Expiration date April 1935. Sterile.

V. Thromboplastic preparations of Parke, Davis & Co., Detroit.

- (11) Hemostatic Serum (Lapenta) Bio 72. Parke Davis & Co. Lot No. 022094A. Expiration date 9/15/37. 5 cc. vial. Sterile.



## VI Thromboplastic preparations of E R Squibb &amp; Sons, New York

- (2) Thromboplastin Local Squibb Listed in New and Nonofficial Remedies, 1934 p 210 Lot No 53088 20 cc vial Expiration date 7 23 36 Sterile
- (3) Thromboplastin Local Squibb Lot No 52315 20 cc vial Expiration date 3 1 36 Sterile
- (9) Thromboplastin Local Squibb Lot No 53338 20 cc vial Expiration date 10 15 36 Sterile
- (14) Thromboplastin Local Squibb Lot No 51429, 20 cc vial Expiration date 11 27 35 Sterile
- (A) Thromboplastin Local Squibb 20 cc vial received unopened from a correspondent Lot No 53345 Expiration date Nov 22 1936 Sterile
- (B) Thromboplastin Hypodermic Squibb Not listed in New and Nonofficial Remedies Unopened 20 cc vial received from a correspondent Lot No 53611 Expiration date Nov 13 1936 Sterile

## VII Thromboplastic preparations of U S Standard Products Co., Woodworth, Wis Not listed in New and Nonofficial Remedies

- (18) Thromboplastin Local U S Standard Products Co., 20 cc vial Marked in pencil 447 Serial No 7 A1 Expiration date Nov 7 1934 The carton had been opened before it was received by the examiner Cultures spore forming aerobic bacilli No gas formers

## Summary

PREPARATION EXAMINED	RESULTS
I Thromboplastin Solution-Armour Six 25 cc. bottles	All specimens contained numerous bacteria, chiefly spore-bearing aerobes and anaerobes Streptococci and diphtheroids in some Organism closely resembling B Welchii found in five of the six samples
II Coagulen Ciba * Four ampules	Sterile
III Thromboplastin Local, Lederle Two 20 cc. vials	Sterile
VI Fibrinogen, Local and Oral, Merrell Four vials	Sterile
V Hemostatic Serum (Lapenta), Parke, Davis & Co One vial	Sterile
VI Thromboplastin, Local and Hypodermic, Squibb Six vials	Sterile
VII Thromboplastin Local—U S Standard Products Co One vial	Package previously opened. Spore-bearing bacilli, aerobic

No tetanus bacilli were found in any specimen

\* Coagulen Ciba was omitted from N N R in 1920 See Reports of the Council on Pharmacy and Chemistry 1920 p 53

The Council considered the foregoing report and as a result voted to omit Thromboplastin-Armour from New and Nonofficial Remedies until satisfactory assurance is given that its manufacture is conducted under such conditions as to preclude the danger of contamination, and until such time as a number of specimens found on the market shall have been found to be sterile. The Council voted further that all manufacturers of accepted thromboplastic substances be requested to submit evidence of the sterility of their respective products and that no thromboplastic substance be accepted for New and Nonofficial Remedies until satisfactory evidence is given that the preparation is sterile.

When the foregoing report was sent to Armour & Co the firm promptly replied stating that it had confirmed the findings of the Council. It immediately withdrew Thromboplastin Solution-Armour from the market and has stated that it will not promote the product in the future. Concerning the difficulty of sterility the firm stated

We confirm the Council's findings as far as nonsterility of our Thromboplastin Solution is concerned. We should however like to make the following comments on the referee's report. To any one not intimately acquainted with bacteriology its nomenclature and group classification the referee's report may readily convey the idea that our Thromboplastin Solution was grossly contaminated with the most virulent pathogenic organisms. The use of a loose term like Welchii like organism might readily include nonpathogenic organisms.

We have manufactured Thromboplastin Solution according to the method of Hess since 1917 without a single complaint until the present difficulty arose. As soon as the matter was called to our attention the product was withdrawn from the market as we do not want any of our preparations subjected to criticism. The distribution of Thromboplastin

Solution has been limited and confined to a few of the larger cities in this country. Our yearly sales amounted to only a few hundred bottles. For these reasons we feel confident that the withdrawal has been efficient.

It has always been our rule to retain reserve samples from each batch of products made and offered for sale by us. As a consequence we have reserve samples representing the various lots of Thromboplastin Solution examined by the referee. We have made a very careful study of the bacterial flora of these reserve samples. In no instance have we been able to identify or isolate gas gangrene (Cl Welchii) or tetanus (Cl tetani) organisms. Intraperitoneal injections of actively growing anaerobic cultures from the various lots of Thromboplastin Solution into a number of guinea pigs with absolute negative results further show the absence of specific pathogens including Cl Welchii and Cl tetani. Intimate application of Thromboplastin Solution and cultures recovered from Thromboplastin Solution to freshly lacerated surfaces of a number of laboratory animals failed to produce local or systemic infections all wounds healing spontaneously.

We therefore maintain that while our Thromboplastin Solution was not sterile it did not contain pathogenic organisms.

Since receiving your first letter in regard to the sterility of Thromboplastin Solution we have made a very careful investigation of the whole situation. We have found it a difficult matter to produce absolute sterility in Thromboplastin Solution without a material decrease in blood clotting properties. Filtration through Berkefeld filters of a suspension of brain tissue particles such as Thromboplastin Solution is of course out of the question. The product has been dispensed in stoppered or capped bottles but since cresol which is specified as a preservative for Thromboplastin Solution in N N R is not a perfect germicide the product cannot be considered sterile after the stopper has once been opened. For these reasons we have definitely decided to discontinue the production of Thromboplastin Solution until such time when satisfactory methods of sterilization and proper and safe means of dispensing the product have been worked out.

The Council commends Armour & Co for the prompt action it has taken. The Council feels however, that it owes a duty to the profession to keep it informed so that the future may profit by experience of the past. Therefore, it deemed it necessary to authorize publication of this report even though the firm has withdrawn the product from the market. The Council points out that the presence of the B Welchii type of organisms was detected in the examination conducted under the auspices of the Council and also that the presence of B Welchii was reported by the investigator in the hospital who first discovered the contamination.

## PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING  
PRELIMINARY REPORT PAUL NICHOLAS LEECH Secretary

GONOCOCCUS BOUILLON FILTRATE  
(GONOCOCCUS TOXIN) II

A preliminary report on this preparation, marketed by Parke, Davis & Co under the name 'Gonococcus Filtrate (Corbus-Ferry),' was issued by the Council in 1932 (THE JOURNAL, Feb 13 1932, p 554). At that time the Council postponed consideration of this product to await the development of confirmatory evidence of its clinical value.

In 1934 Parke Davis & Co renewed its request for Council consideration submitting the manuscript of a report by Cumming and Burhans, which had already been proposed for publication in THE JOURNAL. The paper by Cumming and Burhans reports favorable results in the treatment of all stages of gonorrhea with gonococcus filtrate (Corbus-Ferry) and compares the results favorably with those obtained by local and foreign protein methods. It is definitely shown that intradermal administration provokes a prompt, transient exacerbation of symptoms and increases discharge, followed by recession. The authors fail to compare the necessary durations of treatment by gonococcus filtrate with those in other methods of treatment and fail to state the comparative incidence of complications or recurrences, or the number of cases treated by other methods.

Undoubtedly the paper presents suggestive, but not conclusive evidence that more prompt recession of symptoms and discharge occur with this treatment, but no direct comparison of control methods is made.

While the evidence submitted since publication of the first preliminary report of the Council is favorable to the use of the product the Council feels that because of its inconclusive nature it is not sufficient to warrant the acceptance of the product at this time. The Council has therefore reaffirmed its previous decision, postponing consideration of Gonococcus Filtrate (Corbus-Ferry) to await the development of confirmatory evidence of its clinical value.



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY MAY 18 1935

## EFFICACY OF TYPHOID VACCINATION

Although morbidity and mortality rates from typhoid in the United States continue to be low, the efficacy of protective typhoid vaccination continues to be a matter of more than academic importance. The most extensive information on this question is available in the results obtained by the United States Army and Navy.

Cook<sup>1</sup> has recently discussed typhoid prophylaxis in the United States Navy. Compulsory vaccination was ordered in 1911 and by the end of 1912 almost every person in the navy had received three injections of typhoid vaccine. Two periods are thus available for study: twenty-two years before compulsory typhoid inoculation and twenty-two years after. The improvement in sanitary conditions since 1890 and the subsequent reduction in typhoid in the general population, however, necessitate closer scrutiny than the mere record of lowered morbidity and mortality since that time. A comparison between the annual deaths in the navy and in the registration area of the United States gives better evidence of the value of inoculation, since improvements resulting from sanitation may be assumed to be roughly similar. From 1900 to 1905 the death rates were considerably higher in the navy than in the registration area, from 1905 to 1911 they were roughly parallel, but after 1912 there was a sharp drop in the navy as contrasted with a gradual decline in the registration area. While not perhaps, conclusive, this fact is at least highly suggestive.

Similar lowering of the case and fatality rates from typhoid have been manifest in the United States Army.<sup>2</sup> Patterson, however, presents his material in a somewhat less convincing manner than that for the navy. The fact that there were only 1,529 admissions to sick report from typhoid from more than four million mobilized during the World War is a matter of pride, but sanitary knowledge was so much improved that it is not justifiable to assign this low typhoid rate even

largely to vaccination. That vaccination was one of the important factors is probable but is not proved by Patterson's report.

The other major question with respect to typhoid inoculation is the selection of the strain to be used. This question was carefully studied in 1908, at which time the "Rawlins" strain was chosen. It has been in use since that time. The adequacy of this choice has been periodically reviewed and the present status of opinion has been outlined by Hawley and Simmons.<sup>3</sup> They concluded that "the Rawlins strain may not be the best typhoid vaccine strain, but it is our belief that the Army Medical School substrain is no worse today than it ever was." They felt that the vaccine could be improved by increasing its bacterial content within the limits of safety. Further careful investigations are being conducted concerning the efficiency of this strain with a view to ascertaining whether the same strain should be continued or a new one developed. Meanwhile it can be safely reiterated that prophylactic typhoid vaccination is a safe and reasonably trustworthy procedure.

## RETARDED GROWTH AND LONGEVITY

In the past studies in nutrition have been concerned chiefly with maintenance of normal health and production of a rapid rate of growth. The latter, in view of the ease with which it may be measured, has served as an indicator for a great many investigations on diet. Foods or food factors that promoted the most rapid rate of gain were generally considered the most advantageous, the idea has gained currency that the promotion of rapid growth is somehow associated with an enhanced state of health. As McCay and Crowell<sup>4</sup> of Cornell University have stated: "The philosophy which dominates the field of nutrition assumes that a young animal which grows rapidly is the ideal for maximum health both during the growing period and during adult life." These authors have pointed out several of the factors that have served to promote this point of view. Among these are the widespread employment for dietary studies of the white rat, which grows to maturity in the short period of about three months, the direct application of studies in growth to stock raising, in which rapid gain is economically profitable and the widespread interest in infant and child nutrition, in which the rate of growth is used as a measure of dietary adequacy. But in most of the studies that have been made, the effects of the rate of growth in early years on the subsequent health, susceptibility to disease and life span of the adult have received little attention. This is the more surprising as a negative correlation between rate of growth and longevity has

1 Cook S S. Efficacy of Typhoid Prophylaxis in the United States Navy. *Am J Pub Health* 25: 251 (March) 1935.

2 Patterson R U. Efficacy of Typhoid Prophylaxis in the United States Army. *Am J Pub Health* 25: 258 (March) 1935.

3 Hawley P R and Simmons J S. The Effectiveness of Vaccines Used for the Prevention of Typhoid Fever in the United States Army and Navy. *Am J Pub Health* 24: 689 (July) 1934.  
4 McCay C M and Crowell Mary F. Prolonging the Life Span. *Scientific Monthly* 30: 405 (Nov.) 1934.

long been suspected. Thus the Cornell investigators quote, among others, Lord Francis Bacon (1561-1626)

It seems to be approved by experience that a spare and almost Pythagorean diet, such as is prescribed by the stricter orders of monastic life or the institutions of hermits, which regarded want and penury as their rule, produces longevity.

Animals which come later to perfection are longer lived

To grow long and slowly is a sign of longevity and the taller the stature the better the sign. But on the other hand, rapid growth to a great stature is a bad sign but to a shorter stature less bad.

I would have men duly to observe and distinguish that the same things which conduce to health do not always conduce to longevity.

Again there are other things very beneficial in prolonging life yet that are not without danger to the health unless guarded against by proper means.

Until relatively recently, little reliable data were available to substantiate such theses, but increasing information more and more confirms the observations of Francis Bacon and of others who wrote to the same effect before him and since. McCay<sup>2</sup> has summarized the results obtained in several different species. Prolongation of life associated with a retarded rate of growth has been noted in such divergent forms as rats,<sup>3</sup> insects,<sup>4</sup> brook trout<sup>5</sup> and even cantaloup seedlings.<sup>6</sup> For instance, brook trout in which growth was retarded lived about twice as long as those that grew more rapidly. McCay and Crowell have proposed the hypothesis that something is consumed in growth that is essential for the maintenance of life. This concept as will be noted later, has received independent support in the mathematical studies of Wetzel.<sup>7</sup>

McCay and Crowell recently reported the results of a long series of observations on rats maintained on diets adequate in vitamins, proteins, inorganic salts and fats but deficient in total calories. At the time of weaning, 106 rats were divided into three groups, one of thirty-four animals and the other two of thirty-six each. The members of one group were allowed to grow normally, those of the second were forced to grow very slowly by limiting food intake, and those of the third group were allowed to grow normally for two weeks and were then restricted in food allowance. The animals in which growth was retarded were kept at a stationary weight for from one to four months, at this time a weight increase of about 10 Gm was permitted. Not until after more than twenty-eight months were these rats permitted to eat freely.

The animals that were kept on a restricted food intake for long periods outlived by a wide margin those that were allowed to eat their full from the time of weaning.

Thus the average life span of those that grew rapidly was 509 days for the males and 801 days for the females. Of the two groups the growth of which was retarded, thirteen animals (five males and eight females) were still alive at the end of 1,200 days, not one of the other animals lived that long. Of the rats in the two retarded groups that died, the mean life span was 792 and 883 days respectively for the males and 755 and 824 days respectively for the females. It has been estimated that ten days in the life of a rat is roughly equivalent to one year in the life of a man, on this basis the thirteen surviving slow-growing rats lived for a period exceeding the human equivalent of 120 years. The hair of the retarded animals remained fine and silky long after that of the fast-growing rats had become coarse and unkempt. However, most of the former had become partly or entirely blind.

The inverse relationship of rate of growth and time of onset of senility is also apparent from other investigations. Evans<sup>8</sup> has pointed out that animals injected chronically with preparations containing the growth hormone of the hypophysis show evidence of premature senility. This occurs despite the fact that, as Lee and Schaffer have shown, administration of the pituitary growth hormone results in retention of juvenile chemical characteristics by the tissues. It is not known, however, how long these properties, which normally are found only in young animals, may be retained under prolonged administration of this growth-promoting principle, studies covering an adequately long period have not yet been reported. Other implements for the study of these extremely interesting problems are available, such as thymus extracts, which greatly increase the rates of growth and maturity,<sup>9</sup> and Hanson's pineal extract, which has been found to retard growth.<sup>10</sup> But as yet no information directly bearing on longevity has been reported by the experimenters who have been using these preparations.

Evidence is also available from studies made directly on man that an excessive rate of growth is harmful. Wetzel,<sup>7</sup> in his brilliant mathematical work on the 'motion of growth,' has demonstrated conclusively that excessive rate of gain during infancy and childhood is associated with an even greater rate of wasteful heat production and that this may have grave consequences. It is apparent that some of the current tenets in the field of nutrition require reconsideration in an effort to determine the optimal rate of growth for each period in life. The relationship which Wetzel has established mathematically between heat production and growth provides an admirable basis for this reconsideration.

<sup>2</sup> McCay C M. Is Longevity Compatible with Optimum Growth? *Science* 77: 410 (April 28) 1933.

<sup>3</sup> Slonaker J R. Stanford University Publications 1912.

<sup>4</sup> Zabinski J J. *Exper Biol* 6: 360 1929.

<sup>5</sup> Titcomb McCay and co-workers cited by McCay.<sup>2</sup>

<sup>6</sup> Pearl Raymond. The Rate of Living. New York: Alfred A. Knopf Inc. 1928.

<sup>7</sup> The Motion of Growth editorial. *J A M A* 103: 2030 (Dec 29) 1934. Wetzel N C. On the Motion of Growth. Clinical Aspects of Human Growth and Metabolism with Special Reference to Infancy and Preschool Life. *J Pediatr* 4: 465 (April) 1934.

<sup>8</sup> Evans H M. The Growth Hormone of the Anterior Pituitary. *J A M A* 104: 1232 (April 6) 1935.

<sup>9</sup> Asher L. Der Einfluss der Thymus auf das Wachstum und die Herstellung eines wirksamen Thymusstoffes: Thymocrescin. *Endokrinologie* 7: 321 (Nov.) 1930. Rowntree L C, Clark J H and Hanson A M. The Biological Effects of Thymus Extract (Hanson). *Science* 80: 274 (Sept 21) 1934.

<sup>10</sup> Hanson A M. Biological Effects of Active Thymus and Pineal Extracts. *Proc Staff Meet., Mayo Clin* 10: 113 (Feb 20) 1935.

### CULLEN'S SIGN IN RUPTURED ECTOPIC PREGNANCY

In 1919 Dr Thomas S Cullen<sup>1</sup> of Baltimore reported a case in which a woman, aged 38, for three weeks had had pain in the right lower quadrant of the abdomen with intermittent attacks of abdominal distention. One week after the onset the umbilical region suddenly became bluish black, although there had been no injury in this region. Prior to opening the abdomen of this woman, Dr Cullen dictated the following: "The bluish black appearance of the navel unassociated with any history of injury, together with the mass to the right of the uterus, makes the diagnosis of extra-uterine pregnancy relatively certain, although the patient has not missed any period and although there has been no uterine bleeding." At operation the abdomen was found filled with dark blood and attached to the fimbriated end of the right tube was an extra-uterine pregnancy. Since this report was published, bluish discoloration of the umbilicus in ruptured ectopic gestation has been observed and reported by numerous writers in this country and abroad. In *THE JOURNAL*, March 4, 1922, Cullen's original colored picture of this condition was reproduced in Novak's article. Recently Smith and Wright<sup>2</sup> reported two cases in the *Lancet*. In one of their cases the bluish discoloration appeared in the lower third of an old appendectomy scar, which had been the site of a drainage tube. In their second case the discoloration closely resembled Cullen's original colored illustration. Many other cases have no doubt been observed but not reported.

The discoloration accompanying Cullen's sign is not always blue, the color depends on the degree of oxidation of the deposited blood pigments and may be any of the various hues that are known to follow an ordinary bruise. As Novak said, a dark bluish discoloration about the umbilicus probably would indicate a recent hemorrhage, and a greenish yellow or orange color would suggest that the intra-abdominal blood had been present some time. No discoloration at all can be expected when the hemorrhage is so rapid that the patient comes under observation soon after it occurs. Likewise, in cases of ruptured ectopic pregnancy that are not associated with intraperitoneal hemorrhage of considerable degree, Cullen's sign probably would not be present. Bluish discoloration around the umbilicus is not a pathognomonic sign of ruptured ectopic pregnancy, for it has been found in other abdominal conditions. Zum Busch reported an example caused by hemorrhage into an adherent ovarian cyst. Schumann records a case which he diagnosed ruptured ectopic pregnancy largely on the basis of Cullen's sign, and

laparotomy showed a two months intra-uterine pregnancy associated with purulent bilateral salpingitis, but no free blood in the peritoneal cavity. Sternberg described a case in which bluish discoloration of the umbilicus was associated with hemorrhagic ascites due to adenocarcinoma of the liver. Stutzer observed a brownish blue discoloration of the abdominal wall about the umbilicus in a case without hemorrhagic pancreatitis. After reviewing the literature, Smith and Wright conclude that bluish discoloration about the umbilicus is a rare indication of intraperitoneal hemorrhage. For example, Stein in 106 cases and Jonas in ninety cases did not observe Cullen's sign. In a clinical analysis of 410 cases of ectopic pregnancy at Bellevue Hospital, Lavell found that Cullen's sign was rarely seen, but it was observed twice in the same patient. In a study of 167 consecutive cases at the University of Pennsylvania, Behney found that Cullen's sign was noted once. Novak believes however that, to all intents and purposes, Cullen's sign may be considered especially applicable to the diagnosis of ruptured extra uterine gestation.

Several theories have been proposed to explain this phenomenon. The most plausible explanation seems to be found in the lymphatics of the umbilical region. The changing shades of colors may be explained as due to the oxidation of absorbed blood pigments traveling in lymphatics connecting the umbilicus with the peritoneal cavity.

### Current Comment

#### A BLOOD TRANSFUSION CONFERENCE

It is doubtful whether the practice of blood transfusion has been more extensively studied anywhere in recent years than in Soviet Russia. Word has just been received of a blood transfusion conference that took place in Moscow in February and was attended by representatives of many branches of the Hematology and Blood Transfusion Institute from different sections of the Soviet Union. The director of this institute, Dr Bagdasaroff, pointed out that at present blood is being saved for periods of from fourteen to twenty-two days for purposes of blood transfusion, and a few cases are reported in which blood preserved up to thirty-four days has been used. In the preservation of blood, from 5 to 6 per cent citrate solution is used as well as dextrose-citrate and a special formula developed by that institute and apparently of secret composition. Blood transfusions have been made in approximately 1,000 cases with blood obtained from dead bodies within six hours after death. It would seem that such blood possesses the property of remaining liquid because of fibrinolysis and thus may be preserved without added citrate. The theory was advanced by S. S. Bruchanenko that the blood of the corpse remains liquid because of the presence of a large amount of antithrombin, which in the case of sudden death enters into the blood from the lungs. Extensive reports were

1 Cullen, T. S. Bluish Discoloration of the Umbilicus as a Diagnostic Sign Where Ruptured Extra Uterine Pregnancy Exists from Contributions to Medical and Biological Research dedicated to Sir William Osler in Honor of His Seventieth Birthday July 12 1919 by His Pupils and Co Workers.

2 Smith, Irwin and Wright, F. J. Cullen's Sign in Ruptured Ectopic Gestation with a Report of Two Cases. *Lancet* 1: 930 (April 20) 1935.

read in this conference on the selection of a donor, the complications of blood transfusion and the practical application of methods of combining blood transfusion with the administration of iron and other therapy. Some interesting reports were also presented on the possibility of transfusion of small doses of incompatible blood as well as of animal blood in order to produce a stimulating reaction in the treatment of severe infections. Among the disease conditions in which blood transfusion had been extensively used were scurvy, pellagra, malaria and gynecologic conditions.

## Association News

### MEDICAL BROADCASTS Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 p. m. central standard time). The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

May 23 Saving Our Eyesight  
May 30 Holiday No broadcast  
June 6 Wound Infections

### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 p. m. central standard time). The next three broadcasts will be as follows:

May 21 Pain W. W. Bauer M.D.  
May 28 Problems of American Medicine Morris Fishbein M.D.  
June 4 The Crippled Child W. W. Bauer M.D.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Personal**—Dr. William D. Gaines, Lafayette, has been appointed physician to the state prison at Atmore.—Dr. Cornelius S. Hagerty, resident pathologist at Presbyterian Hospital, Chicago, has received an appointment as assistant professor of bacteriology and pathology at the University of Alabama School of Medicine.

**Bill Introduced**—H. 300 proposes to prohibit the sale or distribution of barbitol, sulphonethylmethane (trional), sulphonmethane (sulphonol), diethylsulphon diethylmethane (tetronal), paraldehyde and chloral or chloral hydrate and any derivatives, compounds or mixtures of any of the foregoing drugs possessing hypnotic properties or effects, except on the written prescription of a licensed physician.

**Society News**—Dr. James S. McLester, Birmingham, President-Elect of the American Medical Association, among others addressed the Tuscaloosa County Medical Society recently on "Present Status of Kidney Function Tests".—Speakers before the Northeastern Division of the Medical Association of Alabama in Talladega recently, in joint session with the Talladega County Medical Society, were Drs. John A. Martin, Montgomery, on medical legislation, Clarence K. Weil, Montgomery, may fever, and Felix M. T. Tankersley, Montgomery, conservative treatment of sinus infections.—Dr. Roy R. Kracke, Emory University, addressed the Jefferson County Medical Society, Birmingham, April 15, on "Relation of Drug Therapy to Agranulocytosis".

### DELAWARE

**Society News**—Dr. Richard A. Kern, Philadelphia, addressed the New Castle County Medical Society in Wilmington, March 15, his subject was "Clinical Allergy". Dr. Louis H. Clerf, Philadelphia, discussed "Cancer of the Lower Air Passages," April 16.

**Quarantine Station Reopened**—The U. S. Quarantine Station at Reedy Island was reopened, April 1, for inspection of vessels, after having been closed for several years. Dr. Barton Brown, acting assistant surgeon who has been at the immigration station at Gloucester, N. J., is in charge under the direction of Dr. Charles W. Vogel, medical director and officer in charge of the Marcus Hook, Pa., quarantine station.

### FLORIDA

**Bill Passed**—H. 29 has passed the house and the senate, proposing to provide for a system of compensating workmen for injuries arising out of and in the course of their employments and for such diseases or infections as naturally or unavoidably result from such industrial injuries. The employer is to furnish medical, surgical and other remedial treatment, nursing and hospital service, medicines, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. Only in the event that the employer fails to furnish the services after request by the workman, is the workman to be allowed the privilege of selecting his own physician at the employer's expense.

**Bills Introduced**—H. 831 proposes to repeal the existing naturopathic practice act and to enact a new law creating a board of naturopathic examiners and regulating the practice of naturopathy. The bill proposes to define naturopathy as "the use of and practice of physiological, mechanical and material health sciences to aid in purifying, cleansing and normalizing human tissue for the preservation or restoration of health according to the fundamental principles of anatomy, physiology, and applied psychology as may be required." Naturopathic practice employs, among other agencies, phytotherapy, dietetics, psychotherapy, suggesto-therapy, hydro-therapy, zone-therapy, biochemistry, external applications, electro-therapy, mechanotherapy, helio-therapy, mechanical and electrical appliances, hygiene, first-aid, and sanitation." H. 854 proposes to authorize the state tuberculosis board to divide the state into not more than five districts and to establish and operate in each district a sanitarium for the treatment of persons suffering from tuberculosis. The board is to be authorized to obtain loans from the federal government for the erection of such sanitariums.

### GEORGIA

**Commemoration of Crawford Long**—The annual observance of Crawford W. Long Day was held throughout the state March 30, according to the *Bulletin* of the Fulton County Medical Society. The celebration marks the discovery of ether anesthesia by Dr. Long in 1849. The program this year centered around the University of Georgia, Athens, where Long graduated with the degree of master of arts in 1835. The orator was Dr. Max Cutler, Chicago. At Jefferson a plaster bust of Long made by Dr. George H. Noble Jr., Atlanta, was unveiled. A portrait representing Dr. Long in his later years was given to the Crawford W. Long Memorial Hospital, Atlanta, by the Children of the Confederacy, March 31. On this occasion Mrs. Eugenia Harper, a daughter of Dr. Long, presented to Dr. Cutler a paper knife made of wood from the mantel that formerly stood in her father's office.

### ILLINOIS

**Industrial Meeting**—The Central States Society of Industrial Medicine and Surgery will meet in Rockford, May 21. Included on the program will be a symposium on fractures by Drs. Ralph M. Carter, Green Bay, Wis., William R. Cubbins, James J. Callahan, Carlo S. Scuderi and George L. Apfelfbach, Chicago, addresses by Drs. Adrien H. P. E. Verbruggen, Chicago, on "Injuries of the Brain and Spinal Cord", Clarence O. Sappington, Chicago, "Occupational Disease Hazards" and Frederick W. Slobe, Chicago, "Injection Treatment of Herma".

**State Medical Meeting at Rockford**—The eighty-fifth annual meeting of the Illinois State Medical Society will be held at Rockford at the Faust Hotel, May 21-23, under the presidency of Dr. Charles S. Skaggs, East St. Louis. The Winnebago County Medical Society will be host. Dr. James S. McLester, Birmingham, Ala., President-Elect, American Medical Association, will deliver the oration in medicine. Dr. Martin Nordland, Minneapolis, will give the oration in surgery, on "The Role of Surgery in the Disturbances of the Thyroid".

Gland" According to the tentative program there will be symposiums on cataract and obscure fevers. In addition, papers will be presented by the following physicians, among others:

Dr. Clarence A. Earle, Des Plaines, Importance of Intradermic Reactions as an Aid to Diagnosis and Degree of Susceptibility to Disease.  
Dr. Michael Zeller, Chicago, Leukopenic Index in Intractable Asthma.  
Dr. Maximilian J. Hulshy, Chicago, Roentgenology of the Alimentary Tract.

Dr. Dallas B. Phemister, Chicago, The Surgery of Bone Tumors.  
Dr. James C. Thomas, Rogers, Urbana, Viscerophtosis—Glénard's Disease.

Dr. Joseph Greengard, Chicago, Passive Immunity in Infants and Their Response to Diphtheria Toxoid.

Clarence W. Muehlberger, Ph.D., Chicago, Blood Grouping Tests in the Medicolegal Determination of Nonpaternity.

Dr. Perry B. Coodwin, Peoria, Roentgen Study of Lesions of the Urinary Bladder.

Dr. Robert A. Arens, Chicago, Differentiation of Radiopaque Shadows in the Right Upper Quadrant.

The secretaries conference will be held Tuesday morning and among other speakers will be addressed by Dr. Olm West, Secretary and General Manager, American Medical Association on "Medical Economic Problems of Today and the Future." A special pediatric program will also be held Tuesday morning. The veterans' service committee will hold its annual dinner Tuesday evening.

### Chicago

**Dr. Leary Gives Hektoen Lecture**—Dr. Timothy Leary, professor of pathology, bacteriology and medical jurisprudence, emeritus, Tufts College Medical School, Boston, will deliver the eleventh Ludwig Hektoen Lecture of the Frank Billings Foundation at Thorne Hall, Northwestern University, May 24. His subject will be "Atherosclerosis, the Important Form of Arteriosclerosis, a Metabolic Disease."

**Dr. Wilder Awarded the Dana Medal**—The Leslie Dana Gold Medal of the National Society for the Prevention of Blindness will be awarded to Dr. William H. Wilder, emeritus professor of ophthalmology, Rush Medical College, Chicago, at ceremonies in St. Louis today, May 18. Dr. Wilder was selected for the award, given in recognition of his work in the conservation of vision, by the national society in cooperation with the St. Louis Society for the Blind, one of whose directors is the donor of the medal. Dr. Wilder, a graduate of the Medical College of Ohio in 1884, served as professor of ophthalmology at Rush from 1907 to 1926. In 1907-1908 he was chairman of the Section on Ophthalmology of the American Medical Association, in 1918 president of the American Ophthalmological Society and in 1931 president of the American Academy of Ophthalmology and Otolaryngology. At present he is secretary of the American Board of Ophthalmology and vice president of the Illinois Society for the Prevention of Blindness. He has written many articles on ophthalmic surgery and has collaborated in several books dealing with his specialty.

**Society News**—Speakers at the meeting of the Chicago Gynecological Society, May 17, were Drs. George de Tarnowsky, on tubal reimplantation, Henry Buxbaum, outpatient obstetrics, William A. Thomas, Edward D. Allen and Carl Philip Bauer, toxemia of pregnancy. The operative clinical meeting was held in the morning of the same day at St. Luke's Hospital.—Drs. Willis C. Campbell, Memphis, Tenn., and John D. Claridge addressed a joint meeting of the Chicago Orthopedic Society and the Institute of Traumatic Surgery, May 10, on "Operative Procedures for Rupture of the Crucial and Lateral Ligaments of the Knee" and "Bilateral Traumatic Dislocation of the Hips," respectively.—Drs. Ruth Tunnicliff and George Milles, among others, addressed the Chicago Pathological Society, May 13, on "Effect of Dissociation of Streptococci on Their Fibrinolytic and Antifibrinogenic Activity," respectively.—The Chicago Tuberculosis Institute held its annual meeting, May 10, with a program, including, among others, Drs. Midian O. Bousfield, speaking on Tuberculosis and the Negro" and Max Biesenthal, "Thirty Years of Work in Tuberculosis."

### INDIANA

**Specialty Society Meeting**—Dr. Joseph R. Dillinger, French Lick, was elected president of the Indiana Academy of Ophthalmology and Otolaryngology at its annual meeting in Indianapolis, April 10. Drs. George E. Shambaugh, Jr. and Thomas D. Allen, Chicago, were guest speakers, on "Significance of Diaplacusis in Ménière's Syndrome" and "Standards in Ophthalmologic Practice," respectively. Next year's meeting will be held in Martinsville.

**Annual Graduate Course**—Indiana University School of Medicine will conduct its annual graduate course in general medicine and surgery and the specialties May 20-June 1. The mornings will be given over to clinics and the afternoons to

discussions. Out of state speakers at the evening sessions will include Drs. Walter L. Biering, Des Moines; Thomas G. Orr, Kansas City; Arlie R. Barnes, Rochester; Munn and Preston Kyes, Chicago. No registration fee will be charged to Indiana physicians. Out of state physicians, however, will be charged \$10. Further information may be had from the registrar of Indiana University School of Medicine, Indianapolis.

### IOWA

**Personal**—Dr. Frank W. Dean, Council Bluffs, has been made a life member of the Iowa State Medical Society.

**Annual Renewal Fees Due Before June 1**—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license a licensee must make a written application to the state department of health before June 1, enclosing the renewal fee of \$1. If a license expires by reason of the licensee's failure to renew it, it can be reinstated without reexamination only on the recommendation of the board of health and the payment of the overdue fees.

**Society News**—Dr. Charles H. Arnold, Lincoln, Neb., addressed the Black Hawk County Medical Society, Waterloo, April 16, on "Choice of Anesthesia." At the February meeting the society adopted a resolution endorsing the stand of the House of Delegates of the American Medical Association at the special meeting in Chicago, February 15-16, against socialized medicine. Copies were sent to senators and congressmen.—A special meeting of the Des Moines Academy of Medicine and the Polk County Medical Society will be addressed, May 20, by Dr. Richard H. Jaffe, Chicago, on "Tumors of the Ovaries with Special Reference to Their Hormone Action." A symposium on cardiovascular renal disease was presented before the meeting, April 30, by Drs. Charles C. Walker, Orono; W. King, Wilbert W. Bond and Daniel J. Glomset.

### KENTUCKY

**Memorial to Jane Todd Crawford**—The Kentucky State Medical Association is to unveil a monument, May 30, in McDowell Park, Danville, to Jane Todd Crawford, the woman on whom Ephraim McDowell performed the first ovariectomy, in 1809. Dr. Stewart R. Roberts, Atlanta, will deliver the memorial address and brief addresses will be made by Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, Mrs. Arthur T. McCormack, Louisville, wife of the secretary of the state medical association and Judge Basil Richardson of the Court of Appeals of Kentucky. Dr. William N. Wishard, Indianapolis, will take part in the unveiling ceremony.

**Increased Mortality Rate**—Preliminary figures issued by the state board of health indicate that the general death rate in Kentucky in 1934 was 11.3 per thousand of population as compared with 10.8 in 1933. Infant mortality increased by almost 500 deaths, and deaths among persons 65 years old and over by more than 600. Heart disease the leading cause of death increased from 5,055 deaths in 1933 to 5,490 in 1934. The rate for pneumonia rose from 83.2 to 89.1. The department calls special attention to the rise in deaths from automobile accidents from 498 in 1933 to 625 last year. The diphtheria death rate which was noted as the highest in the United States in 1933, fell from 16.3 to 13.4, a result attributed to special efforts to have preschool children immunized. The tuberculosis rate dropped from 85.9 to 76.3, and the typhoid death rate was reduced from 12 to 11.

### MAINE

**Society News**—Dr. George A. Tibbetts addressed the Portland Medical Club, April 2, on "Surgery in Blood Diseases."—Dr. Seth M. Milliken, New York, gave an address on "Traction in Treatment of Fractures" before the Cumberland County Medical Society, April 26.—At a meeting of the Kennebec County Medical Association, Gardiner, March 21, Drs. Howard F. Hill, Waterville, and Roland B. Moore, Portland, gave an address on "Newer Concepts in the Management of Labor."

### MASSACHUSETTS

**Dr. Fitz Named University Marshal**—Dr. Reginald Fitz, associate professor of medicine, Harvard University Medical School, Boston, has been named university marshal in charge of the Harvard University commencement exercises in June, it is reported.

**Society News**—Dr. Trygve Gunderson addressed the New England Ophthalmological Society, Boston, April 16, on "Concomitant Blood for Herpes Zoster."—Dr. Akah H. Gordon, Montreal, addressed the Harvard Medical Society, April 16, on "Clinical Aspects of Migraine."—A symposium on pneumonia

was presented at a meeting of the Essex South District Medical Society at Middleton, April 3, by Drs Frederick T Lord, Roderick Heffron and Richard H Sweet, Boston—Dr Dana W Atchley, New York, addressed the New England Heart Association, April 26, on "The Role of Peripheral Circulatory Failure in Clinical Medicine"—Dr Kendall Emerson, managing director National Tuberculosis Association New York, addressed the Massachusetts Tuberculosis League at its twenty-second annual meeting April 29, on "The Tuberculosis Program in These Changing Times"—The Obstetrical Society of Philadelphia and the obstetric societies of New York and Washington were the guests of the Boston Obstetrical Society April 12 Clinics were held at various Boston hospitals and the dinner meeting was addressed by Dr Henricus J Stander New York on "The Teaching of Obstetrics and Gynecology in the United States"—Dr Wolfgang F von Oettingen, Wilmington, Del, was a speaker on the program of a meeting devoted to occupational diseases at the annual Massachusetts Safety Conference May 6 His subject was "Toxic Vapors, Their Hazards and Control" discussed by Philip Drinker, Ch E, of the Harvard School of Public Health

### MICHIGAN

**Graduate Course**—The Michigan State Medical Society and the University of Michigan Post Graduate Department have arranged a course in traumatic, emergency and minor surgery at the Receiving and Herman Kiefer hospitals Detroit, May 20-24

**Personal**—Dr Perry V Wagley has been appointed superintendent of the Pontiac State Hospital, succeeding the late Dr Edmund A Christian—Dr Burton R Corbus Grand Rapids, who has been acting secretary of the Michigan State Medical Society has resigned as councilor of the fifth district his term as acting secretary will expire in September, when Dr Clifford T Ekelund, Pontiac, will take over the duties of secretary

### MISSOURI

**Annual St Louis Clinics**—The annual graduate course and clinical conference of the St Louis Clinics will be held in St Louis, May 20-25 The program will be clinical, covering the various branches of medicine, surgery and surgical specialties including the most recent advances in medicine and the newest methods of diagnostic technique and therapy as well as reviews of the old methods The clinic has customarily been conducted exclusively by members of the St Louis Clinics but this year the medical officers of the Seventh Corps Area, U S Army, will participate Sessions will be held at St Luke's, Missouri Baptist, St John's Jewish, St Mary's, Deaconess Firmin Desloge Barnes, DePaul and St Louis City Isolation hospitals Four evening meetings will be held at the St Louis Medical Society Building The registration fee is \$10

### MONTANA

**Society News**—Drs Charles F Little and John R Vasko Great Falls, addressed the Deerlodge County Medical Society, Anaconda April 9 on "Nonsurgical Biliary Drainage and 'Injuries of the Spine,' respectively

**Personal**—Dr Elmer G Balsam, Billings has been appointed president of the Montana State Board of Health and Dr Louis H Flugman Helena, vice president—Dr John C Dunn Lewistown has been named health officer of Fergus County

### NEW MEXICO

**State Medical Meeting in Albuquerque**—The New Mexico Medical Society will hold its annual meeting in Albuquerque, May 23-25 A tentative program lists the following guest speakers

- Dr Howard C Naffziger San Francisco Surgery of Hypertensive States
- Dr Sylvan L Haas San Francisco Management of Poliomyelitis Deformities
- Dr Herman C Bumpus Jr Pasadena Present Methods for Relieving Urostatic Obstructions
- Dr Albert Soiland Los Angeles Radiation Therapy in Various Surface Conditions
- Dr Robert W Lamson Los Angeles Hay Fever Treatment
- Dr Alfred J Scott Jr Los Angeles Acute Contagious Diseases
- Dr William Warner Watkins Phoenix Ariz Traumatic Bone Lesions Without Fracture
- Dr William Paul Holbrook Tucson Ariz Present Day Conception of Arthritis
- Dr Robert C Packard Denver Fractures of the Shaft of the Femur in Children and Adults
- Dr George T Vinward Amarillo Texas Treatment of Inflammatory Conditions of the Female Pelvis
- Dr Harvey H Latson Amarillo Texas Endocrinology

### NEW YORK

**Dr Mahar Appointed Health Officer of Syracuse**—Dr Gregory D Mahar, a member of the staff of the Syracuse department of health since 1923, was appointed health commissioner of the city, April 20, to succeed Dr George C Ruhland, who recently became health commissioner of the District of Columbia Dr Mahar is a native of Syracuse and a graduate of Syracuse University College of Medicine He entered the department of health shortly after his internship and has served principally in the bureau of communicable diseases

**Personal**—Dr Merle R French of the staff of the state department of health, Albany, has been appointed health commissioner of Cortland County to succeed Dr Daniel R Reilly—Dr Basil Clarendon MacLean, superintendent of Touro Infirmary New Orleans, has been appointed superintendent of Strong Memorial Hospital, Rochester, to succeed Dr Nathaniel W Faxon Dr Faxon recently resigned to go to Boston as superintendent of Massachusetts General Hospital, succeeding the late Dr George H Bigelow

**Outbreak of Food Poisoning**—About 750 persons in Westchester County were stricken with food poisoning April 23 and 24, as a result of eating pastries with cream filling from a bakery in White Plains Specimens of the filling examined in the laboratory of the state department of health in New York yielded colon bacilli, staphylococci and streptococci, and samples of egg yolk taken from the bakery also contained the organisms The eggs were distributed from Chicago It was estimated that many more cases occurred but were not reported to the health authorities Sixteen cases were reported in the Bronx New York where several dozen cream puffs and eclairs from the White Plains bakery were sold As soon as the epidemic was reported the bakery made every effort to recall the pastries sold and voluntarily discontinued making the cream products until cool weather The plant itself was found to be in excellent sanitary condition Dr Matthias Nicoll Jr, county health commissioner, announced that he would ask the board of health to adopt an ordinance prohibiting the sale of custard filled pastries during the summer It was reported, April 29, that federal food and drug inspectors were checking the source of the eggs

### New York City

**New Tumor Institute**—St Clare's Hospital announces the establishment of a tumor institute opened May 15, in conjunction with the hospital A high voltage therapy machine capable of utilizing 200,000 volts has been installed along with the proper filters for correct application Radon and 400 mg of radium are available Members of organized medicine will be welcomed at all times and are especially invited to attend the hospital's weekly staff conferences

**School of Midwifery to Be Closed**—The Bellevue School for Midwives operated by the city since 1911, will be closed with the graduation of the present class, Dr Sigismund S Goldwater, commissioner of hospitals, announced in April Changing social conditions have made the school largely superfluous, as evidenced by the fact that only 5,000 women were delivered by midwives in 1934 as compared with 50,000 in 1914, 1,799 women held licenses to practice in New York in 1916, and the present number is 700 The average cost of confinements attended by midwives at the school is \$42.05, Commissioner Goldwater said whereas the city pays private hospitals only \$35 for confinements in charity cases

### NORTH CAROLINA

**Bill Introduced**—S 535 proposes to repeal the laws regulating the possession and distribution of narcotic drugs and to enact what the draftsman of the bill cites as the uniform narcotic drug act The bill, however, differs from the model uniform narcotic drug act in some important particulars It omits the provisions in the model bill intended to limit the gross quantity of a habit-forming drug a person can buy in exempt preparations within a period of forty-eight hours

**Society News**—Dr Byrd C Willis, Rocky Mount, was elected president of the North Carolina Hospital Association at the annual joint session with the hospital associations of South Carolina and Virginia in Greensboro, April 12—Dr Sankey S Hutchinson Jr Bladenboro entertained the Bladen County Medical Society at dinner April 9 Drs Graham B Barefoot Wilmington, and Oren Moore, Charlotte, presented papers on "Electrocardiographic Findings in Diagnosis and Treatment of Heart Disease" and "Periodic Fertility in Women" respectively—Speakers who addressed the New Hanover County Medical Society, Wilmington, April 18 were Drs Silas Raymond Thompson Charlotte on "Common Uro-



logical Conditions", George Johnson, Wilmington, "Knaus's Theory of Fertility and Sterility," and Ernest S. Bulluck, Wilmington, "Fractures of the Scaphoid Bone"

### NORTH DAKOTA

**State Medical Meeting at Minot**—The North Dakota State Medical Association will meet at Minot, May 27-28. The opening session will be held Monday evening, May 27, following the meeting of the house of delegates during the day. At this meeting Dr. Clyde E. Stackhouse, Bismarck, will give his presidential address, Dr. Leonard W. Larson, Bismarck, will discuss legislation and Dr. Harry A. Brandes, Bismarck, medical economics. Dr. Lester R. Dragstedt, Chicago, will also speak on "Experimental Studies on the Etiology of Gastric and Duodenal Ulcer." Guest speakers the second day will be

Dr. Donald C. Halfour, Rochester, Minn., "Surgery of the Gastro-Intestinal Tract"

Dr. Thomas J. Kinsella, Oak Terrace, Minn., "A Clinical Evaluation of Collapse Therapy Measures in the Treatment of Pulmonary Tuberculosis"

Dr. Henry F. Helmholtz, Rochester, "Diagnosis of Acute Appendicitis in Childhood"

Dr. William H. Hengstler, St. Paul, "Head Injuries from a Neurological Standpoint"

Dr. Paul A. O'Leary, Rochester, "Established Values in the Specific and Nonspecific Treatment of Syphilis"

Dr. Roscoe C. Webb, Minneapolis, "Emergency Treatment of Fractures"

Dr. John A. Urner, Minneapolis, "Complications of Pregnancy"

Dr. William A. O'Brien, St. Paul, "Granulopenia"

The North Dakota Academy of Ophthalmology and Otolaryngology and the North Dakota Public Health Association will hold their annual meetings Monday, May 27. A golf tournament will be played Sunday, May 26, at the Minot Country Club and the annual banquet will be Tuesday evening at the country club.

### OKLAHOMA

**Changes in Health Officers**—Recent appointments of county health officers have been announced as follows:

Dr. Benjamin B. Kies, McAlester, Pittsburg County

Dr. Benjamin F. Johnson, Fairview, Major County

Dr. Henry B. Huston, Bokchito, Bryan County

Dr. Catherine F. T. Brydian, Ada, Pontotoc County

Dr. Henry K. Speed, Jr., Sayre, Beckham County

Dr. Edwin S. Patterson, Antlers, Pushmataha County

Dr. William P. Jenkins, Okemah, Okfuskee County

**Tulsa Clinical Conference**—At the spring conference of the Tulsa Clinical Society, April 17-18, clinics were held at Morningside and St. John's hospitals. There were symposiums on obstetrics, head injuries, gonococcal infections and goiter, clinics on orthopedics, injuries to the back and general operative clinics by the hospital staffs. Among papers presented were the following by Tulsa physicians:

Dr. Ivo A. Nelson, "Relationship of Laboratory Medicine to Future Medical Practice"

Dr. Bernard L. Branley, "Pernicious Anemia"

Drs. Emory G. Hyatt and Delbert O. Smith, "Diverticulitis and Diverticulosis of the Gastro-Intestinal Tract"

Dr. Arthur H. Davis, "Nasal Accessory Sinus Disease"

Dr. Margaret G. Hudson, "Vaccines in the Treatment of Chronic Arthritis"

Dr. Andre B. Carney, "Benign and Malignant Tumors of the Female Breast"

Dr. Morris B. Lhevine, "Radiologic Diagnosis of Bone Tumors"

The annual golf tournament of the Tulsa County Medical Society was played Thursday afternoon at the Tulsa Country Club, followed by the annual banquet. Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, spoke on "Plans for Economic Security" at the banquet, Wednesday evening, and discussed the work of the Council on Pharmacy and Chemistry at a meeting Thursday.

### PENNSYLVANIA

**Society News**—Dr. Donald Guthrie, Sayre, addressed the Cambria County Medical Society, Johnstown, April 11, on "The Harmful Effects of Fear and Efforts Directed Toward Its Elimination from the Patient's Mind."—Dr. Edward M. Livingston, New York, addressed the Dauphin County Medical Society and the Harrisburg Academy of Medicine, April 9, on "Basic Approaches to the Diagnosis of Surgical Diseases of the Abdomen."—Dr. Jennings M. King, Jr., Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 4, on "Orthopedics in General Practice."—Dr. Isador Kaufman, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, April 12, on "Physical Signs in the Early Diagnosis of Pulmonary Tuberculosis." Drs. Roy R. Snowden and John P. Griffith, Pittsburgh, conducted the semiannual clinic of the society, May 10, on fractures and gastro-intestinal disorders, respectively. Dr. Snowden also presented a paper on "Diagnosis of Carcinoma of the Stomach" and Dr. Griffith on "Management of Fractures."

### Philadelphia

**Survey of Tuberculosis in Indians**—Dr. Esmond R. Long of the Henry Phipps Institute, University of Pennsylvania, made a special investigation of tuberculin reactions in several hundred Indian children in New Mexico and Arizona during March. Results will be studied at the institute and embodied in a report to the Office of Indian Affairs at Washington.

**Statistician Hoffman Retires**—Frederick L. Hoffman, LL.D., Philadelphia, consulting statistician of the Prudential Insurance Company since 1894, retired from active duty May 1, at the age of 70 years. Dr. Hoffman has written widely on medical subjects as related to insurance. In recent years he has conducted a health survey of the lead using industries, surveys of cancer in Mexico and in Europe and made a study of causes of death in various races. Dr. Hoffman is an Associate Fellow of the American Medical Association, a former president of the American Statistical Association, a director of the American Society for the Control of Cancer and the American Public Health Association, and a charter member of the National Tuberculosis Association. In 1911 Tulane University of Louisiana bestowed on him the honorary degree of doctor of laws.

### Pittsburgh

**Economics Meeting**—The Allegheny County Medical Society held a special meeting on economics, May 10, with the following speakers: Dr. George W. Grier, Pittsburgh, "Activities of the Committee on Medical Economics"; Francis D. Tyson, Ph.D., professor of economics, University of Pittsburgh, "Health Insurance Under Medical Guidance as a Substitute for State Medicine"; and Dr. Arthur C. Christie, Washington, D.C., "Economic Problems of Medicine: Is Health Insurance the Solution?"

### TEXAS

**New Officers of State Board**—Dr. Joseph Allen Kyle, Houston, was elected president and Dr. William E. Watt, Austin, vice president of the Texas State Board of Medical Examiners at a meeting April 11. Dr. Thomas J. Crowe, Dallas, was reelected secretary. New members of the board recently appointed by the governor are Drs. Marion M. Brown, Mexico, Herschel F. Connally, Waco, and Oliver B. Kiel, Wichita Falls, and R. H. Peterson, D.O., Wichita Falls.

### WISCONSIN

**William Snow Miller Lecture**—The eighth William Snow Miller Lecture, sponsored by Phi Beta Pi and the University of Wisconsin Medical Society, was delivered May 2 by Leslie B. Arey, Ph.D., Robert L. Rea, professor of anatomy and chairman of the division of anatomy, Northwestern University Medical School, Chicago. His subject was "Factors That Influence the Course of Wound Healing."

**Society News**—Drs. Enoch F. Peterson, Wauwatosa, Max J. Fox, and Myne G. Peterman, Milwaukee, presented a symposium on scarlet fever before the Milwaukee County Medical Society, April 12. Dr. Russell L. Haden, Cleveland, delivered the first lecture in a course in laboratory methods and clinical interpretations begun March 21 under the auspices of the society.—Dr. Arthur G. Sullivan, Madison, addressed the Jefferson County Medical Society, March 21, on "Legal Pitfalls in the Practice of Medicine and Their Solution."—Dr. Edwin F. Schneiders, Madison, discussed "Early Diagnosis and Treatment of Cancer of the Breast, Cervix and Uterus" at a meeting of the Richland County Medical Society, March 14.

**Health in 1934**—Provisional reports of vital statistics for 1934 issued by the state board of health indicate that the death rate was 9.8 and the birth rate 16.3 per thousand of population. Diseases of the heart and cancer were the leading causes of death, with rates of 227.9 and 119 per hundred thousand, respectively, both increases over the previous year. The rate for tuberculosis, 36.5 per hundred thousand, is the lowest ever shown in the state. The influenza rate, 11.4, was the lowest since 1914, except for 1921, that for diphtheria the second lowest ever recorded, 0.84. The infant death rate was 49.9 and the maternal death rate 4.19 per thousand live births, a slight increase over those for 1933. Deaths from automobile accidents increased from 627 to 695.

### ALASKA

**Outbreak of Influenza**—The newspapers report an outbreak of 300 cases of influenza at Point Barrow and 200 at Wainwright, with fourteen deaths up to May 7. Dr. Henry W. Greist, medical missionary at Point Barrow, reported that the situation at Point Barrow was under control. Shortage of food, coal and coffins and inadequate hospital facilities complicated the difficulties faced by Dr. Greist, who is said to be the only physician in this area.



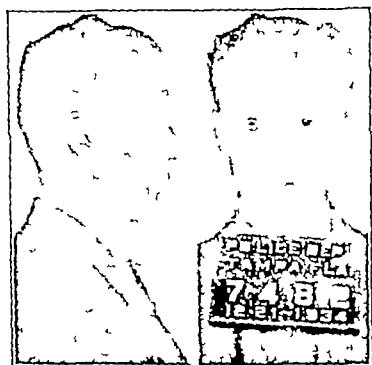
## GENERAL

**Medical Bills in Congress—Changes in Status** S J Res 108 has been reported to the Senate, authorizing an appropriation for the expenses of participation by the United States in the eighth International Congress of Military Medicine and Pharmacy, to be held at Brussels, Belgium, in 1935. S 2625 has been reported to the Senate, proposing to extend the facilities of the Public Health Service to seamen on government vessels not in the military or naval establishments (Rept No 600). H R 6625 has been reported to the House, conferring jurisdiction on the United States District Courts over Osage Indian drug and liquor addicts (Rept No 740). *Bill Introduced* H R 7939 introduced by Representative Fulmer, South Carolina, proposes to authorize the erection of a veterans' hospital at or near Orangeburg, S C for Negro World War veterans.

**Subscription Impostor Imprisoned**—Charles W. Cooper, who passed himself off as a representative of the American Medical Association and collected Fellowship dues and subscriptions to *THE JOURNAL* from a number of physicians in the

south is now serving one year in prison for fraud. He is shown in the accompanying photograph. While Cooper's activities have been definitely stopped, it cannot be too strongly emphasized that all accredited representatives of the American Medical Association carry credentials signed by Dr. Olm, West Secretary and General Manager. A safe rule is to pay no money to strangers.

Charles Cooper is an



affable appearing, businesslike young man and apparently was clever enough to sidestep the matter of credentials when calling on physicians. Any genuine representative of the American Medical Association will gladly produce credentials when asked to do so.

**Society News**—The American Association for the Study of Goiter will hold its annual meeting in Salt Lake City, June 24-26. The Association for Research in Ophthalmology will hold its annual meeting in Atlantic City at the Marlborough-Blenheim, June 11. Among others, the following will deliver addresses: Drs. Samuel Hanford McKee, Montreal, Canada, on "A Study of the Pneumococcus Group from the Inflamed Conjunctiva and Lacrimal Sac." William M. James, St. Louis, "Lysozyme Content of Tears." Theodore L. Terry and Juanita P. Johns, Boston, "Uveal Sarcoma (Malignant Melanoma)," and Adelbert Ames Jr., LL.B., Hanover, N.H., "Aniseikonia—A Factor in the Function of Vision." Dr. Charles F. Craig, New Orleans, was elected president of the American Academy of Tropical Medicine at a meeting in New York, April 16, and Dr. Richard P. Strong, Boston, vice president. Dr. Earl B. McKinley, Washington, D.C., was reelected secretary. It was decided to hold the annual meetings hereafter in connection with the meetings of the American Society of Tropical Medicine.

**News of Epidemics**—The most extensive epidemics of measles in recent years are being reported in many communities. Erie, Pa., had 247 cases of the three-day type of measles reported in the week of April 13-20, 523 cases had been reported in March. The health officer of Williamsport, Pa., reported that 470 homes were quarantined for measles, April 5. About 600 children had had the disease in Easton, Pa., it was reported, April 13. The state of Michigan had 28,000 cases, 2,775 in Detroit, April 13, according to a newspaper account. More than 200 students at Williams College, Williamstown, Mass., a fourth of the student body were reported to be ill with German measles May 3. More than 700 children had been affected in an epidemic of measles in Eveleth, Minn., it was said April 18. In Chicago 1,407 cases were reported in the week of May 1. Schools closed for the year in Avilla, Ind., April 9, one month early in an effort to check an epidemic of scarlet fever. In Milwaukee, where scarlet fever has been epidemic for several months, active cases were reduced to 852, it was reported April 29. Schools were closed during April because of scarlet fever in Libertyville Ill., Tharpstown, Pa., and Urbana, Ohio, newspapers reported. In Minneapolis all children under 7 were quarantined from April 17 to May 5 to curtail the spread of scarlet fever. Grade schools in Minerva,

Ohio, were closed April 8, when two boys were stricken with meningitis, one died. There have been 109 cases of meningitis in Cincinnati since the first of the year, eighteen cases were in the Cincinnati General Hospital April 10.

**Conference on Rheumatic Diseases**—The second annual meeting and the fourth conference of the American Association for the Study and Control of Rheumatic Diseases will be held at Atlantic City, June 10 at the Marlborough-Blenheim, under the presidency of Dr. Ernest E. Irons, Chicago. The morning will be devoted to a consideration of chronic arthritis and the afternoon to rheumatic fever. The following physicians will participate:

Russell L. Haden and Robert A. Warren, Cleveland, Accelerating Factors in Chronic Degenerative Arthritis.  
John S. Coulter, Chicago, Home Treatment of Chronic Arthritis by Physiotherapy.  
Russell L. Cecil, New York, Malarial Therapy in Rheumatoid Arthritis.  
Philip S. Hench, Rochester, Minn., Results of Fever Therapy for Gonorrheal Arthritis, Chronic Infectious (Atrophic) Arthritis and Other Forms of Rheumatism.  
Albert B. Ferguson, Haig H. Kasabach and George Douglas L. Taylor, New York, Further Studies on the Roentgenologic Findings in Various Forms of Chronic Arthritis.  
Byron D. Bowen and Louis Maxwell Lockie, Buffalo, Chronic Atrophic Arthritis: Effect of High Carbohydrate Diet and Insulin on Symptoms and Respiratory Metabolism.  
Edward F. Hartung, New York, Treatment of Rheumatoid Arthritis with Leukocyte Cream.  
Readie Garfield Snyder, Cornelius H. Traeger and Carl A. Zoll, New York, Use of Cinchophen and Its Derivatives in the Treatment of Chronic Arthritis.  
Homer F. Swift, New York, The Nature of Rheumatic Fever.  
Morse J. Shapiro, Minneapolis, The Natural History of Childhood Rheumatism in Minnesota.  
Martin H. Dawson and Terence L. Tyson, Jr., New York, Relationship Between Rheumatic Fever and Rheumatoid Arthritis.  
Currier McEwen, New York, Cytologic Studies on Subcutaneous Nodules in Rheumatic Fever and Rheumatoid Arthritis.  
Edward Sterling Nichol, Miami, Fla., The Geographical Distribution of Rheumatic Fever and Rheumatic Heart Disease in the United States.  
James F. Rinehart, San Francisco, Studies Relating to Vitamin C Deficiency in Rheumatic Fever.  
Albert D. Kaiser, Rochester, N.Y., Influence of the Tonsils on Rheumatic Infection in Children.  
Hugh McCulloch, St. Louis, Institutional Provisions for the Care of the Rheumatic Child.  
Lucy Du Bois Porter, Sutton and Katharine G. Dodge, New York, Fever Therapy in Chorea.

## FOREIGN

**Congress on Medical History**—The tenth International Congress of the History of Medicine will be held in Madrid, September 23-29, under the presidency of Prof. Gregor Marañón. Subjects for discussion will be Arab medicine in Spain, medicine in America during its discovery and colonization, and medical folklore in civilized countries. All who wish to collaborate are asked to send abstracts of their communications before June 1 to the office of the secretary of the congress, Palacio de la Academia Nacional de Medicina, Calle de Arieta, 12, Madrid. An exhibit of rare and curious books by Spanish and Spanish-American authors is being organized.

**Scholarships at Forlanini Institute**—The Italian Fascist National Federation Against Tuberculosis has placed at the disposal of the International Union Against Tuberculosis six scholarships for foreign medical practitioners at the Carlo Forlanini Institute in Rome. The scholarships, which have a value of 3,000 lire plus board and lodging, will preferably be awarded to young physicians already familiar with problems of tuberculosis. The period of study will be from November 15 to July 15, 1936, the academic year. Candidates from the United States must apply through the National Tuberculosis Association, 50 West Fiftieth Street, New York, before June 1.

**International Neurologic Congress**—Plans for the second International Neurological Congress in London, July 29-August 2, have been announced. The American delegation will leave New York on the S.S. *Manhattan* July 17, to arrive in London July 23. According to the program, Drs. Stanley Cobb, Boston, and Wilder G. Penfield, Montreal, will take part in a symposium on the epilepsies, Dr. Lewis H. Weed, Baltimore, in one on the physiology and pathology of the cerebrospinal fluid, and Dr. Harvey Cushing, New Haven, Conn., in one on the hypothalamus and cerebral representation of the autonomic system. Sessions for miscellaneous papers will be held in addition to the symposiums. The triennial Hughlings Jackson Memorial Lecture will be presented by Prof. Otfried Foerster, professor of neurology, University of Breslau, Friday evening, August 2. Social affairs will include receptions given by the Royal College of Physicians, the Royal College of Surgeons and the section of neurology of the Royal Society of Medicine. Dr. Henry Alsop Riley, 117 East Seventy-Second Street, New York, is secretary for the United States.

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 20, 1935

#### Effect of Unemployment on Health Insurance Finance

At the annual dinner of the National Federation of Employees' Approved Societies, Mr Edgar Hackforth, deputy controller of the insurance department in the ministry of health, said that employers in this country were not so severely handicapped as they were some years ago by their expenditure on social services, because some of their foreign competitors had followed their example by introducing social schemes. The effect of unemployment on the health insurance scheme was their most important problem and they had not yet solved it. Unemployment diminishes contributions and increases expenditures on benefits. At the end of the year, if the law remained as it was a considerable number of insured persons would find themselves losing not only all their health insurance title to benefit but also their title to pensions simply because they happened to have a prolonged period of unemployment. As regards loss of pension rights something like 200,000 persons might be affected and as regards health insurance the number would be much higher. He was referring to old age pensions and does not mean that these persons will lose them entirely but they lose the right of the pension beginning at 65 which insured persons have, while for others the pension begins at 70. There were over 5,000,000 insured persons in this country who, because they had been unemployed for more than four weeks in the year were in the position of having their health insurance benefit subjected to a reduction in the following year unless something special was done for them. The department had done all that it could under the finances of the present scheme but it had to face the problem whether it was possible to return to the basis of the act of 1928, by which all the arrears due to unemployment could be excused. That was a difficult problem. It was satisfactory that 1934 did show a marked improvement in the general finance of working the insurance. Employment improved and was accompanied by a material fall in expenditure on sickness and disablement benefits. At the annual meeting of the federation, the president asked why there should not be included in the benefits to which an insured person is entitled under the unemployment insurance acts some provision against his liability for the contribution required to keep him in benefit for health and pension insurance. This arrangement had worked for many years in Germany, where 170,000 had dropped completely out of insurance and become a charge on public assistance during ill health.

#### British Memorial to Madame Curie

A banquet in support of a British memorial to Madame Curie was held in London. The purpose was to raise \$250,000 for the endowment and extension of the Marie Curie Hospital of London. Mr Neville Chamberlain who took the chair, said that he had been asked to do so because of his long association with the ministry of health. He paid a humble tribute to a very great woman, a most original and fertile investigator, and one of the great benefactors of the human race. To the toast to her memory her daughter Mlle Eva Curie, a well known musician responded. She said that her mother often said that "in science we should be interested in things, not persons." She meant that her own person was of no importance compared with the things to which she devoted her life. A discovery made by any scientist gave her as sincere joy as a discovery of her own. The burden of celebrity overwhelmed her, and at the end of her life she still said "I am nothing but a student." All the passion that she scorned to devote to seeking honors she devoted to helping those in need of her. During the war

she drove a ray cars along the French and Belgian fronts and carried out roentgen examinations of thousands of wounded, her postwar activities were devoted to the practical development of radium therapy. The physicist Sir William Bragg spoke of the eminence of Madame Curie in physics and the difficulty and hardship of the conditions under which her discoveries were made—in a building with an asphalt floor and a glass roof, by no means proof against the rain, a hothouse in summer, and in winter scarcely warmed by a single stove, with furniture consisting of old tables on which the specimens were deposited. But, she wrote, "I shall never forget the ravishing joy we used to have on coming home at night when we saw the faintly luminous shapes of the products of our toil."

#### Pay Patients in the Voluntary Hospitals

A bill to enable hospitals to provide pay beds, provided it is not done at the expense of ordinary beds, was read a second time in the house of lords. Patients in the pay beds would be those whom a hospital almoner would not usually accept in the ordinary wards but who could not afford the cost of private treatment in their homes and urgently required the assistance of a hospital with all its specialist treatment. Such patients are sometimes called the "black coated poor." Some voluntary hospitals have already done this but they have had to obtain a private act of parliament which costs at least \$2,500. Some misgiving was expressed by the labor party in the house as to whether the bill would cut down the services for poor people as the hospitals had long waiting lists. The labor party was dissatisfied with the hospital system and wanted all the hospitals to be taken over by the municipalities publicly controlled for the free treatment of all who needed it. It was not right that the great health services which the hospitals provided should be supported by costly banquets, balls, bazzars, fetes and flag days and inadequately supported at that. For the government Viscount Hailsham said that a case was made out of the desirability of having some beds available for the class that was willing to make some payment toward the expense of treatment but was unable to afford the fees of a nursing home. But there should be safeguards to ensure that the funds settled on it for the benefit of the sick poor were not diverted for any other purpose.

#### Overcrowding of the Medical Profession

During 1934 the names added to the British Medical Register amounted to 1,664, and 898 were removed by death and a small number by other causes giving a net increase of 755, which brings the total number on the register up to 57,496. This figure may be compared with 44,761 in 1920 and 40,483 in 1910. In 1934 the number of medical students who registered was 2,350, a number without parallel save for the exceptional years of 1919 and 1920 following the war. Thus Great Britain is no exception to the overcrowding of the medical profession reported in other European countries, though this has not yet attracted attention here. Complaint of overcrowding has been made also in Australia. No cause has so far been assigned for the increase in Great Britain beyond a suggestion that there has been a considerable expansion in recent years of the public medical services. A more probable and a regrettable cause is the great difficulty of the rising generation in the class from which medical students come in obtaining employment of any kind in this period of unprecedented industrial depression.

#### Objections to the Sterilization of Defectives

In an address to the Manchester and Salford branch of the National Council of Women Dr Charles Rankin, a psychiatrist, urged the need of caution before coming to conclusions on the sterilization of mental defectives. The recent report of the committee appointed by the government had recommended the legalization of voluntary sterilization in persons suffering

from hereditary forms of mental disorder or defect or from grave hereditary forms of physical debility. Dr Rankin doubted whether these were scientific recommendations. Half the mental deficiency was due not to hereditary but to environmental causes, yet on the latter the committee had little to say. It admitted the need for research into hereditary factors in mental and physical disability. He believed that of no mental disorder was the exact nature of the inheritance known. All that was known was that inheritance proceeded through mendelian laws. No doubt heredity was a factor, but the question was as to its assessment compared with racial poisons, such as tuberculosis, syphilis and alcohol. Only a small proportion of defectives had definitely certifiable parents. He also objected to sterilization on moral grounds as it would encourage irresponsibility in sex behavior and the propagation of venereal disease. Against these arguments it could be urged that although the part played by heredity in mental deficiency cannot at present be exactly assessed, it cannot be questioned that sterilization of mental defectives would do something to reduce the incidence of the condition in our population.

### PARIS

(From Our Regular Correspondent)

April 12, 1935

#### The Primary Tuberculous Focus in Adults

An examination of all first year students at the University of Strasbourg was begun in 1929 by Vaucher, Strauss and Schneegans. It comprises a complete physical examination including roentgenoscopy and, in suggestive cases, films of the chest, together with an examination of the nose, throat, ear and teeth. The observations in regard to tuberculosis were the subject of a paper read at the Dec. 14, 1934, meeting of the Société médicale des hôpitaux de Paris. Thirty-five cases of active pulmonary tuberculosis were discovered in the examination of 1,343 students. Twenty-five of the thirty-five students were unaware of the presence of any pulmonary lesion.

During 1931-1932 skin reactions were used in 232 cases of which sixty were negative but of which three became positive shortly afterward. Another cutaneous and then an intradermal test was made of forty-one students whose primary reaction had been negative. Of these forty-one the later tests were positive in eleven, negative in twenty-five and doubtful in five. Emphasis is laid on this observation which teaches that, if one had been content with a single skin test, more than 30 per cent would have been found negative. If a cutaneous test is negative, a second, preferably an intradermal test should be made later.

Five cases were reported in which the skin reaction was negative. In the first student, a girl of 18, the skin reaction was negative in 1932 but she showed evidences of a serofibrinous pleuritic exudate and a large lymph node at the hilus of the right lung as the first sign of tuberculosis. In a second case, two skin reactions at intervals of fifteen days were negative. This patient was serving as an extern in a tuberculosis ward. Four months later, signs of a left dry pleurisy appeared. Roentgenography revealed a bilateral adenopathy in both pulmonary hili. In the third observation, two skin tests and one intradermal reaction were negative in a girl student in 1932. A year later, when clinical work was begun, fatigue and loss of weight led to a roentgenographic examination, which revealed discrete pulmonary nodular lesions in both apices. Two other cases were reported in which the tuberculous infection was apparently primary in adolescence with involvement of the hilar lymph nodes as the first evidence.

In the majority of cases there is absence of any clinical symptom of tuberculous infection. In several students the skin reaction became positive as soon as ward work was begun but even in these cases there were no clinical signs. In some

apparently primary cases in young people the infection begins as an acute caseating lesion. Another clinical form is that in which at the onset there is a more or less prolonged febrile period without any accompanying clinical manifestation. This is the typhoid-like form of tuberculous infection, which is often diagnosed as influenza or intestinal infection. This was true of three of the five cases reported in which, a little later, evidence of lymph node involvement (at the hilus) or a dry or exudative form of pleuritis appeared.

Nico in his thesis has reviewed the literature of primary tuberculous infection and has found that a serofibrinous pleuritic exudate is commonly the first clinical sign that attracts attention. Such a pleurisy is of course secondary. Skin reactions should be regularly employed in young students and soldiers, especially in medical students and nurses. When the skin reaction is negative, the individuals should be cautioned against exposing themselves to cases of pulmonary tuberculosis. Students who have a negative skin reaction should be vaccinated with the BCG vaccine and clinical work should not be permitted until five weeks later.

Rist, in the discussion, stated that his experience with a large number of students confirms that of Vaucher and his associates and that of foreign clinicians, especially Myers of the University of Minnesota. Those students who have a negative skin reaction should be kept under observation. Every student in the Paris medical school is obliged to have such a skin test made at the time of matriculation. It would be well to add a roentgenographic examination, such as is carried out at Strasbourg.

#### Methods of Resuscitation in Asphyxia

At the Dec. 4, 1934, meeting of the Academy of Medicine, Nicloux and Legendre stated that only too often the one who is trying to save a life becomes a victim. A drowning person ought to be approached only from behind and held by the back of the head. The first duty in cases of asphyxia is to try to ventilate the room before any attempt is made to remove the asphyxiated person. In the case of ditches or mine galleries the life saver should never enter unless a rope keeps him in touch with some one in the free air so that he can be pulled out. In trying to remove any one from high tension wires one is interfered with by wet soil, shoes or feet; hence one should try to find a nonconductor in the shape of a board, chair or stool and to use only one hand in detaching the victim.

In France, two methods of artificial respiration, the Silvester (raising the arms at regular intervals) and the Laborde (rhythmic tongue traction) have been abandoned in favor of the Schafer method. An apparatus devised by Dr. Panis acts automatically to carry out the Schafer method and is extensively used in Paris.

Artificial respiration must be kept up, whether by the Schafer method or by some such apparatus, for a long time, even for hours. The only adjuvants to artificial respiration are maintenance of the body heat of the victim (especially in cases of drowning) and the inhalation of oxygen.

Carbon dioxide is not of much help in the dissociation of the carboxyhemoglobin in cases of gas asphyxia, whereas oxygen will be of assistance.

At the January 22 meeting of the Academy of Medicine, Cot and his associates discussed the same subject. The Schafer method has been employed exclusively since 1924 by the Paris fire department. The hands are applied at the base of the thorax, the victim lying face downward. As much pressure as possible is applied to provoke expiration, no pressure being used during inspiration. The theory of this method (Schafer) is to stimulate the diaphragmatic reflex. It is far less fatiguing to apply than the Silvester or the Laborde method. Pulmotors do more harm than good. The insufflation of air under pressure only increases the already existing pulmonary congestion.

and edema Brickley is quoted as having found tears and hemorrhages following the use of this method in animals

The only forms of apparatus that are of help apply force externally to stimulate respiration. The authors have devised such an apparatus, which is designed to imitate the movements employed in the Schafer method. In 1934, 75 per cent of the victims of asphyxia from illuminating gas and charcoal fumes were resuscitated, but only 60.2 per cent of the victims of drowning. The Cot apparatus was the only method of artificial respiration employed in the last eight months of 1934.

#### Roentgenographic Diagnosis and Treatment of Intussusception

In a recent article Poulhiquen of Brest states that until lately the diagnosis of intussusception in infants was based on the triad colics, vomiting and bloody stools. At present the most valuable method of diagnosis and occasionally of reduction, is the barium sulphate enema under fluoroscopic control. This should be employed as early as possible and, if it reveals inability to reduce the intussusception, operative treatment must follow immediately. The barium enema may occasionally be successful in the reduction of the invagination, 200 Gm of barium sulphate to a liter (quart) of water suffices and one can safely raise the irrigator to a height of 4 feet (120 cm) or even a few inches higher in early cases. With the exception of the left colocolic and transverse colon forms, the mass can be easily pushed over to the right iliac fossa, where one has an opportunity to observe whether the barium enema enters the ileum freely, which is the sole criterion of a successful nonoperative reduction.

If only a few irregular shadows or streaks are seen in the ileum, the attempt at reduction by the barium enema must be regarded as having been unsuccessful. If, however, the barium has passed in large amounts into the lower ileum and one can no longer feel the invagination, reduction has been successful. It is necessary to keep in mind the possibility of a double invagination, as two cases recently reported by Bloch and Duroselle show. The only criticisms against nonoperative reduction under fluoroscopic control are that one cannot prevent a recurrence by fixation of the intestine. The indication for such an operation is rarely present and it should be employed only in recurrent cases. Another objection is that there may be an accompanying acute appendicitis, but this is rare, especially in the first year of life. A case of rupture of the intestine has been reported by Fèvre, but this was in an advanced, inoperable case. The most important argument against nonoperative reduction is, then, the danger of recurrence. Poulhiquen has had a large experience and has observed only one such case. Reduction by a barium enema will be successful in at least 60 per cent of the cases. The ileocolic form is the least favorable for nonoperative reduction. If vomiting or the inability to pass flatus or feces persists, the roentgenoscopic examination can be repeated in a few hours and an operation performed at once. A right lateral incision is to be preferred and every effort should be made to reduce the invagination because the prognosis is very unfavorable in cases in which resection is unavoidable.

#### Search for Bacteriophage in Water Supplies

At a recent meeting of the Academy of Medicine Dr. M. F. Dienert discussed the necessity of a routine examination of sources of water supply and discharge, for the presence of bacteriophages. The excreta of patients suffering from any form of intestinal infection always contain a bacteriophage. This ultravirus is transported into the sewers and from them into the adjacent rivers. Gildemeister and Watanabe have found an increase of bacteriophage in the river Spree (Berlin) five days after a rainfall. Dienert has observed an increase in the amount of the anti-Eberth bacillus or antiparatyphoid A or B

bacteriophage in the Seine, into which the waste of Paris drains, whenever there had been patients either in the acute stage of typhoid or convalescing from an attack. The bacteriophage remains viable much longer, six months for example, in water or in the soil, than the typhoid or paratyphoid organisms. For this reason one ought systematically to search for bacteriophage in the waters into which a city discharges its waste, in order to trace cases of typhoid which have either not been reported or in which the excreta have been inadequately disinfected.

#### BERLIN

(From Our Regular Correspondent)

March 11, 1935

#### The Mortality from Various Diseases

In 1934 the mortality from the infectious diseases of childhood was 29.4 per cent greater than in the previous year. As in 1933, the mortality rates for measles, scarlet fever and whooping cough were highest in the first quarter, and for diphtheria in the last quarter.

The number of infant deaths from syphilis in 1934 was 0.36 per thousand, which denotes a further decrease over 1933 (0.45 per thousand). This mortality was greatest in the cities on the Rhine and the Main, and in the seaports. Because of the sustained high summer temperatures, the infant deaths from intestinal catarrh increased (from 4.8 to 5.1).

Table 1 shows the number of deaths in 1934 from the diseases of the more advanced years, and the deaths for 10,000 of population during the period 1930-1934.

TABLE 1—Deaths in 1934 from Diseases of Advanced Years, Deaths for 10,000 of Population, 1930-1934

	Total Deaths in 1934	Deaths for 10 000 of Population in				
		1930	1931	1932	1933	1934
Cancer and other malignant growths	20 427	13.8	14.5	14.5	14.7	14.9
Apoplexy	16 791	8.0	8.3	8.6	9.2	9.5
Diabetes	3,840		1.7	1.9	2.0	1.9
Senile debility	10 165	4.6	5.1	5.3	5.6	5.1

It appears that the deaths from malignant growths and from apoplexy show an increase, but no greater increase than the increased representation of the older age groups would lead one to expect. The decreased mortality from senile debility is doubtless due to the fact that in 1934 there was no pronounced influenza epidemic such as occurred in 1933.

Table 2 shows the number of deaths in 1934 from other important diseases.

TABLE 2—Deaths in 1934 from Other Important Diseases, Deaths for 10,000 of Population 1930-1934

	Total Deaths in 1934	Deaths for 10 000 of Population in				
		1930	1931	1932	1933	1934
Cardiac diseases	27 490	13.3	12.8	13.0	14.0	13.9
Tuberculosis	14 248	8.1	8.1	7.5	7.5	7.7
Pneumonia	13 078	7.1	7.5	6.3	7.0	6.6
Nephritis	4 033		2.2	2.1	2.0	2.0
Bronchitis	2 400		1.6	1.4	1.6	1.2
Influenza	1 634	0.7	1.8	0.8	2.0	0.8
Typhoid	148	0.09	0.06	0.08	0.07	0.07
Cerebrospinal meningitis	122	0.08	0.06	0.06	0.06	0.06
Encephalitis	63	0.03	0.04	0.02	0.02	0.03

The number of deaths from puerperal fever showed, because of the greatly increased number of births, the greatest increase of any cause of death (39.7 per cent higher than in 1933), whereas the other accidents of pregnancy and of childbirth showed a much smaller increase (8.7 per cent). The deaths from puerperal fever following miscarriage show a marked decrease, namely, 13.0 per cent.

The deaths due to violence and accidents during the period 1929-1934 are outlined in table 3

TABLE 3—Deaths Due to Violence and Accidents, 1929-1934

	1929	1930	1931	1932	1933	1934	1934 in Percentage Relation to 1933
Suicide	5 868	6,207	6,346	6 497	6,335	6 032	95.2
Murder and manslaughter	293	338	360	303	382	273	71.5
Accidents	6 436	6,314	5 628	5,723	5 686	5 580	111.0

### Non-Aryans in Panel Practice

The federal minister of labor, who is competent to answer all questions pertaining to the health insurance societies, stated recently, in response to an inquiry, that there were no objections to the preparation of lists of panel physicians, differentiated according to Aryans and non-Aryans for the use of the *krankenkassen*. It was well known that the *krankenkassen* had such lists, and there may be said to be need for them in order that the insured may be given information in response to inquiries concerning the racial origin of a panel physician. It was not important whether the *krankenkassen* prepared such lists or whether they secured them from the *Kassenärztliche Vereinigung Deutschlands*. This attitude is significant for forming a judgment in regard to the situation, for the non-Aryan physicians admitted to panel practice are either those who were admitted before the war or who were admitted because they fought at the front. It was for the benefit of the latter class that the special privileges were created.

In the recent regulations for admission of students to medical examinations is found this new provision: "Admission to the examinations and the granting of a license to practice presuppose the furnishing of proof of Aryan origin (birth certificate of the candidate, birth certificates and marriage licenses of the parents and of the grandparents on both sides)." The same requirements apply to candidates for the diploma of dentist. This corresponds to the attitude that the Berlin rector announced some months ago (*THE JOURNAL*, March 3, 1934, p. 710).

### Admission to Dental Practice

Little has been heard of late about the question of extending the privileges and the medical activities of the nature cure doctors. If any progress in this direction has been made, it has not been announced. Doubtless the opposition has proved to be greater than was anticipated. On the other hand, an old demand of the dental technicians has been granted. In place of the term dental technician, which in German usage plainly designates the limited training of such persons in comparison with the academically trained dental physicians, the federal minister of labor has substituted the term 'dentist'. At the Berlin *Lehrinstitut für Dentisten* persons without means are supplied with prostheses free of charge. April 1 there will be opened in Düsseldorf one of the seven dental schools to be created throughout the *reich*, and it promises to be the most modern school for dental technicians in Germany. The director will be a dental technician or 'dentist' and not a *saluarzt* or dental physician. Both dental physicians and dental technicians must be entered in a register before they are admitted to practice. According to a recent decree an applicant will not be admitted unless he and his wife are of Aryan origin. The previous exception according to which front line combatants, including the fathers and sons of persons who died in the World War were admitted even though of non Aryan origin has been abolished. This makes the application of the regulations much more severe and works a hardship on the sons of men who died in the war, who, relying on the previous exceptional privilege, have already partially completed their course in dentistry. Furthermore, a license to practice already granted will be with-

drawn if an Aryan dental physician or 'dentist' admitted to panel practice marries a woman of non-Aryan origin or has married such a woman since July 1, 1933.

A system of relief, organized by the dental physicians and supported in part by the federal government, has been created in the sections of Röhn and Spessart, two high plateau regions of Germany that have suffered severely from the economic crisis. Four Berlin dental physicians with four woman assistants have treated, during the past few months, more than 1,500 children gratis in this area. It is planned to give dental aid to about 8,000 children.

### Boric Acid in Remedies for Obesity

The federal bureau of health has called attention to obesity remedies containing boric acid and borax, which are injurious to health. In recent years obesity remedies containing boric acid free or in combination with other substances, have been put on the market. Boric acid and borax, if taken in quantities of more than a fraction of a gram, are not harmless substances. The public should inquire whether the preparations contain any boric acid.

Similar observations in Denmark led to the recent order that obesity remedies may not contain boric acid or its salts.

### A Central Cancer Institute

In the Rudolf Virchow-Krankenhaus in Berlin a central cancer institute that is to serve all northern Germany is to be created. It will be both a therapeutic and a research center. As the first step, a large committee has been appointed, on which, among others, the whole Berlin faculty of medicine will serve, Professor Sauerbruch being the chairman. For this institute, which is to be directed by Professors Cramer and Hintze, a suite of rooms with 300 beds, in the aforementioned hospital, has been selected.

### BUENOS AIRES

(From Our Regular Correspondent)

March 1, 1935

### Cancerigenic Action of Sunlight

Dr. A. H. Roffo has succeeded in producing cutaneous cancer in the face and ears of white rats by repeated exposure of the animals to sunlight. From these results of experiments, he believes that sunlight baths have a cancerigenic action. His statement has encountered many objections, because 1. A reasonable and well controlled exposure of children and young adults to sunlight produces a beneficial action on their health. 2. Sunlight is helpful in the treatment of tuberculosis of the bone and of surgical tuberculosis. 3. Cutaneous cancer does not develop frequently in bovine, equine and other animals that are exposed to sunlight the year round.

### Quinoa Seeds as Food

The seeds of quinoa (*Chenopodium quinoa*) were used as a food by the Incas and are still used as such in Peru, Bolivia and the northern regions of Argentina. Dr. P. Mazzocco made a study of their alimentary value and found that the protein content of quinoa seeds is sufficient. They contain also vitamin B and are an excellent food if associated with cereals that contain vitamins A, C and D, the content of which is insufficient in quinoa seeds.

### Early Diagnosis of Cancer

Special departments for the diagnosis of tumor tissues, removed by a biopsy have been organized or are in organization in several municipal hospitals of Buenos Aires, having as an aim the early diagnosis of cancer and early treatment. Drs. Mosto and Brachetto-Brian are directors of the departments in the Rawson and Durand hospitals, respectively.

## Pan-American Health Conference

The ninth Pan American Health Conference was held at Buenos Aires Nov 12-22, 1934, by representatives from all countries of North and South America. All the suggestions made by the North American delegation, formed by Drs Cumming, Lloyd Long and Emerson met with the general approval of the attendants. The following motions were made: Adoption of the international health convention for air navigation (The Hague); ratification of the resolutions taken at the International Health Convention held in Paris in 1926, a decennial census of the population; unification of the departments of public beneficence and welfare, both public and private, under one authority; organization of aviation; continuation of the studies on typhus and yellow fever. Dr F L Soper of the Rockefeller Foundation read a paper on yellow fever in South America. He proved that there are foci of endemic yellow fever in certain regions of South America where there are no mosquitoes and that the transmitting agent is unknown in these cases. In connection with his article the following motions were made: 1 To carry on studies on the protective power of antiserum. 2 To investigate the frequency of yellow fever by the performance of microscopic studies of the liver of cadavers of persons who died within ten days of the onset of a febrile disease. In these cases the pieces of liver should be taken by biopsy with a special viscerotome. 3 The organization of antilarval work in ports and air ports where the presence of *Stegomyia* has been established. 4 Preventive vaccination of those who are in possible contact with infected cases. 5 Organization of special laboratories for work on yellow fever. Cooperation of the pharmacopeial committees of North and South American countries tending to the establishment of a unified pharmacopeia for both continents was advised. Resolutions to intensify the campaigns against tuberculosis, unicariasis, leprosy, malaria, plague, brucelliasis, venereal diseases, alcoholism and narcotism were adopted.

## Personal Items

Dr Alfredo Sordelli, director of the Instituto bacteriologico nacional, has been appointed a member of the Committee of Biologic Standardization of the Society of the Nations and a corresponding member of the Societe de biologie of Paris.

Dr B A Houssay has been appointed a corresponding member of the Academie de medecine of Paris, an honorary member of the Academia de medicina of Madrid, and an honorary fellow of the Royal Society of Edinburgh.

Dr J Bacigalupo has been appointed a corresponding member of the Societe de pathologie exotique of Paris.

Dr Avelino Gutierrez has been appointed an honorary member of the Academia de medicina of Madrid.

Dr R Araya de Rosario was awarded the Santour prize by the Academie de medecine of Paris for his work on ovulation and menstruation. Dr Araya states in his article that there is no relation between the phenomena of ovulation and menstruation.

Dr J C Ahumada has been appointed professor of gynecology at the Faculty of Medicine of Buenos Aires.

Drs Foz and Baraldi have been appointed professors of psychiatrics and surgery, respectively, at the Faculty of Medicine of Rosario.

Dr Oscar Orias has been appointed full time professor of physiology at the Faculty of Medicine of Cordoba.

Drs F Bottazzi of Naples, L Brauer of Hamburg, L Binet of Paris and C Monge of Lima were appointed honorary academicians to the Academia Nacional de Medicina of Buenos Aires. Drs L Surraco of Montevideo and Garcia Otero of Montevideo were appointed correspondent academicians of the same society.

Dr R Bullrich has been appointed honorary professor of the Faculty of Medicine of Montevideo.

## NETHERLANDS

(From Our Regular Correspondent)

March 6 1935

## The Congress of Neurology and Psychiatry

The twelfth Congress belge de neurologie et de psychiatrie was to have been held in Belgium, but the Netherlands Neurologie and Psychiatric Society conceived the idea of merging the congresses of the two societies and of holding the joint session this year in Amsterdam.

The first paper dealt with "The Neuro-Anemias" and was presented by Professor Van Genuchten. The neuro-anemic syndrome is the disorder that is encountered most frequently after tabes and multiple sclerosis. The characteristic lesion of neuro anemia is the vacuolar degeneration of the white substance. The formation of vacuoles is due to the combined involvement of the axis cylinder and the myelin sheath. The lesion is not pathognomonic of the neuro anemic syndrome. The localization of the lesions in the nervous system has not been fully explained; possibly it is conditioned by the vascular topography. The gray substance is less changed but does not completely escape involvement (chromolysis, masses of pigment in the cells, and the like). Pernicious anemia and the neuro-anemic syndromes are deficiency disorders. Normally the factor that prevents pernicious anemia is found in the gastric juice. In case of an insufficiency of this factor, grave symptoms arise in the organism which, it is believed, are attributable to disturbance of lipid metabolism.

Among the other communications an experimental contribution on The Clinical Characters of Parkinsonian Trembling may be mentioned, by Rene Nissen and Rene Dellaert. Their results may be summarized thus: A distinction must be made between the results secured in senile patients and those furnished by encephalitic patients. In the former the mode of reaction is almost constant whereas in the latter modification in the trembling varies from case to case. In the same senile patients the trembling increases in the nonactive members. The results secured in senile patients through the tests of mental effort and of emotions likewise confirm the conceptions of Kleist, Jong and Froment in that one accords to these states a significance opposed to that of repose. As regards encephalitic patients, in view of the difference in the reactions in various cases, neither of the two general conceptions can be maintained with respect to either the member in motion or the symmetrical member. What has just been said in regard to encephalitic patients is particularly frank and striking in arteriosclerotic parkinsonism. Two other facts to be noted are (a) the frequent and sometimes very marked dischronism between the hand and the foot, in both the senile and the encephalitic patients; (b) acceleration of the trembling which constitutes an almost constant reaction under the influence of the different factors considered.

## Mode of Infection in Weil's Disease

It is generally recognized that there is more than one way in which *Leptospira icterohaemorrhagiae* gains entrance to the human organism from water through the skin (particularly if the skin is broken) or through the mucosae. In the *Nederlandsch Tijdschrift voor Geneeskunde* Dr Van Thiel emphasizes the significance of infection through drinking water, particularly through the nasal and buccal mucosae.

The author performed a series of experiments on the guinea pig and the rat, the results of which he reported in detail. Although the possibility of an infection by mouth was confirmed, several million pathogenic organisms may be swallowed by the animal without any infection developing. Infection is brought about much more easily through the nasal mucosae, the conjunctivae or the lacrimal canal. The author concludes from this fact that the water snuffed up the nose by swimmers constitutes an especially grave danger.

## MOSCOW

(From Our Regular Correspondent)

April 2, 1935

## Report on the Public Health

At the sixteenth All Russian Congress of Soviets in Moscow, January 6-16, a report of the People's Commissariat for Health was read. The following data presented before the congress shows the progress in the field of public health

## Changes Between 1913 and 1934

	1913	1934
Number of hospitals	780	1,745
Number of hospital beds*	103,000	318,000
Obstetric beds	5,500	82,000
Health points in industrial plants*	3,300†	4,300
Polyclinics	880	2,600
Tuberculosis dispensaries	43	410
Physicians	About 15,000	53,000

\* Except beds for mental patients

† Health points in 1913 were given by first aid ambulance doctors by physicians' assistants. Now they represent well equipped polyclinics in plants and manufactories

## Changes Between 1928-1929 and 1934

	1928-1929	1934
Number of public nurseries in towns	772	3,336
Number of places in permanent country public nurseries	7,500	3,400,000
Number of places in summer country public nurseries	115,000	3,200,000
Number of workers who visited health resorts and spas	518,000	1,500,000

In 1929 there were sixteen medical high schools with 15,000 students, in 1934 the number of medical students was 50,000 and the number of medical high schools was 31. In this number are included five medical high schools working with large hospitals. For building and equipping these medical establishments, 6,400,000 rubles was assigned in 1933 and 38,000,000 rubles in 1935. Up to the present time 40 per cent of the hospitals and 35 per cent of the polyclinics and ambulatoriums have their own rooms for physical therapy, x-ray equipment and clinical laboratories.

The scientific work is done in thirty-three central and 154 outlying investigation institutes of the People's Commissariat for Health. Scientific work is carried on in all medical high schools.

## Increased Appropriation for Public Health

The government has decided to assign 370 million rubles to increase the wages of medical workers. Physicians who have scientific degrees will receive increased wages. This increase in wages concerns also midwife and junior medical workers, dentists and chemists. The wages of medical workers in the outlying districts are increased from 10 to 20 per cent, depending on what work they are doing. The increase of wages for workers occupied in the extreme north of the country is 50 per cent. To improve the food for hospital patients the daily ration is increased in towns from 1 ruble 75 copecks to 2 rubles 80 copecks and in the country from 1 ruble 30 copecks to 2 rubles.

This decision, published March 5, is signed by the president of Sovnarkom (Council of People's Commissariat), Vladimir M. Molotov, and the general secretary of the Central Committee of the All Russian Communist Party (Bolshevik), I. V. Stalin.

## The Campaign Against Malaria

The laboratories of the Academy of Science of the Union of Socialist Soviet Republics in April 1933 produced the preparation 'acrichin' (which is identical to the German preparation 'atabrine') and gave it to the Tropical Institute of the People's Commissariat for Health where clinical trials made on several thousand patients have shown that acrichin has great therapeutic activity. The dose required for complete recovery from malaria is much less than that of some other preparations. It is much less bitter and does not cause ringing in the ears. The government will build two factories for making acrichin.

To establish an international plan for testing synthetic anti-malaria preparations, a commission of the hygienic committee of the League of Nations was summoned at Moscow, February 20, under the presidency of Professor Sergent (director of the Pasteur Institute at Algiers). The members of the commission were Professor Chooka of Rumania, Dr. Hackett of the Rockefeller Foundation, Dr. Annigstein of Poland, Dr. Lega of Italy, Dr. Pampana, secretary of the malaria committee of the League of Nations, and Soviet scientists. After the meeting the members of the commission went to Gorki (former Nizhni-Novgorod), where they became acquainted with the mass application of acrichin at Sormovo, a suburb of Gorki. The commissioners decided to organize a comparative study of the action of synthetic antimalarial preparations for prophylactic and curative purposes in the Soviet Union, Algiers, Italy and Rumania.

## Vitamin C in Conifer Needles

The Leningrad Scientific Institute of Nutrition has discovered that the antiscorbutic vitamin C is not only found in foodstuffs but is present in the leaves of red currants, cabbage and the needles of conifers. Out of 1 Kg. of conifer needles a concentrate has been obtained sufficient to protect a man for a month from scurvy.

The institute has set up apparatus for manufacturing concentrates of vitamin C out of cabbage leaves and conifer needles and at present is using daily 100 Kg. of conifer needles. This is the first factory to produce vitamins in the Soviet Union. It is of great importance because now all the northern parts of the country as well as the expeditions to the far north will be completely protected from scurvy.

## Medical Congresses in 1935

This year there will be held thirty-five conferences, meetings and congresses instead of the four that took place last year. In Moscow the All-Russian meeting on Pharmaceutical Education will convene March 2. The ninth All-Union Congress of Obstetricians and Gynecologists will meet March 10-15. The All-Union Conference of Endocrinologists will meet March 25-29. At Kazan the fourth All-Union Congress of Ophthalmologists will meet May 15-19. At Leningrad the fourth All-Union Congress of Nose, Ear and Throat Specialists will meet May 7-11 and the twelfth All-Union Congress of Internists, May 25-30.

## Lectures in Lithuania by Soviet Physicians

The endocrinologist Prof. Nicolas A. Cherechevsky and the therapist Prof. David D. Pletniev gave a series of lectures at Kaunas, the capital of Lithuania, under the auspices of the State University.

A reception was given for the Soviet scientists by the minister of foreign affairs, Mr. Lozoraitis. Professors Cherechevsky and Pletniev were invited to repeat this course of lectures in Lithuania in the near future.

## Marriages

JAMES CHARLES CHAMBERS JR., Kansas City, Mo., to Miss Mary Josephine Crane of Elizabeth, N. J., April 13.

LOUIS B. LAPLACE, Philadelphia, to Miss Delphine L. R. Hollingsworth of West Chester, Pa., May 4.

JAMES EDWIN WISSLER, Washington, D. C., to Miss Lola C. Johnson of Winchester, Va., March 24.

SAMUEL H. SMITH, Cincinnati, to Miss Frances Pauline Brown of Dayton, Ohio, April 24.

JOSEPH DIXON ROBERTS JR., Longview, Texas, to Miss Virginia Lewis of Dallas, March 29.

JAMES W. DAVIS, Dongola, Ill., to Miss Marie Keily of St. Louis, Nov. 28, 1934.

CORR. A. COX, Morton, Ill., to Miss Helen Jane Beitel of Aurora, March 13.



## Deaths

**George Emmett Bethel** † Galveston, Texas, University of Texas School of Medicine, Galveston, 1923, dean and professor of tropical medicine at his alma mater since 1928, instructor of anatomy, 1920-1921, adjunct professor, 1923-1924, and associate professor in 1926, physician to men, university health service, University of Texas, Austin, 1926-1927, and director, 1927-1928, assistant chief resident physician to the Philadelphia General Hospital, 1925-1926 fellow of the American College of Physicians, member of the American Society of Tropical Medicine and the American Heart Association, aged 40, died, April 17, of chronic nephritis

**Edward Blair Sutphen**, Morristown, N. J., Columbia University College of Physicians and Surgeons, New York, 1902 member of the Medical Society of New Jersey and the American Laryngological, Rhinological and Otolological Society fellow of the American College of Surgeons, on the staffs of the Morristown Memorial and All Souls hospitals, Morristown, the Overlook Hospital, Summit, and the New Jersey State Hospital, Greystone Park, aged 58, died, April 18

**Charles Russell Barber** † Rochester, N. Y., University of Buffalo School of Medicine, 1882, past president of the Medical Society of the County of Monroe, founder, formerly on the staff and past president of the board of directors of the Park Avenue Hospital, and on the staff of the Monroe County Hospital, for many years member of the board of managers of the Iola-Monroe County Tuberculosis Sanatorium, aged 79, died, April 5, of cerebral hemorrhage

**George Herbert Burnham**, Toronto, Ont., Canada, Trinity Medical College, Toronto 1875, F.R.C.S., Edinburgh 1881 and M.R.C.S., England, 1881, University of Toronto Faculty of Medicine, 1889, emeritus professor of ophthalmology and otology, University of Toronto Faculty of Medicine, on the staffs of the Toronto General and St. Michael's hospitals, aged 84, died, April 1, of pneumonia

**Charles Emil Brack** † Baltimore, College of Physicians and Surgeons, Baltimore, 1895, formerly professor of clinical obstetrics, University of Maryland School of Medicine fellow of the American College of Surgeons, treasurer of the Medical and Chirurgical Faculty of Maryland, on the staff and member of the board of governors of the Mercy Hospital, aged 69, died, April 4, of myocarditis

**Albert Milton Beal** † Moline, Ill., Drake University Medical Department, Des Moines, 1894 formerly a lawyer, president of the Western College, Toledo, Iowa, 1890-1891, at one time mayor of Toledo, Iowa, for many years president of the board of education of Moline and bank president, on the staff of the Moline Public Hospital, aged 81, died, April 3, of coronary thrombosis

**Charles W. Youngman**, Williamsport, Pa., Jefferson Medical College of Philadelphia, 1883, member of the Medical Society of the State of Pennsylvania, past president of the Lycoming County Medical Society, county health officer at one time member of the city board of health and health officer, for many years on the staff of the Williamsport Hospital, aged 76, died, March 5

**William Richard Tinker**, Manchester, Conn., University of the City of New York Medical Department, 1880, member of the Connecticut State Medical Society, for many years health officer, in 1897 member of the state legislature, aged 81, on the staff of the Manchester Memorial Hospital, where he died, March 23, of rupture of an aneurysm of the abdominal aorta

**John William Warnick**, Johnsonburg, Pa., Western Pennsylvania Medical College, Pittsburgh, 1896, member of the Medical Society of the State of Pennsylvania, at one time county medical director, and for twenty-five years member of the board of health in Johnsonburg, aged 71, died, April 12, of cerebral hemorrhage, arteriosclerosis and diabetes mellitus

**Robert Henry Craig**, Montreal, Que., Canada, McGill University Faculty of Medicine, Montreal, 1896, an Associate Fellow of the American Medical Association, member of the American Laryngological, Rhinological and Otolological Society, fellow of the American College of Surgeons, on the staff of the Montreal General Hospital, aged 59, died, March 23

**Thomas Arthur Pettepiece** † Freeport, Ill., College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1910 past president of the Stephen County Medical Society on the staffs of the Evangelical Deaconess Hospital and St. Francis Hospital, aged 60, died, April 15, of aortitis and myocarditis

**John Lambert Coffin**, Boston, Boston University School of Medicine, 1876, professor emeritus of diseases of the skin at his alma mater, formerly member of the school committee and board of health of Medford, at one time chairman of the board of trustees of the Westboro State Hospital, aged 83, died, March 15, of coronary stenosis

**Albert Burr Nash**, Newark, N. J., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887, member of the Medical Society of New Jersey, fellow of the American College of Surgeons, on the staff of the Hospital of St. Barnabas and for Women and Children, aged 79, died, March 10

**John Milton Phipps**, Indianapolis, Ind., Hospital College of Medicine Louisville, Ky., 1899, also a lawyer and a minister, veteran of the Spanish-American War, at one time assistant in pathology, Indiana University School of Medicine, on the staff of the Indiana Christian Hospital, aged 69, died, April 11, of carcinoma of the kidney

**George Washington Whitney Whiting** † Medford, Mass., University of the City of New York Medical Department, 1887 for many years member of the board of education of Somerville on the staffs of Marthas Vineyard Hospital, Oak Bluff and the Somerville (Mass.) Hospital, aged 70, died, February 14

**Mary Elizabeth Barrell**, York Village, Maine, Woman's Medical College of Pennsylvania, Philadelphia, 1897, formerly member of the board of public welfare of Worcester, Mass., at one time on the staff of the Memorial Hospital, Worcester, aged 72, died, March 14, of paralysis agitans and fracture of the neck of the femur

**John Francis Hayes**, Waterbury, Conn., University of the City of New York Medical Department, 1879, member of the Connecticut State Medical Society, member of the board of education, 1900-1901, aged 77, died, February 24, in St. Mary's Hospital following an operation for appendicitis, and chronic myocarditis

**Alfred Henry Brauer** † Captain, M.C., U. S. Army, Brackettville Texas State University of Iowa College of Medicine Iowa City, 1931 entered the M. C., U. S. Army, as a first lieutenant in 1932 and in 1934 was promoted to captain, aged 28, died, March 11, of cerebrospinal meningitis

**William Nelson Offutt** † Lexington, Ky., Hospital College of Medicine, Louisville, 1902 member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, on the staffs of the Good Samaritan and St. Joseph's hospitals, aged 58, died, April 3

**Robert H. Wynyard Powell**, Ottawa, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1876, honorary registrar of the medical council of Canada, past president of the Canadian Medical Association, fellow of the American College of Surgeons, aged 79, died, April 4

**George Howard Mayhugh**, Westerville, Ohio, Physio-Medical College of Indiana, Indianapolis, 1885 Ohio Medical University, Columbus, 1895, member of the Ohio State Medical Association, formerly a member of the board of education and city council, aged 77, died, April 8

**Edward H. Hayward** † Detroit, Detroit College of Medicine, 1904, formerly lecturer in bacteriology and assistant professor of medicine at his alma mater, at one time member of the city health department, aged 61, died, February 24, in the Grace Hospital, of pneumonia

**Edward Randolph Turnbull**, Lawrenceville, Va., University of Virginia Department of Medicine, Charlottesville, 1884 member of the Medical Society of Virginia, for many years member of the county school board and county health officer, aged 78, died, March 20

**John Fogo Doudna**, Lake City, Mich., Barnes Medical College, St. Louis, 1899, member of the Michigan State Medical Society, served during the World War, formerly village president health officer and member of the board of education, aged 60, died, April 9

**Franklin Edward Collins** † Brookhaven, Miss., Vanderbilt University School of Medicine Nashville Tenn., 1905, past president of the Tri-County Medical Society, on the staff of the Kings Daughters Hospital, aged 52, died, April 3, of coronary sclerosis

**William Edward Magruder** † Baltimore Baltimore Medical College, 1895 at one time associate professor of therapeutics, College of Physicians and Surgeons, aged 61, died, March 29, in Miami, Fla., of acute peritonitis and carcinoma of the sigmoid

**William Samuel Evans** \* Columbus, Neb., College of Physicians and Surgeons, Baltimore, 1903, fellow of the American College of Surgeons, served during the World War, on the staff of St Mary's Hospital, aged 71, died, March 29 of lobar pneumonia

**Charles E McCord**, Fortville, Ind., Medical College of Indiana, Indianapolis, 1895, member of the Indiana State Medical Association, past president of the Hancock County Medical Society, aged 65, died, March 19, in Greenfield, of cerebral hemorrhage

**Joseph Schwartz**, Sioux Falls, S D, State University of Iowa College of Medicine, Iowa City, 1893, member of the South Dakota State Medical Association, aged 70, died, April 13, of diabetes mellitus, arteriosclerosis and decompensation of the heart

**John Henry Fulgham** \* East St Louis Ill., Marion-Sims College of Medicine St Louis, 1895, past president of St Clair County Medical Society, formerly county coroner, on the staff of St Mary's Hospital, aged 62, died, March 13, of heart disease

**Winfield Scott Schley** \* New York, Columbia University College of Physicians and Surgeons, New York, 1896, fellow of the American College of Surgeons, on the staff of St Luke's Hospital and the Ossining (N Y) Hospital, aged 61, died, April 1

**Andrew Augustus Reed**, Jeffersonville, Ind., Kentucky School of Medicine, Louisville, 1896, served during the World War, formerly county jail physician, aged 67, died, March 31, in a hospital at Indianapolis, of diabetes mellitus and gangrene

**Frank Herbert Coffin** \* Haverhill, Mass., Boston University School of Medicine, 1900, past president of the Essex North District Medical Society, served during the World War, aged 61, was found dead in bed, April 7, of coronary sclerosis

**Charles Henry French**, Pawtucket, R I., Bellevue Hospital Medical College, New York, 1880, member of the Rhode Island Medical Society, formerly bank president, at one time health officer of Waterbury, Conn., aged 76, died, March 4

**David McClelland Perkins**, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh 1893, member of the Medical Society of the State of Pennsylvania, aged 70, died, March 31, of chronic nephritis, hypertension and cerebral thrombosis

**Otto Carl Stutz**, Upper Sandusky, Ohio, Cleveland College of Physicians and Surgeons Medical Department of the University of Wooster, 1885, member of the Ohio State Medical Association, county coroner, aged 70, died, February 28

**Warren E Taylor**, Moline, Ill., Hahnemann Medical College and Hospital, Chicago, 1877, at one time mayor and health officer of Monmouth, formerly managing officer of the East Moline (Ill.) State Hospital, aged 80, died, March 31

**Seth Conway**, Sharpsburg, Ky., Kentucky University Medical Department, Louisville, 1905, member of the Kentucky State Medical Association, aged 55, died, April 3, in the Good Samaritan Hospital, Lexington, of cerebral hemorrhage

**John C Preston**, Avon, N Y., University of Buffalo School of Medicine, 1892, member of the Medical Society of the State of New York, health officer of the village of Avon, aged 68, died, March 14, of angina pectoris and arteriosclerosis

**Samuel M Sacks**, Washington, D C., George Washington University School of Medicine, Washington, 1907, member of the Medical Society of the District of Columbia, aged 54, died, February 14, of nephritis and diabetes mellitus

**Karl P Hampton**, Seminole, Okla., American Medical College, St. Louis, 1904, member of the Oklahoma State Medical Association, aged 58, died, March 3, in St Anthony's Hospital, Oklahoma City, of adenocarcinoma

**Alexander Heustis Dean** \* Wilkes-Barre, Pa., Jefferson Medical College of Philadelphia, 1900, on the staff of the Nanticoke (Pa.) State Hospital, aged 59, died, March 19, in the Easton (Pa.) Sanitarium, of myocarditis

**Alvin Zenas Stoner**, Bedford Valley, Pa., University of Pittsburgh School of Medicine, 1912, member of the Medical Society of the State of Pennsylvania, served during the World War, aged 48, died suddenly, February 23

**William Clinton Sheehy**, New Bedford, Mass., University of the City of New York Medical Department, 1890, served during the World War, aged 69, died suddenly, April 13, of angina pectoris and chronic myocarditis

**Hugh Joseph McDonald**, Butte, Mont., McGill University, Faculty of Medicine, Montreal, Que., Canada, 1885, member of the Medical Association of Montana, on the staff of the Murray Hospital, aged 73, died, March 22

**Alexander Wilson Pollock**, Addis Ababa, Abyssinia, Africa, Western Pennsylvania Medical College, Pittsburgh, 1901, for many years a medical missionary, aged 59, died in February, of cerebral hemorrhage

**Alfred McNally**, Lethbridge, Alta., Canada, University of Toronto Faculty of Medicine, 1905, fellow of the American College of Surgeons, on the staffs of the Galt and St Michael's hospitals, aged 52, died, April 1

**Nicholas Walter Kelly**, Memphis, Tenn., Memphis Hospital Medical College, 1900, member of the Tennessee State Medical Association, served during the World War, aged 57, died, March 23, of pneumonia

**Charles Porter McKee** \* St Marys, Ohio, Starling Medical College, Columbus, 1905, past president of the Auglaize County Medical Society, member of the school board, aged 54, died, March 29, of pneumonia

**William Henry Beardsley**, Springfield, Vt., Yale University School of Medicine, New Haven, Conn., 1910, formerly member of the state legislature, aged 52, died, March 2, in a hospital at Hanover, N H

**Lena Honegger Bertschinger**, Rancho Santa Fe, Calif., Universität Zürich Medizinischen Fakultät, Zurich, Switzerland, 1891, aged 67, died recently, of cerebral hemorrhage, arteriosclerosis and hypertension

**Harry Leo Tapperman**, Benson, Ariz., University of Michigan Medical School, Ann Arbor, 1930, member of the Arizona State Medical Association, aged 28, died, February 23, in Los Angeles

**Alfred Byrd Phillips**, Dora, Ala., Vanderbilt University School of Medicine, Nashville, Tenn., 1883, aged 74, died, March 5, in a hospital at Birmingham, of lobar pneumonia and diabetes mellitus

**Joseph A McGee**, Big Springs, Ind., Physio-Medical College of Indiana, Indianapolis, 1883, aged 84, died, April 16, in the Witham Memorial Hospital, Lebanon, of endocarditis and arteriosclerosis

**Charles Winn Williams** \* Cedartown, Ga., Birmingham (Ala.) Medical College, 1913, formerly secretary of the Polk County Medical Society, aged 45, died, March 8, of influenza and pneumonia

**Adelbert Britton Deynard**, New York, Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1875, aged 85, died, March 21, in Owen Sound, Ont., of cardiovascular degeneration

**Bernard Francis McGaffigan**, Boston, Tufts College Medical School, Boston, 1904, on the staff of the Deer Island Hospital, aged 56, died, April 2, in the Boston City Hospital, of heart disease

**Harold Pederson**, Minneapolis, University of Minnesota College of Medicine and Surgery, Minneapolis, 1907, member of the Minnesota State Medical Association, aged 61, died in March

**John Edmund Dehoff**, York, Pa., Southern Homeopathic Medical College, Baltimore, 1897, member of the Medical Society of the State of Pennsylvania, aged 62, died, February 16

**Edgar Eynon Chivers**, Mannsville, Okla., Rush Medical College, Chicago, 1899, member of the Oklahoma State Medical Association, aged 59, died, March 23, in Ardmore, of pneumonia

**James Ritchie Robertson**, Halifax, N S, Canada, McGill University Faculty of Medicine, Montreal, Que., 1925, aged 34, died, February 27, in the Glace Bay (N S) General Hospital

**Marion B Richards**, Harleton, Texas, Hospital College of Medicine, Louisville, Ky., 1905, member of the State Medical Association of Texas, aged 59, died, February 4, of pneumonia

**Thomas M Calvert**, Mannington, W Va., Baltimore University School of Medicine, 1892, member of the West Virginia State Medical Association, aged 94, died, March 2

**Byron J Lillibridge**, Braintree, Mass., Jefferson Medical College of Philadelphia, 1883, member of the Rhode Island Medical Society, aged 74, died, March 20, in Miami, Fla

**Charles B Chenoweth**, Nora Springs, Iowa, Rush Medical College, Chicago, 1884, aged 77, died, March 28, in a hospital at Mason City, of coronary occlusion and acute mastoiditis

**Mark Tenney Phy Baker**, Ore., Rush Medical College, 1926, aged 36, died, March 29, in St Vincent's Hospital, Portland, Ore., of peripheral neuritis and bronchopneumonia

**Lewis McClure Campbell**, Red Sulphur Springs, W Va., College of Physicians and Surgeons, Baltimore, 1887, aged 71, died, March 31, of carcinoma of fundus of the stomach

**Joseph Shelor Stribling**, Seneca, S C., Bellevue Hospital Medical College, New York, 1888, an Affiliate Fellow of the American Medical Association, aged 71, died, March 16

**Samuel Jones Hayes**, Pine Plains, N Y Medical College of the State of South Carolina, Charleston, 1932, aged 37, died, March 7, in a hospital at Baltimore, of multiple sclerosis

**Rudolph Adam Constien** & Ashland, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1900 served during the World War, aged 57, died, March 24

**John William Hooper**, Roanoke, Ala Jefferson Medical College of Philadelphia, 1884 served during the World War, formerly county health officer, aged 70 died, March 18

**Edward St Clair Furay**, Omaha, John A Creighton Medical College Omaha, 1895, served during the World War, aged 65 died, March 6 of arteriosclerosis and myocarditis

**Gustave August Andre** & Hartford Conn University of the City of New York Medical Department, 1895, aged 64, died March 19, in the Hartford Hospital, of heart disease

**Albert Clement Shute**, Pottstown Pa Hahnemann Medical College and Hospital of Philadelphia 1891 on the staff of the Homeopathic Hospital, aged 67, died in March

**William Munroe Urkart**, West Bend Wis Milwaukee Medical College Milwaukee 1907 aged 56 died suddenly, April 7, in the Wisconsin General Hospital Madison

**William Righter McNair**, Los Angeles Jefferson Medical College of Philadelphia, 1899 also a pharmacist, served during the World War, aged 61 died suddenly, March 26

**William Lyle Allred**, San Francisco Stanford University School of Medicine San Francisco 1931 radiologist to the San Francisco Hospital aged 50 died March 7

**William Bertram Scott** & Seattle George Washington University School of Medicine Washington D C, 1908 aged 60 died, March 12, of carcinoma of the rectum

**Abraham Lincoln Preston**, Brookville Ind Medical College of Indiana Indianapolis 1884 aged 74 died February 23, of chronic myocarditis and cerebral hemorrhage

**Thomas McClelland Faddis**, Charleroi Pa, Jefferson Medical College of Philadelphia 1894 for many years member of the school board, aged 70, died March 21

**William E McGlasson**, Commerce Texas (registered by Texas State Board of Medical Examiners, Act of 1907) aged 61 died, March 17, of cerebral hemorrhage

**James Henry Slaughter** & Kilgore Texas Mississippi Medical College, Meridian 1912 member of the Arkansas Medical Society, aged 48, died March 17

**J Wesley Price**, Booneville Miss University of Virginia Department of Medicine, Charlottesville, 1894, aged 63 died March 25, of septic thrombosis and pyemia

**Harry A Roach**, Chicago College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois, 1905, aged 53, died March 20

**William R Froneberger**, Maryville Tenn Tennessee Medical College Knoxville, 1896 aged 60 died March 14, in the Knoxville (Tenn) General Hospital

**Hiram Allen Buell**, Prairie Farm Wis Wisconsin College of Physicians and Surgeons, Milwaukee, 1910, served during the World War, aged 50, died, March 20

**Howe A Jordan**, Big Island, Va, College of Physicians and Surgeons, Baltimore 1879, member of the Medical Society of Virginia, aged 82, died March 13

**Charles Herman Hofmann**, Los Angeles New York Homeopathic Medical College 1879 aged 79, died, February 26, in the Cedars of Lebanon Hospital

**Percy Campbell Overstreet**, De Kalb, Miss, University of Nashville (Tenn) Medical Department, 1908, aged 52 was found dead, April 13, of heart disease

**John Everette Siler**, Lot, Ky, Hospital College of Medicine Louisville, 1903, served during the World War, aged 57, died, March 3, of multiple sclerosis

**William Porter Wilkin**, New York, Bellevue Hospital Medical College New York, 1885 aged 73 died recently in Wilmette, Ill, of lobar pneumonia

**Louis J Toussaint**, Milwaukee, Milwaukee Medical College, 1896, aged 67, died, March 24, in the Mount Sinai Hospital, of coronary thrombosis

**Jesse M Abston**, Monroe Township, Ind, Central College of Physicians and Surgeons, Indianapolis, 1880, aged 86, died recently, of cerebral hemorrhage

**John Wesley Le Seur**, Batavia N Y Hahnemann Medical College and Hospital of Philadelphia, 1886, aged 77, died, March 10 while aboard a train

**Samuel McKibbin** & Creede, Colo, Victoria University Medical Department, Coburg, Ont, Canada, 1888, aged 76, died, March 29, of myocarditis

**Robert Thomas Hill**, St Louis, Jefferson Medical College of Philadelphia, 1865, Civil War veteran, aged 97, died, March 23, of chronic nephritis

**Walter Tremaine Purdy**, Amherst, N S, Canada McGill University Faculty of Medicine, Montreal, Que., 1913, aged 48 died, March 21, at Montreal

**Leo S Talaska**, Toledo, Ohio, Toledo Medical College, 1898, aged 59, died, March 11, in St Vincent's Hospital, of pneumonia and heart disease

**Beverley Louis Rosswell Kelly**, Fordwich, Ont Canada, University of Western Ontario Medical School, London, 1930, aged 29 died, February 22

**Theodore Jefferson Catlin**, Buffalo, Minn, Rush Medical College Chicago, 1874, aged 86, died, March 16 in the Catlin Hospital, of pneumonia

**George Washington Hogle**, Mount Vernon, Iowa, Miam Medical College Cincinnati, 1891, aged 74, died, February 10 in Pasadena, Calif

**Charles Granville Duncan** & Socorro, N M, University of Maryland School of Medicine, Baltimore, 1881, aged 85, died, March 27

**Charles Fremont Sherman** Stone Ridge, N Y, University of Vermont College of Medicine, Burlington, 1890, aged 78, died, March 3

**Alfred J Skiles**, Kenton, Tenn Memphis (Tenn) Hospital Medical College, 1893, aged 71, died, March 25, in a hospital at Memphis

**Thomas O Douglass**, Eupora Miss (licensed in Mississippi in 1890) also a druggist aged 67, was found dead in April of heart disease

**Josephine Antonia Jewett**, Berkeley Calif, Oakland (Calif) College of Medicine and Surgery, 1917, aged 65, died February 17

**William John Jackson**, San Francisco, College of Physicians and Surgeons of San Francisco, 1898, aged 68, died, February 1

**Walter Theron Travis**, Dalhart, Texas, Hospital College of Medicine, Louisville Ky 1907, aged 48, died recently, of septicemia

**Stacy Burchard Hall**, Healdsburg Calif, Medical Department of Omaha (Neb) University, 1901, aged 55, died, February 17

**Alta M Kesler Boram**, South Bend Ind, Eclectic Medical Institute, Cincinnati, 1905, aged 53, died, April 12, of diabetes mellitus

**Laurence Reginald Ryan**, Santa Barbara Calif, Jefferson Medical College of Philadelphia, 1888, aged 76, died, February 4

**Hiram Whisler**, Tingley, Iowa (licensed in Iowa in 1887), aged 85 died, February 20, in Des Moines, of chronic myocarditis

**Charles Henry McElfresh**, San Diego, Calif, Marion Sims College of Medicine, St Louis, 1898, aged 71, died, in March

**Augustus Milleg**, New York University of the City of New York Medical Department, 1889, aged 67 died, March 13

**Edwin Lyttelton Paulding**, Arroyo Grande, Calif, Medical College of Ohio, Cincinnati, 1882, aged 85 died, February 23

**George Lew Chee**, Los Angeles, University Medical College of Kansas City Mo, 1911, aged 48, died, February 26

**George Monroe Peavler**, Bristol, Tenn Hospital College of Medicine, Louisville, Ky 1889, aged 76 died, March 24

**Emerson Boynton**, Lancaster, Pa College of Physicians and Surgeons, Baltimore, 1897, aged 62, died February 24

**Joseph Marsh Martin**, Lewes, Del Jefferson Medical College of Philadelphia, 1894, aged 62, died, March 30

**Callie F Johnson**, Hatfield, Ark. (licensed in Arkansas in 1903), aged 72, died, March 17, of mitral insufficiency

**Harry P G Edsell**, Liberty, Ind (licensed in Ohio in 1897), aged 94 died recently, of bronchopneumonia

**Henry N Princehouse**, Smackover, Ark (licensed in Arkansas in 1903), aged 66, died recently

**James N Reeves**, Baytown, Texas (licensed in Texas under the Act of 1907), aged 73, died in March

**Albert Ellsworth Froom**, Belvidere Ill, Chicago Medical College, 1886, aged 73 died, March 4

## Bureau of Investigation

A E G HALL

### Bringing the Criminal Record of This Quack in the Psychology Field Down to Date

Hall is again loose after two years incarceration in the Kingston, Ontario Penitentiary. Readers of this department of THE JOURNAL may remember an article published Oct. 13 1928, on one A E G Hall who worked the quack psychology racket. According to information collected, Hall's name is Alfred Ernest Edward George Hall and not content with having most of the letters of the alphabet conferred on him at birth before his name he has adopted for use after his name the titles M.D., Ps.D. M.Sc.D. B.A. F.P.s.A., B.L." and possibly some others. Needless to say the man is not a physician, has never attended any reputable medical school or been licensed to practice anywhere in the United States or Canada.

Hall is said to have been born in London in 1892 and to have been brought to Canada by his parents a year later. He apparently acquired Canadian citizenship, and since he has been grown, has made at least three trips to England.

A few years ago Hall claimed under oath that he held a degree in medicine granted by the McKechnie School of Medicine of Victoria, B.C., in 1916. There is no such institution and never has been. Hall also claimed to have attended "Ballie College" of the University of London for three years and to have obtained the degree of B.A. at that institution. There is no Ballie College and Hall has never been graduated by the University of London. Hall also claimed during one of the numerous times that he has been under arrest that from 1916 to 1918 he was the Executive Director of the Belgian War Orphans Relief for the Dominion of Canada. This was another story made up out of whole cloth.

During the various times that Hall came to the United States, he called himself a consulting psychologist. When he was in Chicago he posed as a specialist of London, Paris, Geneva and Vienna—and possibly points east—and discoursed on "Sex and Civilization." In fact, sex has been Mr. Hall's



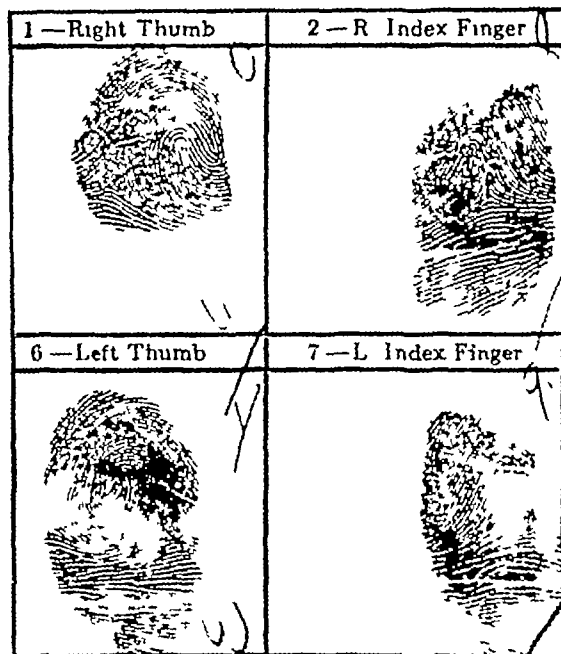
Photographs of A E G Hall. Left taken at the time he entered Kingston (Ont.) Penitentiary, August 1933. Right taken when he was liberated from the penitentiary, in February 1935.

forte. At one time when Hall was in Toronto the weekly publication *Saturday Night* of that city described Hall as a 'sexual quack' who was giving utterly filthy and unscientific discourses on sexual subjects. He gave the same sort of stuff in the United States, and the Bureau of Investigation received from some persons who were present at his talks statements declaring that Hall showed a sadistic tendency.

For some time Hall operated at Richmond Ind. where he is said to have created a fake organization called the "American

Academy of Psychological Research" and to have appointed himself 'Dean' of the "Academy"! The thing, of course, had not the slightest educational standing, it had connected with it a motley group of faddists, fakers or quacks. It distributed degrees lavishly. Curiously enough, most of the attendants at this so-called Academy hailed from eastern Canada.

In April, 1926 Hall came to Chicago allegedly to attend a conference in the anti-narcotic cause" and to create a local



Some of the fingerprint records of Alfred E. Hall from the files (No. 46612) of the Federal Bureau of Investigation of the U. S. Department of Justice.

organization and deliver a series of lectures. Hall claimed that he had been engaged by the "International Order of Crusaders" at a salary of \$12,000 a year and expenses. He was also to receive 50 per cent of the registration fees of those who would take his 'course', as well as such fees as he could wangle out of the public in his pose as a "consultant psychologist." While in Chicago, Hall was arrested for obtaining money under false pretenses and working a confidence game. He was fined and sent to the House of Correction for six months. He was also arrested in Illinois for violation of the medical practice act of that state, but, as so often happens, the case had to be *nolle prossed* due to the mysterious disappearance of a witness. When Hall was arrested in Chicago in July, 1927, he claimed that he had been the "financial chairman" for Aimee Semple McPherson when she had her 'revival meetings'.

Hall's police record, so far as the Bureau of Investigation has it—and it is possibly incomplete—is as follows:

1923—Vancouver. arrested for obtaining credit under false pretenses. Sentence suspended.

1924—Vancouver. arrested for conspiring to defraud. Case dismissed. Again arrested charged with obtaining money under false pretenses and sentenced to six months at hard labor in Oakalla Prison.

1925—Vancouver. arrested for obtaining money under false pretenses. Sentenced to twelve days. Again arrested for obtaining money under false pretenses and sent to jail.

1926—Chicago. arrested on charge of operating a confidence game and obtaining money under false pretenses. Was fined and sentenced to six months in the House of Correction.

1927—Chicago. arrested for practicing medicine without a license. Charge *nolle prossed* for lack of prosecution. At the same time Hall was taken into custody by the United States authorities as an alien who had violated the Immigration Act. He was given hearing and deported.

1928—Toronto. arrested on the charge of vagrancy. Charge withdrawn, as he had money in his pocket.

1930—Toronto. arrested for swindling the Royal York Hotel of about \$1,100. Sentenced to six months in the Ontario Reformatory.

1932—Cleveland. arrested by the police department and again deported to Canada.

1933—Toronto. arrested and found guilty of theft. Sentenced to two years in the Kingston Penitentiary.

Hall's escapade in Toronto in 1930 consisted, first, in running up a bill of \$220 at the King Edward Hotel, according to the Toronto papers of February, that year. In April, 1930, Hall again made the front page, this time by giving a banquet at the Royal York Hotel of Toronto, at which Sir Geo. C. Foster is alleged to have spoken. The banquet cost \$1,000 and the total amount of credit that Hall obtained from the Royal York Hotel was more than \$1,100. He was charged with obtaining credit by false pretenses, pleaded not guilty and elected trial by jury. According to the assistant manager of the hotel, Hall, who had introduced himself as "Doctor," had stated that he was general organizer of the National Order of Canada, which, he alleged, was in a flourishing condition, highly organized, and was paying him \$12,000 and expenses. Investigation proved that the National Order of Canada was not in a flourishing condition, it actually had not more than seventy-five members, and, of course Hall was not in receipt of any salary. On May 9, 1930, Hall was convicted and sentenced to six months determinate and six months indeterminate in the Ontario Reformatory. When asked if he had anything to say, Hall struck a dramatic pose and declared that he had been systematically hounded by the authorities.

Not content with this sample of Ontario justice Hall in 1933 was put on trial in Toronto on a charge of theft. Hall and one Fred Hastings with whom he was associated were alleged to have stolen \$2,482 paid to them as subscriptions for various magazines and periodicals while they operated an organization known as the Dominion Publications Bureau. Hall acted as his own attorney and in addressing the jury he said: "You have not before you the ordinary type of criminal that goes out to plunder and steal." He pleaded "justification and honest error." Hall told the jury, also, that he had written books about criminals, had looked after them spiritually, had studied them psychologically and their actions were not the same as his own. He again charged that he was being hounded by the authorities. Hall was very persuasive and dragged the usual red-herrings across the trail and the judge, in charging the jury, warned them not to allow themselves to be carried away "by frenzied eloquence." They did not. Hall was sentenced to two years in the Kingston Penitentiary.

A few weeks ago Hall completed his two year sentence in the penitentiary. Apparently no sooner was he out of the penitentiary than he hired a hall, in accordance with his usual methods, and as the Toronto *Evening Telegram* reported, "smartly dressed in striped trousers, black coat, wing collar and flowing tie," addressed an audience—of less than a hundred—telling them what an unpleasant place the Kingston Penitentiary is. He also made charges against the warden of the penitentiary and the Hon. D. M. Ormond Superintendent of Penitentiaries at Ottawa. Hall is reported to have stated to his audience that he didn't regret his experience in the penitentiary and that since getting out he had written a 100 page report. He claims to have been one of those sentenced to be paddled while he was in the penitentiary, but it appears from the report that, unfortunately for the public—and possibly for Hall himself—the sentence was not carried out.

The reason for calling attention to A. E. G. Hall is that this quack and ex-convict is more than likely to make another attempt to get into the United States. If he does, it can be taken for granted from his past record that he will live by his wits and at the expense of the American public.

**American Classics in Medicine**—I would plead for a larger interest in the historical method of approach to our subjects. There is a fascination in books not only merely for their contents, but for something about the author it may be, or something about the period, something occasionally about the binding. In other words, there is an opportunity for the bibliophile, some like to call him a bibliomaniac. There is an opportunity for him in medicine as well as in general literature. There are books and collections of works that mark eras and they are called Medical Classics. This is a very attractive thing, rather expensive I will admit, but you can now and then pick up such things. We have our classics, even American Classics in medicine—Welch, W. H. History of Pathology, *Bull. Inst. Hist. Med.* 3:1 (Jan) 1935.

## Correspondence

### DIAGNOSIS BY CULTURAL METHODS OF RECTAL GONORRHEA IN WOMEN

*To the Editor*—In THE JOURNAL, January 19, p. 192, Martin called attention to the not uncommon complication arising from rectal gonorrhea in women with genital gonorrhea. He however bases his diagnosis of rectal gonorrhea on microscopic examination of smears made from material swabbed from the rectal wall. He rejects the cultural method, as he thinks that the results are inconclusive. But it should be admitted that a diagnosis made from the examination of smears from the rectum is often unreliable, especially in view of the occurrence of gram negative cocci and coccobacilli of the fecal flora in such smear preparations.

Contrary to the views held by Martin on the value of cultural methods for the diagnosis of rectal gonorrhea, I find that cultural methods give excellent results and that diagnosis by culture is much more reliable than by microscopic examination of smears (Ruys, A. Charlotte, and Jens, P. A. *München med. Wchenschr.* 80:846 [June 2] 1933).

Out of eighty-two women with genital gonorrhea that I investigated, forty-eight (60 per cent) were positive for gonococci in cultures at the first examination. Gonococci were also invariably isolated by culture from the rectum of children with gonorrheal vulvovaginitis. All the thirty-eight children that were examined were positive for gonococci by the cultural method.

The following comparative statement of results by the cultural method and by the microscopic method brings out the greater reliability of the cultural method in diagnosis of gonococcal infection of the rectum.

Smear positive	culture positive	48
Smear positive	culture negative	3
Smear doubtful	culture positive	23
Smear doubtful	culture negative	3
Smear negative	culture positive	46
Smear negative	culture negative	218

In seventy-two cases in which smear examination gave a negative result or a doubtful finding, sixty-nine cases were positive for gonococci in culture.

The mediums that I use are Bieling's blood-water agar and Levinthal's agar with ascitic fluid, both of which gave good results. I use a slightly modified procedure for the preparation of the Bieling medium (Ruys, A. Charlotte. *Centr. bl. f. Bakt.*, orig. 127:280 [Jan 30] 1933). Blood drawn from a horse is immediately diluted with an equal part of distilled water and kept in a bath at 60 C for thirty minutes. After that period, two parts of this are mixed with three parts of nutrient agar. It is desirable to dry the medium slightly before inoculating. The mediums are warmed slightly before inoculating. The material is obtained by scraping softly the mucosa of the rectum with a strong platinum loop and transferring a very small bit of mucus or the scraping on to the culture medium. It is then very carefully spread on the surface of the medium by means of a Drigalski spatula on two blood agar plates and two Levinthal's ascites agar plates. The plates are incubated at 37 C. in containers with water at the bottom to prevent excessive evaporation. In twenty-four hours the gonococci grow into discrete colonies and in forty-eight hours they are much larger and are characteristic in appearance. They can then be easily distinguished from the colonies of fecal organisms. The gonococcus colonies are translucent, irregular, raised above the surface of the medium, moist and grayish. Subcultures were always made for further determination.

The patients from whom these examinations were made consisted of children and women. The women were patients with genital gonorrhea either in an acute stage or in a chronic stage.

Eight out of forty-eight women that were positive for gonococcal infection of the rectum complained of slight pain and only one suffered from severe symptoms. The others had no symptoms.

Gonococcal infection of the rectum is often overlooked and, as mentioned by Martin, the infection could be recognized only if specially looked for. In the diagnosis of the infection, the examination of smears from the rectum is not as reliable as the cultural method of diagnosis. By means of cultures a larger number of cases were found to be positive, while by the examination of smears many of the positive cases escaped detection.

A CHARLOTTE RUIS, M.D., Amsterdam, Holland  
Director, Municipal Health Laboratories

### TREATMENT OF PELLAGRA

*To the Editor*—In *THE JOURNAL*, April 20, 1935, page 1377, was an article by Dr. Tom D. Spies on the treatment of pellagra. It is surprising that Dr. Spies made no mention of the achlorhydria or hypochlorhydria that all pellagrins show. In a series of fifty patients from Tennessee and the Carolinas that I have studied it was found that the use of dilute hydrochloric acid in the treatment of pellagra immediately improved the stomatitis and diarrhea that these patients generally show. It has been my opinion that the achlorhydria has a definite pathologic significance and that one must take cognizance of this fact. Dermatitis, diarrhea, stomatitis and nervous symptoms are late manifestations of the disease but an achlorhydric anemia is an early manifestation.

MARVIN SANDORF, M.D., Indianapolis

### Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

#### TREATMENT OF LOCOMOTOR ATAXIA

*To the Editor*—A white man aged 36 married with no children, had no complaints referable to any system except frequent headaches on the top of the head and difficulty in falling asleep. The past history was essentially negative except that about sixteen years before he had a blister on the penis which healed spontaneously after a few weeks. A routine examination revealed Argyll Robertson pupils, an absent left knee jerk, absent ankle jerks and a suggestive positive Romberg sign. The Wassermann reaction was 4+ with both antigens. From April 10 to July 2, 1934 he was given ten intravenous injections of from 0.45 to 0.6 Gm. of nearsphenamine and twelve intramuscular injections of 2 cc. each of iodobismutol once a week. One month later a lumbar puncture was done. Clear fluid under no increased pressure was obtained. There was no increase in cells and acid chemical tests were negative except for increased globulin. Wassermann and colloidal gold tests were negative. The Wassermann reaction of the blood at this time was still 4+. There were still no subjective complaints except difficulty in falling asleep. There is apparently no mental deterioration. After a rest period of two months the previous plan of treatment was resumed. After nine injections of iodobismutol the Wassermann reaction is still 4+. The diagnosis is apparently *tabes dorsalis*. Will you please outline a scheme for further treatment. Should tryparsamide be used? He weighs 155 pounds (70 Kg.) and there are no apparent visceral lesions. Please omit name.

M.D. New York

*ANSWER*—In this case the report of a negative Wassermann reaction in the spinal fluid cannot be accepted with certainty unless it is known that the test was carried out with large as well as with small amounts of fluid. A satisfactory Wassermann test on the spinal fluid demands quantitative titration. If the unit of reagents employed by the laboratory in the test is 0.2 to 0.25 cc. the actual test with spinal fluid should be done with amounts of fluid ranging from 0.1 to 1 cc. In patients with *tabes dorsalis* it is not uncommon to find a positive Wassermann reaction in the fluid with large amounts when the test with small amounts is negative. If such a quantitative Wassermann test has not been done, it would be wise to repeat the lumbar puncture at an early date.

If the spinal fluid is actually as stated—normal, except for some increase in protein—it may be assumed with a fair degree

of certainty (and especially in view of the fact that the patient is symptom free and recognizable as *tabetic* only on the basis of physical signs) that he represents an instance of so called *burnt out tabes*, i.e., an inactive process in the nervous system, the neurologic abnormalities representing scars of previous activity. Under these circumstances his treatment may be continued for a minimum of two years with alternating courses of an arsphenamine and a bismuth compound.

These drugs are preferably given in alternation rather than simultaneously, and it is desirable that treatment be continuous rather than intermittent. Rest periods, if interpolated at all, should be short. No attention whatever need be paid to the response of the blood Wassermann reaction.

If, on the other hand, the spinal fluid Wassermann reaction is positive even with large amounts of fluid, it is fair to assume that there is still activity of the infection in the nervous system. It should be remembered that a provocative response may be obtained in the spinal fluid as in the blood and that, even though the fluid may originally have been negative, it may now be definitely abnormal. Under these circumstances it is probably advisable to treat the patient immediately with artificial fever, preferably with malaria. Follow up treatment, after malaria is completed, should consist of alternating courses of an arsphenamine and a bismuth compound for a minimum period of two years.

On the basis of the information supplied, it is probably neither necessary nor advisable to use tryparsamide in this situation. If the *tabes* is inactive, tryparsamide is unnecessary, if it is active, better results, so far as insurance for the future and shortening of the total duration of treatment are concerned, will be accomplished by the use of fever rather than tryparsamide. Finally, visual reactions due to the use of tryparsamide are more common in *tabes* than in other types of neurosyphilis.

The serologic control of treatment should rest entirely on the spinal fluid and not on the blood. The spinal fluid examination should be repeated as a routine procedure at intervals of every six months during and for the first two or three years after the completion of treatment and thereafter yearly or biyearly for the duration of the patient's life.

It goes without saying that the patient's wife should be examined and that, in view of the facts that he has neurosyphilis and that conjugal neurosyphilis is frequent, the examination should include, in addition to a blood Wassermann test, a complete physical and neurologic examination, and laboratory study of the spinal fluid.

#### PALLOR OF NASAL MUCOUS MEMBRANE AND USE OF HYDROCHLORIC ACID

*To the Editor*—I have heard it stated frequently that pallor of the nasal mucous membrane is an indication for prescribing dilute hydrochloric acid with meals particularly in treating patients with chronic atrophic arthritis. This is done apparently regardless of the gastric acidity as revealed in the usual form of gastric analysis. It is supposed to have some beneficial effect on the acidity of the body as expressed in the excreta such as the urine and the body sweat. Will you please discuss the truth or fallacy of these statements and give any references available? Also please explain the probable effects of the continued use of hydrochloric acid by such patients who have an apparently normal gastric acidity to begin with. Kindly omit name and address.

M.D., Massachusetts

*ANSWER*—There is a school of thought in this country which believes that human beings can be divided into groups depending on whether the sympathetic or the parasympathetic system or a mixture of the two is dominant in the constitution. These three types tend to suffer from certain illnesses and the proper use of certain foods and medications has a pronounced effect on the individual and his complaints. Furthermore, the color of the mucous membrane, in particular that of the nasal septum, is not only an aid in assigning any patient to the particular group to which he belongs but is an index to the success of the therapeutic measures instituted.

Patients who have red nasal mucous membranes are those in whom the sympathetic system is dominant. The diseases frequent in them are infections, hyperthyroidism, atrophic arthritis, diabetes mellitus, cancer and hypertension of the vascular system.

Patients in whom the parasympathetic system is dominant and whose nasal mucous membrane is more or less pale tend to suffer from asthma, hay fever, urticaria, eczema, other allergic diseases, hypothyroidism and hypotension of the vascular system.

For each of these groups there are certain foods to be avoided and others to be taken. The chloride, iodine and chlorophyll intake is important. Patients with red septums should avoid acid ash producing foods, patients with pale septums should be given acid ash producing foods and also therapeutic doses of dilute hydrochloric acid. Full details as to



diagnosis and treatment are given in an article published by D. C. Jarvis in the *Archives of Otolaryngology* (21:131 [Feb] 1935).

There are others who do not accept this thesis and who have attempted to prove their points by clinical experimentation. For instance, in one publication it was determined that 1. No correlation could be found between the color of the nasal mucosa and the clinical symptoms of acidosis in fifty critically ill patients, all of whom showed clinical symptoms of acidosis with hyperpnea, dehydration and acetoneuria. 2. Age influences the color of the nasal mucosa of normal individuals. After 60 the membranes tend to become atrophied and are very pale, while the membranes of infants are very red. 3. Blonds with pale fair skin have pale mucous membranes while brunettes with high color have membranes that tend to be red. 4. Posture, exercise, the use of alcohol, the inhalation of dry air or irritants such as dust influence the color of the nasal mucosa. 5. From these observations it may be concluded that the color of the nasal mucosa varies not only in persons who are ill but also in healthy individuals and that the reasons for these variations are not necessarily of a pathologic nature (Bernheimer, L. D. and Cohen, D. J. *The Color of the Nasal Septum*, *THE JOURNAL*, April 29, 1933, p. 1324).

It would perhaps be best to keep an open mind on the ideas expressed by the first mentioned school. Their theories in the minds of many remain unproved yet the treatment recommended is lacking in danger. Their recommendations could be carried out empirically and the results judged on their own merits. More than one method of treatment in medicine has been used successfully for years before the laboratory proof of its worth became available. Digitalis is a remedy of which this is preeminently true.

As to dilute hydrochloric acid it can in all likelihood be taken in therapeutic doses by patients with an apparently normal gastric juice over long periods with safety, provided other factors, such as diet remain normal.

#### TREATMENT OF SYPHILIS

*To the Editor*—A man aged 40 first came to me in June 1933 at which time he was found to have a four plus Wassermann reaction. There was a history of a scrotal lesion two months previously. The patient was treated continuously with nearsphenamine and compounds of bismuth and mercury. A course of nearsphenamine usually 0.6 Gm. in series of ten weekly injections, was alternated with courses of a bismuth compound usually bismuth salicylate or potassium bismuth tartrate once or twice a week for from six to eight weeks. To date he has received thirty-two injections of nearsphenamine totaling 18 Gm. thirty-two injections of compounds of bismuth and eighteen injections of mercuric succinimide. The blood Wassermann and Kahn tests were found to be negative following the first course of nearsphenamine and have remained so on repeated testing. In December 1933 the patient was operated on for a deflected nasal septum. He was subject to repeated attacks of nasal catarrh. In April 1934 a plastic iritis of the right eye developed. The ophthalmologist did not feel that it was syphilitic in nature. Local treatment by the ophthalmologist and treatment with nearsphenamine and bismuth compounds were continued at this period in conjunction with potassium iodide by mouth. The eye responded well and in about one month the condition had cleared. Aug. 1, 1934, there developed a keratitis of the left eye. The blood Wassermann and Kahn tests taken at this time were negative. Spinal fluid examination showed a negative Wassermann test, the faintest trace of globulin and a cell count of 2. Physical examination was otherwise negative. Two injections of nearsphenamine were given during this attack along with mercuric succinimide. The ophthalmologist was not quite certain whether or not some aggravation of the eye condition occurred following this last injection. Mercuric succinimide three times weekly and potassium iodide were continued. At this time I am in a quandary as to further treatment with nearsphenamine. Is the eye manifestation syphilitic? Is it a manifestation of sensitivity to one of the drugs used in the treatment? This last attack of iritis has now cleared remarkably well. Please omit name and address.

M. D. Ohio

*ANSWER*.—The treatment has conformed to an adequate general standard for early syphilis. It should be understood, however, that no standard treatment can provide for every phase of special resistance or relapsing tendency in every individual patient. It is therefore conceivable, though unlikely, that the plastic iritis of the right eye is an ophthalmic relapse, even in the presence of a negative blood serologic test. Nearsphenamine at least and possibly also bismuth compounds, have a certain amount of nonspecific effect on eye inflammations and it may be that the therapeutic response described was due to nonspecific rather than to specific effect. Mercuric succinimide also has a certain amount of nonspecific effect, but the suggestion that a flare up followed its use is a little more in keeping with the tuberculous or focal infective than with a syphilitic process. The continuously negative blood serologic

tests and negative spinal fluid at this time still further reinforce the belief that the patient's syphilitic infection is cured or inactive and that the eye condition comes from some other source.

The question as to whether the eye condition can arise from specific sensitivity to any of the drugs used cannot be answered categorically for the range of sensitivity manifestations to the arsphenamines and to bismuth compounds is constantly increasing. It seems, however, improbable that a solitary occurrence of this sort would be the entire story in a specific sensitivity. It would seem more worth while to make a thoroughgoing investigation of tuberculous, focal infective and allergic factors before concluding that the patient is reacting specifically to treatment for syphilis.

Under these circumstances, therefore, a continuance of treatment for syphilis by a method that does not appear to have caused eye flare ups would be in order. For this, bismuth salicylate in courses of eight or ten injections with rest intervals of two months between the courses, for at least another year would appear to be satisfactory. It might be worth while to invoke also a nonspecific protein therapeutic effect by intramuscular injections of whole boiled milk, beginning with 2 cc. once a week and increasing to 10 cc. once a week for a series of ten or even fifteen intramuscular injections. A determined effort should, however, be made to get to the bottom of the eye condition as such without endeavoring to pin every complication such as this on the probably "cured or inactive" syphilis.

#### HAZARDS OF CARBON TETRACHLORIDE IN TEXTILE MILL

*To the Editor*—I would greatly appreciate any help you might give me in obtaining information on the prevention of carbon tetrachloride poisoning in a textile mill.

M. D. New York.

*ANSWER*.—So far as is known, the use of carbon tetrachloride in the textile industry is somewhat similar to its use in dry cleaning and as a detergent degreasing agent in general. Whatever the conditions of use may be whenever 300 or more parts per million of air are present and respired by human beings injury is possible or probable. Carbon tetrachloride vapors breathed into the lungs are far more dangerous than liquid carbon tetrachloride ingested. It is, of course, well known that carbon tetrachloride extensively has been applied for the eradication of hookworm and other parasites. The following types of injury from carbon tetrachloride are known:

1. Dermatitis possibly solely due to the defatting action of carbon tetrachloride.
2. Narcosis. Carbon tetrachloride is similar to chloroform and when concentrations are very high may lead to quick death from anesthetic action.
3. Acute poisoning characterized by inflammation along the respiratory and intestinal tracts. Bronchitis, pneumonia, pulmonary hemorrhage, ocular hemorrhage, gastro-enteritis and intestinal hemorrhage are established features.
4. Delayed poisoning probably associated with fatty degeneration of the liver, the formation or at least the presence of guanidine.
5. Chronic poisoning. A chronic state is poorly defined and if encountered possibly represents only the sequelae of acute damage.

The typical case as encountered in industry presents, in terms of increasing severity, some or all of the following: vomiting, nausea, abdominal pain, fullness in the abdomen, sense of masses in the abdomen, respiratory inflammation, headache, diarrhea, blood in the stools, sleepiness, mental sluggishness, jaundice, tenderness over the liver, convulsions, delirium.

Since carbon tetrachloride is absorbable through the skin preventive measures should embrace protection against this form of entry. Among other preventive measures, the following are suggested:

- (a) Encourage a high intake of calcium as through the drinking of milk.
- (b) Avoid alcoholic beverages.
- (c) Provide closed systems with appropriate vents wherever possible.
- (d) If completely closed systems are not possible positive pressure helmets may be necessary if concentrations are very high.
- (e) Exhaust systems should be provided with intakes at the floor level rather than near the ceiling.
- (f) Avoid direct skin contact with carbon tetrachloride.
- (g) If completely enclosed systems cannot be provided or if through other measures the concentration of carbon tetrachloride vapors cannot be kept below 500 parts per million of air some less toxic chemical should be substituted for carbon tetrachloride. High boiling point petroleum derivatives such as Stoddard's Solvent while toxic, are less toxic than carbon tetrachloride.

#### Some items of literature

- McCord, C. P. Carbon Tetrachloride—A Non Technical Discussion of Its Toxicity. *Industrial Medicine* 1:151 (Dec.) 1932.  
Lamson, P. D., Gardner, G. H., Gustafson, R. K., Maire, E. D., McLean, A. J. and Wells, H. S. The Pharmacology and Toxicology of Carbon Tetrachloride. *J. Pharmacol. & Exper. Therap.* 22:283 (Nov.) 1923.



Carbon Tetrachloride Bulletin 93, International Labour Office Occupation and Health Series  
Report of Investigations 1923, 201, 924, Bull 2499 Department of Interior U S Bureau of Mines Carbon Tetrachloride Extinction of Electric Fires  
Cauler, J. T. The Accumulation of Guanidine in the Blood Following Acute Liver Injury by Carbon Tetrachloride, Chloroform, Arsenic or Phosphorus *J Pharmacol & Exper Therap* 41 337 (March) 1931  
Davis, P. A. Toxic Substances in the Rubber Industry Carbon Tetrachloride, *Rubber Age* 24 1 part two, 483 1929  
Hayhurst, E. R. The Use of Carbon Tetrachloride versus Carbon Bisulphide in Industry, *Chem. & Rubber* No 60, Sept. 3 1925  
Robbins, B. H. The Absorption Distribution and Excretion of Carbon Tetrachloride in Dogs Under Various Conditions *J Pharmacol & Exper Therap* 37 215 (Oct.) 1929  
Stewart, L. C. Carbon Tetrachloride in Dry Cleaning *National Cleaner & Dyer*, April 1931

## SENSITIVITY TO TOMATOES

To the Editor—I have a patient aged 25 a registered nurse who is afflicted with food allergy. She is hypersusceptible to tomatoes in all forms. Urticaria develops in proportion to the amount eaten. Even on handling the raw fruits as peeling them, she has a red blotch and itching from a splash of juice on the arm or unconsciously touching the face. There is a history of recurrent attacks of facial eczema of a chronic nature in the father. The patient had eczema as an infant from 1 year to 2 years of age. She has dark hair, a dark clear complexion and blue eyes. She discovered by herself shortly after entering nurses training at 17, that she developed hives from tomatoes. She has tried to avoid tomatoes in all forms but frequently gets a little tomato in her food, in the form of vegetable soup broth, meats or salads. What treatment could be used to desensitize her? Are there any canning companies which put out canned vegetable soup or beef broth without using tomatoes? Please omit name and address.  
M D, Indiana

ANSWER.—The history here of hypersensitivity to tomatoes is a common one and it is not unusual for urticaria to develop on the eating of the foods as well as by contact with them as in this case.

The treatment is to avoid tomatoes in all forms. If this is carried out for perhaps a year or two, the patient may acquire a slight or considerable degree of tolerance for tomatoes. There is a good chance that she will be able to eat cooked tomatoes, but she will probably never be able to eat raw tomatoes.

As far as desensitization is concerned, the patient can be desensitized in all probability, either orally by administering small amounts of tomato with gradual increases, or hypodermically in similar fashion. However such desensitization is not recommended, as tomatoes can easily be avoided.

An inquiry to Libby, McNeill & Libby brings the answer that their chicken broth contains no tomatoes.

An answer from the Campbell Soup Company brings this reply.

In the blending of Campbell's soups there are many of our kinds which are not prepared by the addition of tomatoes in any form. The Campbell's soups which would be suited to a diet which must be free from tomatoes are:

Julienne	Celery
Chicken	Pea
Consomme	Bouillon
Mutton	Noodle
Asparagus	Printanier

We do know that tomatoes are used in the blending of many soups but we would hesitate to speak specifically about the recipes of other canners.

## TREATMENT OF HEREDITARY SYPHILIS

To the Editor—I have under my care a boy of 8 years who has hereditary syphilis. Before treatment was begun his Kahn reaction was four plus. He has been given twenty injections of neoarsphenamine most of them 0.45 Gm each as well as twenty five intramuscular injections of bismuth salicylate. A report from the state laboratory just received still gives this boy a four plus Kahn reaction. Will you please make suggestions for treatment that may give better results than those already obtained. Please omit name.  
M D Illinois

ANSWER.—The treatment outlined has been adequate to date and the dosage of arsphenamine ample for a boy of 8 years who, from the letter of inquiry, probably has no active manifestations of congenital syphilis other than the positive Kahn test. It is not unusual for the reaction in the congenitally syphilitic to remain positive for many years even though active symptoms of syphilis are not present. However, asymptomatic neurosyphilis is present in about 12 per cent of such children, and an examination of the spinal fluid is now definitely indicated in a case such as the one cited. The obtaining of a negative spinal fluid report even though the child does not have symptoms attributable to syphilis, such as interstitial keratitis or nerve deafness, nevertheless warrants a series of courses of a bismuth compound. Fifteen injections of a bis-

moth preparation twice a year for at least the next three years are frequently ample in such cases. Even though a satisfactory reversal of the blood reaction is noted at the end of this time and no symptoms are present, the child should have annual examinations to note not only the serologic report but also his general development, mental reactions, and progress in school, as well as any new signs or developments. If the blood reaction remains positive, the bismuth compound should be continued for several years longer. On the other hand, if the spinal fluid is reported positive, thus explaining the persistence of the blood positivity, the intensive use of arsphenamine and a bismuth or mercury compound must be continued. When the character of the spinal fluid report suggests impending juvenile dementia paralytica and routine treatment fails to reverse the reaction to negative, malaria therapy should be given before clinical signs of dementia paralytica appear.

## HYPERTROPHY OF MAMMARY GLAND

To the Editor—A girl, aged 11 years fell about six months ago striking her left breast on a hard object. Her parents brought her to me about three weeks later on account of pain and tenderness in the breast. On examination, the right breast showed no development at all. The left breast is symmetrically developed to a diameter of about 3 cm and is moderately tender, the greatest point of tenderness being exactly on the end of the nipple. The nipple itself and the surrounding skin appear perfectly normal. If the other breast were equally developed and there were no complaint of pain and tenderness, one would consider it to be a physiologic development. Since there has been no improvement in the pain and tenderness in the last six months, I am debating the possibility of its being malignant. I find no reference to a cancer of the breast in one of this age and period of development. It would look as though if it were an inflammation it would have shown improvement or gone on to abscess formation by this time. There has been no demonstrable change in size or tenderness in the six months observation. From this meager description would you think the possibilities of cancer great enough to call for removal of a section of this breast for pathologic diagnosis?  
M D Illinois

ANSWER.—The possibility of cancer of the breast in the case described is so remote that it may be eliminated with a fair degree of certainty. The age of the patient is the most important evidence against carcinoma, as is also the fact that no extension of the lesion has been observed over a period of six months. It does not seem advisable to remove a section for biopsy.

The condition as described is perfectly consistent with a prepuberty unilateral hypertrophy of the mammary gland. Sometimes a physiologic hypertrophy begins in one mammary gland and is accompanied by pain and tenderness due perhaps to an overactivity of the epithelial and connective tissue elements. After some time a similar activity of the opposite breast appears and renders the diagnosis clear. Although the possibility that an actual injury is associated with the present state cannot be excluded with certainty, it is probable that the injury merely served either to call attention to or possibly accentuate a condition of the breast that was already present. The diagnosis suggested is compatible with the clinical course of the lesion during the time of observation and explains its failure to progress if it were malignant as well as its failure to resolve if it were an inflammatory process of traumatic origin.

## PREGNANCY AND DIABETES

To the Editor—Where can I find information concerning the interpretation of a considerable amount of sugar proved to be dextrose and not lactose in the urine of a pregnant patient who showed no sugar in the urine before pregnancy? After a test breakfast of 40 Gm. of available carbohydrate urine specimens collected at half hourly intervals show no sugar until the two and one half hour specimen. Blood sugar at this time is not over 80 mg by the Folin Wu method as is also the fasting blood specimen at 7 a m. The urinary glycosuria persists on through the entire day but is again negative before the next breakfast. Two and one half hours after the noon and evening meals which are also limited to 40 Gm. of available dextrose the urinary sugar is again at its peak. Blood sugar again two and one half hours after the noon meal is never over 80 mg.  
F B WARNOCK B A, Champaign, Ill

ANSWER.—Pregnancy is a complication of diabetes and may activate a potential diabetes. This phenomenon is probably related to the same change in endocrine activity that results in the increase in metabolism during pregnancy, and not infrequently the two disturbances may occur to an abnormal degree at the same time. They may or may not clear up after delivery.

The case described may be exhibiting an alimentary glycosuria which, at the present stage of knowledge must be considered as early or potential diabetes. Should this be the case it would be quite possible for the patient to spill sugar

into the urine during the first hour or two after each meal while still presenting normal blood sugar values when determined in the fasting state or two and one-half hours after the meal.

The other possibility in the case described may be a lowering of the kidney threshold for sugar so that the patient is exhibiting renal glycosuria.

It is suggested that a carbohydrate tolerance test during which urine samples are collected at half-hourly intervals might be helpful in the differential diagnosis. It would then be possible to say whether the patient's kidneys are excreting sugar at a blood sugar level below the normal threshold value of 180 mg per hundred cubic centimeters.

#### CORRECTION OF PRESCRIPTION

*To the Editor*—Isn't there some mistake in prescription 2 on page 47 of *THE JOURNAL* January 5? How can one put 30 Gm of alum in 250 cc. of water and then add alcohol to make 250 cc? That is not the way Dr. Fintus taught us to write prescriptions when I was his pupil back in 1902-1905.

F. P. S. MILLER, M.D., Chicago

**ANSWER**—There is a serious and obvious mistake in this formula, in which the words to make have unfortunately slipped in instead of "of each." The formula should read as follows:

R Alum	30.0 Gm
Water	
Alcohol	of each 250 cc

Dissolve the alum in the water and add the alcohol.  
M and label Apply to part subjected to pressure to prevent bedsores.

It is an interesting fact that alum does not dissolve in the alcohol and water equal parts, if mixed previously, but that it does dissolve if the preparation is made according to the directions.

#### NO TOXIC HAZARD WITH CIGARET LIGHTER

*To the Editor*—There is a cigaret lighter now on the market made by the Platinum Products Company 521 Fifth Avenue New York which operates by catalysis. In other words to use it one has to draw through a cigaret and thus inhale a certain amount of the vapor of the fluid they call lektrolite. Presumably this fluid belongs to the benzene group. Can you tell me whether the constant use of this lighter is attended by danger to health?

Cecil E. Reynolds, M.D. Playa Del Rey, Calif

**ANSWER**—This type of lighter has been on the market for about twenty-five years. It will operate with several varieties of highly volatile, low-flash fluids but apparently works best or at least well with Columbian spirit—wood alcohol. By actual test the usual lighter fluids were found not to lend themselves to ready use in this catalytic device. The products of combustion of toxic agents of this general character are rarely so toxic as the unburned vapors. Moreover, the quantity of such vapors arising from a few lightings each hour or day is meager. Theoretically the user of lighters is dealing with a hazardous substance, but the practical danger under usual circumstances is negligible—perhaps more nearly harm free than smoking itself. The high temperature reached by these lighters is of some comparative importance. If one of two cigarets is lighted with the glowing point of another cigaret while the other is lighted with the flame of a catalytic lighter, the latter cigaret on comparison with the former will be found to have become quite soft almost throughout its extent. This is a result of the much higher temperature from the flame. In a measure, this volatilizes or distills the tobacco of the cigaret. To the extent that smoking is harmful, the first puff in connection with a high temperatured lighter is the most dangerous one. This entire matter of injuries from cigaret lighters however, lies in the realm of the nebulous. Proof that such devices should be discarded is lacking.

#### ROENTGEN TREATMENT OF ACNE

*To the Editor*—Beckman in 'Treatment in General Practice' states that Parkhurst (1932) reports 84 per cent cures of acne by use of x rays. Please state whether this percentage of cures is generally accepted. Please state also the dosage in such treatments. Filtration advised and the interval of treatments.

M.D. Mississippi

**ANSWER**—Eighty-four per cent of cures may be accepted as a fair average in the roentgen treatment of acne vulgaris. MacKee reports 95 per cent of cures in 244 cases. The treatment in all cases was fractional, one-fourth skin unit once weekly, unfiltered, corresponding to 75 roentgens. Other authors report a lower ratio of cures. Michael had 53 per cent in 191 cases after one course of treatment (from ten to sixteen fractional doses) and 85 per cent of cures after a second course. Hazen and

Eichenlaub report 80 per cent. Roentgen therapy must be combined with proper systemic, dietetic and hygienic measures in order to secure the best results. It should not be combined with irritating local treatment, and a proper selection of cases is advisable. MacKee has used both filtered and unfiltered rays in acne vulgaris and states that the therapeutic result was the same. A correct technique and an understanding of the possible dangers is essential. MacKee's book on Roentgen Therapy in Skin Diseases should be consulted.

#### BILATERAL PHLEBITIS IN PREGNANCY

*To the Editor*—Is it considered proper by the majority of physicians to advise a therapeutic abortion to an individual who had a moderately severe case of unilateral phlebitis at the last pregnancy? Kindly answer this question pertaining to a patient who had a severe case of bilateral phlebitis as a complication of pregnancy. Please omit the name and address.

M.D., California.

**ANSWER**—A previous unilateral or bilateral phlebitis is not an indication for therapeutic abortion, regardless of the severity of the complication. While it is true that there is some danger of recurrence of the condition, a therapeutic abortion is not always a harmless procedure and may be just as productive of a new attack of phlebitis as labor at term.

During pregnancy the patient should receive extra care in order to build up her general resistance and she should avoid individuals who have infections of any kind.

During labor every effort should be made to avoid injury and infection. Hence the child should be permitted to deliver spontaneously unless an urgent indication arises for operative delivery.

#### CHRONIC SINUSITIS

*To the Editor*—Please give me any information you may have of interest to me in the treatment of chronic sinusitis with high voltage roentgen therapy. I have been suffering with sinusitis a number of years. I had a radical Caldwell-Luc operation done last year without relief, and I am going to have to do something else soon and would greatly appreciate any information you can give me.

M.D. Missouri.

**ANSWER**—High voltage roentgen therapy has not been of value in chronic sinusitis. If a Caldwell-Luc operation did not relieve the chronic nasal sinusitis the more radical procedure, as carried out in the Denker operation, may give all the relief that is desired. It is essential that every portion of the antral cavity be thoroughly explored and that all diseased mucous membrane, polyps, and so on be removed. The Denker operation offers this opportunity.

#### RADICULITIS AND TABETIC PAINS

*To the Editor*—Your answers with regard to radiculitis and tabetic pains (*THE JOURNAL*, March 30, p. 1187) ignore the use of alcohol for various intractable pains. Surely after the masterful work of Swallow, Labat, Ruth, Woodbridge, James White and others who have followed in their footsteps you must place some confidence in the judicious use of alcohol injection by properly trained men. As a disciple of the late Dr. Gaston Labat and after personal observations in a series of 300 cases I have found sufficient merit in alcohol nerve block for these so-called hopeless cases to justify calling attention to the undeniable benefits rewarding technicians using these measures.

The last twenty-five years has been replete with discoveries of various agents for local anesthesia. By a process of elimination it is now conceded that procaine hydrochloride is the least toxic of the group. The impetus given by these discoveries and their use in cases for which general anesthesia would carry a decided risk aided the development of the use of local anesthesia. This necessitated more detailed study of neuroanatomy with the purpose of placing the anesthetic agent accurately, thus minimizing the amount used.

The panorama opens on a new field using local anesthesia for effects that are more permanent. This is being made known frequently by the numerous articles detailing the use of alcohol in combating intractable pains.

In daily practice one sees many patients who may be considered the forgotten or neglected group. These patients frequently resort to morphine addiction, quackery or cult devotion. Cases in which diagnoses are made but in which it has been possible to do little are considered intractable. These patients have run the gamut of medical and surgical procedures to no avail frequently resorting to neurosurgery with the attendant shock, high mortality rate and a none too bright post-operative prognosis. Cases of advanced peripheral vascular disease, advanced cancer, painful syphilitic syndromes, angina pectoris and the various protracted arthritides and neuritides fall into this category. The use of alcohol to degenerate the nerve fibers that carry the painful messages to the brain has found its place in medicine. There is no excuse for the folding of hands and curtaining the conscience with the adoption of an attitude of smug satisfaction that everything possible has been done unless due cognizance is taken of therapeutic alcohol nerve block in these conditions.

LOUIS A. ABELSON, M.D. New York.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**ALABAMA** Montgomery, June 24-26 Sec. Dr J N Baker 519 Dexter Ave. Montgomery

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** Oral (Group A and Group B candidates) New York June 10 Sec Dr C Guy Lane 416 Marlborough St., Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** Final oral and clinical examination (Group A and Group B candidates) Atlantic City N J June 10-11 Sec. Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** Philadelphia June 8 and New York June 10 Sec Dr William H Widder 122 S Michigan Blvd Chicago

**AMERICAN BOARD OF OTOLARYNGOLOGY** New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N J June 10 and St Louis Nov 19 Sec. Dr C A Aldrich 723 Elm St, Winnetka Ill

**AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY** Philadelphia June 7-8 Sec Dr Walter Freeman 1726 Eye St NW Washington D C

**AMERICAN BOARD OF RADIOLOGY** Atlantic City N J June 8 10 Sec Dr Byrl R Kirklun Mayo Clinic Rochester Minn

**ARIZONA** Basic Science Tucson June 18 Sec Dr Robert L Nugent Science Hall University of Arizona Tucson

**COLORADO** Denver July 2 Address 422 State Office Bldg Denver

**CONNECTICUT** Basic Science New Haven June 8 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

**DELAWARE** June 11-13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover

**FLORIDA** Jacksonville June 17 18 Sec Dr William M Rowlett P O Box 786 Tampa

**GEORGIA** Atlanta and Augusta June 11 12 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

**INDIANA** Indianapolis June 18 20 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis

**IOWA** Iowa City June 4 6 Dir Division of Licensure and Registration Mr H W Grele Capitol Bldg Des Moines

**KANSAS** Topeka June 18-19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned

**KENTUCKY** Louisville, June 5 7 Sec. State Board of Health Dr A T McCormack 532 W Main St Louisville

**MAINE** Augusta July 2 3 Sec Board of Registration of Medicine Dr Adam P Leighton Jr, 192 State St, Portland

**MARYLAND** Regular Baltimore June 18 21 Sec. Dr John T O Mara 1211 Cathedral St, Baltimore *Homeopathic* Baltimore June 11 12 Sec. Dr John A Evans 613 W 40th St Baltimore

**MICHIGAN** Detroit, June 5 7 and Ann Arbor, June 11 13 Sec Board of Registration in Medicine, Dr J Earl McIntyre, 202 3 4 Hollister Bldg, Lansing

**MINNESOTA** Basic Science Minneapolis June 4 5 Sec Dr J C McKinley, 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis June 18 20 Sec. Dr E J Engberg 350 St Peter St St Paul

**MISSISSIPPI** Jackson June 25 26 Asst Sec State Board of Health Dr R N Whitfield Jackson

**MISSOURI** St. Louis, June 12 14 State Health Commissioner Dr E. T. McLaughlin State Capitol Bldg Jefferson City

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16 18 Ex. Sec. Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** Omaha, June 11 12 Dir Bureau of Examining Boards Mrs Clark Perkins State House Lincoln

**NEW JERSEY** Trenton June 18-19 Sec. Dr James J McGuire 28 W State St, Trenton

**NEW YORK** Albany Buffalo New York and Syracuse June 24 27 Chief Professional Examinations Bureau, Mr Herbert J Hamilton Room 315 Education Bldg Albany

**NORTH CAROLINA** Raleigh June 10 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh

**NORTH DAKOTA** Grand Forks July 2 5 Sec Dr G M Williamson 433 S 3d St Grand Forks

**OHIO** Columbus June 4 7 Sec State Medical Board Dr H M Platter, 21 W Broad St Columbus

**OKLAHOMA** Oklahoma City June 5 6 Sec. Dr J M Byrum, Mammoth Bldg Shawnee

**RHODE ISLAND** Providence July 2 3 Dir Department of Public Health Dr E A McLaughlin 319 State Office Bldg Providence

**SOUTH CAROLINA** Columbia June 25 Sec Dr A Earle Booser 505 Saluda Ave. Columbia

**TEXAS** Austin June 18 20 Sec Dr T J Crowe 918 19 20 Mercantile Bldg Dallas

**VERMONT** Burlington June 26-28 Sec Board of Medical Registration Dr W Scott Nay, Underhill

**VIRGINIA** Richmond June 19 21 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

**WISCONSIN** Basic Science Milwaukee June 1 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee *Medical* Milwaukee June 25 28 Sec Dr Robert E Flynn 401 Main St LaCrosse

**WYOMING** Cheyenne May 20 Act. Sec Dr G M Anderson Capitol Bldg Cheyenne

### Wisconsin January Examination

Dr Robert E Flynn, secretary Wisconsin State Board of Medical Examiners reports the oral written and practical examination held in Madison Jan. 8-10 1935 The examination covered 19 subjects and included 100 questions An average of 75 per cent was required to pass Fifteen candidates

were examined, all of whom passed. One physician was licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School		(1934)	86
University of Louisville School of Medicine		(1933)	81
Harvard University Medical School		(1932)	85
University of Michigan Medical School		(1932)	84
University of Minnesota Medical School		(1932)	83,
	(1933) 84 (1934) 84		
University of Nebraska College of Medicine		(1933)	80
University of Oregon Medical School		(1932)	81
University of Wisconsin Medical School	(1932) 80	(1933)	81
University of Toronto Faculty of Medicine		(1929)	86
Friedrich Wilhelms Universität Medizinische Fakultät Berlin		(1932)*	
School	LICENSED BY ENDORSEMENT	Year Grad	Per Endorsement of
Indiana University School of Medicine		(1930)	U S Navy

\* Average grade not reported

### North Dakota January Examination

Dr G M Williamson, secretary, North Dakota State Board of Medical Examiners, reports the oral, written and practical examination held in Grand Forks, Jan 1-4, 1935 Three candidates were examined, 2 of whom passed and 1 failed Three physicians were licensed by reciprocity after an oral and practical examination The following schools were represented

School	PASSED	Year Grad	
Washington University School of Medicine		(1932)	
University of Wisconsin Medical School		(1932)	
School	FAILED	Year Grad	
Dalhousie University Faculty of Medicine		(1926)	
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists		(1923)	California
Kansas City Hahnemann Medical College	Missouri	(1914)	Kansas
Jefferson Medical College of Philadelphia		(1927)	California

## Book Notices

**Physical Diagnosis** By Warren P Elmer BS MD Associate Professor of Clinical Medicine Washington University School of Medicine and W D Rose MD Seventh edition Cloth Price \$8 Pp 919 with 342 illustrations St Louis C V Mosby Company, 1935

This edition presents the subject of physical diagnosis quite completely and in an easily readable form It is surprising how much sound theory slips in without the heavy physics characteristic of some textbooks The special sections on radiology and electrocardiography are excellent for beginners in clinical medicine The general arrangement of the book is satisfactory, with the exception of the section on sphygmomanometry, which rightfully belongs under auscultation of the circulatory system The absence of a bibliography is unfortunate, because interest in medical history is most easily stimulated during the period when the student first learns to use the traditional tools of the great physicians of the past Since the author in his preface expresses gratitude to critical reviewers of the previous editions, it is only fair to point out that certain parts of this book are below the general standard of excellence and could easily be revised upward Thus there is inadequate discussion of the subject of primary hypertension, which is much more important than many other conditions to which special chapters are devoted Venous pressure, spinal puncture and vital capacity are too briefly treated One is particularly disappointed with the bare mention of bronchogenic carcinoma, nowadays a common form of malignant growth The importance of x-ray films in the early diagnosis of pulmonary tuberculosis is not emphasized as it should be even in a textbook on physical diagnosis In the chapters on diaphragmatic pleurisy and pericarditis, no use is made of the classic studies by Capps and vital capacity are too briefly treated The addition of a few roentgenograms concerning the various types of cardiac enlargement, and a more systematic treatment of the topic of congenital heart disease would strengthen the section on diseases of the circulatory system Little is said about the extracardiac consequences of left auricular dilatation in mitral stenosis Some abbreviation of many paragraphs on clinical pathology would release

space for expansion along these lines. On the whole this work on physical diagnosis deserves its apparent popularity, because it covers a difficult field in a clear, judicious and thoroughly honest manner.

**Medical Report of the Glasgow Royal Maternity and Women's Hospital for the Year 1933.** Prepared by D. McK. Hart, M.B., Ch.B., F.R.F.P.S.C., Registrar to the Hospital Boards. Pp. 181. Glasgow: Ait & Co. Ltd. 1934.

The eighth annual report of the largest purely maternity hospital in Scotland which has 175 beds shows that during the year 1933 4,595 patients were admitted and 3,198 babies were born in it, 124 per cent were stillborn. Seventy maternal deaths occurred in the hospital giving a death rate of 2.1 per cent. Since the number of abnormal cases in 1933 was 2976, or 64.7 per cent of the total admissions, these figures are not to be wondered at. The hospital is a dumping ground for all the neglected and forlorn obstetric cases occurring in the city and for miles around as far as the Western Isles. The antepartum department has increased enormously, seventy-eight beds being devoted to it in the hospital in addition to an immense amount of work done in the dispensary, the total attendance at the latter being 21,501. In addition the hospital has a home service and, in 1933, 4,510 women were attended in childbirth at their homes, 48,612 visits being made to them. Only 6.6 per cent of the cases delivered at home were abnormal, the fetal mortality was 2 per cent (later given as 1.3 per cent) and the maternal was 0.05 per cent. Hospital cases are divided into two classes, those attending the clinic before delivery and the others. To show the poor quality of the material this hospital has to handle, one item may be mentioned. Fifteen women were in such poor condition on arrival that they died before they could be delivered. The patients' temperatures after delivery are divided into two classes, puerperal fever or sepsis and puerperal pyrexia, the latter including those cases in which the fever is of unknown origin or from mastitis, urinary infection, infectious fevers, and so on. The standard of pyrexia is different from that generally used, a patient is febrile if she has a temperature of 100.4 (38 C) or more for twenty-four hours or repeated during the first twenty-one days after delivery, 683 patients came under this classification. A statistical report (there are more than 200 tables) does not lend itself to a critical review, and one must be particularly careful not to use it for comparison with other institutions. The thoroughness with which the statistics have been worked up and the clarity with which the results are presented are commendable and inviting to all heads of obstetric departments and of maternity hospitals. It is much to be regretted that American institutions do not regularly publish similar reports of their work.

**Skin Hazards in American Industry.** By Senior Surgeon Louis Schwartz, U. S. Public Health Service and Dr. Louis Tullipan, Professor of Dermatology, New York University. Prepared by direction of the Surgeon General, United States Treasury Department. Public Health Service, Public Health Bulletin No. 215. Paper. Price 10 cents. Pp. 54, with illustrations. Washington, D. C.: Supt. of Doc. Government Printing Office, 1934.

Month by month new evidences arise that the commonest practical causes of occupational diseases are to be found in the large group of substances acting on the skin. It is possible that the total list of individual substances leading to industrial dermatoses may exceed 700. This brochure of the United States Public Health Service contributes many new items to the already long list of skin irritants and sensitizers. The title of the publication possibly might lead the reader to expect a general discussion of the skin hazards of all American industry. Instead, it is made up of a series of little related chapters covering investigations of dermatitis in rubber, oil refining, synthetic dye manufacturing, candy making, silk throwsters, linseed oil manufacture, perfume making, and the pyrethrum insecticide industry. The chapters on dermatitis in the rubber industry and dermatitis in synthetic dye manufacturing stand out as superior. All these publications well reflect the strides being made toward precise diagnoses in occupational disease work. Thirty years ago the usual physician may have possessed a knowledge of some twelve items of occupational diseases and among them may have appeared "arsenic pox" as the sole known occupational skin disorder. In contrast these present publications, in the midst

of direct or indirect reference to several hundreds of skin hazards, include the statement that "tetra-methyl thuram monosulphide" is a well known source of skin reactions in hypersensitive individuals. The desire for the determination of ultimate causes of disease states is better being fulfilled in connection with occupational diseases than for almost any other division of medicine. These investigations constitute an excellent example of near exactness in diagnosis. Primarily this collection of articles on industrial dermatoses will serve the practical needs of dermatologists, industrial hygienists and plant physicians. But since every scientific worker, whatever his special interests may be, needs stimulation from other fields of endeavor, this interesting and inexpensive governmental publication should be read as it gives an opportunity for insight into the country's most motile branch of medicine—occupational diseases.

**Eleventh Scientific Report on the Investigations of the Imperial Cancer Research Fund.** Under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Published by the authority of the Executive Committee. Boards. Price 50s. Pp. 177, with illustrations. London: Taylor & Francis, 1934.

The first three papers in this volume are devoted to studies on different strains of filtrable fowl tumors by Foulds. In the first paper, on the growth and spread of six filtrable tumors of the fowl transmitted by grafts, are reported six strains of filtrable tumors transmitted by serial grafts. Although the primary tumor was always situated in the same place (the breast), the secondary growth showed different and characteristic sites of predilection. Furthermore the observations showed differences in the rate and mode of growth, in the proportion of successful inoculations and regressions and especially in the distribution of metastases. The individuality of tumor strains is emphasized and the conclusion is drawn that different tumor strains have distinguishing characteristics of growth and dissemination which are retained indefinitely.

Regarding the histology of these tumors, the second paper, on histologic studies on filtrable tumors of the fowl with special reference to metastatic growths, is especially a study of anomalous features encountered in metastatic growths. The author states that all these tumors showed variations which could not be established by selective transmission. Transplantation of atypical tumors restored them to typical forms. In this manner the temporary nature of the aberrant forms is proved. Conspicuous departures from the usual histologic structure in secondary growths occurred in the thymus concurrent proliferation and abnormal differentiation of the epithelial cells of the gland raised the problem of the capacity for differentiation of normal thymus tissue. This problem was investigated by autoplasmic transplantation of the thymus gland. When thymic tissue is removed from the fowl and reimplanted into the breast of the same bird there is first a necrosis of the thymocytes. Epithelial cells survive and undergo hyperplasia. In some transplants there is differentiation of squamous epithelium. The potentialities of thymic epithelium are completely realized only under abnormal conditions. Autoplasmic transplantation and tumor invasion lead to a degree of epithelial differentiation not found in the normal gland at any age. In both instances there is destruction of thymic tissue followed by hyperplasia of epithelial cells in an abnormal environment.

Two papers by A. F. Watson, on tar cancer in mice maintained on diets supplemented with fresh liver, show the effect of fresh liver in the diet on the susceptibility to tar cancer in mice. These investigations followed the observation that any foodstuff the inclusion of which in the basal diet improved the general condition of the animals also produced the same effect on the rate of growth of the benign and malignant tissues, but ox liver was found to occupy an anomalous position in this respect. The experiments indicated an increased carcinogenic response in tar-treated mice when the diet was supplemented with fresh liver. Larger numbers of animals developed warts and epitheliomas, and benign warts appeared earlier, but the average interval of time between the first tar application and the development of a malignant condition was not reduced. If the administration of liver is discontinued after the first appearance of benign warts there is no difference in the rate of development of malignancy. Since the liver diet does not accelerate

the onset of malignancy it is suggested that the development of benign hyperplasia and the superimposition of the malignant state are conditioned in part, at least, by different factors. The factors in fresh liver responsible for the response are heat stable. A preparation of hog stomachs clinically tested in pernicious anemia induced no increased tumor response in mice. This constitutes evidence against identification of the carcinogenic factor with the hematopoietic factor.

Two studies of E. S. Horning, on micro incineration of the tumors of rodents and on the action of radium on the inorganic structure of tumor cells as shown by micro-incineration give the experience of the Cancer Research Fund with the micro-incineration method of microscopic slides of tumor tissues. These are preliminary reports which demonstrate by means of excellent pictures the fidelity with which the inorganic mineral ash reproduces the most delicate details of cell structure.

Three papers by Crabtree and Cramer dealing with the action of radium on cancer cells and Crabtree's paper on variations of metabolism and radiosensitivity of tissue in bicarbonate and phosphate-buffered mediums, constitute important contributions to the biologic mechanism of the effect of radium on tumor cells. The experiments showed that susceptibility to the action of radium is not a fixed property of a given cell but varies with its environment. Anaerobiosis, hydrocyanic acid and cold diminished the functional activity of the respiratory mechanism, but the effect on the susceptibility to radium is not the same. Anaerobiosis diminished whereas hydrocyanic acid and cold increased susceptibility to radium. In the third paper Crabtree and Cramer conclude that gamma rays have the same biologic effect on cancer cells in vitro as a mixture of beta and gamma rays. In both cases the functional condition of the respiratory system determines the biologic response of the cell, while the glycolytic mechanism is not primarily concerned.

In the next paper (p. 119) Cramer shows the damaging influence of phosphate Ringer solution on the respiratory system of tumor tissue. This effect is shown by direct measurements of carbohydrate metabolism and the increased susceptibility of tumor tissues suspended in phosphate-buffered mediums to gamma radiation.

An important investigation is communicated in the next paper (p. 127) by Cramer. A study of the therapeutic action of radium on spontaneous mammary carcinoma of the mouse showed histologic differences in the reactions to the treatment in radiosensitive and radioresistant tumors. In radiosensitive tumors the reaction begins with invasion of the tumor by macrophages which in turn leads to splitting of the malignant cells affected by irradiation. In radioresistant tumors radium does not produce invasion with macrophages. In view of the results reported, which show that radiosensitivity is not a fixed property of the tumor cells but can be altered by altering the respiratory mechanisms of the cell these results become highly important for since the oxygen supply of the tumor cells is dependent on the stroma the latter must be partly responsible for the property of radiosensitivity. It is shown, furthermore, that the temporary cessation of growth of malignant cells after irradiation is due to a direct action on these cells. A sharp distinction is made between the true recurrences, which are due to the recovery of tumor cells that were dormant after irradiation, and apparent recurrences, which are really the result of a new development of tumor growth due to inadequate irradiation. The bearing of these facts on clinical results is extensively discussed.

The report concludes with two papers by Ludford on the structure and behavior of the cells in the tissue cultures of tumors and the reaction of normal and malignant cells to fat-soluble colored compounds that are insoluble in water. In the first, with excellent illustrations (dark ground photographs of living cells) the appearances of tumor cells are shown that help to distinguish them from the associated macrophages and fibroblasts. In the second paper a new method of staining fatty substances in living cultures is described.

Ludford's results suggest that although malignant cells are readily permeable to fat soluble substances they are less permeable to water soluble compounds than normal cells. The tentative explanation is put forward that the plasma membrane of malignant cells is relatively rich in fatty substances.

These researches are prepared and presented with the usual thoroughness and scientific accuracy of these authors. The illustrations are magnificent. The report adds further important knowledge to the metabolism and cytology of tumors and to radiation effects on tissues.

**The Doctor's Son and Other Stories** By John O'Hara. Cloth. Price \$2.50. Pp. 204. New York: Harcourt, Brace & Company, 1935.

The author of this novel is the son of a physician. In his book "Appointment in Samarra" he revealed the tremendous influence of his boyhood in a medical home. The present volume is a collection of his sketches, many of which appeared in the *New Yorker*. The opening story is however, a long story not previously published, which recounts the life of the doctor and of the doctor's son during the great influenza epidemic. It is medical realism to the highest degree and it is offered in modern diction, showing the influence of Hemingway. Physicians are certain to find this story fascinating, humorous, tragic, exciting.

**Dietetics for the Clinician** By Milton Arlenden Bridges, S.B., M.D., F.A.C.P., Director of Medicine, Department of Correction Hospitals, New York. Foreword by Herman O. Mosenthal, A.B., M.D., Director of Medicine at the New York Post-Graduate Medical School, Columbia University, New York. Second edition. Cloth. Price \$10. Pp. 970. Philadelphia: Lea & Febiger, 1935.

In the presentation of a second edition of this work, errors in the first volume have been corrected. New subject matter has been added and all of the sections have been brought down to date. The book provides a tremendous amount of tabular data including reliable analyses of the common and proprietary foods. There are also tables giving the latest data concerning alcoholic beverages. The volume has been prepared by the author with the assistance of a considerable number of competent clinicians and is one of the most immediately practical and useful volumes in dietetics available to the physician.

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## Medicolegal

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**Hospitals Liability for Death of Delirious Patient —** The deceased entered the Williams Sanatorium, Inc., an institution operated for profit, for the purpose of being treated for a small cancer on his lip, Nov. 14, 1932. The treatment, rendered by Dr. Boyd Williams, the owner of the institution, was painless and Brase apparently suffered no ill effects therefrom although he remained at the hospital. In the evening of November 15, however, Brase was found, partly dressed, attempting to get out on a porch of the hospital. The nurse who apprehended him testified that he was slightly delirious but that she had little difficulty in persuading him to return to his bed. He talked irrationally and made several attempts to rise from his bed but was restrained by two nurses. Shortly after his return to bed he became highly excited, and the two nurses testified that it was necessary for them to apply "restraints" in order to keep him in bed. Dr. Williams was not then at the hospital and when informed over the telephone of the patient's condition he advised the nurses to use "restraints" and to administer a hypodermic of strychnine. The "restraints" used consisted of heavy ticking which was placed across the patient's knees, the ankles were fastened to the foot of the bed, and the arms strapped to the sides of the bed, one of them being fastened by a handcuff. One hypodermic of strychnine was given the patient but his delirious condition continued. Another hypodermic was given a short time before he died. He fought strenuously to free himself of the "restraints" until about 4 o'clock on the morning of the 16th of November, when his struggles ceased and at about 6 o'clock he died. The executor of Brase's estate brought suit against the Williams Sanatorium, Inc. and another. From an order denying the defendants' motion for a judgment notwithstanding the verdict, the defendants appealed to the Supreme Court of Minnesota.

At the time Brase entered the hospital he was given a physical examination by Dr. Williams, who testified that Brase was in good health. Another physician who had examined him shortly before his entrance to the hospital came to the same

conclusion An autopsy showed the vital organs of the body to be normal, with the exception of the lungs, which were congested Two physicians testified that death was caused by exhaustion due to overexertion as evidenced by the congested condition of the lungs, and that in cases of patients in an excitable or delirious condition the administration of strychnine, a stimulant, is improper A sedative should have been administered, according to the witnesses Williams himself testified that the use of "restraints" was not improper in such a case and that the cause of death was not exhaustion He was corroborated in this by another physician The jury might well have found said the court, that the delirium and excitability of the patient, aggravated by the improper administration of strychnine, caused the patient to exhaust himself in his struggles against the bars which held him to the bed The evidence was sufficient to sustain a finding that the treatment administered was not proper practice and that it caused Brase's death

The appellants contended that the trial court erred in admitting evidence that Dr Williams had been convicted of practicing medicine without a license in the state of Minnesota The practice of medicine without a license said the court is made a gross misdemeanor under section 5714, Mazon's Minnesota Statutes, 1927, and under section 9948, evidence of the conviction of a crime is admissible for the purpose of affecting the weight of a witness's testimony A gross misdemeanor being a crime pointed out the court, the evidence complained against was admissible Finding no error in the record the judgment of the trial court against the defendants was affirmed —*Brase v Williams Sanatorium, Inc., et al (Minn.)*, 256 N W 176

**Wills Criteria of Testamentary Capacity**—In law, said the Supreme Judicial Court of Maine every mind is sound that can reason intelligently in the particular transaction and every mind is unsound that cannot so reason The law does not undertake to test the intelligence and define the exact quality of mind which a testator must possess Soundness is a matter of degree That a man may make a valid will, it is not necessary that the greatest mental strength shall prevail The essential qualification for making a will is a sound mind "Sound mind," within the statute of wills, continued the court comprehends ableness enough to recollect property and beneficiaries, and conceive the practical effect of the will The expression does not mean a perfectly balanced mind A mind naturally possessing power, not unduly impaired by old age or enfeebled by illness, or tainted by morbid influence, is, in legal contemplation, a "sound mind."

In this particular case, the testatrix was advanced in years But said the court stage of life and resultant weakness of body do not necessarily deprive one of the right to make a will Neither age nor bodily disease is of itself, a disqualification Intellectual and physical weakness, with partial failure of mind and memory, is said not to be solely an indication of inability to make a will Although a testatrix be old and infirm, she may competently will, if she then had intelligence enough to understand correctly what she was doing, and did deliberately, what she meant to do Hallucination, temporary in nature, is not per se insanity When a hallucination has become permanent, it is to be deemed insanity general or particular, according to the nature of the delusion To invalidate a will an insane delusion must be operative on testation A person whose mind is affected by such a delusion, however unreasonable and absurd, may make a valid will, provided the delusion is not of influence To affect its soundness, the will must be the direct offspring of delusion controlling the mind Except so far as it may tend to show the quality of the testator's mind at the time of executing the will, the condition of his mind before or after that time is unimportant If he was then rational and acting rationally, or, in popular phrase, knew and understood what he was about, the will is valid. Although fixed insanity has been established, it may be shown that execution of the will was during a lucid interval There may, in a case of senile dementia, be such a thing as a lucid interval, during which the person is qualified to will The will of the testatrix in the present case was upheld by the Supreme Judicial Court of Maine.—*In re Loomis Will In re Mitchell et al (Maine)* 174 A 38

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 10 14 Dr Olin West 535 North Dearborn Street Chicago Secretary
- American Academy of Pediatrics New York June 7 8 Dr Clifford G. Grulice 636 Church Street Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City N J June 10 Dr Loring T Swaim 372 Marlborough Street Boston Secretary
- American Association for the Study of Gout Salt Lake City June 24-26 Dr W Blair Mosser 133 Biddle Street, Kane Pa., Secretary
- American Association for Thoracic Surgery New York, June 3 5 Dr Duff S Allen 3720 Washington Boulevard St Louis Secretary
- American Association of Genito-Urinary Surgeons White Sulphur Springs W Va June 6-8 Dr Henry L. Sanford, 1621 Euclid Avenue Cleveland Secretary
- American Association of Medical Mill Commissions Atlantic City N J June 10 11 Dr Harris Moak 360 Park Place Brooklyn N Y Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Longwood Drive Boston Secretary
- American Child Health Association Iowa City June 19 22 Dr Philip Van Ingen 50 West 50th Street New York Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati, June 2-6 Miss Betty C. Wright, 1601 35th Street N.W., Washington D C Secretary
- American Gastro-Enterological Association Atlantic City N J, June 10 11 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Hot Springs Va May 2, 29 Dr Otto H Schwarz 630 South Kinghighway Boulevard St Louis Secretary
- American Heart Association Atlantic City, N J June 11 Dr H M Marvin 50 West 50th Street New York, Acting Executive Secretary
- American Laryngological Association Toronto Canada May 29 31 Dr William V Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto, Canada June 3 5 Dr Robert L Loughran Sharon Conn., Secretary
- American Neurological Association Montreal, Canada June 3 5 Dr Henry Alsop Riley 117 East 72d Street New York Secretary
- American Ophthalmological Society, Hot Springs Va June 5 7 Dr J Milton Griscam 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5-8 Dr Ralph K. Ghormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Toronto Canada May 27 29 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiotherapy Association Atlantic City N J June 11 12 Miss Louise Jetter 17 East Styles Avenue Collingswood, N. J. Secretary
- American Proctologic Society Atlantic City N J June 10 11 Dr Frank G Runyon 1361 Perkiomen Avenue Reading Pa Secretary
- American Radium Society Atlantic City N J June 10 11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society of Clinical Pathologists Atlantic City N J June 7 9 Dr A S Giordano 531 North Main Street South Bend Ind. Secretary
- American Surgical Association Boston June 6 8 Dr Vernon C David, 59 East Madison Street Chicago Secretary
- American Therapeutic Society, Atlantic City N J June 7-8 Dr Oscar B Hunter 1835 Eye Street N.W., Washington D C Secretary
- American Urological Association San Francisco June 25 28 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary
- Associated Anesthetists of the United States and Canada Atlantic City N J June 10-12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10-11 Dr Warren T Vaughan 808 Professional Building Richmond Va. Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10 11 Dr F M Pottenger 1214 Wiltshire Boulevard Los Angeles Secretary
- Conference of State and Provincial Health Authorities of North America, Atlantic City N J June 15 Dr A J Chesley State Department of Health St Paul Secretary
- Connecticut State Medical Society, New Haven May 22 23 Dr C W Comfort Jr, 27 Elm Street New Haven Secretary
- Illinois State Medical Society Rockford May 21 23 Dr Harold M Camp Lahl Building Monmouth Secretary
- Maine Medical Association York Harbor June 23 25 Miss Rebekah Gardner 22 Arsenal Street, Portland, Secretary
- Massachusetts Medical Society Boston June 3 5 Dr Alexander S Begg 8 The Fenway Boston Acting Secretary
- Medical Library Association Rochester N Y June 17 19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9 11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24 26 Dr E. A. Meyerding 11 West Summit Avenue St Paul Secretary
- Montana Medical Association of Helena July 2 3 Dr E. G Balam, 208 1/2 North Broadway Billings Secretary
- National Association of Private Psychiatric Hospitals Washington, D C June 1 Dr James M O'Neill St Vincent's Retreat Harrison N Y Secretary
- National Tuberculosis Association, Saranac Lake N Y June 24-2 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- New Mexico Medical Society Albuquerque May 23 25 Dr L B Cohenour 219 West Central Avenue Albuquerque Secretary
- North Dakota State Medical Association Minot May 27 28 Dr Albert W Skelsey 20 1/2 Broadway Fargo Secretary
- Pacific Northwest Medical Association Spokane Wash June 27 29 Dr C W Countryman 407 Riverside Avenue Spokane Wash., Secretary
- Rhode Island Medical Society Providence June 6 Dr J W Leeb 167 Angell Street Providence Secretary
- Society for the Study of Asthma and Allied Conditions Atlantic City N J June 10 11 Dr W C Spain 116 East 53d Street New York Secretary



# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (\*) are abstracted below

### American J Digestive Diseases and Nutrition, Chicago

2:1 64 (March) 1935

Diarrhea. J L Kantor, New York —p 1

Constipation. H J Spencer, New York —p 7

Weltmann Test in Diseases of Liver. M Kraemer Newark, N J —p 14

\*Diverticula of Duodenum and Diabetes. W B Thorning Jr and H F Root, Boston.—p 17

Studies on Neutralization of Gastric Acidity. Ewald Test Meal and X Ray (Barium Meal) Studies in Patients with Duodenal Ulcer. Gastrojejunostomy and Gastric Resection. R Elman St Louis and J W MacLeod Montreal.—p 21

\*Glycosuria and Lactosuria of Pregnant and of Lactating Women. H J Brock and R S Hubbard Buffalo.—p 27

Dry Natural Digestive Juices. Their Properties and Laboratory and Clinical Use. W N Boldyreff Battle Creek Mich.—p 33

Cascade Stomach. Review. R Upham New York.—p 38

Therapy of Nonmalignant Biliary Tract Lesions. A O Whipple New York.—p 44

Diagnosis and Treatment of Amebic Abscess of Liver. Study Based on Forty Eight Hundred and Eighty Four Collected and Personal Cases. A Ochsner and M DeBakey New Orleans.—p 47

\*Pruritus Ani. New Treatment. N J Simmons Boston.—p 53

**Diabetes and Diverticula of the Duodenum.**—Thorning and Root report diverticula in the duodenum in two diabetic patients with previous operation for gallstones. The possibility that inflammation in or about such diverticula can by extension cause chronic pancreatitis and diabetes was not demonstrable. The persistence of digestive symptoms after a gallstone operation may occasionally be due to such diverticula. The downward course in one patient over a period of five years may be attributed to several causes, such as cardiovascular disease, a possible gallstone in the common duct, a neoplasm and the results of the duodenal diverticula. In the other patient the authors have no suggestion that the diverticulum is responsible for symptoms or pancreatitis. In attempting to evaluate the significance of the diverticula, their frequency without serious symptoms as well as the complications produced by them must be borne in mind.

**Glycosuria and Lactosuria of Pregnant and Lactating Women.**—Brock and Hubbard outline a method capable of demonstrating lactose in concentrations as low as from 5 to 10 mg per hundred cubic centimeters and discuss the results of its application to a series of urine specimens from pregnant, lactating and normal women. Lactose is usually absent from the urine of normal women, although occasionally traces, probably of alimentary origin may be found. Lactose is almost always present in increased amounts in the urine of lactating women during the first days after parturition. It can be demonstrated at least in some instances, months after delivery. The lactosuria probably results from an overflow of active mammary glands. Lactose is present in small amounts in the urine of a large proportion of pregnant women. Sometimes it can be demonstrated in the early months of pregnancy but is not always found even in the days immediately preceding parturition. In the opinion of the authors this lactosuria is caused by activity of the mammary glands. Dextrose was present in the urine of lactating women in slightly greater concentration than it was in the urine of a comparable series of nonpregnant nonlactating women, but the difference was small and probably not significant. Sugar of this type was present in quite large amounts in the urine of pregnant women. This glycosuria did not appear to be clinically significant. Positive reactions with Benedict's qualitative reagent were due to dextrose in the urine

from normal subjects, to lactose in the urine from lactating women, and in a majority of instances to dextrose in the urine of pregnant women.

**Pruritus Ani.**—Simmons classifies the etiology of pruritus ani into pathologic changes in or about the rectum and anus, infections of the skin or mucous membrane, systemic diseases causing perirectal itching and idiopathic or essential pruritus ani. The author has employed a solution of 0.5 per cent of nupercaine, 1 per cent of phenol and 10 per cent of benzyl alcohol in almond oil. He has used this solution with excellent results in twenty cases, freedom from pruritus lasting from four to six months. After the anal region has been cleansed, 5 cc of the solution is injected under the itching area. The posterior quadrant is injected on the first visit and the lateral and anterior quadrants on subsequent visits. Pooling of the oily solution, infection or eczema may lead to sloughing and a prolonged healing period.

### American Journal of Diseases of Children, Chicago

49 287 556 (Feb.) 1935

Anaphylactogenic Properties of Milk. Immunochemistry of Purified Proteins and Antigenic Changes Resulting from Heat and Acidification. B Ratner and H L Gruehl New York.—p 287

Anaphylactogenic Properties of Malted Sugars and Corn Syrup. B Ratner and H L Gruehl New York.—p 307

\*Blood Phosphorus During Development and Healing of Rickets. Notes on Lack of Relationship Between Level of Plasma Phosphorus and Rachitic State. J Warkany Cincinnati.—p 318

\*Evaluation of White Blood Cell Picture in Ambulatory Children with Positive Tuberculin Reactions. Supravital Studies. C H Smith New York.—p 327

\*Dilute Snake Venom for Control of Bleeding in Thrombocytopenic Purpura. H M Greenwald, Brooklyn.—p 347

The Adolescent Heart. H H Lissner J L C Goffin and M H Rosenfeld Los Angeles.—p 353

Circulation Time in Normal Children. S H Averbuck and W Friedman New York.—p 361

Bacillary Dysentery as Observed Among Normal Children in Huntington, W Va. G M Lyon Huntington W Va.—p 367

\*Effect of Scarlet Fever on Immunity to Diphtheria as Determined by the Schick Test. F G Kojis and J D Craig New York.—p 383

Intestinal Flora in New Born Infants with Description of New Pathogenic Anaerobe *Bacillus Difficilis*. I C Hall and Elizabeth O'Toole, Denver.—p 390

**Blood Phosphorus During Development and Healing of Rickets.**—Warkany's experiments on rats show that a single large dose of viosterol does not bring the inorganic blood phosphorus back to normal if the animals are kept under the original rickets-producing conditions. After ten days, when complete healing of the lesions of the bones is shown by roentgen examination, the inorganic phosphorus has increased to from only 50 to 60 per cent of the normal value for phosphorus in rats. This value, approximately 4 mg, then remains unchanged for weeks, in spite of the continued rickets-producing diet. This is in contrast to the results of experiments in which rats on a rickets producing diet showed a decrease of phosphorus to about 2 mg. A method is described, based on the principle of Kuttner's molybdic acid-stannous chloride reaction which can be performed with 0.05 cc of serum or plasma. A single determination of phosphorus has little significance in the analysis of experiments or in the treatment of clinical rickets.

**Leukocytes in Ambulatory Children with Tuberculin Reactions.**—Smith examined periodically the white blood cell count with the supravital technic in an endeavor to discover any significant alterations produced by manifest disease in twenty-three ambulatory patients having the childhood type of tuberculosis. The results were compared with similar blood counts of normal children. The age periods extended from infancy to 4 years and from 4 to 13 years. The peripheral blood of the ambulatory child who was already infected but whose contact with the source of exposure had been broken differed except for minor alterations, in no wise from the normal. A lymphocytic increase constituted the prominent feature. The blood count does not perform the function of a diagnostic test in tuberculosis, but in periods of suspected clinical activity it does supply information of a more precise nature of the pathologic process than can be obtained from the complaints of the patient, the physical examination or the roentgenogram. The cellular changes were most pronounced during activity in the younger child. The alterations noted in the blood smear differed only in degree from a group of fatal cases of tuberculosis in young children. The author suggests a



tentative monocytic percentage and monocyte-lymphocyte ratio as a guide to early manifestations of activity. It is still problematic whether a comparison of the changes in the blood before and after administration of tuberculin can be utilized to represent the state of focal activity. These changes may possibly serve as an indication of the immunologic status established by the primary infection and to portray the character of the cellular response in the event of later reinfection.

**Snake Venom for Control of Bleeding in Thrombocytopenic Purpura.**—Of eight patients treated by Greenwald with splenectomy and repeated transfusions during the years from 1928 to 1932 inclusive, two died of cerebral hemorrhage and one of postoperative shock. Three patients were treated in 1933 with intradermal injections of diluted snake venom, active bleeding was controlled rapidly in every case. No further bleeding occurred in two children, one patient, who was almost exsanguinated on admission to the hospital and who did not receive the injections regularly, manifested oozing from the nasal mucous membranes six weeks after the beginning of the treatment.

**Effect of Scarlet Fever on Immunity to Diphtheria.**—Kojis and Crug state that of 219 hospitalized patients having scarlet fever eight lost their immunity to diphtheria as determined by the Schick test. The presence of complications, the severity of the infection and the age of the patient had no effect on the loss of immunity to diphtheria. Of the group of patients to whom antitoxin had been administered, 16 per cent lost their immunity to diphtheria as compared with 6 per cent of the group of patients to whom no antitoxin was administered. Every patient having scarlet fever should be given a Schick test during his convalescence, and until it has been demonstrated that a positive reaction to the Schick test may revert spontaneously to a negative one following an attack of scarlet fever, the patient should be immunized if the reading is found to be positive.

### American Journal of Hygiene, Baltimore

21:1248 (Jan.) 1935

- Trypanocidal Action of Normal Human Serum.** Nature of Substance Responsible for Trypanocidal Effect and Its Relationship with Bactericidal Activity of Normal Human Serum. J. T. Culbertson and P. S. Strong. New York—p. 1.
- Studies on Trypanocidal Power of Normal Human Serum.** B. J. Handler. New York—p. 18.
- Experiments on Acquired Immunity to Metazoan Parasite by Use of Nonspecific Worm Materials.** H. M. Miller Jr. St. Louis—p. 27.
- Antibody Response of Rabbits During Prolonged Immunization with Type I Pneumococcus Vaccines.** L. A. Barnes and B. White, with assistance of Charlotte M. Clarke, Boston—p. 35.
- Etiology of Mumps.** C. D. Johnson and E. W. Goodpasture. Nashville, Tenn.—p. 46.
- Studies of Acute Respiratory Infections.** V. Attempts to Demonstrate Bacteriophage for Pneumococci and Influenza Bacilli. D. H. Brainard and W. C. Noble Jr. New York—p. 58.
- Fractional Ultrafiltration.** H. C. Allisbaugh and R. R. Hyde. Baltimore—p. 64.
- Attempt to Ascertain Behavior of Anaplasma Marginale in Ticks Transmitting Anaplasmosis.** E. V. Cowdry and C. W. Rees. St. Louis—p. 94.
- Ultrafiltration Studies with Yellow Fever Virus.** J. H. Bauer and T. P. Hughes. New York—p. 101.
- Culture and Reactions of Purified Protozoa.** R. W. Glaser and N. A. Coria. Princeton, N. J.—p. 111.
- Influence of Carbohydrates on Intestinal Protozoa in Vitro and in Vivo.** R. Hegner and Lydia Eskridge. Baltimore—p. 121.
- Elimination and Cross Infection Experiments with Trichomonads from Fowls, Rats and Man.** R. Hegner and Lydia Eskridge. Baltimore—p. 135.
- Effects of Environmental Changes on Growth and Multiplication in Populations of Balantidium.** F. O. Atchley. Baltimore—p. 151.
- Relation of Bacteria and Bacterial Filtrates to Development of Mosquito Larvae.** L. E. Rozeboom. Baltimore—p. 167.
- Plasmodium Vaughanii (Novy and MacNeal).** R. D. Manwell. Syracuse, N. Y.—p. 180.
- Field Studies of Anthelmintic Action of Ortho-Heptylphenol and 6-Hexyl metacresol Against Ascaris Lumbricoides Necator Americanus and Trichuris Trichiura.** P. D. Lamson. Nashville, Tenn. D. M. Molloy. San Jose, Costa Rica and H. W. Brown. Nashville, Tenn.—p. 188.
- Artificial Immunization of Rats Against Trichinella Spiralis.** O. R. McCoy. Rochester, N. Y.—p. 200.
- Effect of Repeated Light Exercise on Blood Cells of Albino Rats.** Gretchen L. Moorehouse. Baltimore—p. 214.
- Effect of Visible Radiation and Eosin on Rachitic Rat.** A. Szczygiel and J. H. Clark. Baltimore—p. 224.
- Effect of Infra Red Radiation on Growth of Vitamin Deficient Rats.** A. Szczygiel. Baltimore—p. 229.
- Study of Seasonal Distribution of Anopheles in Houston, Texas.** H. C. Matthes. Houston, Texas—p. 233.

### American J. Obstetrics and Gynecology, St. Louis

20:309-468 (March) 1935

- \*Intestinal Complications Resulting from Prolonged Radium and X-Ray Irradiation for Malignant Conditions of Pelvic Organs.** T. E. Jones. Cleveland—p. 309.
- Critical Study of Five Hundred Cases of Eclampsia.** F. H. Falls. Chicago—p. 316.
- Five Year Results in Fifty Six Cases of Carcinoma of Corpus Uteri.** Q. U. Newell and H. S. Crossen. St. Louis—p. 326.
- Intractable Dysmenorrhea. Relief by Sympathetic Neurectomy.** F. S. Wetherell. Syracuse, N. Y.—p. 334.
- \*Pneumococcal Pelvic Infection in Adults.** J. E. King. Buffalo—p. 341.
- Intra Uterine Application of Carbon in Incomplete Abortion.** B. H. Carroll. Toledo, Ohio—p. 349.
- Mono Amniotic Twin Pregnancy. Case Record with Review of Literature.** J. K. Quigley. Rochester, N. Y.—p. 354.
- \*The Cold Test in Pregnancy. Preliminary Report of Its Use in Prenatal Care.** L. M. Randall, S. E. Murray and R. D. Mussey. Rochester, Minn.—p. 362.
- Use of Paraldehyde in Obtaining Obstetric Analgesia and Amnesia.** H. F. Kane and G. B. Roth, Washington, D. C.—p. 366.
- Study of Carcinoma of Cervical Stump Developing After Subtotal Hysterectomy.** W. P. Healy and A. N. Arneson. New York—p. 370.
- Maternal Fetal and Neonatal Morbidity and Mortality.** F. L. Adair. Chicago—p. 384.
- Synthesis and Excretion of Hippuric Acid in Pregnancy.** A. Hirschheimer. Cleveland—p. 395.
- Study of Blood Sugar Levels in Eclampsia.** C. R. Mays and W. M. McCord. New Orleans—p. 405.
- Congenital Anemia of the New Born.** H. D. Pasachoff and L. Wilson. New York—p. 415.
- Simple Ether Oil Apparatus.** R. P. Little. Santa Paula, Calif.—p. 424.
- Traction in Forceps Deliveries.** B. Wylie. Cleveland—p. 425.
- Experimental Studies of Puerperal Infection. Variation in Susceptibility of Skin to Streptococcus Toxin During Pregnancy.** C. C. Torrance. Albany, N. Y.—p. 434.
- Traumatic Rupture of an Early Pregnant Uterus.** G. S. Reeder and C. G. Moore. Fremont, Neb.—p. 439.
- Pentobarbital Sodium Analgesia. Report of Two Hundred and Five Cases.** J. P. Boylan. New York—p. 440.
- Analysis of Maternal Mortality in Ten Thousand Obstetric Cases.** D. Feiner. Brooklyn—p. 444.
- Determination of Urinary Histidine as Chemical Test for Pregnancy.** T. R. Seidman. Rochester, N. Y.—p. 451.
- Analysis of One Hundred and Forty Six Cases of Placenta Praevia.** J. P. Marr. New York—p. 454.
- Ovarian Pregnancy.** W. C. Thro. New York—p. 457.
- Intestinal Complications from Radium and Roentgen Irradiation.**—Jones points out that in 520 patients having cervical carcinomas, who received radiation therapy, there have been seven known cases of benign stricture of the intestine causing obstruction which might easily have been construed as, or confused with metastatic deposits. In five the obstruction was in a movable segment of the sigmoid and in two in the small intestine. Since similar methods of therapy are in general use, it seems probable that the incidence of the lesion is greater than is surmised, and, if similar cases have been attributed to metastasis in the past the mortality statistics relating to metastasis from cervical carcinoma are open to question. The intestinal obstruction developed in the seven patients from eight months to eight years after radiation therapy for cervical carcinoma. If the condition actually is a benign stricture caused by irradiation, it is obvious that additional roentgen treatment would only aggravate the condition and hasten the end. Therefore a patient in whom unusual abdominal symptoms are present, particularly if they simulate intestinal obstruction, may have a stricture of the intestine and may be restored to normal health by resection of the lesion. Before attributing this disability to metastasis thorough reexamination by sigmoidoscopic and roentgenographic studies should be made to eliminate the possibility of this curable complication. Strictures in the small intestine are difficult to visualize unless the obstruction is practically complete. Barium in large amounts is inadvisable, and therefore exploratory operation is warranted especially in patients in whom there is no evidence of recurring carcinoma in the pelvis.
- Pneumococcal Pelvic Infection in Adults.**—King states that the clinical manifestations of pneumococcal pelvic infections in adult women are quite constant and characteristic. There is often a previous indisposition usually associated with the symptoms of an infection of the upper respiratory tract. The invasion of the peritoneum is characterized by its sudden onset with chills or 'chilly feelings'. The pain is sudden, severe, and

located in the lower part of the abdomen. The pulse rate is high at first, but with early localization the rate drops out of ratio with the temperature. A leukocyte count of 20,000 or more is usual with a polymorphonuclear count of 90 per cent or higher. With a fulminating spread the evidences of general peritonitis are present. The distinguishing point is the rapid formation of pus, which takes place earlier and in far greater quantity than in peritonitis from appendicitis or other causes. The author divides pneumococcal pelvic infections in adult women into four groups: 1 The pelvic abscess in which the infection, having become walled off early, remains confined to the pelvis. 2 The generalized peritonitis in which the entire abdominal peritoneum becomes the abscess sac. 3 An infection confined to the tube and ovary. 4 Puerperal infection following either abortion or labor at term. Patients in the first group recover promptly on draining of the abscess by posterior colpotomy. The cases of generalized peritoneal infection of the second group have a high mortality. Until the clinical and laboratory features have been more carefully elaborated on which an early diagnosis may be made, there is little hope of improvement in the present mortality. The author believes that it is reasonable to expect that prompt drainage would result in the infection remaining localized in the pelvis and that it would spread to the general peritoneum in fewer cases. Colpotomy is such a simple and safe operative procedure that there is little that can be urged against it. In the presence of a well developed general peritonitis, adequate drainage is the only hope.

**The Cold Test in Pregnancy**—Randall and his associates determined the reactions to the cold test of Hines and Brown, numbering 130, on 104 pregnant women. The only values that they have for comparison deal with the general problem of hypertension. They feel that the hypertension associated with toxemia of the latter months of pregnancy is related to a toxin which affects the whole maternal organism and that pre-eclamptic toxemia is associated with spastic constriction or with contraction of the arteriolar system. This constriction or contraction may be related to a particularly reactive vasomotor system. It is possible that a pregnant woman who manifests an exaggeratedly reactive vasomotor system in response to the cold test is more likely to suffer from toxemia of the latter months of pregnancy. Toxemia has not developed in any case in which the response to the cold test has been persistently normal and a hypertensive reaction has been demonstrated in all cases in which toxemia has developed. Of the patients who have manifested a definitely exaggerated reaction, 33 per cent gave the usual signs of toxemia in the latter months of pregnancy.

### American Journal of Ophthalmology, St. Louis

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- Gonioscopic Findings After Elliot Operation. M. U. Troncoso and A. B. Reese. New York—p. 103.  
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Some Metabolic Effects of Clamping Visceral Arteries, Splanchnic Vasoconstriction and Adrenal and Hepatic Stimulation with Especial Reference to Calorigenic Action of Adrenin and Sympathin. F. R. Griffith Jr. and F. E. Emery. Buffalo—p. 369.  
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Metabolism of Single Normal Mouse Lymph Nodes. J. Victor. Cold Spring Harbor, N. Y.—p. 477.

**Effect of Pregnancy Urine on Ovary-Stimulating Potency of Hypophyses**—Goodman observed that, in rabbits, the intravenous injection of ether-extracted human pregnancy urine increases the ovary-stimulating potency of the hypophyses of normal adult male and female rabbits and of spayed adult female rabbits. Contrariwise, in rats the subcutaneous administration of ether-extracted human pregnancy urine decreases the ovary-stimulating potency of the hypophyses of adult male and female rats and does not change the potency of the hypophyses of castrated adult male rats. In a small series of spayed female rats the subcutaneous administration of ether-extracted human pregnancy urine increases the ovary-stimulating potency of the hypophyses. Spaying without treatment with urine increases the ovary-stimulating potency of the hypophyses of both rabbits and rats. The ovary-stimulating potency of hypophyses of normal adult male rats is greater than that of adult female rats. After gonadectomy the increase in potency is greater in the females. The present experiments suggest that in the rabbit the action of human pregnancy urine on the hypophysis is partly indirect through the gonads and partly direct on the hypophysis itself. The influence on the hypophysis

is similar to the effect of gonadectomy. In the rat on the contrary the effect of pregnancy urine on the hypophysis appears to be an indirect one only through the gonad. This gonadal influence differs from that occurring in the rabbit in that it is presumably due to the inhibitory action of estrogenic substance or the testis hormone.

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### American Journal of Surgery, New York

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\*Rationale of Jelks' Operation for Rectal Stricture Preliminary Report H. E. Bacon F. H. Murray and J. D. Schofield Philadelphia—p. 476  
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\*Fractures of Neck of Femur Method for Reduction and Fixation by Adduction L. E. Snodgrass Philadelphia—p. 487  
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**Diagnostic Value of Urine Diastase**—Foged believes that the diastase examination gives information in acute disorders of the pancreas. In the differential diagnosis, when it is a question of stone in the common bile duct the positive result of the test favors this disease so strongly that at present there is no other laboratory examination which gives such sure information. There is sufficient reason to undertake diastase examinations in the following cases: (1) in all uncertain abdominal cases, especially when a pancreatic disease is suspected, (2) in diseases of the gall passages, (3) in diseases accompanied by icterus and (4) in postoperative complications, especially following operations adjacent to the pancreas. The result of a diastase analysis will not give the diagnosis immediately. The circumstances are such that a diastase reaction evaluated with understanding and linked with the clinical picture often gives a strong point for or against a definite diagnosis. The diastase examination is a laboratory examination that is simple, quickly made and inexpensive.

**Jelks' Operation for Rectal Stricture**—Bacon and his associates discuss twenty-four cases of rectal stricture in which Jelks' operation was performed. The patients were symptomatically improved. Toxic phenomena were diminished and an increase in the percentage of hemoglobin and the number of

red cells was noted. An increase in weight was observed in fifteen cases. At the end of nine weeks the average increase was 5½ pounds (26 Kg.), at six months 9 pounds (4 Kg.), at ten months 10 pounds (45 Kg.), and at fourteen months 12 pounds (55 Kg.). Diathermy was used in five cases without apparent change. The patients who did not return to the clinic for periodic dilation showed a greater degree of subsequent contracture. Similarly, those cases in which the preoperative narrowing was marked were more prone to contract sooner and to a greater degree. Likewise the longer the stricture the greater the contraction. Patients in whom drainage continued for a period of three weeks or more showed a lesser degree of subsequent narrowing. The method consists of an anteroposterior incision, 1½ inches in length, made on either side lateral to the anus and just beyond what would correspond to the margin of the outer fibers of the external sphincter muscle. Each incision is carried to the under surface of the levator, and a closed hemostat is inserted through this muscle, opened and then withdrawn. With the finger in the rectum as a guide, a scalpel is introduced through this opening and the hard fibrous tissue on each side is severed up to and just beyond the upper limitation of the stricture. The incision is carried round the lateral sides of the rectum almost for its total circumference, except for about 1 inch posteriorly and from 2 to 2½ inches anteriorly. In twenty one of the twenty four cases a posterior incision was made through the entire length of the stricture for a depth of approximately one fourth inch (stricturotomy). This was done because the lumen of the stricture was not sufficiently large after severance of the extravascular or perirectal fibrosis. Three cases in which the posterior incision was made were complicated by hemorrhage and necessitated the use of a cautery. Each lateral wound is packed from its apex downward with iodoform gauze, and through the lumen of each stricture a small rubber tube is inserted surrounded by petrolatum gauze.

**Fractures of Neck of Femur**—Snodgrass suggests the following technique for the treatment of fresh fractures of the femoral neck. Age and condition permitting, the patient is placed on a fracture table with a pelvic bar, complete anesthesia is induced and strong downward traction is applied to the injured extremity. As this traction is applied, the extremity should be in complete extension at the hip joint and in midposition between abduction and adduction. After traction has been applied, the extremities should be measured and compared as to length. The main variable factor in fracture of the hip is the direction of displacement of the head fragment. The distal fragment may be readily pulled down under anesthesia, preceded by different methods of traction, and can be placed in any position, by virtue of the fulcrum action of the iliofemoral ligament. If the direction of the head fragment is found to be in its usual position at a right angle to the acetabular rim, outward rotation of the extremity by using the foot, followed by full adduction, will reduce the fracture and obtain the final position. Strong downward traction must be maintained until the extremity reaches full adduction. If the head fragment is rotated upward and backward, as it commonly is, because of pressure from the iliofemoral ligament made tense by the weight of the femur a different maneuver should be executed. The extremity is placed in full adduction, then externally rotated and finally pulled downward. At the same time, while an assistant holds the extremity in full extension and moderate adduction, the operator may lift upward (anteriorly) and outward on the thigh. The extremity should be in full extension of 180 degrees when the lifting is done, and the foot and ankle should be held down as the thigh is lifted upward and outward. Whichever maneuver is used, the final position should be full extension, full adduction to a point where the sagittal midline of the body may be projected downward through the knee joint and full external rotation. The final position is followed with a plaster spica from the toes to above the pelvic brim. Success or failure depends on accurate reduction. The fragments must be brought in contact end on, even though complete apposition of both fractured areas is not obtained. The manipulative result should be checked at once by roentgenograms taken through the plaster cast. The operator has at hand two clinical tests of some value in determining the amount of reduction obtained. First, by inspection

one may note whether or not the leg rolls into extreme external rotation, after it has been moved into adduction. Second, by palpation one may note the tenseness of that portion of the fascia lata between the great trochanter and the brim of the pelvis, comparing it with the same area on the well side when the assistant places the well leg in a corresponding position. These two tests are not diagnostic of full reduction but serve only to show that the fragments are end on. The second main factor to be observed is the elimination of all muscle pull. The adduction-external rotation method presented depends entirely on the end-to-end reduction of the fragments. This is where the emphasis must be placed if surgery is to make a real advance in the treatment of these cases.

### American Review of Tuberculosis, New York

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**Lesions Following Inoculation with Bacillus Calmette-Guérin.**—Feldman prepared glycerin-peptone broth cultures using a strain of Bacillus Calmette-Guérin, obtained from Calmette in 1930 and grown for twenty generations subsequently on an egg glycerin medium, to inoculate six rabbits intravenously and four guinea-pigs subcutaneously. One of the rabbits died ten days after inoculation and the other five were killed 174 days after inoculation. Numerous and striking focal lesions morphologically like tubercles, were found in the lungs of each of the five rabbits. Attempts to culture acid-fast bacteria from the lesions of the lungs were futile, although bacteria of this character were readily demonstrable in appropriately stained sections of the lesions. Emulsions prepared from lesions from each of the five rabbits failed to produce demonstrable lesions in other rabbits or guinea-pigs, and attempts to repeat the results in later experiments failed. These results indicate that the Bacillus Calmette Guérin in the lungs of rabbits may at times produce numerous and extensive tubercle-like lesions.

**Tuberculosis as Causative Factor in Addison's Disease.**—Colton states that of the eight cases of Addison's disease in which death occurred and postmortem examinations were made at his institution, all but two presented tuberculosis of the adrenals. The two exceptions showed amyloid degeneration of both adrenals. At necropsy, tuberculosis of the adrenals was present in twelve cases, clinical symptoms of Addison's disease being absent in six. In all of the eight cases tuberculosis was present elsewhere in the body, principally pulmonary although three showed only arrested or healed pulmonary disease and one a moderately advanced slightly active pulmonary lesion. Genito-urinary tuberculosis was a major condition in two. The complications in these cases were five gastro-intestinal and two bone and joint tuberculosis two tuberculous empyema, three amyloid disease of the liver, spleen and kidneys and one hyperthyroidism. Clinically all eight presented a typical Addison's syndrome, including extreme weakness gastro-intestinal pains (usually cramps) nausea, vomiting, headaches and loss of weight. Low blood pressure (from 90/70 to 124/80) was present in six. Unfortunately, studies of blood pressure were not complete. Two cases were not recorded. Bronzing of the skin and mucous membranes was present to a varying degree in five. There were visionary disturbances in three. Sudden collapse occurred at death in four. One showed absent reflexes of the lower limbs and one numbness of the arms and hands.

**Experiments on Filtrability of Tuberculo-virus.**—Summarizing their observations based on the examination of 209 guinea pigs and seventy-seven cultures, Piasecka-Zeyland and Zeyland report that their attempts to substantiate the quoted methods of demonstrating the filtrability of the tuberculous virus have given them only negative results. Comparing them with the results of other authors they are certain that the

problem of filtrability in tuberculosis cannot be decided. A critical review of the literature on this question shows that among the adherents every worker obtains positive results exclusively by his own technique and none of the described methods have given positive results in the hands of other authors not belonging to the same school, in other words, these experiments are marked by lack of ability of reproduction, and that is the main obstacle to the general acknowledgment of a fact in experimental science. The problem of the filtrability of tuberculous virus demands still further investigation with the application of new methods.

### Anatomical Record, Philadelphia

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Clinical Studies in Circulatory Adjustments I. Clinical Evaluation of Studies of Circulating Blood Volume A. A. Goldbloom and I. Libin with technical assistance of P. K. Roht New York—p. 484

**Secretion of Mucus and Acid by Stomach.**—Necheles and Coyne measured the gastric secretion of visible mucus after fasting and following the injection of pilocarpine in thirty-seven normal persons and in twenty-four patients having duodenal ulcer. The amount of visible mucus in the stomach after fasting was found to be greater in normal persons more than 40 years of age than in those less than 40. This increase with age did not take place in patients having ulcer. After the injection of pilocarpine normal persons showed an increased secretion of visible mucus, while patients having ulcer (non-drinkers and drinkers of alcohol) do not show such an increase. Normal persons who drink alcohol show a decreased secretion of mucus after the injection of pilocarpine.

**Estrogenic, Luteal and Gonadotropic Hormones in Hemophilia.**—The observations of Chew and his associates on two hemophilic patients for ten and thirteen months, respec-

tively, while receiving no specific therapy and while receiving preparations of estrogenic substance by mouth and subcutaneously, the hormone of the corpus luteum intramuscularly and the gonad-stimulating hormone from the urine of pregnant women subcutaneously, indicate that persons with hemophilia have no lack of estrogenic substance in their urine and, although it does not necessarily follow, probably have no deficiency of this principle in their blood. Their observations fail to substantiate the theory that an absence of this hormone is responsible for the impaired coagulability of the blood. Conversely, they have been unable to alter the characteristic fluctuations of the prolonged coagulation time of the blood in hemophilia by the administration of estrogenic substances. The frequency with which increases in the coagulation time of the blood were associated with a demonstrable amount of the gonadotropic factors in the blood and the somewhat increased blood coagulation time in one patient while he was receiving follutem, an anterior pituitary-like gonadotropic substance, and after exposure of the pituitary region to stimulating doses of roentgen rays are observations which could be construed to indicate that the gonad-stimulating hormone of the anterior pituitary gland may contribute an adverse factor to blood clotting in hemophilia. However, the absence of demonstrable amounts of the gonadotropic factor in the blood of persons with hemophilia while a prolonged coagulation time was maintained argues against the essential importance of this factor in influencing the coagulation time. None of the various hormones exerted any fundamental influence on this sex-linked hereditary disorder of blood clotting.

**The Electrocardiogram in Myocardial Infarction** — Barnes endeavors to integrate the clinical pathologic and experimental observations published on coronary occlusion. The site of the acute infarct in the left ventricle and not the vessel supplying the area determines the character of the electrocardiographic changes that will result. Experimental destruction of areas in the anterior portion of the left ventricle produces electrocardiographic changes that are different from those obtained by the injury of similar portions of the posterior portion of the heart. These electrocardiographic changes are a deviation of the RST segment. The preponderance of evidence is against the interpretation that deviation of the RST segment in acute myocardial infarction depends on the development of an additional factor of cardiac failure. Experimental and clinical evidence indicates that the RST deviation observed in the electrocardiogram after infarction is the primary event and that changes of the T wave are sequential and secondary to that deviation. Typically developed  $Q_1$  and  $Q_2$  patterns of infarction have a definite diagnostic and localizing value, and the combined consideration of the Q and T patterns will yield more information in the diagnosis than will either pattern considered alone. Under proper conditions the presence and situation of acute infarction can be predicted almost always from the electrocardiographic changes that develop. Presumptive evidence of previous occlusion may be obtained from the appearance of inverted T waves observed months after the acute occlusion. These T waves are the coronary T waves of Pardee and are chiefly characterized by their depth and the character of the RT intervals that precede them. The reciprocal relation of  $T_1$  and  $T_2$ , in which as one becomes more inverted the other becomes more positive is important evidence of preceding acute occlusion. Not all RST changes observed in angina pectoris, coronary sclerosis or myocardial fibrosis are to be ascribed to coronary disease, because many of these cases present no significant electrocardiographic changes. Neither the presence nor the site of chronic dystrophic fibrosis of the myocardium is disclosed by any electrocardiographic change described to date. Electrocardiograms with low voltage of the QRS complex in all leads after acute infarction probably increase the gravity of the prognosis. The development of highly characteristic electrocardiograms of the  $T_1$  or  $T_2$  type after acute infarction seems to indicate a more favorable prognosis than do atypical electrocardiograms. Electrocardiographic changes signifying acute infarction may appear as early as from one to two hours after acute coronary occlusion, and the electrocardiogram may not return to normal in some instances for two or three years or more.

## Archives of Pathology, Chicago

10: 139 286 (Feb.) 1935

- \*Hodgkin's Disease, with Especial Reference to Its Differentiation from Other Diseases of Lymph Nodes. Edith Louise Potter. Minneapolis —p 139
- Changes in Teeth and Bone in Chronic Fluoride Poisoning. C. J. Sutro. New York —p 159
- \*Effect of Resection of Large Fractions of Renal Substance. Experimental Study. R. B. Allen. New York. J. L. Bollman and F. C. Mann. Rochester. Minn. —p 174
- Periappendicitis Without Appendicitis. Study Based on Twenty-Six Thousand and Fifty One Appendicetomies. H. Gordon. Ann Arbor. Mich. —p 185

### Hodgkin's and Other Diseases of Lymph Nodes.—

Potter divides pathologic conditions of lymph nodes into two groups: those secondary to disease elsewhere in the body and those in which lymphoid tissue is the structure primarily involved. The first group includes simple hyperplasia, acute and chronic inflammation and metastatic tumor infiltration. The second group includes the leukemias and reticulo-endotheliosis, the various types of lymphosarcoma, reticulo-endothelial sarcoma, endothelioma and Hodgkin's disease. In all diseases primary in lymph nodes, reticulo-endothelial tissue of any part of the body may be involved. These diseases involve primarily the undifferentiated reticulum cells, those cells which show no differentiation into either sinus endothelium or phagocytic cells. Leukemia is the result of a stimulation of the hematopoietic function of reticulum cells. There is an abnormal proliferation of reticulum cells, most of which develop rapidly into hemocytoblasts. Sarcoma of reticulo-endothelial tissue also results from abnormal proliferation of undifferentiated reticulum cells. There is an entirely unsuccessful attempt to form mature cells, although there may be slight differentiation into hemocytoblasts, endothelium of sinuses or simple reticulum cells. In Hodgkin's disease there also is a proliferation of reticulum cells. There is a development of reticulum cells along all lines normally followed plus the formation of various types of abnormal cells. After proliferation the reticulum may remain as normal syncytial cells; they may become more completely fused and solidly packed and resemble endotheliomatous tissue; they may increase in size and develop more hyperchromatic nuclei while still retaining their syncytial character and resemble somewhat the cells of reticuloma and they may develop into the specific type of mononuclear or polymorphonuclear cells that are characteristic of Hodgkin's disease. In addition they may develop into normal hemocytoblasts, normal fixed or free phagocytes, or fibroblasts. There is always a protean type of cellular differentiation. Hodgkin's disease is always characterized by pleomorphism of cells. The microscopic appearance of Hodgkin's disease depends on the relative predominance of certain developmental tendencies. A definite diagnosis of Hodgkin's disease cannot be made without the presence of specific Hodgkin cells. Hodgkin's disease may be subdivided according to the predominant cells (endotheliomatous, reticular, cellular, sclerotic). If there is no cellular variety and if Hodgkin cells are absent, the condition must be called 'endothelioma,' lymphosarcoma or reticulum cell hyperplasia. Hodgkin cells are occasionally absent from individual nodes, even when present in the majority. Since all the diseases primary in lymph nodes may show reticulum cell proliferation, the presence of hyperplasia of these cells alone is insufficient evidence for making any specific diagnosis. In each disease primary in lymph nodes there is development along a specific line. In rare atypical cases the stimulus ordinarily producing a specific histologic change may lead to the formation of the type of tissue ordinarily produced by another cause and associated with another disease. The microscopic pictures of all diseases primary in lymph nodes may, in rare instances, in individual nodes, be identical with the exception that Hodgkin's cells are never found except in Hodgkin's disease. Hodgkin's disease, the sarcomas arising from reticulo-endothelium and the leukemias and aleukemias represent three distinct entities.

### Resection of Large Fractions of Renal Substance.—

Allen and his co-workers subjected eight dogs, aged from 5 to 6 months, to resection of large fractions of renal substance. The largest fraction was not less than three-fourths. After an interval of several months the degree and nature of the hypertrophic response in different animals of a litter were made.

Transitory increases occurred in the concentration of blood urea following resection but as little as one fourth of the renal substance was capable of maintaining a normal concentration. Readings of the blood pressure (indirect and direct) were normal. In one animal nearly three fourths of the renal substance (72.8 per cent) was removed at one operation, and the animal survived. In another animal somewhat more than three fourths of the renal substance was removed in two stages by waiting for compensatory hypertrophy to occur in the interval, and the animal survived. Evidence is presented which indicates that the larger the proportion of total renal substance resected (but not in excess of approximately 70 per cent) the greater is the relative hypertrophy that occurs, both in terms of the mass of the kidney and in terms of the size of the renal corpuscles and tubules. These observations suggest that compensatory renal hypertrophy is a physiologic or work reaction.

### Arkansas Medical Society Journal, Fort Smith

31: 167-190 (March) 1935

- The Knee Joint F W Carruthers Little Rock —p 167  
Effect of Postural Changes on Blood Pressure and Pulse Rate C H Lutterloh Hot Springs National Park —p 172

### Delaware State Medical Journal, Wilmington

7: 21-40 (Feb) 1935

- Insanity Some Medicolegal Aspects D J Layton Georgetown —p 21  
Science of Medical Superstition C A D Alonzo Wilmington —p 29

### Journal of Allergy, St. Louis

6: 215-310 (March) 1935

- Studies in Mucous Membrane Hypersensitiveness I Passive Local Sensitization of Ophthalmic Mucous Membrane M Walzer H Sherman and L A Feldman Brooklyn —p 215  
Pollen Carbohydrate as Therapeutic Agent for Pollen Asthma Preliminary Report A H W Caulfield Toronto —p 219  
Further Observations Concerning Effect of Pollen Therapy on Cutaneous Sensitiveness in Late Hay Fever H Markow and W C Spain New York —p 227  
Protein Content of Extracts of Various Allergens Methods for Determining Small Amounts of Protein R S Hubbard and H Osgood with technical assistance of Helen R Garbutt Buffalo —p 231  
Ionization of Nasal Mucosa Relationship Between Reagents in Blood and Effect of Treatment Preliminary Report H L Alexander and J H Alexander St. Louis —p 240  
New Method of Preparation of Pollen Extracts J M Anderson Salt Lake City —p 244  
Vormergic and Allergic Inflammation B S Kline and A M Young Cleveland —p 247  
Reversible and Irreversible Allergic Inflammation Cases B S Kline and A M Young Cleveland —p 258  
Treatment of Chronic Atrophic Arthritis with Autogenous Streptococcus Filtrates (Antivirus) Preliminary Report A E Lamb G E Anderson and L Nerb Brooklyn —p 273  
Studies on Relation of Adrenal Glands to Allergic Phenomena III Specific Therapeutic Effects of Cortical Adrenal Extract in Asthma M B Cohen and J A Rudolph Cleveland —p 279  
Histamine and Typhoid Protein Compared in Control of Asthma and Hay Fever N F Thibierge, New Orleans —p 282  
Honey Dew from Live Oak Cause of Hay Fever and Asthma G H Fonde and E C Pondé Mobile Ala —p 288  
Cutaneous Allergy Following Ingestion of Amidopyrine A E Taussig St. Louis —p 291  
Psoriasis as Possible Allergic Manifestation W B Adamson Abilene, Texas —p 294  
Climacteric Hypersensitiveness to Sun and Effort Treatment with Follicular Hormone (Theelin) Preliminary Report of Case M M Goldberg New Orleans —p 298  
Ornith Root Fingers L E Prickman Rochester Minn —p 302

**Treatment of Atrophic Arthritis**—Lamb and his associates state that there is no definite evidence that atrophic arthritis is caused by any one specific type of streptococcus. The evidence seems to indicate that the disease results from the effect of different types of streptococcus localized in varied foci of infection. It is likely that the reaction in the joints to the products of these organisms is an allergic one. In support of this it has been demonstrated that cases of atrophic arthritis will react with a positive skin test to filtrates prepared from the strains of streptococci isolated from their own foci of infection. It is to be emphasized that bacterial filtrates and not vaccines are to be prepared for skin test and therapy. Of the patients having atrophic arthritis treated by desensitization to autogenous streptococcus bacterial filtrates (antivirus) to which they showed a positive skin test 84.3 per cent improved whereas only 48.4 per cent of the patients treated with autogenous streptococcus vaccine showed improvement.

**Psoriasis as Possible Allergic Manifestation**—To investigate the question of an antigenic factor in the scales of psoriasis lesions, Adamson collected scales with a minimal admixture of blood serum or other foreign substances. The lipoids were removed with two washings in ether and the dried scales were pulverized in a mortar. Three types of extracting fluid were used: physiologic solution of sodium chloride, buffered saline solution and alkaline saline solution. The latter yielded the most satisfactory extract. Five grams of the pulverized scales were placed in 100 cc of the extracting fluid and kept in the icebox for five days. The extract was then passed through a Seitz filter and proved by cultural method to be sterile. Chemical analysis revealed a nitrogen content of 0.395 mg per cubic centimeter. This product was slightly irritating to the normal skin, therefore dilutions 1:4 and 1:8 with respective normal contents of 0.1 and 0.05 mg per cubic centimeter were made. Intradermal injection of these two dilutions gave negative reactions in ten normal skins. Six cases of psoriasis were available and in each case positive reactions occurred at the sites of the intradermal injection of 0.02 cc. of the weaker dilution. Atopic reagents in the blood were not demonstrable by passive transfer, nor were precipitins demonstrable in vitro.

### Journal of Infectious Diseases, Chicago

56: 1-96 (Jan-Feb) 1935

- Is a Special Variety of Staphylococcus Concerned in Food Poisoning? J Stritar and E O Jordan Chicago —p 1  
Grouping of Monilias by Fermentation and Precipitin Reactions J H Lamb and Margaret Lain Lamb Oklahoma City —p 8  
Experimental Rabies in White Mice and Attempted Chemotherapy II A Hoyt R T Fisk and C H Thienes Los Angeles —p 21  
Tularemia in Wild Gray Foxes Report of an Epizootic C F Schlotthauer L Thompson and C Olson Jr Rochester Minn —p 28  
\*The Passage of Bacteria from Lungs into Blood Stream W M Tuttle and P R Cannon Chicago —p 31  
Influence of Bovine Serum on Brucella Infection in Guinea Pigs B A Beach Madison, Wis —p 38  
Purification of Suspensions of Virus of Vaccinia (Iso-Electric Point Method) C A Behrens and F A Nielsen Lafayette, Ind —p 41  
Specificity of Conjunctival Infection in Monkeys Following Inoculation with Trachomatous Tissue R W Harrison St. Louis —p 49  
Spontaneous Occurrence of Brucella Agglutinins in Dogs W H Feldman F C Mann and C Olson Jr, Rochester Minn —p 55  
Coccus Forms of Corynebacterium Diphtheriae T C Grubb Chicago —p 64  
Pathogenicity for Cattle of Brucella Strains Isolated from Cases of Undulant Fever in Man R R Birch and H L Gilman, Ithaca, N Y —p 78  
\*Preservation of Purified Suspensions of Virus of Vaccinia C A Behrens and W W Ferguson Lafayette Ind —p 84  
The Lesions Produced in Uterus of the Guinea Pig by Injections of Suspensions of Hemolytic Streptococci and Pyocyanus Bacillus at Different Stages of the Sexual Cycle C S Linton A A Kippen and L Loeb St. Louis —p 89

**The Passage of Bacteria from Lungs to Blood Stream**—Tuttle and Cannon introduced bacterial suspensions of Staphylococcus aureus, Bacillus prodigiosus and Streptococcus haemolyticus into the left lower lobe of the lungs in fourteen healthy dogs and took cultures of samples of blood from the femoral artery and lymph from the thoracic duct at frequent intervals during the first sixty minutes. In the animals injected with staphylococci and prodigiosus bacilli both the blood and the lymph remained sterile throughout the period of observation. The bacteria were demonstrable in the lungs at the end of the experiment, many already engulfed by septal cells. In the dogs injected with hemolytic streptococci the micro-organisms quickly entered the blood stream, whereas the thoracic lymph remained sterile in most instances, proving that the bacterial passage from the lungs into the blood stream was direct, rather than indirect by way of the lymphatic channels. It is probable that the differences in response of the pulmonary tissues to the micro-organisms employed depend to a large extent on the varying degrees of injury to the cellular and tissue barriers within the lungs and that the experimental bacteremia occurred because of increased permeability of these membranes induced by the virulence and toxicogenicity of the bacteria.

**Preservation of Purified Suspensions of Virus of Vaccinia**—Behrens and Ferguson tested the stability of a virus free of protective organic cellular matter and observed the effect of various substances when stored under like conditions. The viruses that they employed were dermovirus, obtained from commercial calf pulp and neurovirus, obtained from the



original Levaditi strain, which was cultivated in vivo in rabbits. Suspensions of these viruses were made up with physiologic solution of sodium chloride and purified by the iso-electric point method and by the use of Brewer-Kraybill aluminum gel. They found that of the preservatives tested gelatin and peptone gave the best protection to the virus, when used in percentages of 0.1 and 1, respectively.

### Journal of Pharmacology & Exper Therap, Baltimore

53: 139-250 (Feb.) 1935

- Effect of Tribrom Ethanol (Avertin) on Electric Changes in Human Heart W R M Morton Belfast Ireland—p 139  
Tension Output of Caffeinated Muscles G Saslow and E C Webster, Woods Hole Mass—p 142  
Effect of Morphine on Oxygen Consumption of Brain Tissue in Rat E G Gross and I H Pierce, Iowa City—p 156  
Mechanism of Action of Strychnine on Respiration Janet Travell and H Gold New York—p 169  
Method for Testing Addiction Tolerance and Abstinence in Rat Results of Its Application to Several Morphine Alkaloids C K Himmelsbach G H Gerlach and E J Stanton Cleveland—p 179  
Bicarbonate Elimination Through Salivary Glands Under Nervous and Chemical Stimulation H H McClintahan Jr University Miss and W R Amberson Memphis Tenn—p 189  
Anthelmintic Studies on Alkylhydroxybenzenes I Alkylpolyhydroxybenzenes P D Lamson H W Brown and C B Ward Nashville Tenn—p 198  
Id II Ortho-Alkylphenols and Para-Alkylphenols P D Lamson H W Brown R W Stoughton P D Harwood R Baltzly and A Bass, Nashville Tenn—p 218  
Id III 6-N Alkyl Meta Cresols P D Lamson and H W Brown Nashville Tenn—p 227  
Id IV Isomerism in Polyalkylphenols P D Lamson H W Brown R W Stoughton P D Harwood R Baltzly and A Bass, Nashville Tenn—p 234  
Id V Phenols with Other Than Normal Alkyl Side Chains P D Lamson H W Brown, R W Stoughton P D Harwood R Baltzly and A D Bass Nashville Tenn—p 239

### Maine Medical Journal, Portland

26: 31-44 (March) 1935

- Traumatic Surgery of the Hand S A Cobb Sanford—p 33  
Routine Hospital Laboratory Examinations II Hematology M Warren with assistance of Wilhelmina Abdullah Portland—p 36

### Minnesota Medicine, St. Paul

18: 131-200 (March) 1935

- \*Ten Years of Surgery for Cancer of Breast W A Coventry and R J Moe, Duluth—p 131  
Treatment of Severe Essential Hypertension Effects of Surgical Procedures Applied to Sympathetic Nervous System G E Brown W M Craig and A W Adson, Rochester—p 134  
Disturbances in Peripheral Circulation Clinic in Medicine G E Brown Rochester—p 139  
Insomnia G R Kamman St Paul—p 143  
Attempted Suicide Investigation of One Annual Series in the Minneapolis General Hospital J C Michael and B P Grimes Minneapolis—p 148  
Multiple Areas of Cutaneous Gangrene Following Scarlet Fever Report of Case S E Sweitzer and C W Laymon Minneapolis—p 154

**Surgery for Cancer of Breast**—From 1919 to and including 1928 Coventry and Moe operated on ninety-one patients with carcinoma of the breast. Twenty-four are living and well. Two are living with recurrence. Sixty-one are dead and four are untraced, thus making 26.3 per cent of so called five-year cures. The average duration of symptoms in the entire group was 11.2 months from the time the symptoms were first noticed until the operation was performed, while in the groups of five-year cures the average duration of symptoms was only four months and in the seven and ten year groups it was still less. This observation impresses the fact that early diagnosis and early treatment are of primary importance. Of the twenty-four patients living and well five years or more, twenty-one had radical operations and three had semiradical procedures. Mere amputation or excision of the tumor produced no five-year cures. Roentgen treatment was given to eleven of the twenty-four patients, while no radiation was given to thirteen. The duration of symptoms, size of growth and presence of metastasis played no apparent part in the end results, as approximately an equal number of early and late cases were found in the two groups. The authors firmly believe that the radical operation as advocated by Halsted and Meyer is the most effective weapon at hand in combating this disease. A lump in the breast demands biopsy. There is a need for a cooperative program between the surgeon and the radiologist to assure the administration of proper and effective dosage.

### Missouri State Medical Assn. Journal, St. Louis

32: 81-124 (March) 1935

- Diet in Health and Disease J H Musser New Orleans—p 81  
Unusual Pyogenic Osteomyelitis General Discussion and Review of One Hundred and Thirty Eight Spine and Pelvic Lesions J Kulowski, St Joseph—p 85  
Bladder Catheterization Its Benefits and Dangers in Prostatic, Post-operative Postpartum and Neurogenic Obstructions D K Rose, St Louis—p 94  
Management of Hyperthyroidism E V Mastin St Louis—p 98  
The Diphtheria Problem in St Louis E Sigoloff St Louis—p 103

### Virginia Medical Monthly, Richmond

61: 685-736 (March) 1935

- \*New Conception of Pellagra B R Tucker, Richmond—p 686  
Progress of Surgery During Last Forty Years G T Vaughan Washington D C—p 690  
Calcium Its Metabolism and Deficiency as Rhinologic and Otolaryngologic Problem H G Preston Harrisonburg—p 694  
Management of Diabetic Patients in Private Practice W R Jordan, Richmond—p 697  
Sodium Hydrosulphite in Treatment of Poisoning by Mercuric Chloride C C Haskell G F Cormery and S S Hamilton East Orange, N J—p 703  
Study of Convulsive Disorders at the University of Virginia Hospital Since 1920 F A Strickler University—p 706  
Music and Health E Podolsky Brooklyn—p 710  
Anaphylaxis Following Administration of Pituitrin H G Byrd, Louisa—p 713  
Cardiac Nomenclature Unsatisfactory Terms W A Flecker Richmond—p 714

**New Conception of Pellagra**—Tucker believes that dietary deficiency, including that of vitamin G, probably contributes to the susceptibility to pellagra, and so in a lesser degree do chronic alcoholism, chronic tuberculosis, chronic digestive disturbance, prolonged mental states and morphinism. In his experience many patients have recovered without yeast, liver or much food supposed to be rich in vitamin G. Inquiry from six Southern state hospitals reveals that the superintendent of four reported the development of pellagra in patients on the so called pellagra preventive diet. In considering the possibility of a virus infection as the cause of pellagra he points out that pellagra resembles acute anterior poliomyelitis, smallpox, herpes zoster, influenza and the form of encephalitis that follows influenza in its epidemiology, place incidence, seasonal tendency and its acute, chronic and recurrent forms much more than it does scurvy, rickets, beriberi, malnutrition and other dietary deficiency diseases. But the pathology is the most important factor pointing to the possible cause of pellagra. In two brains, six cords and two sympathetic ganglionic chains examined by the author pellagra was found to affect the brains but slightly, the cords diffusely and especially in the cervical and lumbar enlargements, and the spinal sympathetic ganglionic chains extensively. He was led to the conjecture that a virus would be the most likely agent to cause this neuropathologic distribution. In support of the contention that the pathology of pellagra is chiefly neurologic, he calls attention to the literature of necropsies of the central nervous system. Reflex and other organic neurologic signs are found in probably 25 per cent of pellagra patients and mental symptoms are, of course, not infrequent. Organic neurologic signs and mental symptoms are common to practically all very severe cases. Involvement of the spinal cord will account for the organic neurologic signs, while a general toxemia with, at times, infiltration to the brain will account for the psychoses and involvement of the spinal ganglionic sympathetic chain with its spinal cord connections for the cutaneous and gastro-intestinal manifestations. A filtrable virus is the most likely cause of such distribution of involvement.

### Wisconsin Medical Journal, Madison

34: 153-220 (March) 1935

- Cardiac Pain Differentiation of Genuine Cardiac Pain from Conditions Simulating It F D Murphy Milwaukee—p 163  
Spontaneous Subarachnoid Hemorrhage Report of Twelve Cases Mabel G Masten Madison—p 168  
Drug Hypersensitivity as Cause of Acute Primary Granulocytopenia T L Squier and F W Madison Milwaukee—p 175  
Complete Dissolution of Large Renal Calculus W M Kearns, Milwaukee—p 179  
Abnormal Positions of Kidneys W G Sexton Marshfield—p 184  
Unilateral Postencephalitic Parkinsonian Syndrome Report of Two Cases E M Jordan Green Bay—p 185



FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 401-456 (March 2) 1935

- Circulatory Diseases of Extremities J Fraser—p 401  
Relationship of Jochmann's and Other Enzymes to Encephalitogenic Agent in Lymphadenomatous Lymphatic Glands I Mackenzie and C E Van Rooyen—p 406  
Serologic Diagnosis of Weil's Disease H C Brown—p 411  
Hereditary and Mental Deficiency J A F Roberts—p 413  
Repair of Perineal Tears Simple Technique J Melvin—p 415

Glasgow Medical Journal

5 49-112 (Feb) 1935

- Some Pages from History of Prevention of Malaria M Watson—p 49  
Basis of Standard Tables of Body Weight P L McKinlay—p 71

Indian Medical Gazette, Calcutta

70 61-120 (Feb) 1935

- Corneal Transplantation on Opaque Corneas E O G Kirwan—p 61  
\*Relationship Between Quinine Concentration in Circulating Blood and Parasite Count in Monkey Malaria R N Chopra S K Ganguli and A C Roy—p 62  
Venereal Origin of Granuloma Inguinale T B Menon and P Natesan—p 66  
Effect of Use of Living or Dead Suspensions of Vibrios on Agglutination Titer R W Linton and S C Seal—p 68  
Observations on Vitamin A Value of Halibut Liver Oil B Ahmad—p 70  
Values of Constants in Analysis of GHI for Detection of Adulteration B B Brahmachari—p 71  
Simple Method of Bug Destruction J N Pacheco—p 75

**Relation Between Quinine Concentration and Malaria Parasite Count**—Chopra and his associates performed experiments on monkeys to determine whether with the maximal concentration of quinine obtained in the blood the parasites exhibited any tendency to increase or decrease in number or to show degenerative changes. *Silenus rhesus* monkeys were infected with strains of *Plasmodium Knowlesi* from another infected monkey, and the erythrocyte and the corresponding parasite counts were determined. Quinine was then administered by the intramuscular or the intravenous route, and the concentration of the alkaloid in the blood and parasite counts were determined at intervals. There was no direct relationship between the concentration of quinine in the blood and the parasite count at any particular time. The highest concentration of the alkaloid attainable without producing too severe toxic effects produces no apparent reduction in the number of parasites or degenerative changes in them. On the other hand in the majority of cases there was a definite apparent increase in the number of parasites per cubic millimeter of blood after the administration of quinine. The action of quinine on the parasites does not appear to be direct but is probably synergistic to other mechanisms set up in the body. It has been observed that once the number of parasites approximates one million per cubic millimeter no amount of quinine, however administered, is of any avail.

Journal of State Medicine, London

43: 125-186 (March) 1935

- Economic Possibilities of Scientific Nutrition R G Linton—p 125  
The Future of Preventive Medicine A Cox—p 132  
The Canning of Fresh Fruit and Vegetables in Relation to Health T Rendle—p 145  
Unification of Control of Animal Diseases and of Meat and Milk Supply W T MacGregor—p 156  
Young Farmers Clubs Their Relation to Veterinary and Public Health J C Leslie—p 166  
Tudor Marriages and Infantile Mortality C C Morrell—p 173  
The Care of the Advanced Consumptive F R G Heaf—p 182

Journal of Tropical Medicine and Hygiene, London

38 41-52 (Feb 15) 1935

- Devitalized Vital Statistics in the Tropics Being Plea for Revision of Some Existing Practices P G Edge—p 41  
Further Observations on *Francolin* and Guinea Fowl as Reservoirs of *Trypanosoma Rhodesiense* J F Corson—p 46

35: 53-64 (March 1) 1935

- Experimental Transmission of Lymphogranuloma Inguinale to Guinea Pigs W E Coutts and J M Herrera—p 53  
Diagnosis of Ascariasis R Girges—p 55

Lancet, London

1: 419-472 (Feb 23) 1935

- Place of Surgery in Treatment of Peptic Ulcer W H Ogilvie—p 419  
\*Renal Sympathectomy and Renal Sympatheticotomus Scope and Limitations of Operation S H Harris—p 424  
Sinusitis in Mental Disorder D N Parfitt—p 429  
Relative Food Values of Glucose and Sucrose (Cane Sugar) S W Cole—p 431  
\*Use of Prostigmine in Treatment of Myasthenia Gravis E A B Pritchard—p 432

**Renal Sympathectomy and Renal Sympatheticotomus**—Harris issues a warning against the promiscuous application of renal sympathectomy. He has limited its field of application and has in no case employed it in conjunction with nephropexy or decapsulation. It has been carried out solely for relief of the pain of increased intrarenal tension in cases of urinary stasis arising from neuromuscular dysfunction of the renal pelvis, calices and upper portion of the ureter—a definite type of obstructive nephropathy (renal sympatheticotomus). Renal sympathectomy may be employed in cases of this type with a certainty of success that is exceeded by few other operations. Of the etiologic factors concerned, little or nothing definite is known. The disease rarely attacks people in robust health. Worry and overwork have been features in nearly all cases. The attacks of pain are believed to be brought about by increased excitability of the sympathetic nerve supply to the kidney, though this sympathetic overactivity, while commonly unilateral, may often be shown to be much more comprehensive in its distribution. Evidence of this is to be found in muscular hypertonus, illustrated by increased excitability of the knee jerk on the affected as compared with the normal side, with delayed relaxation time and absence of the normal oscillations. Hypertonus, as estimated by the knee jerk, is liable to variation from time to time in the same patient and is subject at the time of examination to the phenomenon of fatigue. Attention should be focused on the first tests made and the patient should be properly prepared. It is reasonable to suppose that this periodic variation of hypertonicity also applies to the kidney, affecting the entire musculature. The intermittent nature of the pain would thus find a ready explanation. The renal stasis as exemplified by the delayed emptying time of the renal pelvis after pyelography is constantly found. The three stages of renal sympatheticotomus are irritability or overexertion, exhaustion and dilatation or paralysis. In the first stage systole predominates, in the second diastole, and in the third hydronephrosis is present. Immediate and permanent relief of symptoms is afforded by renal sympathectomy in stages one and two. In stage three the aid of plastic surgery may be necessary to overcome secondary organic obstruction. The author believes that the best interests of surgery in general and of renal sympathectomy in particular will be conserved by rigidly confining the operation of renal sympathectomy to the type of case described.

**Use of a Derivative of Physostigmine in Treatment of Myasthenia Gravis**—Pritchard confirms the clinical effects of dimethyl carbamic ester of hydroxy phenyl-tri-methyl ammonium methyl sulphate in the treatment of myasthenia gravis obtained by Walker. Of the seven cases described, all have shown a striking and immediate relief of symptoms to a degree not observed with any other remedy. Each of the seven patients has been examined before and after the injection into the buttock of the physostigmine derivative and atropine. The atropine is given to counteract the effect of the physostigmine derivative in causing slowing of the heart and peristalsis of the intestine. In each a measure of the maximal power of voluntary flexion of the fingers before and after has been obtained by means of a recording dynamometer. The effect of the injections has passed off almost completely in eight hours. A further injection resulted in recovery as before. A control injection with sodium chloride, after previous injection of the derivative of physostigmine—so that the patient was expecting a good result—gave only slight improvement in the hand grasps and no other symptomatic improvement. In the three patients in whom myographic registration has been possible, this clinical remission of symptoms has coincided with a change in the curve of tension developed under electrical stimulation from the form characteristic of myasthenia gravis to the normal form.

1 473 530 (March 2) 1935

- Physical Aspects of Psychologic Disease A Abrahams—p 473  
 \*Surgery of the Lung Root L O Shaughnessy—p 476  
 \*Toxic Diphtheria Significance of Sugar Tolerance Curves and Value of Insulin N D Begg note by F H R Harries—p 480  
 Experimental Endometrial Hyperplasia A S Parkes—p 485  
 Disturbance of Cerebral Function in Concussion C P Symonds—p 486  
 Pernicious Anemia Review of Fifty Six Hospital Cases J Mills and R Herring—p 488  
 Lead Encephalopathy Case K C Eden—p 490

**Surgery of the Lung Root**—O'Shaughnessy outlines the following lesser known interventions on the lung root that he believes will have an increasing importance in radical or palliative treatment exposure of the lung root, operation on the bronchus, operation on the pulmonary artery and veins and surgery of the nerves of the lung root It is believed that most of these interventions have a purely theoretical basis—that none of them have been performed often enough to enable a true judgment—and that the surgery of the lung root has no real practical basis On the other hand, four years ago it was the common opinion that total extirpation of the lung was a purely experimental procedure many animals had survived but no men, and the operation was never attempted Since 1931 when Nissen demonstrated that extirpation was a practical proposition, the operation has been attempted more often In a recent paper Archibald states that he has records of twenty-three cases with sixteen successes, and these figures do not include Mason's two successful English cases This record seems to justify the pursuit of the less radical surgery of the lung root in the hope that some help may be given to that large group of sufferers from chronic disease of the lung for whom conservative therapy fails to provide even symptomatic relief

**Sugar Tolerance Curves in Diphtheria**—In 124 cases of severe diphtheria graded according to Bies classification of extent of membrane, Begg estimated the sugar tolerance curves at various stages of the disease all the patients received intravenous and intramuscular antitoxin and dextrose intravenously and orally and half of them received, in addition, insulin in doses depending on the sugar tolerance tests To avoid bias in selection, alternate cases within the same age periods and clinically of the same degree of severity were placed in the insulin and control groups respectively As far as the author's data are concerned, the efficacy of insulin in the treatment of diphtheria cannot be demonstrated The response of the body to intravenous dextrose is constantly abnormal and results in higher blood sugar tests The degree of variation is a sensitive index of the severity of the attack and serves as a reliable guide to the progress of the disease A fairly close association appears to exist between abnormalities in tolerance curves and involvements of the cardiovascular mechanism How much the former depend on the latter it is impossible to say Insulin does not appear to change the character of the abnormal curves or to influence the course of the disease, as judged by the fatality and complication rates

### Medical Journal of Australia, Sydney

1 197 230 (Feb 16) 1935

- Lymphadenoma H Ritchie—p 197  
 Hodgkin's Disease G F S Davies—p 199

1: 231 262 (Feb 23) 1935

- Modern Treatment of Diabetes Mellitus S R. Burston—p 231  
 Tuberculosis Today and Australia's Opportunity A R Southwood—p 239  
 The Case of Lady Flora Hastings C Macdonald—p 241  
 Inhibition of Mitotic Activity by  $\alpha$  Radiations of Different Qualities W H Love—p 247

1 263 294 (March 2) 1935

- Lister Some Aspects of His Life Work and Character H Newland—p 263  
 The X Ray Examination of the Appendix D G Matland—p 270  
 Contribution to Study of Heredity of Blood Groups in Australian Families Eva A Shipton—p 273  
 \*Autohemotherapy in Treatment of Bronchial Asthma K Maddox and R Back—p 277

**Autohemotherapy in Treatment of Bronchial Asthma**—Maddox and Back employed autohemotherapy in the treatment of bronchial asthma in twenty-four children less than 16 years of age seventeen adults all of whom except two

were less than 40 years of age, and two typical examples of vasomotor rhinitis After a thorough examination, 10 cc. of blood was taken from the median basilic vein and injected forth with into the buttock without admixture of citrate or any attempt to separate the blood elements This was repeated five times at intervals of a week The patient then entered on a period of observation varying from three to twelve months Any beneficial results obtained were directly proportional to the youth of the patient, and therefore to the less complicated character of the asthma The purer the allergy, the better were the results obtained from the injections Young asthmatic patients constituted by far the greater part of those patients showing improvement, and in approximately three fourths of the children the frequency of the attacks was appreciably reduced while in every instance some alleviation in severity was manifest Hemotherapy was more successful in children of the first decade than in those of the second The presence of skin sensitivity to the scratch method presaged a better result from autohemotherapy the average age of onset of asthma in this series was no earlier in children with a family history of the disease

### South African Medical Journal, Cape Town

65 96 (Feb 9) 1935

- Transurethral Surgery of Prostate and Bladder Neck Study of Fifty Five Cases R S Verster—p 67  
 Enuresis A E Strahlmann—p 75  
 Periosteal Flap Grafts in Mastoid Operations O Popper—p 77  
 Sputum in Pulmonary Tuberculosis S S Hewitt—p 79

### Tubercle, London

16: 241 288 (March) 1935

- Intrathoracic Tuberculosis Among Chinese with Especial Reference to the Province of Szechuan H G Anderson—p 241  
 \*Bactericidal Power of Blood Serum as Means of Differentiating a Certain Type of Pulmonary Tuberculosis W Pagel—p 256  
 Surgical Unit in a Sanatorium J B McDougall and A D Bardswell—p 267

**Bactericidal Power of Blood Serum in Tuberculosis**—Pagel draws the following conclusions from his investigations on the bactericidal power of the blood serum in seventy cases of pulmonary tuberculosis 1 There are a certain number with a definite power of the blood serum to prevent or diminish the growth of tubercle bacilli This result agrees with that of the fundamental experiments of Courmont and Gardère 2 On the other hand, the statement of Kirchner is confirmed that glycerin broth as such, is not a suitable culture medium but is rendered a good medium by the addition of normal serum This is the basis of a simple technic for proving the preventive power of certain serums of tuberculous patients in a regular and uniform manner 3 In spite of the fact that the majority of the author's cases with a high bactericidal power of the serum showed healing processes, it does not seem to him that the preventive power of the serum is due to the clinical state and extent of a tuberculosis but to its peculiar type of development Such cases are not confined to tuberculosis of the skin (in which form Kallós and Nathan have proved the bactericidal power in an instructive manner) but belong to the universal complex of the chronic hematogenic tuberculosis of the lung 4 The frequent occurrence of early pulmonary infiltrations in this group with a high bactericidal power of the blood serum may be a hint as to the hematogenic origin of such infiltrations Whether the bactericidal power of the blood serum in cases of this type is connected with the content of antibodies, beta tuberculin (Kallós) or tryptophan in the blood serum as indicated in cases of tuberculosis of the skin by Kallós and Nathan, has to be proved by further investigations

### Chinese Medical Journal, Peiping

49 1 100 (Jan) 1935

- Calcium and Phosphorus Metabolism in Osteomalacia II Further Studies on Response to Vitamin D of Patients with Osteomalacia S H Liu R R Hannon H I Chu K C Chen S K. Chou and S H Wang—p 1  
 Cleft Palate P C Tung—p 22  
 Examination of Feces for Ova of Schistosoma Japonicum Mary V Andrews—p 42  
 Modern Conception of Osteomalacia and Its Importance to China J P Maxwell—p 47  
 Review of Cardiac Cases in Changsha Treated in the Hsiang Ya Hospital 1929 to 1932 Louise Farnam Wilson—p 53

**Archives des Maladies du Cœur, Paris**

28 73 120 (Feb.) 1935

- \*Erythrocyte Sedimentation in Myocardial Infarction G Bickel, J Mozer and F Sclounoff —p 73  
Cardiovascular Insufficiency and Hepatic Insufficiency O Postranecky —p 86

**Erythrocyte Sedimentation in Myocardial Infarction**—Bickel and his collaborators studied the rate of blood sedimentation in patients following coronary thrombosis. The Westergren method was used. Parallel observations of fever and leukocytosis were made. The fever and leukocytosis occurred early after the infarction but returned rapidly to normal. A markedly increased rapidity of erythrocyte sedimentation did not develop for about two or three days after the infarction reached its maximum in a day or two and returned to normal after several weeks. In this respect there was a difference with the febrile and leukocytic responses. The reason for an increased rate of blood sedimentation—which occurs usually only in infectious states and malignant tumors—is not clear. It is probably connected with disturbances in fibrinogen. The authors believe that the use of the erythrocyte sedimentation test in myocardial infarction will prove a useful adjunct to the clinical signs and the electrocardiogram in deciding how soon after myocardial thrombosis a patient may return to some activity.

**Presse Medicale, Paris**

43 337-360 (March 2) 1935

- Problem of Healthy Spitters of Tubercle Bacilli F Meersseman —p 337  
Duodenal Ulcer E. L. Turner and A. G. Lattuf —p 339  
Dinitrophenol in Therapeutics A. R. Salmon —p 341  
\*Hypochloremia and Vomiting R. S. Mach —p 342

**Hypochloremia and Vomiting**—Mach reports two cases in which a true dechloridation resulted from hypochloremia secondary to persistent vomiting. Careful observation allowed him to conclude that a plasma and erythrocyte hypochloremia may be observed in the course of repeated vomiting of patients with achlorhydria. This is accompanied by uremia and an increase in the alkali reserve. The hypochloremia of achlorhydric patients may be explained by the continuous loss of gastric fluid containing chlorides even in the absence of hydrochloric acid. The uremia of the hypochloremic patients is a uremia without renal damage, as was shown by the proved anatomic integrity of the kidneys at necropsy in his two cases.

**Schweizerische medizinische Wochenschrift, Basel**

65: 269 288 (March 23) 1935 Partial Index

- Electrotherapy from Point of View of Modern Electrophysiology O. A. M. Wyss —p 274  
Diagnosis of Traumatic Cerebral Injury E. Grunthal —p 277  
Coagulation of Blood and Blood Platelets K. Lenggenhager —p 278  
\*Cerebral Disturbances in Course of Acute Articular Rheumatism G. Gottsegen —p 280  
Action of Some Metallic Ions on Tonicity of Myocardium A. Moukhtar —p 281

**Coagulation of Blood and Blood Platelets**—Lenggenhager points out that the rapid coagulation of the blood outside the body is generally ascribed primarily to the blood platelets, which, stimulated by the foreign surface and by the air, produce a substance (thrombokinasin or cytozym) which, together with calcium and the blood substances prothrombin or serozym produces thrombin. To determine whether or not the kinase is derived chiefly from the blood platelets, the author made experiments which demonstrated that, as formers of thrombokinasin, the blood platelets have practically no significance and thus are not responsible for the coagulation of blood outside the body. The coagulation is induced by the transformation of a prokinase that circulates in the blood and which, under the influence of evaporation and of the adhesiveness of the surroundings and in the presence of calcium ions, produces the thrombokinasin which in turn, together with the prothrombin of the blood and in the presence of calcium ions, produces thrombin, the coagulation ferment. This explains also why normal coagulation time exists in thrombopenia.

**Cerebral Disturbances in Acute Articular Rheumatism**—Gottsegen describes two cases of articular rheumatism in which a severe cerebrospinal symptomatology (restlessness,

stupor, delirium, reflex disturbances, rigidity of the neck) developed during the second week. These symptoms disappeared again after a few days, and a short time later the articular symptoms disappeared likewise. The author considers this disorder a milder form of the meningo-encephalitis rheumatica recently described by American authors.

**Archivio Italiano di Chirurgia, Bologna**

30: 221 400 (Feb.) 1935

- \*Hepatic Function in Relation to Operation and Anesthesia in Surgical Diseases in Diseases and Drainage of Biliary Tract S. Teneff —p 221  
\*Research on Secretion of Bile in Drainage of Biliary Tract E. Zilocchi —p 301  
Experimental Research on Pulmonary Prolapse O. Betto —p 361  
Contribution to Study of Torsion of Great Omentum E. Lucca —p 388

**Hepatic Function in Relation to Anesthesia**—Teneff studied the hepatic function of patients having diseases involving the liver and of those with diseases of the biliary tract before and after operation. He also studied the influence of the surgical drainage of bile on the hepatic insufficiency of patients having biliary calculi and hepatogenous icterus. He investigated the glycemia on a fasting stomach and the glycemic curve after oral administration of 40 Gm of dextrose, the amino-acidemia on a fasting stomach, the amino-acidemic curve and the amino-aciduria after oral administration of 50 Gm of gelatin. The bilirubinemia, the retention of bengal red and the daily elimination of urobilin. In all patients having diseases of the biliary tract, the functional tests indicate a degree of hepatic insufficiency that is aggravated by anesthesia and by operation. The postoperative aggravation depends not only on anesthesia but also on surgical intervention, because the two factors act at the same time and perhaps with the same intensity on the liver. Drainage of the biliary tract acts favorably on the functional condition of the liver only when the insufficiency is due principally to biliary stasis and to icterus. Liver function is improved in the case of stone in the common bile duct and in cases of hepatogenous icterus, while it has not had any benefit in the case of stone of long duration without stasis and icterus. Thus it is not possible to judge function conditions of the liver and to formulate a prognosis from results obtained by a single method. Several methods should be employed in all cases.

**Secretion of Bile in Drainage of Biliary Tract**—Zilocchi studied the bile secretion of seven patients operated on for drainage of the biliary tract, three for partial and four for total drainage. He found that immediately after operation there is a secretion of dark bile which lasts from five to six days gradually returning to a normal color. During the transition from dark to light bile the changes in the daily secretions become accentuated. These changes are slight in cases of total drainage but are marked in those of partial drainage. In total drainage the nocturnal bile is more concentrated than the daily bile, whereas in partial drainage the bile is secreted during the night while during the day there is a flow of clear fluid resembling cystic secretion. The quantity of bile secreted during the first day was constantly less than that of the following days, which is attributed to the action of the anesthetic on the liver. Research on the amount of mucus in the bile gave constant results. In bile removed during or after intervention by means of puncture of the gallbladder, the amount of mucus showed an increase of from 2 to 4 per cent. The degree of change in the biliary pigments corresponds to the change in the color of the bile. Immediately after operation the pigments are present in large quantities. By the second day there is a rapid diminution of the pigments, although a large amount is still present for from five to six days, which then gradually reaches a minimum value. The notable increase in pigments in the immediate postoperative period is due to (1) the reabsorption of extravasated blood and the hemolysis produced by the anesthetic, (2) the anesthetic itself, which diminishes the secretion of water, causing a relative increase of the concentration, and lowers the threshold of elimination for the pigments of the hepatic cells, (3) the elimination of pigments from the organism in cases in which icterus exists, (4) the relative dehydration in the immediate postoperative period, and

(5) the functional state of the liver. As to the elimination of cholesterol, two patients showed an increase in the bile, one a diminution and two the normal quantity. The author believes that food and fasting do not influence the elimination of cholesterol, because in postoperative fasting of several days' duration there was no decrease in elimination. Cholesterol is not derived solely from alimentation but may be formed in the organism independently of it. The hepatic cell is only the medium of elimination.

### Prensa Medica Argentina, Buenos Aires

22 409-456 (Feb. 27) 1935 Partial Index

- \*Respiratory Tests in Pulmonary Tuberculosis A. A. Raimondi and R. Scartascini—p. 409
- Tuberculosis and Fetal Abscesses of the Lung C. Patino Mayer—p. 420
- Trypanosomiasis in Man Case O. A. Fitte—p. 432
- Mechanism of Phrenicectomy A. P. Heudtlage and O. Garre—p. 433

**Respiratory Tests in Pulmonary Tuberculosis**—Raimondi and Scartascini say that the respiratory tests in pulmonary tuberculosis show marked changes, especially related to the vital capacity and to the respiratory indexes. Immediately after pneumothoracic insufflations the pulmonary ventilation diminishes. The respiratory indexes of patients with pulmonary tuberculosis improve as a result of the improvement of the pulmonary processes due to artificial pneumothorax. Both the evolution and the retrogression of pulmonary tuberculosis are in direct relation to the respiratory tests. The respiration of a 5 per cent mixture of carbon dioxide in oxygen causes a greater amplitude of respiration and increases the frequency of respiration and the time of voluntary apnea.

### Archiv für klinische Chirurgie, Berlin

182:1158 (March 4) 1935 Partial Index

- \*Statistical Study on Anesthesia F. Starlinger and H. Kiener—p. 15
- Repair of Ventral Hernia by Means of Transplanted Fascial Strips J. G. Knoefach and H. von Brucke—p. 41
- \*Incidence of Embolism and Thrombosis in Surgical Clinic of Innsbruck and First Surgical Clinic of Vienna P. Huber—p. 47
- Spontaneous Renal Fistulas P. Deuticke—p. 69

**Study of Anesthetics**—The object of this study, according to Starlinger and Kiener, was to establish the safety of various methods of anesthesia. The material surveyed consisted of major surgical operations performed from 1929 to 1934 in the First Surgical Clinic of Vienna. There were altogether 7,926 major operations and twenty-two fatalities which took place in the course of the operation or immediately after. The number of operations performed under ether anesthesia was 3,646, under local anesthesia, 3,244, under nitrous oxide gas anesthesia, 863, under tribrom-ethanol, 131, and under evipan 42. A careful analysis of the twenty-two fatalities revealed that in only one instance was the death caused primarily by the anesthetic, the method being that of spinal anesthesia. A statistical comparison of the postoperative morbidity and mortality as seen especially in the surgery of the upper part of the abdomen confirmed the fact that nitrogen monoxide gas anesthesia in combination with local anesthesia or with addition of small amounts of ether is the least harmful. The number of ether anesthetics given in the clinic showed a decline, while that of nitrogen monoxide combination anesthesia showed a rise. Tribrom-ethanol, evipan and spinal anesthesia are assigned an entirely insignificant part as anesthetics.

**Embolism and Thrombosis**—According to Huber the incidence of postoperative thrombosis in the Vienna clinic was relatively twice as frequent as in that of the Innsbruck clinic. The difference is in part accounted for by the nature of the surgical material and in part by the greater tendency to thrombosis on the part of the Vienna population. The incidence of thrombosis in Vienna showed a considerable rise above the prewar and war periods. The author cannot confirm the statement of Hutter and Urban that thyrotoxic patients and jaundiced patients are not subject to this complication. Age is no protection against thrombosis. He reports an incidence of 0.36 per cent in the first decade. These thromboses however occurred only in severe septic conditions. The importance of infection in the etiology of thrombosis diminishes with increase

in age. The most frequent localization of the thrombi was in the lower extremities. These, as a rule, were distant thrombi, occurring 202 times as compared with thirty-eight instances of thrombi localized in the operative field. Thrombosis of the pelvic veins gave rise to local and distant thrombi in about equal proportion. The author points to great frequency of thrombosis of the portal vein and of the jugular vein. The latter occurred as a complication of suppurative processes of the face and neck. In a total of 324 postoperative thromboses there were ninety-seven instances of thrombosis localized in the operative field and 227 instances of distant thrombosis. The occurrence of spontaneous venous thrombosis was rare and was either due to unusual overexertion or arose without surgical intervention in the course of some diseases that give rise to postoperative thrombosis, such as carcinoma of the breast, peritonitis or suppuration. The incidence of fatal pulmonary embolism in the Vienna clinic was even greater than the tendency to thrombosis when compared with that of Innsbruck. The indication for surgical intervention in the case of embolism of the pulmonary artery is made difficult by the uncertainty of the diagnosis of the condition. Of the seventy-five fatal postoperative pulmonary artery embolisms in the Vienna material, clinical diagnosis was made in fifty-two. Eight of the fatal embolisms occurred on the day of operation, five one day later and three on the second, another three on the third and six on the fourth postoperative day. The Trendelenburg operation was instituted in one case for an erroneous diagnosis of pulmonary artery embolism. In six correctly diagnosed cases the operation failed to bring about even a temporary improvement. The author reports ten cases of paradoxical embolism, a crossed embolism due to the existence between the two auricles of a patent foramen ovale. There were seventy-six instances of arterial thrombosis. Because of the poor results obtained with surgical intervention, the author recommends that arteriotomy should give way to conservative treatment with spasmolytic means.

### Beiträge zur Klinik der Tuberkulose, Berlin

86:37116 (Feb. 21) 1935 Partial Index

- \*Meimicke's Seroreaction for Tuberculosis F. Böhm and G. Gruner—p. 37
- \*Value of So-Called Phytotoxic Index in Pulmonary Tuberculosis J. L. García and García Miñón—p. 45
- Concurrence of Pulmonary Tuberculosis and Pulmonary Carcinoma W. Brokschmidt—p. 49
- Pathogenesis of Circulatory Changes in Pulmonary Tuberculosis J. Molnar—p. 59
- Velez's Number and Its Relationship to Changes in White Blood Picture in Tuberculous Children O. Felsenfeld—p. 67
- \*Pulmonary Hemorrhage in Tuberculosis and Hemorrhagic Diathesis J. Leitner—p. 100

**Meimicke's Seroreaction for Tuberculosis**—Böhm and Gruner assert that the Meimicke reaction for tuberculosis is a reaction of high sensitivity and specificity. They refer to an earlier publication for the description of the technic and discuss the observations on 500 patients, in some of whom the test was repeated several times. They reach the conclusion that Meimicke's reaction compares favorably with the Besredka reaction. They think that a clearly positive reaction, in which nonspecific interference can be excluded, makes a tuberculous etiology of the existing disorder highly probable.

**Phytotoxic Index in Pulmonary Tuberculosis**—García and García-Miñón studied the phytotoxic index of 100 patients with pulmonary tuberculosis. They made in all about 220 tests, white lupine (*Lupinus albus*) serving as the test object. He summarizes his observations as follows: 1 The phytotoxic index has no diagnostic value in pulmonary tuberculosis. 2 Together with other clinical data (roentgenologic and laboratory examinations), the phytotoxic index has prognostic value in pulmonary tuberculosis. 3 In the benign cases, the phytotoxic index fluctuates between 42 and 76 that is, it is reduced (normal 76). In evolutive fibrocaceous cases, the phytotoxic index is increased to values fluctuating between 80 and 100. These values are surpassed during the preagonal period. 4 In patients with chronic nonevolutive processes the phytotoxic index fluctuates between 40 and 76 in the acute forms the index increases to values between 76 and 85. During periods of exacerbation with tuberculous cachexia, the phytotoxic index

increases to values from 86 to 92 and during the last stage it increases to from 93 to 129. This proves that the phytotoxic index is directly proportionate to the severity of the tuberculous disorder. 5 All patients in whom the phytotoxic index exceeds 100 either die or are in a grave condition. 6 During the advanced stage of tuberculosis the serum contains substances that greatly stimulate the growth of lupine roots. The nature of these substances is as yet unknown. 7 If concentrated tuberculin is added to the nutritive salt solution in which the lupines are kept, the growth is inhibited in proportion to the concentration of the tuberculin. 8 Repeated tests with the same blood revealed analogous results. 9 The term "phytotoxic index" is not entirely correct and should be replaced by one that expresses not only the toxic but also the stimulating effects. The authors suggest the term "phytopoietic index."

**Tuberculosis and Hemorrhagic Diathesis**—Leitner asserts that tuberculosis is frequently the etiologic factor of forms of purpura, which occur in tuberculous patients. Purpura is most frequent in severe septic forms of tuberculosis or during the cachectic terminal stages. In these cases it is the manifestation of a terminal impairment of the hematopoietic organs and of the reticulo-endothelial system. In the milder forms of tuberculosis, purpura is not so frequent; it occurs, nevertheless, and generally becomes manifest during a new exacerbation and later subsides again. The author classifies this form with the anaphylactoid group of purpura and maintains that it is elicited by the tuberculous intoxication. Purpura is quite frequent during tuberculosis of the spleen. This observation is significant because an early diagnosis makes a correct treatment possible. The purpura has been known to disappear following extirpation of the tuberculous spleen. The author investigated whether tuberculosis may produce a hemorrhagic diathesis that does not become manifest as a purpura but only as a predisposition to pulmonary hemorrhages. He thinks that the contradictory reports in the literature are partly due to the fact that only one symptom was investigated. It is known, however, that a predisposition to hemorrhage may develop when some factors change while others are unaltered. The author studied all pertinent factors: coagulation time, bleeding time, number of thrombocytes, retraction of the blood clot and the vascular factor. Studies on thirty-six patients disclosed that a latent tendency to hemorrhage in the form of an atypical hemorrhagic diathesis is the cause of pulmonary hemorrhages in only a small percentage of tuberculous patients. Moreover, it cannot be answered definitely in all cases whether this tendency to hemorrhages was caused by the tuberculosis or existed previously. Nevertheless, it seems that in a small number of cases pulmonary hemorrhages develop on the basis of a hemorrhagic diathesis, since tests on tuberculous patients without hemoptysis hardly ever reveal a tendency to hemorrhage.

### Deutsche medizinische Wochenschrift, Leipzig

61: 325-364 (March 1) 1935 Partial Index

- Pathogenesis, Course and Measures Against Epidemic of Typhoid Originating in a Dairy—H. Assmann and H. Dembowski—p. 325
- Typhoid in East Prussia and Experiences During Last Typhoid Epidemic in Königsberg—Pr. T. J. Burgers—p. 329
- \*Quinine Intoxication and Quinine Idiosyncrasy—A. Hauer—p. 332
- \*Blood Pressure Reducing Hormones as Cause of Protein Shock—G. de Nito—p. 339

**Quinine Intoxication and Quinine Idiosyncrasy**—Hauer shows that the prolonged use of quinine by inhabitants of the temperate zone living in the tropics produces an increasing sensitivity to quinine and eventually the acquired form of idiosyncrasy. He describes a case of acquired hypersensitivity to quinine. The great changes that became manifest in the blood picture as the result of the shocklike attacks elicited by quinine demonstrate the danger of the attacks. The nature of quinine idiosyncrasy is still problematic, but the attacks of fever elicited by the quinine give it the appearance of an acute intoxication. The author warns the practitioner against a too liberal use of quinine and stresses that the examination of an inhabitant of the temperate zone for his fitness for life in the tropics should not omit the test for idiosyncrasy to quinine.

**Hormones as Cause of Protein Shock**—De Nito states that among the blood pressure reducing substances the hor-

more formed principally in the lymph nodes, and therefore designated "lymphoganglin," is the most important. Blood pressure reducing principles are found also in plants, and the latter substances closely resemble the animal hormone. Examination of the biologic action of the blood pressure reducing hormone disclosed a close resemblance to the modifications produced by protein shock, namely, reduction in blood pressure, leukopenia followed by leukocytosis, mononucleosis, change in the temperature, acidosis, reduction of the alkali reserve of the blood, changed coagulation time, reduction in the viscosity and in the refractometric index of the blood serum (hypoproteinemia) and hyperglycemia with secondary hypoglycemia. This similarity in the reactions raises the question of the presence of proteins in the hormone, but on the basis of a thorough chemical analysis of the hormone the presence of protein bodies could be excluded. He thinks that the protein substances first act on the lymphatic system and cause it to excrete a large amount of blood pressure reducing hormone into the circulation. The hormone in turn acts on the sympathetic nervous system, and thus the protein shock is produced. In discussing the therapeutic significance of the blood pressure reducing hormone, the author points out that it might be tried in cases in which the protein body therapy does not produce the desired results.

61: 405-444 (March 15) 1935 Partial Index

- General Remarks on Inspection of Body Cavities by Optical Devices—O. Ringleb—p. 405
- Problems in Diabetes Mellitus—C. Brentano—p. 409
- \*Calculation of Basal Metabolism from Pulse Frequency and Pulse Pressure—E. Wiechmann—p. 414
- Fatal Intoxication Caused by Seeds of Castor Oil Plant—Abdulkadir Lutfi—p. 416
- \*Cutaneous Lesions Caused by Reducing Remedies Containing Boric Acid—A. M. Memmesheimer—p. 418

**Calculation of Basal Metabolism from Pulse Frequency and Pulse Pressure**—Wiechmann shows that, of the formulas suggested for the calculation of the basal metabolism, the modified formula of Read gives the most reliable results. In patients with cardiac and vascular disturbances, however, the formula cannot be used. The results obtained by Read's formula and those determined with the gas analytic method often show a surprising conformity. This applies also to the thyrotoxicoses. However, in borderline cases and in mild forms of thyrotoxicosis the formula is not entirely reliable. The analysis of the gas exchange is not made superfluous by Read's formula. The calculation according to Read only complements the use of the apparatus for gas analysis. Read's formula is especially valuable in estimating the effect of therapeutic measures. The author thinks that in the beginning it is advisable to use the apparatus for gas analysis and Read's formula side by side, but later the calculation according to Read's formula alone is sufficient. It is desirable that the determination of the pulse frequency and of the blood pressure be done by the same examiner.

**Reducing Remedies Containing Boric Acid as Cause of Skin Disorders**—Memmesheimer states that a woman, aged 49, consulted him on account of an itching reddishness of the face, which later spread to the head, the neck and the trunk. The skin became thickened and showed fine scales and blisters. Questioning disclosed that she took a reducing powder. A cutaneous test with this powder gave a positive reaction. After the woman discontinued taking the powder, the skin disorder disappeared rapidly under the influence of the usual local therapy. Subsequently the author observed two other cases presenting a cutaneous disorder that resembled pityriasis rosea. Here again cutaneous tests the appearance of the disturbance soon after the women had begun taking a reducing preparation and the rapid disappearance of the skin disorder after the use of the reducing preparation was discontinued indicated that the cutaneous lesions were due to boric acid. A fourth patient, a druggist, suggested of her own accord the possibility of a connection between her strongly itching exanthem and the taking of a reducing preparation. Here too the suspected connection could be demonstrated. The author concludes that in cutaneous disorders of stout persons the possibility of such an origin should be taken into consideration.

**Deutsche Zeitschrift für Chirurgie, Berlin**

244: 471-594 (Feb 18) 1935 Partial Index

- \*Histologic Studies of Intramural Nerve Plexuses in Surgical Diseases of Stomach W Rieder—p 471
- \*Immediate and Late Results of Lumbar Sympathectomy in Spontaneous Gangrene A Filatov—p 491
- Evaluation of Immediate and Late Results of Operative Treatment of Syringomyelia A Juzelewsky—p 503
- Toxic Effect of Putrid Pus in Pleural Empyema E Schneider—p 521

**Intramural Nerve Plexuses in Diseases of Stomach**—Rieder reports a histologic study of the nervous apparatus of the stomach in ninety-four cases. Of these, seventy-one were cases of gastric or duodenal ulceration and nine were complicated by a perforation. There were six cases of gastritis, five cases of gastric cancer and three specimens resected because of a suspicion of ulcer but in which neither gastritis nor ulcer was found. To demonstrate the nervous structures the author used a modification of the Bielschowsky-Gros method. More or less severe alterations of the intramural nerve ganglions were found scattered over the whole resected specimen in every case. Here and there were found round cell accumulations between the nerve fibers. The same alterations were found in the three cases in which gastric resection was performed because of the existence of symptoms of three years' standing but in which neither gastritis nor ulcer was found. Alongside the degenerative processes were found regenerative processes as well particularly in the crater of the ulcer and its vicinity. The author does not feel justified in considering the pathologic alterations in the three specimens that did not exhibit either gastritis or ulcer as forerunners of these lesions.

**Lumbar Sympathectomy in Spontaneous Gangrene**—Filatov reports the results of lumbar sympathectomy in thirty-four cases of spontaneous gangrene. The immediate effect was excellent in seventeen, satisfactory in eleven and negative in five. One patient died shortly after the operation from wound infection and general sepsis. Of fourteen cases that were followed for from one to six years a permanent result was obtained in nine and a satisfactory result in two. In the remaining three cases morbid manifestations returned six months, two years and three years after the operation. The author collected 294 cases from the literature which, together with the author's new thirty-four cases and the fifty-one reported by his chief Hesse in 1929, total 379 lumbar sympathectomies performed for spontaneous gangrene. The immediate result was good in 80 per cent of these, and in many the results remained permanent. He concludes that lumbar sympathectomy is a well founded procedure in cases of spontaneous gangrene. However, a satisfactory result can be expected only with the application of a faultless technic insuring a fairly complete desympathization of the extremity. Success likewise depends on a rigorous selection of cases. Sympathectomy can be expected to bring about an improvement only in cases presenting vasomotor disturbances and in the absence of extensive thrombosis. The author considers the protein test the most reliable indication for the operation. In the evaluation of the test one should consider not only the rise of the skin temperature of the extremity but likewise the changes in the pulsation of the peripheral vessels and the subjective sensations of the patient.

**Klinische Wochenschrift, Berlin**

14: 361-400 (March 16) 1935 Partial Index

- Influence of Adrenals and Hypophysis on Blood Pressure Regulation and on Alteration of Sex Characters in Human Subjects J Bauer—p 361
- \*Significance of Hypophysis for Disease of Kidney H Marx—p 367
- Quantitative Estimation of Excretion of Gonadotropic Substance in Sexually Mature and in Senile Men H Saeithre—p 376
- \*Studies on Regional Differences in Intracutaneous Tests W Schmidt—p 378
- Therapy Resistant Syphilis Particularly Parenchymatous Keratitis and Its Treatment with Quinine J Schereschewsky—p 381

**Significance of Hypophysis for Disease of Kidney**—Marx points out that clinical and experimental observations have given rise to the question whether the hypophysis plays a part also in the disorders of the kidney. The answer has become more difficult since recent studies on the hypophyseal system and its functions have uncovered more new problems than definite results. The interrelation between nervous and hormone processes, the connections between the anterior and posterior

lobes and the question of the homogeneity of the different hormones are being disputed. Moreover, the conceptions about certain renal diseases have changed. Nevertheless there is one form of renal disorder in which an involvement of the hypophyseal system is generally conceded, namely, the renal disorders of the toxemias of pregnancy, for the blood of patients with these disorders was found to contain substances that increased the blood pressure and inhibited the diuresis. Similar substances have been found also in patients with so-called pale hypertension. To determine whether these substances are a hormone of the posterior lobe of the hypophysis, the author tested their effect on the diuresis. He found that the substances extracted from the blood of patients with renal disease, with hypertension or with epilepsy not only increase the blood pressure but also inhibit the diuresis and effect a considerable increase in the sodium chloride concentration of the urine. This made it probable that these were the same substances that Anselmino and Hoffmann had detected in the blood of women with eclampsia. The author mentions other disorders in which changes in the hypophysis concur with renal disturbances: diabetes insipidus and tumors of the hypophysis. Moreover, a number of hypophyseal changes have been observed in patients with hypertension. After describing animal experiments, the author formulates his theory about the part played by the hypophyseodiencephalic system in renal diseases in the following manner: The toxins that circulate in the organism during infectious diseases and produce changes in the water and the sodium chloride content of the plasma of patients with renal disease cause an irritation of the hypophyseal system. This irritation becomes manifest in an increased production of the hormone of the posterior lobe of the hypophysis. This hormone is first secreted in the cerebrospinal fluid, from which it reaches the blood and, together with other factors (among them increased water intake), exerts its deleterious effect by producing hypertension of the vessels and hematuria and anuria in the kidneys. The author admits, however, that the changes in the central regulation represent only one factor among several that are responsible for the development of renal diseases. He does not deny that the direct action of the toxins of infection, of intestinal toxins and of waste products on the vascular system and the kidneys plays a part. In the treatment, the hypophyseodiencephalic as well as the other factors should be given consideration.

**Regional Differences in Intracutaneous Tests**—Schmidt states that in former experiments he tested the skin of various regions of the body for its sensitivity toward intracutaneous allergen injections and was able to determine that the skin of the back reacts much more strongly than that of the upper extremities, that on the forearms the reactions were more pronounced than on the upper arms, and that the flexor surfaces were more sensitive than the extensor surfaces. On the basis of these observations he pointed out that, in comparing the size of wheals, it is not permissible to draw conclusions about the monovalence or the predominating specificity of the allergen that has produced the strongest reaction, unless all intracutaneous tests have been made on the same region of the body. The author concedes that this factor is given due consideration by most examiners, in that they make the wheals only on the back or on the upper arm. Since this practice has been found generally satisfactory, it would be unnecessary to search for regional differences in more limited areas, if such differences had not been actually observed. It was noted that wheals induced four fingerbreadths below the spine of the scapula were only half as large as those produced in the region of the spine of the scapula itself. If this should be generally true, it would be of great significance for intracutaneous tests. The author studied this problem. He demonstrated by means of intracutaneous injections that adjoining cutaneous regions on the extensor surface of the upper arm and on the back generally produce wheals of equal size. However, near the olecranon the wheals become somewhat larger and at the transition from back to neck the wheals become smaller than on the other portions of the back. Consequently it is advisable to avoid the elbow region and the region above the spine of the scapula in intracutaneous skin tests. Aside from these exceptions, the upper arms and the back can be used for intracutaneous tests without hesitancy.



# Medizinische Klinik, Berlin

31: 333 364 (March 15) 1935 Partial Index

- Serodiagnosis by Means of Nonetiotropic Reactions R Otto—p 333
- \*Short Wave Therapy of Articular Disturbances E Last—p 342
- What Does Treatment with Jejunal Tube Accomplish in Disorders of Stomach and Duodenum? R Korbseh—p 345
- \*Results Obtained with Lemon Juice in Carriers of Diphtheria Bacilli Börngen—p 347
- Abortive Treatment of Peritonitis E. Wodak—p 348

**Short Wave Therapy of Articular Disturbances**—Last states that, in treating articular inflammations with short wave therapy, he always chose a dosage that the patient felt as a pleasant sensation of heat. In chronic cases, however, a dosage was used that would heat the joints thoroughly. The author never observed burns or other impairments that could be ascribed to excessive dosage. He employed a tube apparatus that could be set for any wavelength between 4 and 15 meters and also a spark gap apparatus that produced wavelengths of about 7 meters. He refrains from a definite evaluation of the two types of apparatus but emphasizes that only those types should be used which, while producing short wavelengths, permit the use of great energy in order to produce the necessary depth action within the joint. He concludes that short wave therapy is a valuable addition to the therapeutic armamentarium of articular disorders but admits that, like other treatments, it fails occasionally. The rapid disappearance of pains frequently permits the earlier application of a more active therapy. Repeated roentgenologic control examinations disclosed that existing anatomic changes in the joints were not influenced by short wave therapy. In florid tuberculous processes of the joints, short wave therapy is inadvisable.

**Lemon Juice in Treatment of Diphtheria Carriers**—Börngen found that lemon juice is an effective remedy against the diphtheria bacilli of carriers. Children were given three times daily two drops in the nose and twenty drops by mouth. This treatment was continued for ten days, and at the end of that period the diphtheria bacilli had completely disappeared. The author's observations were made in fifteen cases. He admits that the introduction of the lemon juice in the nose is somewhat painful but emphasizes that the efficacy of lemon juice surpasses that of the various dye solutions.

# Münchener medizinische Wochenschrift, Munich

82 405-444 (March 14) 1935 Partial Index

- \*Practical Significance of Serodiagnosis of Gonorrhea A Poehlmann—p 405
- Significance of Serial Roentgen Examinations in Campaign Against Pulmonary Tuberculosis L Hantschmann—p 409
- \*Experiments on Action of Vegetable Digestive Ferment in Human Beings G Bodechtel and W Kinkel—p 413
- Diuretic Action of Salts of Bile Acids B Stanojević and Olga Andrić—p 416
- \*Acute Appendicitis in Case of Tapeworm T Altenkamp—p 418

**Serodiagnosis of Gonorrhea**—Poehlmann discusses the complement fixation reaction and points out that Meimcke has adapted his clarification reaction and Müller his conglobation reaction for the diagnosis of gonorrhea. He observed in comparative tests that the conglobation reaction of Müller is superior to Meimcke's clarification reaction and that the complement fixation reaction in turn is superior to Müller's conglobation. He says that the complement fixation reaction is valuable in the diagnosis and the differential diagnosis of gonorrhea particularly since a soluble gonococcus toxin has been employed as antigen. The complement fixation test is helpful in the deep gonorrheal complications in men and women, in which bacteriologic examination frequently fails, and particularly in the doubtful articular disturbances. In the latter conditions it is frequently the only method that permits a definite diagnosis. A negative outcome of the complement fixation test permits the exclusion of gonorrhea in these cases. However the complement fixation reaction is not absolutely reliable for the prognosis and for the determination of a definite cure of a gonorrheal process.

**Action of Papaya Juice**—Bodechtel and Kinkel call attention to the juice of the fruit of the pawpaw tree (*Carica papaya*), which, because of its digestive action on proteins, has been designated as vegetable pepsin. The authors think that "vegetable trypsin" would be a more suitable term since it

decomposes protein bodies further than does pepsin and since it contains also a fat soluble component (lipase) and a rennin-like principle. Thus the papaya juice contains all the important digestive enzymes. However, since a dry preparation of this juice has a much weaker action than the fresh juice, attempts were made to combine it with a harmless but effective activator. This aim was realized by combination with another vegetable extract. The authors mention experiments by which it was demonstrated that this combination is harmless, well tolerated and an aid to digestion. They recommend this preparation in achylia, anacidity, dyspepsia and disorders of the bile passages.

**Acute Appendicitis in Case of Tapeworm**—Altenkamp states that he observed a number of cases of appendicitis in which oxyurias, trichocephali and ascarids were the cause, for they were found in the appendix and had produced the inflammation. Then he describes two cases in which segments of a tapeworm were found in the inflamed appendix. He emphasizes that, although in the reported cases the appendicitis could not be doubted, caution is necessary in deciding on laparotomy in cases of tapeworm, since appendicitis may only be simulated. He illustrates this with a case history. The operation is especially dangerous in the case of tapeworm, because the post-anesthetic vomiting may bring the larval form (*cysticercus*) into the stomach, and, after having lost their cystic membrane, they may commence their invasion of the organism. To be sure the simultaneous occurrence of tapeworm and *cysticercus* is rare (immunity?) The knowledge that a tapeworm is present should not be taken as an excuse for the postponement of a necessary operation. Even though it is known that a tapeworm is present, the decision regarding the necessity of an operation should be based on the same factors that determine the appendectomy in the absence of a tapeworm. The healing of the laparotomy wound should be followed by the expulsion of the tapeworm.

# Wiener klinische Wochenschrift, Vienna

48 289 320 (March 8) 1935 Partial Index

- Postoperative Thrombosis and Embolism E Ranzi and P Huber—p 289
- Etiology and Therapy of Lymphogranulomatosis A Herz—p 300
- \*Observations on Fundus Oculi in Acute Polyarthritus A Pillat—p 302
- Calculation of Date of Birth According to Naegle. L Kraul—p 305

**Changes in Fundus Oculi in Polyarthritus**—Pillat states that for a number of years he observed that patients who had an attack of severe acute articular rheumatism or chronic articular rheumatism quite often had choroiditic foci in the fundus oculi, which as a rule were far in the periphery so that they readily escaped observation. He examined the fundus oculi of twenty-eight patients and discovered seventeen who had choroiditis. In three other cases the choroid showed changes the nature of which could not be definitely identified, and they were not included in the number of choroiditis cases. Only eight patients were entirely free from changes in the fundus. He points out that, morphologically, the choroiditic changes observed in acute polyarthritus do not differ from tuberculous choroiditis. Moreover the patients had a high sensitivity to tuberculin and the Löwenstein blood culture for tubercle bacilli was positive in eleven of the seventeen patients. The author recommends ophthalmoscopic examination for patients with acute polyarthritus.

# Zeitschrift für Tuberkulose, Leipzig

72 161 240 (Feb) 1935

- \*Vital Capacity and Alveolar Carbon Dioxide Tension in Pulmonary Tuberculosis A Risi—p 161
- Epidemiologic Significance of Open Pulmonary Tuberculosis During School Age. F Klein—p 176
- Culture of Tubercle Bacilli from Urine in Pulmonary Tuberculosis Y Tsuge—p 187
- Some Aspects of Pneumothorax Treatment Particularly During Change from Sanatorium to Ambulatory Treatment. H Schoenemann—p 190
- Experimental Studies on Function of Reticulo-Endothelial System in Tuberculosis Z von Bernáth—p 193

**Respiratory Function in Pulmonary Tuberculosis**—Risi found that tuberculous patients with artificial pneumothorax usually have a reduced vital capacity. In patients in whom ordinarily the reduction was slight, the pneumothorax



treatment often reduced the vital capacity more. The alveolar carbon dioxide tension during eupnea showed only slight differences. The respiratory dynamics showed supernormal and subnormal fluctuations, according to whether the disorder impaired the pulmonary ventilation in a greater or lesser degree. The duration of the voluntary apnea proved to be considerably reduced in nearly all cases, and the degree of the reduction ran parallel with the degree and extension of the disease process. The alveolar tension of the maximal voluntary apnea revealed no relation to the duration of the apnea. The differential alveolar median tension was nearly always below normal. The alveolar carbon dioxide exponent did not indicate a correlative ratio between the duration of apnea and the differential alveolar tension. This exponent showed such a conformity with the physical and physiologic condition of the respiratory apparatus that on the basis of its value it was possible to determine the severity of the existing changes relative to the restricted respiratory surface.

### Zentralblatt für Gynäkologie, Leipzig

59: 609-672 (March 16) 1935 Partial Index

- Actinomycosis of Uterus P. Hussy—p. 611  
 \*Aspects of Granulosa Cell Tumors E. Klasten—p. 614  
 Birth Injury of Iliosacral Joint in Infantile H. Schwalm and L. Bayer—p. 624  
 Technique of Kielland Forceps When Head Lies High and Pelvis is Flat and Generally Contracted V. Foderl—p. 629

**Granulosa Cell Tumors**—Klasten states that he has observed four more cases of granulosa cell tumors. The first case was that of a nullipara, aged 24. Formerly this patient had normal menstruation, but in the last four months she had become amenorrheal. After the extirpation of the granulosa cell tumor, menstruation set in again. The author gives case histories and points out in the conclusion that granulosa cell tumors may cause not only amenorrhea but also pathologic hemorrhages. In the cases here described the uterus was not removed and it was therefore impossible to determine definitely whether hyperplastic changes were present in the uterus. However certain symptoms indicate that such changes were present. After pointing out that the presence of granulosa cell tumor in children has been known to produce signs of early puberty, the author thinks that it cannot be doubted that granulosa cell tumors have a hormone action. He emphasizes, however, that a sex alternating effect of the hormone excreted by these tumors has not been proved as yet.

### Sovetskaya Vrachebnaya Gazeta, Leningrad

Feb. 28 (No. 4) pp. 273-352 1935 Partial Index

- Pathology of Digestive Organs G. S. Belenky—p. 279  
 Objective Investigation in Ulcer Disease I. O. Neymark—p. 285  
 \*Dietetic Management of Pernicious Anemia S. I. Sherman, M. P. Semenova, I. A. Alekseev, Berkman, A. V. Shcheglova and A. A. Shatalova—p. 295  
 \*Effect of Fifty Days' Fast on Gastro-Intestinal Tract G. G. Gazenko and L. D. Slavin—p. 305  
 Modes of Acute Cold Infections in Machine Factory Workers L. S. Girshberg—p. 309

**Dietetic Management of Pernicious Anemia**—Sherman and his co-workers find that liver feeding alone without addition of meat, vegetables and fruit is capable of accomplishing a striking curative effect. Liver diet was effective in all forms of pernicious anemia but was not effective in hyperchromic anemias of other than the Biermer-Ehrlich type. The authors consider large doses of liver not necessary. They obtained satisfactory results with 150 Gm daily, and they consider 200 Gm the maximal daily dose. A powdered liver extract was effective only in recent cases. It had no effect in patients with two or more recurrences. The twenty-four hour urobilin content of the urine declined markedly on liver feeding. After from three to six months of persistent liver therapy, the urobilin of urine approached the normal. The twenty-four hour determination of the urobilin content of the urine serves as an accurate index of hemolysis and, therefore, of the condition of the patient. The study of feces shows a marked improvement under liver therapy in the utilization and digestion of substances making up Schmidt's diet. Neutral fat after three months of liver therapy is digested 100 per cent, while its absorption amounts to 57 per cent as compared with 8 per cent before the liver diet was

instituted. Digestion and absorption of muscle tissue increased after three months of liver therapy from 30 to 60 per cent. The authors have also noted an increase in blood sugar on liver diet and the presence of a normal hyperglycemic coefficient after a sugar test. With the application of uninterrupted liver diet an improvement was noted in the spinal cord symptoms.

**Effect of Fifty Days' Fast**—Gazenko and Slavin report their observations on the behavior of the gastro-intestinal tract in the course of fifty days of complete fasting. The subject was a normal man, aged 38, who expressed his intention of fasting fifty days because of a theoretical notion on his part that the fasting would rejuvenate his entire organism. The following observations were made. After the prolonged fasting the stomach exhibited atony with marked stasis and lowering of the secretory function. The intestine continued to form fecal masses apparently from its secretions and products of desquamation, which did not differ from ordinary feces on a light diet except in quantity. A certain small amount of vegetable material from previously ingested food remained in the fecal masses as late as the fiftieth day. This was explained by the atonic state of the intestine and the change in the bacterial flora. The fasting did not influence ascaris eggs present during the entire period of fasting. Excretion of urobilin was carried on almost entirely by the kidneys and amounted to from three to four times that of the normal quantity.

### Ugeskrift for Læger, Copenhagen

97: 321-348 (March 14) 1935

- Masked Fractures in Neck of Femur V. Aalkjær—p. 321  
 \*Acute Lymphatic Leukemia with Colossal Infiltrates in Gastro-Intestinal Canal Case J. V. Jørgensen—p. 327

**Lymphatic Leukemia with Infiltrates in Gastro-Intestinal Tract**—In Jørgensen's patient, a shoemaker aged 56, microscopic examination revealed hyperplasia of the preformed lymphatic tissue, proliferation of lymphopoietic tissue in nearly all the organs and the skin, especially prominent in the gastro-intestinal tract, leukemic changes in the blood, edema, siderosis, fibrinoid necrosis in the bone marrow of the femur, and small foci with myeloid metaplasia in some glands. All these conditions are seen as indications of a disorder of the hemolymphopoietic system. There were also inflammatory processes in the respiratory tract, and the author discusses the possibility of an inhalation toxicosis, pointing out that shoemakers may be exposed to various gaseous toxic substances, among them benzene.

### Uppsala Lakareförening's Förhandlingar, Uppsala

40: 183-420 (March 15) 1935

- \*Studies on Influence of Some Natural Fats and Their Components on Animal Tissue Structure II. E. Agduhr—p. 183 with Chemical Chapter by G. Blix and B. Vahlquist—p. 190  
 Influence of Magnifying Aids on Results in Test of Strength of Skin Capillaries L. Billing—p. 389  
 Changes in Blood Pressure During Course of Experimental Scurvy in Guinea Pigs N. Soderstrom—p. 393  
 Tests Carried Out on Two Hundred Persons with Gothlin's Method for Determining Strength of Skin Capillaries and Statistical Treatment of Results H. Greshwind and N. Rundqvist—p. 403

**Influence of Natural Fats on Animal Structures**—In his investigations on the influence of different components of cod liver oil on organic structures Agduhr found that the non-saponifiable fraction of cod liver oil is less injurious to mice than the saponifiable fraction as shown by the death rate and in certain cases by the organic lesions. The heart lesions, however, were as a rule more marked in the animals given the nonsaponifiable fraction. Especially extensive experiments were performed with vitamin D and with ergosterol and viosterol. Long-continued administration of ergosterol exerted a definite toxic influence on the organism of mice. Ultra-violet irradiation of ergosterol increased its toxicity especially on the liver, kidneys and adrenals. The lowered resistance of the mice against certain toxic substances, especially large quantities of ergosterol, on retardation of normal sexual functions is attributed to checking of the normal functions of the endocrine organs. The author says that pure vitamin D is considerably less toxic than viosterol when quantities with corresponding antirachitic effect are compared. Results point to gradual neutralization of the toxicity of the different constituents of cod liver oil.

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## TUBERCULOSIS AMONG EMPLOYEES OF THE MINNEAPOLIS SCHOOLS

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Throughout the nation school boards are contemplating the issuance of orders to the effect that all teachers and employees of school systems be adequately examined for tuberculosis. In a good many places such orders have already been issued and the work is in progress. Every physician is interested in the health of the children of this country even though he may practice a specialty remote from pediatrics. It is probable that during the next five years nearly every physician in this country will be called on to take a part in actual examination of teachers and children for tuberculosis or will be consulted by parents and others concerning the advisability of or information regarding such examinations. Health laws and regulations provide for examinations in several places, such as the following from one state:

Section 5384 Teachers, pupils etc. Certificate No teacher, pupil or employee about a school building who is afflicted with pulmonary tuberculosis shall remain in or about such building without having a certificate issued by the local board of health or by an agent duly authorized by said board stating that said person is in no sense a source of danger to others.

School Teachers pupils etc with Tuberculosis Section 2927 Causes for revocation or suspension (d) Affliction with active tuberculosis or some communicable disease shall be considered as cause for the suspension of certificate while the holder thereof is suffering from such disability.

As tuberculosis so frequently exists without producing any outward manifestations it becomes necessary for any individual to prove that the disease does not exist. Attorney General Peterson of Minnesota has ruled that "the skin test for teachers is reasonable exercise of the police powers of the school boards if required for the purpose of safeguarding the pupils of public schools." Attorney General Bricker of Ohio says "It is my opinion that it would be legal for either a board of education or a board of health to give the

tuberculin test to school children by means of the injection method or application of a salve, if it is found to be a reasonable measure for the protection of the public health and safety." Therefore it behooves every member of the medical profession to add to his armamentarium and the very latest methods of examination the most modern interpretations of his observations as well as the new procedures used in the treatment and prevention of this disease.

### THE PROBLEM

That a tuberculosis problem exists in many school systems of the world cannot be doubted. In 1932 we called especial attention to this problem and cited some of the reports that had been made by such workers as Ickert Klein, Dietrich and Frost who had found that children taught by teachers with open tuberculosis showed a much higher incidence of positive tuberculin reactions than those taught by other teachers. Ickert found that as high as 93.5 per cent of the children taught by tuberculous teachers reacted positively, whereas only approximately 25 per cent of the pupils of teachers who did not have open tuberculosis had been contaminated. Klein observed that approximately 72 per cent of the children being taught by tuberculous teachers had positive tuberculin reactions. Among the pupils of a tuberculous teacher reported by Frost, 71 per cent reacted positively whereas only 11.4 per cent of children in adjacent districts taught by nontuberculous teachers were positive to the test. More recently, the Jordans, Peck Burns Slater and many others have called attention to the seriousness of the situation.

### THE PREPARATION

The first step by way of preparation for such a survey is to give proper information to various groups regarding its necessity. In Minneapolis, sufficient agitation had aroused the school board so that a health certificate was required of all teachers in October 1921. For such certification however the requirement of the tuberculin test and x-ray films of the chest seemed too drastic. In fact we did not then thoroughly appreciate their significance. Therefore, certificates in some instances seemed almost worthless. As time passed much publicity was given this problem before medical and nursing organizations, school boards, educational associations, parent-teacher associations and numerous other organizations in various parts of the country. Not infrequently the necessity for adequate periodic examinations for tuberculosis of every employee of the school system and every school child was called to the attention of the school board of the city of Minneapolis. The members of this board knew that every year teachers left their work because of advanced tuber-

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culosis. Often they had taught until the very day the advanced disease was detected. One such case resulted in action by the parent-teacher association of that school which appointed a committee to confer with the superintendent of schools. As soon as enough publicity has been given the problem so that the various members of the community understand that it should be solved, it is time to ask for definite action of certain groups.

First the problem must be discussed with the local medical society and definite action taken by that organization. The director of hygiene of the Minneapolis school board secured the approval of the local medical society to recommend that the board take action to determine as far as possible the exact tuberculosis situation among its employees. Therefore, Feb 25, 1933, the school board adopted an order as follows: "Your Committee on Compulsory Physical Examinations recommends that between this date and the opening of school next September, all teachers and other employees of the Board of Education who come in contact with the school children submit to a Mantoux skin test; these tests to be applied at the expense of the Board under such arrangements as the Director of Hygiene shall make."

April 24, 1933, this order was modified by the adoption of the following: "That between this date and the opening of schools next September, all teachers and other employees of the Board of Education who come in contact with the school children submit to a Mantoux skin test, and if positive submit a single x-ray film of the chest, or in lieu of a skin test submit a single x-ray film, to the Director of Hygiene, all tests and x-rays to be done at the expense of the Board under such arrangements as the Director of Hygiene shall make."

The second order permitted the option of x-ray films of the chest in lieu of the skin test required by the previous order. No sooner were these orders issued than the obstructionists of all health measures issued protests, which resulted in the board modifying the order on May 8, 1933, as follows: "On May 8, 1933, the Board of Education extended the time in which employees shall submit to a Mantoux skin test or furnish an x-ray film of the chest, to December 31, 1933."

Extension of time granted by the third order of the board met the objection of many teachers that their more or less exhausted condition, following the arduous duties of the school year, might result in a positive skin test, whereas, after a summer of rest the test was more apt to be negative. This, of course, was not founded on fact but it was conceded in order to allay the unrest that prevailed as a result of the original order of the board.

#### THE PROCEDURE

Having secured the approval of the local medical society and the order having been granted by the school board, we were ready to proceed with the administration of tuberculin tests and the preparation of x-ray films of the positive tuberculin reactors, in addition to those who refused the tuberculin test. Here we immediately met with difficulties because of rumors that were disseminated among the teachers concerning the great danger of the tuberculin test. Some were falsely told that tuberculin contains the germs of tuberculosis and that therefore they might contract the disease through the test. Another false rumor was that the tuberculin

test would reactivate latent lesions in the body and would cause illness. Another was that administering tuberculin was being done for the purpose of eliminating teachers from the schools. This was based on the fact that there had been previous reductions in salaries and some discussion about decreasing the number of teachers. Other teachers were told that approximately 100 per cent of human beings would react positively to the test; therefore, why should they submit to it? This statement, of course, was based on personal opinion, as no one in this community had ever administered tuberculin tests to such a group to determine the actual facts.

We frequently heard the following: "These are times of depression, why waste tax money examining healthy teachers?" "They can't use us for guinea pigs to solve some of their silly theoretical problems." The old standby of interference with personal liberty was used by some. "We're all taxpayers. We've got our rights." Several stated that they had friends in city, county or state politics who would see to it that all connected with this "outrage" would lose their jobs. Numerous other equally false and absurd rumors and statements were extant.

Many of the teachers had no first-hand knowledge of tuberculosis and became somewhat alarmed. Therefore, when the time arrived to begin the administration of these tests only a very small percentage of the teachers in the first school visited submitted. They preferred to have only the x-ray film. Before we had visited many schools, new rumors flew thick and fast and were altogether beyond count. There were rumors that rose from fright that the test had already caused gangrene and loss of arms of some of the teachers, that it had caused blindness that it had caused incapacitation. Some teachers were of the firm belief that the tests were being given in order to make them ill so that others out of work might take over their positions. There were the sly rumors, the most outstanding of them all being that tuberculin acted as an emmenagogue, causing profuse uterine hemorrhage. None of the persons were so disloyal as to give us the names of the injured parties. However, one example of the probable source of these rumors was traced by good fortune; this teacher complained of a swelling of her arm from the fingers to the shoulder to twice normal size, we were unable to confirm this even by calipers, the arm was quite normal in size and the test was entirely negative. We found another teacher with a most peculiar reaction to the testing, she submitted very placidly to the injection of the tuberculin, walked out into the hall, and began to "suck out the poison" we had injected. Her arm was actually traumatized before she desisted.

In the fall of 1933 a higher percentage of teachers submitted to the test as the rumors became fewer and fewer and the attitude of the teachers steadily improved. However, some refused the test for more logical reasons. We rather frequently had teachers refuse with statements such as "My sister had tuberculosis. She's perfectly well now but I would prefer to have the x-ray examination rather than the skin test." Another would say, "I was tested for this some time ago and had a positive reaction so I do not care to be tested again." There were a few persons who reported having been treated for tuberculosis. These persons felt that application of the Mantoux test was unnecessary and submitted x-ray films of the chest in lieu of the test.

The plan outlined for carrying out the orders of the board provided for the administration of the intracutaneous test (Mantoux) in the school buildings, thus working the least inconvenience possible on the personnel. A physician and a nurse visited each building and applied the test to all employees who wished to submit. Arrangements had been made with the local radiologic society for the taking of x-ray films of the chests of all teachers and others concerned who were authorized by the school board to have such films made. Teachers who declined the skin test were issued authorizations for the making of the x-ray films, and persons whose tuberculin tests proved positive were issued a similar authorization. These films, when made, were forwarded to the hygiene department.

An option in this procedure was offered permitting teachers to have the tuberculin test applied by their private physicians, a report of the result, certified over the physician's signature, to be sent to the director of hygiene. Further, the personnel was permitted to submit x-ray films of the chest taken by physicians of their own choice. These options were exercised at the expense of the teacher. All other costs were borne by the school board.

The records of all tuberculin tests applied and all x-ray films of the chest submitted under board author-

by the school nurses, 91 per cent of the fifty-five being positive.

In the Mason City schools, Peck found that 55.67 per cent of the teachers reacted positively to the tuberculin test while of those who were tested in Ames 28.6 per cent reacted positively. He finds that approximately 50 per cent of the teachers of Iowa have been infected. Cox reported that 40.6 per cent of teachers tested in the state of Washington were found to be positive tuberculin reactors. The Jordans found that 49 per cent of their group in western Minnesota were positive.

Nineteen of our negative reactors had x-ray films for various reasons, and eighteen of these presented no lesions while one showed evidence of calcification in the right hilus. In order to secure uniformity, all of the films were interpreted by one of us and the results have been grouped in table 1. Among the positive tuberculin reactors, fifteen did not have x-ray films because of having left the school system before films were made. On the other hand, nineteen who had negative tuberculin reactions also desired to have x-ray films.

Thus, among 2,466 who had x-ray films made of the chest, 1,453, or 58.98 per cent, showed no evidence of disease, while two showed evidence of scoliosis and two evidence of substernal thyroid. Forty-four showed evidence of abnormality in cardiac outline. These were also advised to see clinicians for final diagnosis and any therapy that might be indicated.

There was evidence of increased bronchovascular markings in 175 instances. Some of these persons were later found to have suffered from asthma and some to have had infections of the upper respiratory tract or other conditions.

Sixty-six presented evidence of fibrinous pleurisy as indicated by obliteration of the costophrenic angle, diaphragmatic adhesions, and so on. Here again it is impossible from the tuberculin test and the x-ray film to determine the clinical significance of such conditions. In twenty-nine cases there was evidence of coexisting first infection type of tuberculosis and fibrinous pleurisy.

There was questionable evidence of the first infection type of tuberculosis in eighty-five cases, while in 532 others there was more definite evidence of the first infection type of tuberculosis. In this group with evidence of the first infection type is included those who have definite evidence of calcification in the hilus region and Ghon tubercle formation, as well as some who presented evidence of fibrous strands extending from the hilus region into the lung parenchyma, and definite enlargement of the hilus region.

Great care was taken to avoid interpreting shadows cast by blood vessels and other normal structures in the hilus region as evidence of calcium. We are thoroughly cognizant of the fact that small calcium deposits are often overlooked in the hilus region since so many more have been reported at the postmortem examination by Miller and others than could be detected by antemortem x-ray film examination. The significance of definite evidence of calcium deposits in the parenchyma or hilus region has only recently been appreciated. The pathologists have taught that they should no longer be looked on or even spoken of as representing "healed" lesions. The x-ray film usually gives no information whatever of what is transpiring within and

TABLE 1—*Interpretation of Films*

No evidence of disease	1 433
Scoliosis	2
Possible substernal thyroid	2
Change in cardiac outline	44
Evidence of increased bronchovascular markings	175
Evidence of fibrinous pleurisy	66
Evidence of first infection type and pleurisy	29
Questionable evidence of first infection type of tuberculosis	85
Evidence of first infection type of tuberculosis	532
Evidence of parenchymal lesions	78

ization became the property of the school board. Reports on tuberculin test readings and reports on x-ray readings were made, in writing to each individual concerned and forwarded under seal, making them strictly confidential.

While one of us administered most of the tests, which consisted of a single dose containing 0.1 mg. of tuberculin, interpretations were made after the forty-eight hour interval by school nurses. There might therefore have been a greater personal error than there would have been had a single person been delegated to the task.

#### THE RESULTS

Altogether, 2,190 of the personnel were tested with tuberculin and 1,384 elected an option. Of the 2,190 persons tested, 1,112 were definitely negative and 1,078 (49.22 per cent) were positive reactors. We were unable to retest each negative reactor with 10 mg. of tuberculin, since we were forced to simplify our procedure as much as possible and therefore may have missed some reactors. It was rather interesting to note the variation in the incidence of positive reactors in the different schools. Excluding the schools in which there were fewer than five teachers (two of these schools were 100 per cent negative) our lowest figure was 10 per cent positive out of ten teachers tested. Our highest reading was 82 per cent positive out of twenty-three persons tested. The highest group incidence was given

immediately surrounding these deposits. This can be determined only by the pathologist. Therefore, none of the teachers in this group received a report to the effect that they had "healed" lesions.

In seventy-eight cases there was definite evidence of parenchymal disease. These have been subgrouped in table 2, only on the basis of probabilities. Because of the fact that the reinfection type of pulmonary tuberculosis is more frequently found in the upper half of the lung field, and other lesions such as pulmonary abscess or bronchiectasis more frequently occur in the lower half, one is reasonably safe in considering the former group of shadows as probably due to tuberculosis. Therefore, since clinical examinations could not be conducted by us, all persons with parenchymal lesions were advised to consult their physicians for completion of the examination and final diagnosis.

#### RECOMMENDATIONS

We are thoroughly cognizant of the fact that the tuberculin test and one x-ray film examination of positive reactors does not constitute complete examination for tuberculosis. We are also cognizant of the fact that an x-ray film examination alone does not constitute diagnosis, it only provides evidence that may be

TABLE 2—Subgroups of Parenchymal Disease

Probable pulmonary tuberculosis	
Unilateral minimal	36
Unilateral moderately advanced	0
Unilateral far advanced	3
Bilateral minimal	2
Bilateral moderately advanced	4
Bilateral far advanced	0
Probable nontuberculous basal infiltrations	7
Probable pneumoconiosis	2
Pleurisy with effusion	1
Total	78

used by the clinician in conjunction with history, physical examination, laboratory examinations and even bronchoscopic examination, in arriving at final diagnosis and determining whether the shadows revealed indicate disease of clinical significance. We do feel, however, that the best method of screening out cases for such examinations is through the use of the tuberculin test and the x-ray film. As it was not practical for the school board to carry out the further phases of the examination, reports of the results with brief explanation, were sent to the teachers and other employees. Without exception when parenchymal shadows, changes in cardiac outline, or any other finding that might be significant was present clinical examinations were advised. In order to keep a check on those who had parenchymal lesions that were probably due to tuberculosis, periodic roentgen examinations have been requested at stated intervals, the films to be submitted to the director of hygiene of the school board and to be compared with previous films. This ruling was made in order to protect the teacher herself and her pupils in the event that she does not have or fails to secure the services of a clinician to keep her lesions under close observation and recommend treatment or isolation, if necessary.

The director of hygiene has interfered in no way with the practitioners of medicine in such cases. In fact, it is not the duty of the school board to treat but it is definitely the duty of this board to make sure that

their employees do not disseminate tubercle bacilli in line of duty. In such a survey there is always the danger that the school board will be too drastic in dealing with those employees found to have parenchymal shadows. Most of the members of school boards are not trained in medicine and therefore are not in positions to differentiate between the lesions that are dangerous at one time and safe at another from the standpoint both of the individual and of her associates. Moreover, they are often fearful of public opinion. For this reason, every finding whether normal or abnormal in such a survey should be kept strictly confidential. On the basis of our experience we are of the opinion that even the tuberculin test should be applied on a part of the body which is not visible to the other teachers and pupils and that even the report on the test should be made only to the individual tested.

All too often in survey work the observations have not been treated confidentially and teachers have been subjected to mistreatment. We cite the case of a teacher employed in a small city where tuberculin tests were administered to all the teachers and the positive reactors had x-ray films made of their chests. This particular teacher reacted positively, and the film showed evidence of disease in one lung which proved to be tuberculosis. It had not yet caused any symptoms and before the examination she was wholly unaware of its presence. Nevertheless it was obviously a progressive type of lesion. She immediately took a leave of absence and had treatment instituted. When her physician observed that she was able to return to work, the fact was discovered that the information concerning the condition found at the time of the survey had not been treated confidentially. Almost every one in the community knew what had been found, and although the superintendent of schools was willing to have her return, members of the school board and the general public without a clear understanding of tuberculosis, protested to such an extent that her return had to be postponed from time to time until she eventually sought employment elsewhere.

We would contrast this teacher's case with that of another from a small city who because of mild symptoms, of her own accord, sought an examination of the chest. This revealed quite extensive tuberculosis, whereupon she conferred with the superintendent, who with her private physician treated the condition confidentially. She undertook treatment similar to that administered to the teacher cited, and in due time her physician recommended that she return to work. He informed the superintendent of her condition and she has returned with no stigmas. She is still under close observation and is a safe associate for other teachers and the pupils whom she teaches.

One of the objects of seeking out cases of tuberculosis among teachers is to enlist the support of the members of their profession in the campaign against tuberculosis. When teachers know that, even though they are found to have disease which threatens their future and makes them menaces to their associates, they will later be treated justly by their school board, they will be much more willing to submit to examination. The fear will be removed and they will enter wholeheartedly into the campaign of finding and treating adequately cases of tuberculosis not only among members of their own profession but also among the pupils whom they teach, as well as the families of these pupils. Indeed the employees of the school board having sub

mitted to a procedure intended to protect children against tuberculosis, might be expected to demand that the children be examined in order that they be insured against exposure. The examination of all school children is being considered in many places.

In the Minneapolis survey, the teachers have been treated fairly. There has been great effort put forth to keep the information concerning them confidential. Not a single teacher has lost her position because of a positive tuberculin reaction. One person found to be disseminating tubercle bacilli was required to take leaves of absence while treatment is being administered. Other teachers are being treated and kept under close observation because of lesions discovered through the compulsory examinations but none will be required to give up work unless the lesions progress to the stage at which they may spread tubercle bacilli to their associates and for their own good more drastic treatment becomes necessary. This action on the part of the director of hygiene of the school board has revolutionized the attitude of the Minneapolis teachers concerning compulsory examinations. There are a few, of course, who are prejudiced against most health measures, but the attitude of many who were originally opposed has changed until now the personnel generally is in accord with the health movement—so much so in fact that many who had complied fully with the order demanded that thirty-three who have been negligent or reluctant to comply be compelled to submit at once.

Thus, the superintendent of schools at a meeting of the school board recommended that the thirty-three persons who had failed to comply with the orders to date be given until Oct. 1, 1934, to meet these requirements, and that those who had not complied by that date be suspended from their positions. Even though they are teachers and are well informed on the subjects they teach they may have little information regarding health. Again, some are influenced by religion or are cultists. We do not know whether any of the thirty-three belonged to the foregoing groups. We would rather believe that their failures to comply with the order was due to procrastination. Be that as it may, all but one finally were examined and the majority of our teachers and other employees now manifest an intelligent attitude toward health work which to us is an expression of sincerity in their life work.

#### COST OF SURVEY

An all-absorbing question is the cost of this survey. In all, 2,201 tuberculin tests were administered and interpreted, of which number 102 were not paid for by the school board. 2,476 x-ray films of the chest were submitted, of which number 238 were not paid for by the school board as a part of the survey cost. Some of these 238 films were taken at the Minneapolis General Hospital. The records of the department of finance of the school board show an expenditure of \$5,525.50.

#### SUBSEQUENT OCCURRENCES

This work was undertaken purely as a survey and therefore was approved by the local medical society. It interfered in no way with the private practice of medicine since practically none of the examinations would have been made without the order of the school board. Moreover, it is not contemplated that the work will be repeated at the expense of the school board but rather at the expense of each employee through

physicians of their choice. This is now in effect for all new employees.

Following such a survey there will be occurrences, which, not understood by opponents, will be used by them to cast reflections on the work. There still is lurking in the minds of many people the idea that tuberculosis must be contracted in infancy or childhood despite the abundant evidence to the contrary. Therefore many people still believe that if an examination is made in adult life and no tuberculosis is discovered that person is safe from future attacks of this disease. One such case is that of a clerk who reacted negatively in May 1933 and then spent the summer on a farm with an uncle who had open tuberculosis. She returned to her position in the fall apparently quite well. Jan. 10, 1934, she had a pulmonary hemorrhage and her x-ray film revealed shadows suggestive of moderately advanced pulmonary tuberculosis of the exudative type. Her tuberculin reaction was positive in the 1:100 dilution. This case has not invalidated our opinion of the negative reaction in the least. While we realize that the test is not 100 per cent accurate and that this woman might have been in the small group who had the disease without or with only minimal degree of allergy, it must be remembered that her exposure on the farm during the summer might also have resulted in her disease. We do feel that this case brings out the fallacy of the belief held by many people that the statement by a physician "you have no tuberculosis" is a guaranty that they will not develop the disease at some later time.

Another case is that of a teacher whose x-ray film showed very slight change in the left second interspace. There were small densities present, which we interpreted as evidence of the first infection type of tuberculosis. However within a few months this teacher suddenly fell ill and was found to have extensive disease over the left upper lung field. We are inclined to believe that this was a case of tuberculous pneumonia resulting from the rupture of a caseous lymph node into the bronchial tree. Thus a person who is negative to the tuberculin test today may be exposed to some one suffering from tuberculosis tomorrow and have frank pulmonary tuberculosis within six to twelve months. Another may have lesions which appear insignificant but which through rupture or rapid spread may cause serious illness in a few days or weeks. Such cases show the great need of requiring examinations of teachers periodically. As a result of the follow-up work three other persons have been found to have tubercle bacilli in the sputum thus making a total of six open cases of tuberculosis already discovered directly or indirectly through the survey.

#### EDUCATIONAL ADVANTAGES

One of the objects of such a survey is to interest the teaching profession in tuberculosis control. During and immediately after the survey all are interested. This is the time to apply the old principle in pedagogy that the best time to teach is when the individual is personally interested in the subject. Therefore, many teachers who had never thought about tuberculosis became interested in the disease and sought information. For example, they wanted to know just what tuberculin is. Here was an opportunity to explain how it is made and to disprove the false statements so frequently made about it particularly to the effect that it contains tubercle bacilli.



The teachers asked why one reacts positively to the test and another negatively, and here was an opportunity to discuss sensitiveness of the tissues to tuberculo-protein, which results from the growth of tubercle bacilli in the human body. One also had an opportunity to call attention to the rapid decrease in the incidence of positive reactors and to point out to them how it may be possible in time to protect every one so that very few or none will have the handicap of sensitiveness to tuberculin. They asked what a positive reaction means and here was an opportunity to explain to them that it means an exposure to some one with tuberculosis at some previous time and that tubercle bacilli have entered, so that at least one focus of tuberculosis exists somewhere in the body, and to point out that this constitutes a double health liability and that the old idea that a positive reaction is an asset is erroneous. Here one can also point out the great value of the tuberculin test in tracing the source of the infection and explain that the exposure may have continued to the present time and may be found among close associates apparently in good health. One teacher refused the test without giving any reason. Further examination revealed definite evidence of disease after which she called our attention to the fact that at one time her father had been a sanatorium patient but for several years had refused to have further examinations. It was learned that while he was in the institution he had advanced tuberculosis of the chronic type, with cavitation. She now insisted on a reexamination of her father, which showed very definite evidence of tuberculosis. We understand that several teachers who reacted positively to the test became interested enough in the source to have various members of their families examined for tuberculosis by their physicians.

Teachers asked whether one can determine from the tuberculin test if an individual has a progressive disease. Here was an opportunity to call their attention to the strong natural protective mechanism of the human body and to point out how this in the majority of cases walls off the bacilli so that they never cause illness. Attention must also be called to the fact that a minority, consisting of from 10 to 20 per cent of positive reactors, will at some time be ill from tuberculosis.

When the x-ray film interpretations are presented to the teachers, other questions arise in their minds. Some ask whether disease always attacks the lungs and here one has an opportunity to explain that tuberculosis may attack almost any part of the body and the fact that the x-ray film shows no evidence of disease in the lungs of a positive tuberculin reactor is no indication that tuberculosis does not exist. Others will ask whether the x-ray film is infallible, even when disease exists in the lungs. Here one has an opportunity to explain that considerable disease may exist without being visualized by x-ray film examination, that the disease area must be large enough so that it can be plainly seen with the naked eye before it will cast a shadow on an x-ray film which can be seen by the naked eye. One must explain that, while much may escape detection on an x-ray film, when an area of disease in a lung is sufficiently large to threaten the immediate future of the individual and to be a menace to that person's associates it will nearly always cast a shadow that can be visualized on the x-ray film. However, other phases of examination are necessary to determine the exact nature of the disease that casts the shadow. Still another

teacher will inquire as to whether the x-ray film will determine with accuracy as to whether a lesion is progressive. Here one has an opportunity to explain that x-ray film work is purely a matter of studies of lights and shadows and that there is nothing sufficiently characteristic about shadows so that one can determine with a high degree of accuracy as to whether a lesion is progressive, but that periodic x-ray film examination and comparisons give one an opportunity to study the size and nature of the shadows from time to time and in this way progressiveness of a lesion may be very definitely determined.

#### SUMMARY

Observation has shown that a very definite tuberculosis problem exists among teachers and other employees in the schools of this country. Therefore many school boards are requiring examinations of teachers. Large numbers of physicians throughout the country will be consulted or called on to take part in these examinations in their offices and elsewhere.

The preparation for the examination of teachers in any community must begin with the approval and active support of the local medical society, followed by the proper issuance of an order by the school board. In many places the latter probably will not be necessary, as the teachers will voluntarily submit to adequate examinations by physicians of their choice. The procedure is very simple, consisting of administration of the tuberculin test and the making of x-ray film examinations of all positive reactors. These act only as screens to determine which teachers should have complete clinical examinations by their physicians.

In our survey one employee was found to be disseminating tubercle bacilli and sixty-eight others presented lesions that were probably due to tuberculosis of the reinfection type. Subsequent examinations have brought to light five more open cases of tuberculosis. Numerous other workers have found open tuberculosis previously unsuspected among teachers, when compulsory examinations were made.

Teachers found to have open tuberculosis should be given leaves of absence until treatment aids in rendering the sputum negative and the lesions are brought sufficiently under control so that it is safe for the teacher to return to her work. Those who have lesions which are not progressive should be examined periodically and if at any time the lesion is found to progress, treatment should be instituted. All observations should be treated confidentially, both in the physician's office and elsewhere.

The chief advantages of such a survey are that first disease may be detected before it has produced significant symptoms and when it can be treated successfully in a short time, thus saving the teacher a long period of inactivity from work. Such cases by adequate treatment, may be prevented from breaking down so as to be a menace to the children and other teachers. Thus, the environment so far as tuberculosis is concerned becomes much safer from the standpoint both of the teacher and of the child. Second compulsory examinations often lead to investigation on the part of the teacher so that she becomes informed concerning the contagious nature of tuberculosis. Many such teachers become enthusiastic workers in the tuberculosis control program. This should lead ultimately to the enlistment and the support of great educational associations, which will be a valuable acquisition to the forces against tuberculosis.



THE DECLINING DEATH RATE FROM  
TUBERCULOSIS IN CHILDRENAN ANALYSIS OF TUBERCULOSIS DEATHS IN  
MINNESOTA FROM 1915 TO 1932RUTH E. BOYNTON, M.D.  
MINNEAPOLIS

There is a great deal of interest both in this country and in foreign countries in the prevention of tuberculosis in infants by the use of BCG vaccine. Proponents of this method of preventing tuberculosis feel that the immunity produced by BCG vaccine will reduce the incidence of the disease in infants and young children who are intimately exposed to tuberculosis, thus reducing the mortality rate in this age group.

The material presented here is not intended to express any opinion for or against the efficacy of specific vaccination against tuberculosis. It seemed of interest however, to analyze the mortality rates from tuberculosis in children over a period of years in a state where no attempts at BCG vaccination have been

MORTALITY RATES FROM ALL FORMS OF  
TUBERCULOSIS

Table 1 shows the number of deaths and the death rates from all forms of tuberculosis by age groups for each year from 1915 to 1932. Of a total of 2,946 deaths in children under 15 years of age, 656, or 22.3 per cent, occurred in children under 1 year of age. In 1915 32 per cent of the deaths in children under 15 occurred in the group under 1 year, in 1926, 17 per cent, and in 1932, only 14.5 per cent.

This downward trend is shown graphically in chart 1. Compared to the decline in mortality from tuberculosis in all ages in Minnesota the greater decrease in children under 1 year of age is striking. Wallgren,<sup>2</sup> citing the decrease in mortality from tuberculosis in children in Gothenburg, Sweden, as evidence of the value of BCG vaccination, says "It should be noted that the general tuberculosis death rate especially from pulmonary tuberculosis has not shown the same downward tendency. This signifies that the number of the sources of infection has not, broadly speaking, decreased in proportion to the decrease in the number of deaths

TABLE 1—Tuberculosis Deaths and Death Rates Among Children in Minnesota, 1915-1932

Year	Total		Under 1 Year		1-2 Years		2-3 Years		3-4 Years		4-5 Years		5-10 Years		10-15 Years	
	Deaths	Rate*	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
1915	260	30.7	83	178.0	29	64.0	9	18.2	10	20.0	0	12.2	57	24.1	64	27.8
1916	275	38.3	68	140.4	22	48.2	33	65.5	19	37.7	11	22.0	48	20.0	81	34.7
1917	265	36.4	78	148.7	21	45.4	23	45.3	36	50.8	9	17.8	37	15.2	60	27.9
1918	269	36.2	57	118.8	30	63.0	28	54.1	13	24.9	17	33.0	52	21.0	72	29.8
1919	178	23.1	35	69.3	22	46.2	17	32.0	14	29.0	13	25.0	31	12.4	41	16.8
1920	210	28.2	40	81.4	28	52.5	15	28.5	15	27.8	8	15.2	40	16.1	64	27.3
1921	159	21.0	29	58.2	25	46.1	9	16.8	12	21.8	2	3.7	36	14.2	46	19.3
1922	133	17.3	36	71.4	20	36.4	9	16.6	6	10.7	6	11.0	25	9.7	31	12.9
1923	100	24.5	46	90.1	34	61.2	14	26.5	13	23.0	13	23.6	28	10.7	42	17.3
1924	141	18.0	31	60.0	25	44.4	10	18.0	12	21.0	3	5.4	25	9.5	35	14.3
1925	132	16.6	38	72.5	6	10.5	7	12.4	7	12.1	0	10.6	26	9.7	42	17.0
1926	160	19.9	28	52.8	27	46.7	13	22.8	8	13.6	11	19.2	25	9.2	48	19.1
1927	126	16.2	36	51.8	16	27.8	17	31.5	6	13.2	4	7.4	19	7.2	39	15.6
1928	118	15.1	20	39.0	21	38.6	16	29.4	10	18.0	3	5.5	10	6.0	32	12.9
1929	108	13.7	20	39.3	12	21.9	11	20.1	12	21.4	0	9.1	15	5.6	33	13.2
1930	97	13.1	11	25.2	10	43.5	8	17.3	9	18.0	6	13.0	10	7.4	25	9.9
1931	68	9.1	4	9.1	10	22.7	5	10.7	6	12.5	3	6.4	15	5.8	25	9.5
1932	62	8.3	9	20.3	7	15.8	7	14.9	5	10.4	0	10.7	11	4.2	18	7.0
Total deaths	2 946		656		373		251		206		181		623		804	

\* Rates per hundred thousand of population in the age group

made, and to compare the trend in mortality here with that in a locality where vaccination has been used.

Data were obtained from the tuberculosis mortality cards of the Division of Preventable Diseases of the Minnesota Department of Health and mortality rates computed per hundred thousand children in each age group. The method of estimating the population for each age group has been described elsewhere.<sup>1</sup>

All deaths from tuberculosis occurring in children under 15 years of age for the eighteen-year period 1915-1932 were tabulated. The deaths for each of these years were divided into the following age groups: under 1 year, 1 to 2 years, 2 to 3 years, 3 to 4 years, 4 to 5 years, 5 to 10 years and 10 to 15 years. The deaths for each age group were further classified according to the following types of the disease: tuberculous meningitis, pulmonary tuberculosis, miliary tuberculosis, lymph node tuberculosis, and bone and joint tuberculosis.

The numbers of deaths from lymph node and bone and joint tuberculosis were too small to make any comparison of rates reliable. Therefore, only the first three types will be discussed.

from tuberculosis in infants'. The same difference between the tuberculosis death rate in the general population and in infants exists in Minnesota, although no use has been made of BCG vaccine.

A comparison of mortality rates from one year to another may be misleading unless based on large numbers of deaths, hence the average death rate from all

TABLE 2—Death Rates from Tuberculosis in Children in  
Minnesota by Three Year Periods

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	36.6	153.7	52.3	43.0	21.1	17.3	19.7	30.0
2	1918-1920	25.8	88.1	54.1	38.8	26.4	24.4	16.4	24.0
3	1921-1923	20.9	73.2	49.7	19.0	18.5	12.7	11.5	16.5
4	1924-1926	18.1	61.7	38.8	17.7	15.0	11.7	9.4	16.8
5	1927-1929	10.0	43.5	29.4	27.0	17.5	7.3	0.2	13.0
6	1930-1932	10.2	18.2	27.3	14.3	13.6	10.0	5.8	8.9
Per cent decrease									
1915-1917 to 1930-1932		72	68	48	67	55	41	73	73

forms of tuberculosis by each three year period was computed and is presented in table 2. This again shows a downward trend of mortality for all age groups, with the group under 1 year showing the greatest decline. A comparison of the rate for the period 1915-1917

From the Students' Health Service and Department of Preventive Medicine and Public Health, University of Minnesota.  
1. Boynton, Ruth E. Tuberculosis Mortality Among Children in Minnesota. *Am. Rev. Tuberc.* 16: 379 (Oct.) 1927.

2. Wallgren, Arvid. Value of Calmette Vaccination in Prevention of Tuberculosis in Childhood. *J. A. M. A.* 103: 1341 (Nov. 3) 1934.

with the rate for the period 1930-1932 shows that for all children under 15 years of age there was a decrease of 72 per cent for children under 1 year a decrease of 88 per cent, while for all ages there was a decrease of 58 per cent. This is shown graphically in chart 2.

A comparison of these figures with those reported by Wallgren shows first that the mortality in Wallgren's

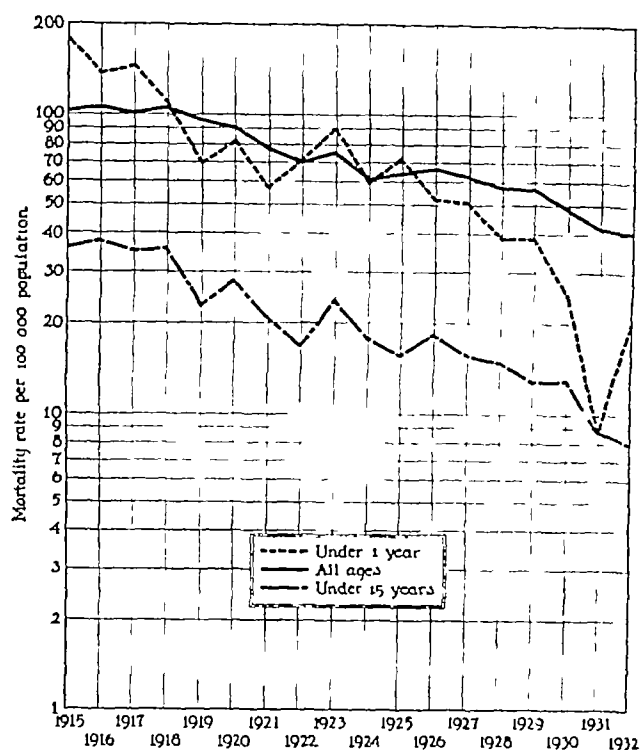


Chart 1—Death rates from all forms of tuberculosis in Minnesota 1915-1932 (logarithmic scale)

group from 1912 to 1916 was 430 per hundred thousand, while the Minnesota rate for approximately the same period was 1557 per hundred thousand and secondly that the mortality rates reported by Wallgren declined only 9.3 per cent from 1912 to 1928 while in Minnesota during the same period the rate declined 60 per cent.

TABLE 3—Mortality Rates from Tuberculosis in Minnesota by Six Year Periods

Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
All forms of tuberculosis								
1915-1920	11.2	121.9	53.2	40.6	28.0	20.8	18.0	27.3
1921-1926	10.0	67.4	41.7	18.6	17.0	12.2	10.4	16.6
Actual reduction	11.7	54.5	11.5	22.0	11.0	8.6	7.6	10.7
Per cent decrease	37.5	44.7	21.6	54.2	41.2	41.3	42.2	30.2
1927-1932	10.0	67.4	41.7	18.6	17.0	12.2	10.4	16.6
Actual reduction	7.0	30.8	28.1	20.6	10.5	8.6	0.0	11.4
Per cent decrease	7.0	30.8	11.4	+2.0	1.5	9.6	4.4	5.2
	3.9	4.4	32.1	+10.7	8.8	20.1	49.3	31.1

Wallgren reports a decline in mortality rate from 3.4 per thousand for 1922-1926 to 1.4 per thousand for 1928-1932 a reduction of 60 per cent. This he attributes largely to the use of BCG vaccine.

In order to compare the decline in rate in Minnesota with these figures of Wallgren the average rate by six year periods in the eighteen years analyzed was computed. These data are presented in table 3. In children under 1 year of age there was a reduction in the death rate of 44.7 per cent between 1915-1920 and 1921-1926, and a reduction of 54.3 per cent between 1921-1926 and 1927-1932. Although this decline of 54.3 per cent is slightly less than the decline of 60 per

cent reported by Wallgren for approximately this same period, it is significant to note that the rate of decline in Minnesota was greater during the last six years. For all children under 15 years of age the percentage decrease between the first six year period and the second six year period was 37.5 per cent, and between the second and third six year periods 35.9 per cent. As the mortality rates become lower, the percentage of decrease necessarily becomes lower as the irreducible minimum approaches.

TABLE 4—Deaths from Five Types of Tuberculosis in Children Under 15 Years of Age in Minnesota 1915-1932

Type	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
Meningitis	21.2% 128	63.9% 370	67.0% 240	68.0% 133	61.2% 112	66.6% 78	43.5% 178	23.1% 102
Pulmonary	37.4% 231	21.4% 135	21.5% 74	22.1% 51	24.0% 44	10.6% 25	41.8% 157	66.7% 457
Miliary	7.0% 201	9.0% 59	9.6% 33	8.2% 19	10.3% 10	9.4% 11	7.3% 23	4.8% 34
Lymph node	1.1% 48	2.1% 13	0.8% 3	1.3% 7	1.0% 3	2.5% 3	2.3% 0	2.0% 14
Bone and joint	2.0% 7	0.1% 1	0.8% 3	1.7% 4	2.7% 5	1.7% 2	3.4% 15	3.2% 23
Total	100% 246	100% 343	100% 240	100% 183	100% 117	100% 350	100% 300	100% 00

Percentage represent the proportion of deaths in each age group caused by the particular type of tuberculosis.

Table 4 presents the total number of deaths from each of five types of tuberculosis for the period 1915-1932. The three types of tuberculosis causing the greatest number of deaths of children in this age group in the order of their importance are tuberculous meningitis, pulmonary tuberculosis and miliary tuberculosis. In the entire group under 15 years of age, 51.2 per cent of the deaths were caused by tuberculous meningitis, 37.4 per cent by pulmonary tuberculosis, and 7.9 per cent by miliary tuberculosis. In children under 5 years of age tuberculous meningitis caused from 61 per cent

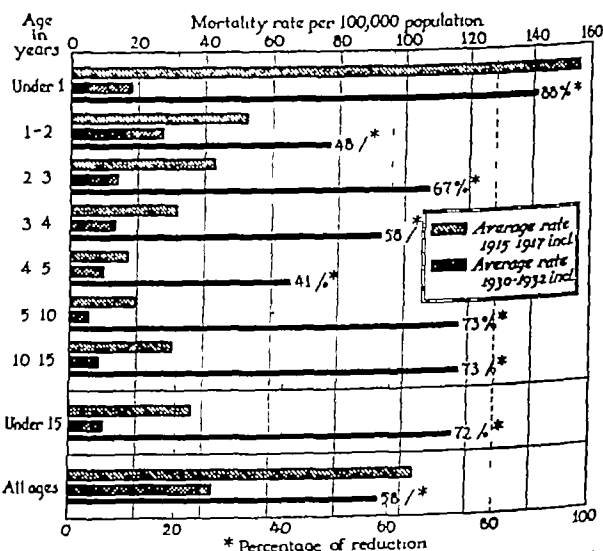


Chart 2—Mortality rate of 1915-1917 compared with rate for 1930-1932 by age groups

to 67 per cent of all deaths while in the 10 to 15 year old group pulmonary tuberculosis caused 66.7 per cent of the deaths. This is shown graphically in chart 3.

#### TUBERCULOUS MENINGITIS

The decline in mortality from tuberculous meningitis is shown in table 5. For children under 15 years of age there was a decrease of 81 per cent between 1915-

1917 and 1930-1932 and in children under 1 year a decrease of 90 per cent. In table 4 it was seen that this form of tuberculosis caused more deaths than any other form in children under 15 years. Likewise the greatest reduction in mortality occurred in this type of the disease, the largest reduction occurring in the group under 1 year of age.

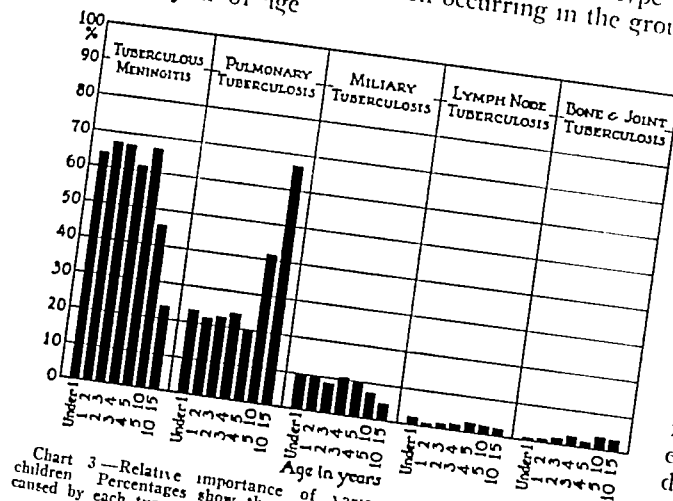


Chart 3—Relative importance of various types of tuberculosis in children. Percentages show the proportion of deaths in each age group caused by each type of the disease.

TABLE 5—Mortality Rates from Tuberculous Meningitis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	10.6	33.0	20.7	20.2	17.7	11.3	8.7	5.7
2	1918-1920	14.1	40.0	30.6	28.1	16.9	11.3	8.7	4.8
3	1921-1923	10.3	44.2	30.3	28.1	16.9	11.3	8.7	4.8
4	1924-1926	8.8	38.8	24.5	14.1	8.3	14.0	8.6	5.7
5	1927-1929	6.7	22.4	16.5	13.4	9.9	11.0	7.9	6.2
6	1930-1932	3.6	9.6	12.1	7.8	0.2	3.5	2.4	1.1
Per cent decrease 1915-1917 to 1930-1932		66	70	60	52	64	2	5	80

TABLE 6—Mortality Rates from Pulmonary Tuberculosis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	12.0	33.7	7.9	9.9	5.8	4.4	6.3	17.8
2	1918-1920	9.1	18.6	10.3	5.7	5.6	4.4	4.4	14.0
3	1921-1923	6.1	15.1	9.6	2.4	5.9	4.4	2.8	8.5
4	1924-1926	5.1	10.1	3.4	1.2	1.7	3.0	2.0	8.9
5	1927-1929	5.6	9.1	8.5	9.1	4.1	0.6	2.1	8.5
6	1930-1932	4.3	6.0	9.0	4.3	4.1	2.1	2.0	6.1
Per cent decrease 1915-1917 to 1930-1932		60	81	+28	55	20	+31	66	64

#### PULMONARY TUBERCULOSIS

Although pulmonary tuberculosis causes a greater percentage of deaths in the older age groups, this form of the disease also shows the highest death rate in infants under 1 year of age (table 6). The rate of reduction, however, has been greatest in the group under 1 year of age (81 per cent). For the period 1930-1932 the rate of 60 for infants under 1 year is approximately the same as for the 10-15 year group, 61.

#### MILIARY TUBERCULOSIS

The actual number of deaths from miliary tuberculosis is smaller and the death rates therefore lower than for tuberculous meningitis and pulmonary tuberculosis. Nevertheless there is the same downward trend in mortality rates for all children, with the most marked decrease in the group under 1 year of age (table 7). Since miliary tuberculosis is usually the result of a massive infection, this reduction in mortality rate is evidence of the protection given children by the earlier diagnosis and isolation of infectious cases.

Petroff<sup>3</sup> has said 'The most convincing proof of the effectiveness of the campaign against tuberculosis adopted years ago is the decline year after year in the death rate from this disease.'

As this analysis of deaths from tuberculosis in Minnesota shows greater progress, as measured by mortality rates has been made in controlling tuber-

TABLE 7—Mortality Rates from Miliary Tuberculosis in Children in Minnesota

Period	Years	Total	Under 1 Year	1-2 Years	2-3 Years	3-4 Years	4-5 Years	5-10 Years	10-15 Years
1	1915-1917	2.0	0.2	4.3	2.6	3.2	0.6	0.6	1.2
2	1918-1920	1.5	11.3	1.9	0.0	1.2	0.0	0.6	1.2
3	1921-1923	1.9	7.8	3.8	2.4	2.9	1.2	0.8	1.2
4	1924-1926	1.0	4.4	2.9	1.7	1.1	1.7	0.2	0.5
5	1927-1929	1.2	5.2	3.6	3.0	1.4	0.6	0.4	0.4
6	1930-1932	0.9	0.7	3.7	2.1	2.0	2.8	0.7	0.2

culosis in children than in older people. This is especially true of children under 1 year of age. In the future vaccination of some sort may be used more extensively in the control of tuberculosis in young children. It seems evident, however, that a thorough and consistent general program for the control of tuberculosis, on the basis of our present knowledge of early diagnosis, isolation and treatment has caused as great a decline in mortality as has occurred when specific vaccination has been used.

#### SUMMARY

1 In Minnesota where BCG vaccination has not been tried, tuberculosis mortality rates in children are lower and have decreased at a more rapid rate than that reported by Wallgren in Gothenburg, Sweden, with the use of BCG vaccine.

2 From 1915 to 1932 inclusive, 2,946 deaths from all forms of tuberculosis in children under 15 years of age were reported in Minnesota. In 1915 32 per cent of

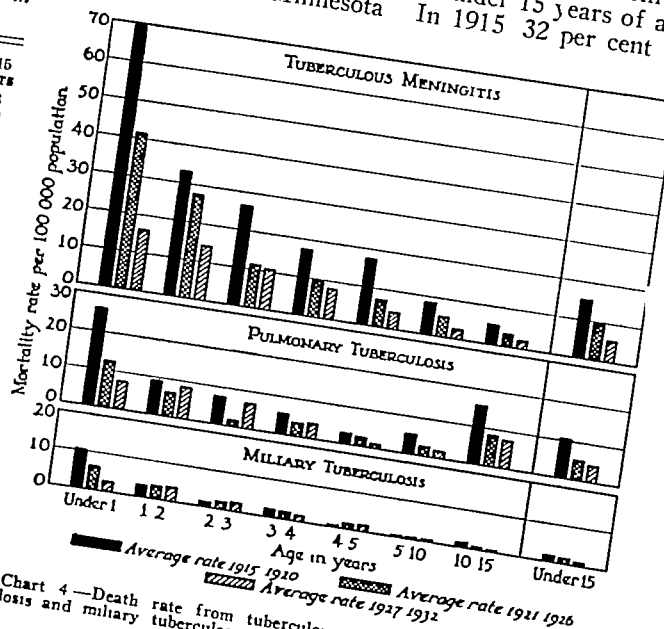


Chart 4—Death rate from tuberculous meningitis, pulmonary tuberculosis and miliary tuberculosis by six year periods and by age groups.

the tuberculosis deaths under 15 years occurred in the group under one year, while in 1932 only 14.5 per cent of the total deaths were in this group.

3 Although the mortality rate under 1 year has decreased more than 80 per cent during this eighteen

<sup>3</sup> Petroff, S. A. Antituberculous Vaccination. New England J. Med. 211: 6-7 (Oct 11) 1934.

year period, the death rate remains higher for the group under 1 year than for any of the other groups under 15 years

4 Between 1915-1917 and 1930-1932 the mortality from tuberculosis declined 72 per cent for all children under 15 years of age, 88 per cent for infants under 1 year, and 58 per cent for the general population in Minnesota

5 Between 1915-1920 and 1921-1926 there was a decrease of 37.5 per cent in the tuberculosis mortality in children and between 1921-1926 and 1927-1932 a reduction of 35.9 per cent

6 The types of tuberculosis causing the greatest number of deaths in children in the order of their importance were tuberculous meningitis, pulmonary tuberculosis, and miliary tuberculosis. The largest percentage of deaths from tuberculous meningitis occurred in children under 5 years of age and from pulmonary tuberculosis in those between 10 and 15 years of age. The highest mortality rate from both types was found in the group under 1 year of age. There was the greatest percentage of reduction in mortality rate in both types of the disease in children under 1 year of age

7 Lymph node and bone and joint tuberculosis are negligible as a cause of death in children under 15 years of age

## RELAPSING FEVER IN THE UNITED STATES

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Prior to 1930, relapsing fever was practically unknown in the United States except for a few sporadic cases in Colorado and California, having last been encountered in epidemic proportions along the eastern Atlantic seaboard during the period 1869-1871. The report<sup>1</sup> of cases occurring in Texas in which the vector was proved to be the tick *Ornithodoros turicata* stimulated interest in this important disease with the result that in that state and California it has been reported with increasing frequency. In Texas,<sup>2</sup> data have been collected on 258 cases that have occurred during the last five years. On the basis of published proved cases the disease is endemic in Colorado, California, Arizona, Texas and Kansas. It is my purpose in this paper to bring to the attention of physicians a disease which probably is endemic throughout the entire southern half of the United States wherever ticks of the genus *Ornithodoros* find their habitat. The following cases may be considered typical of the disease as it occurs in the endemic areas.

### REPORT OF CASES

CASE 1<sup>a</sup>—Mrs. P. M. K., seen, Jan. 23, 1934, complained of fever, malaise and a chill. The temperature was 103 F. The temperature remained high, accompanied by chilly sensations and she was admitted to the hospital, January 25, with a temperature of 105 F., pulse 116, and respiration rate 30. The past, personal and family histories were negative. On admission there was evidence of congestion in both lung bases and

roentgenograms revealed a diffuse bronchopneumonia throughout both lungs. The urine contained albumin and a few red and white cells. A moderate polymorphonuclear leukocytosis was present, otherwise the blood was normal. January 26 the temperature reached normal but rose to 105 F. on the 27th and then returned to normal by crisis on the 28th.

An afebrile interval of six days, during which period the patient felt quite well, was followed by a sudden accession of the fever to 104 F., February 3. The clinical picture, including the lung signs, was repeated, and this attack subsided, February 6. A slight elevation of temperature occurred on the 7th with a return to normal on the 8th.

The patient remained afebrile until February 18 and was quite free from symptoms, except for a moderate degree of weakness. The temperature rose suddenly to 103.8 F. on this date and remained elevated until the 23d. This attack was complicated by a moderately severe iritis and hemorrhagic nephritis. Following this there developed extreme pain and localized sensory changes indicating a radiculitis of the third, fourth and fifth lumbar roots. Spirochetes of the genus *Borrelia* were demonstrated in the blood and 0.3 Gm. of neoarsphenamine was administered intravenously, February 20. February 28 symptoms referable to the iritis and nephritis were repeated in a milder form but a second injection of neoarsphenamine was not made, owing to severe retrobulbar pain, following the first injection, with a subsequent paling of the mesial aspect of the optic disks.

March 12, after an afebrile period of seventeen days the final relapse occurred. The temperature rose to 103 F., and 0.6 Gm. of neoarsphenamine was administered intravenously. The temperature became normal within forty-eight hours and no further symptoms referable to the complications were noted.

CASE 2—E. C., a white native of Texas, was a member of the Civilian Conservation Corps at Mathis, San Patricio County, Texas, in which organization he had served nine months, the past three being at Mathis in the capacity of assistant surveyor. Twenty-five days prior to the onset of his illness he had spent parts of two days at his home in Hull, Texas, about 60 miles east of Houston. During the twenty-five day period he had remained in camp, with an occasional visit to Mathis. The previous history is unimportant. The onset of the illness was abrupt, July 30, 1934, with complaints of headache, malaise, fever increasing in severity that night and the following day, requiring admission to the camp dispensary on July 31. During the morning of August 1 a light chill was noted. Small amounts of white, mucoid sputum were raised without coughing. A moderate degree of weakness was complained of. On admission to the Station Hospital, Fort Sam Houston, August 1, the patient was acutely ill, with a temperature of 103.6 F., pulse 136, and respiration rate 32. The patient was well nourished and developed, entirely rational but with a heavy apathetic appearance. The skin was clear. The tongue was moist and heavily coated with white fur. The blood pressure was 100 systolic, 60 diastolic. The remainder of the examination was negative. Within twenty-four hours after admission the temperature reached normal, but a recrudescence occurred to 100.6 F., finally reaching normal, August 5.

After an afebrile period of three days, during which time the patient felt very well except for moderate weakness, a relapse occurred. The chief complaints were severe, generalized headache, pain across the lower part of the back and legs, sluggishness and weakness. The mind remained clear. The febrile period lasted three days, the fever reaching a maximum of 104 F., pulse 130. There was no cough or expectoration during this relapse. The temperature declined by crisis and was accompanied by profuse perspiration. The blood continued to show a mild leukocytosis, with a slight increase in the polymorphonuclear leukocytes.

A second relapse occurred August 17, after an afebrile period of six days. The clinical picture was essentially the same as the first relapse except that the temperature reached 106 F. and the patient appeared more ill. After three days the relapse terminated by crisis accompanied again by severe perspiration. A light chill was noted during the febrile period. The third relapse began August 27, after an afebrile period of six days. A dark field examination of the blood was made on the 29th and numerous actively motile spirochetes of the

<sup>1</sup> From the Medical Service of the Station Hospital, Fort Sam Houston, Texas.

<sup>2</sup> Weller, Burford and Graham, G. M., *Relapsing Fever in Central Texas*, J. A. M. A. 95: 1834 (Dec. 13) 1930.

<sup>3</sup> Kemp, H. A., Morsund, W. H. and Wright, H. E., *Relapsing Fever in Texas*, V. A. Survey of the Epidemiology and Clinical Manifestations of the Disease as it Occurs in Texas, read at the thirtieth annual meeting of the American Society of Tropical Medicine at San Antonio, Texas, Nov. 14, 15 and 17, 1934.

<sup>4</sup> Report by Dr. Edgar M. McPeak, M.D., San Antonio, Texas.

genus *Borrelia* were found. On the 30th the temperature reached normal, accompanied by drenching sweats. The maximum temperature was 105 F. During the febrile periods the urine constantly contained traces of albumin and numerous granular casts. Examinations for malarial parasites were negative.

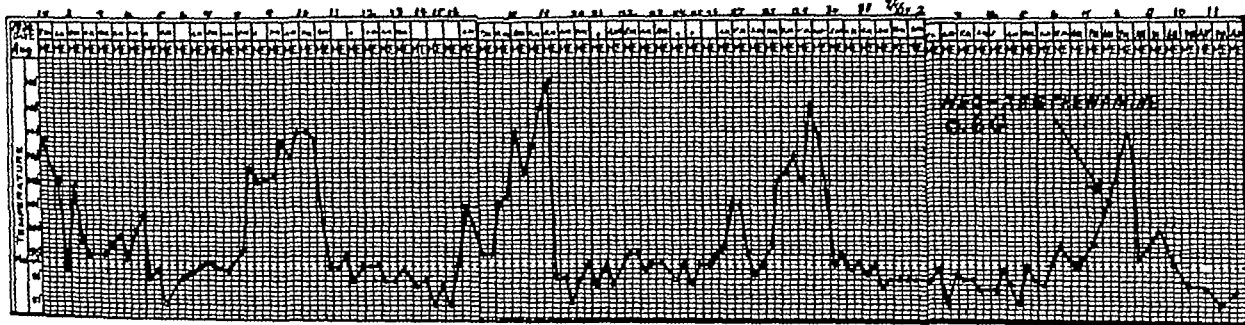
When the correct diagnosis was determined, treatment was delayed until the onset of the fourth relapse, which again occurred after an afebrile period of seven days. Except for moderate weakness and rather persistent pains in the muscles of both lower extremities, the patient had no complaints during this period. Spirochetes were demonstrated in the blood by stained smear twenty-four hours prior to the final rise of temperature. September 8, when the temperature had risen to 100.2 F, a single dose of 0.6 Gm of neoarsphenamine was administered intravenously and within twenty-four hours the temperature reached normal. A period of four months has elapsed without further recurrence. There were no complications. A transitory four plus Kahn test was noted just prior to the fourth relapse, serologic tests being entirely normal on admission and before discharge.

#### HISTORICAL

Historically the disease is dated to observations by Hippocrates and it was subsequently known for centuries in Europe, Asia and Africa. The first modern observations were recorded by Ruddy in Dublin in 1741.

normal habitat. The tick concerned in the transmission of relapsing fever spirochetes is of the family Argasidae, genus *Ornithodoros*, of which there are numerous species. Argasine ticks are characterized by the fact that the head and mouth parts are concealed beneath the body so that as viewed from above only the legs are seen. The genus *Ornithodoros* is distinguished from the only other genus of this family, namely, *Argas*, by the rounded edge of its body.

By cytology and immunity tests,<sup>5</sup> spirochetes collected from widely separated regions in Texas were found to be identical with one another and a similar study of spirochetes collected in different parts of California<sup>6</sup> showed them to be identical with one another. A comparison of Texas and California 'strains' has not been made. "Texas" spirochetes were found to vary in length from 6 to 25 microns, they were actively motile, with a forward and backward rotary motion, and maintained a rigid longitudinal axis in wet preparations. In stained preparations the evenly coiled structure was replaced by wavy undulations with many twisted and looped forms. Attempts at culture were unsuccessful.



Temperature during illness in case 2

Irish immigrants are credited with introducing the disease into Philadelphia in 1844. In 1869 epidemics occurred in Philadelphia and New York. In 1873 Obermeier published his observations on the causative spirochete, which had first been seen by him in a German epidemic in 1868. The first cases<sup>4</sup> occurring in native Americans in whom the spirochetes were demonstrated in the blood were reported from Colorado in 1915.

#### ETIOLOGY

The exciting cause is a spirochete of the genus *Borrelia*, which produces a septicemia in man. Wherever found throughout the world, relapsing fever spirochetes morphologically exhibit no constant difference, but they have been given species names based largely on differences in immunologic reactions, although this method is now considered unsatisfactory and unreliable. *Borrelia recurrentis* is the name applied to the European "species" and *Borrelia novyi* to the American. The latter spirochete was isolated from a ship steward who had recently returned from tropical America. In Europe and Asia the disease is transmitted by the body and head louse and has been associated with typhus fever and hence has been definitely related to poverty, famine, poor sanitation and overcrowding. In central and eastern Africa, South America and the southwestern part of the United States, ticks of the genus *Ornithodoros* are chiefly concerned, and the disease tends to occur in the areas in which the ticks find their

As seen in Texas<sup>2</sup> the disease tends to occur in rural districts, usually in isolated regions. It is not uniformly distributed throughout the counties where it occurs but tends to be sequestered. The majority of cases occur in the late summer. *Ornithodoros turicata* spends its life<sup>8</sup> within a narrowly restricted area, preferring dry sandy country, the floors of small dry caves and old uninhabited rock houses. In California, relapsing fever appears to be contracted in mountainous areas 5,000 feet above sea level. In Kansas the reported cases have occurred in rural districts. The vector concerned, as heretofore noted, has been proved to be the tick *Ornithodoros turicata* in Texas alone, but it is not unreasonable to assume that a tick of the genus *Ornithodoros* is the vector throughout the entire southwestern part of the United States when it is recalled that throughout the world wherever tick-borne relapsing fever occurs no insect vector but ticks of the genus *Ornithodoros* have been incriminated. Francis<sup>9</sup> was unable to transmit relapsing fever to mice by the bite of bedbugs infected with the Texas "strain" of spirochetes.

<sup>4</sup> Meader C H. Relapsing Fever in Colorado. *Colorado Med* 12: 365 1915.

<sup>5</sup> Kemp H A, Morsund W H, and Wright H E. Relapsing Fever in Texas. I. The Identity of the Spirochete. *Am J Trop Med* 13: 425 (July) 1933.  
<sup>6</sup> Coleman G E. Relapsing Fever in California. II. Immunity. *J Infect Dis* 54: 1 (Jan Feb) 1934.  
<sup>7</sup> Kemp H A, Morsund W H, and Wright H E. Relapsing Fever in Texas. III. Some Notes on the Biological Characteristics of The Causative Organism. *Am J Trop Med* 14: 163 (March) 1934.  
<sup>8</sup> Kemp H A, Morsund W H, and Wright H E. Relapsing Fever in Texas. IV. *Ornithodoros turicata* Duges. A Vector of the Disease. *Am J Trop Med* 14: 479 (Sept.) 1934.  
<sup>9</sup> Francis Edward. Rat Bite Fever, and Relapsing Fever in the United States. *Tr A Am Physicians* 47: 143 1932.

In many cases there is no history of tick bite. Kemp and his associates<sup>8</sup> stress the point that tick larvae and the smaller nymphs fill rapidly, in ten or twenty minutes, and produce a small, often painless lesion, which may be undetected by the host. These forms are infectious, as the parent tick once infected remains so for life and transmits virulent spirochetes to its progeny. Francis<sup>10</sup> demonstrated the persistence of spirochetes in naturally infected ticks collected in caves in Texas for a period of two and one-half years. The ticks had not been fed during that interval, but five days after they were allowed to feed on a white rat spirochetes were demonstrated in the animal's blood. The mode of infection in human beings appears to be contaminative in both lice-borne and tick-borne relapsing fever in that infected coxal fluid and feces of the lice and ticks are rubbed into the wound made while feeding.

The armadillo and opossum in Texas<sup>11</sup> and the tamarack squirrel and chipmunk in California<sup>12</sup> have been proved to harbor spirochetes morphologically identical with *Borrelia recurrentis*. In Panama<sup>13</sup> relapsing fever has been experimentally produced in man by the injection of blood from naturally infected animals. The animals mentioned may serve as reservoirs of infection in the regions named.

#### PATHOLOGY AND SYMPTOMATOLOGY

There have been no pathologic studies made in the United States, because of absence of material. Abroad, a parenchymatous degeneration of the kidneys, heart and liver has been noted, with a large soft spleen. The general symptomatology of relapsing fever is the same throughout the world, although variations occur as to the number and character of the paroxysms. In European relapsing fever (the louse-borne variety) the second febrile accession is usually shorter and of less severity than the first. Kemp and his associates<sup>2</sup> found that the onset of fever is abrupt, rapidly reaching 104 or 105 F, often accompanied by a chill, and with headache and muscle pain in the lower extremities and back. In the majority of their cases the febrile period lasted three days but varied from two to five. Sudden termination of the fever by crisis, accompanied by profuse, drenching sweats with a pungent odor was frequently noted. Relapses occurred at irregular intervals, varying in any one case from two to nine days. In the majority of cases the severity increased sharply in the recurrences. The pulse, unlike typhoid, is accelerated in proportion to the fever. Polymorphonuclear leukocytosis of a mild and moderate degree is usual. A rash of rose colored spots may occur on the trunk or limbs during the onset. The liver and spleen may become palpable. Nausea and vomiting with diarrhea occur in a minority of cases, constipation being a more common complication. In American cases, muscular asthenia of variable degree is the most common sequela, and hemorrhagic nephritis, iritis, cranial nerve paralysis and meningitis have been reported in a small number of cases. Throughout the world pneumonia, polyarthritides, parotitis, adenitis and abortion in pregnant women have been reported. In American

cases the mortality has been zero. As the disease occurs abroad, the average mortality varies from 2 to 5 per cent and has reached 80 per cent in certain epidemics.

#### DIAGNOSIS

Clinically the temperature curve is the most important single clue in the diagnosis. Dark field examination of the blood taken during a paroxysm of fever is the method of choice for the demonstration of spirochetes present in large numbers. Thick blood smears, as prepared for malarial examination, are recommended, as they increase five fold the chances of finding the spirochetes. The dried smear without fixation should be immersed in a solution<sup>14</sup> (0.1 cc. of stock Giemsa solution in from 5 to 8 cc. of distilled water) for thirty minutes, dried without blotting and examined under oil immersion. Of laboratory animals the monkey is most susceptible to inoculations from human beings. White mice and white rats are suited to routine use, an intraperitoneal injection of a drop or two of citrated blood resulting in spirochetosis in from two to three days. In the differential diagnosis, malaria is most often confused. Rat-bite fever can be differentiated only by demonstrating a spirochete quite different morphologically from *Borrelia recurrentis*. In certain respects typhus fever, typhoid, undulant fever and dengue fever show a similarity but the differences are more marked and these diseases should not present any difficulty unless they happen to coexist. A transitory positive Wassermann reaction is noted in about one fifth of the cases.

#### TREATMENT

The arsenicals are specific. A single intravenous injection of neoarsphenamine, 0.1 Gm for each kilogram of body weight, administered at the onset of a paroxysm, will effect a cure in practically every case. It is to be emphasized that a single maximum dose is desirable and that treatment should not be instituted during the middle or terminal stages of a febrile paroxysm or during the afebrile period, as relapses are more apt to occur, with an increased frequency of complications. A study of case reports in the American literature reveals a close correlation between inadequate dosage and relapses, often with severe complications.

#### COMMENTS

In the endemic areas, relapsing fever is at present of low incidence. This is due in part to the sparsely settled conditions and to the habits of the insect vector. With an increase in population and especially if infected areas become more congested as the result of grouping such as occurs in camps of the Civilian Conservation Corps or in military mobilizations, higher morbidity and mortality may be expected. Within recent years in northern Africa, Nicolle and Anderson transmitted the relapsing fever of Tunis through both ticks and lice.<sup>14</sup> These investigators consider this disease as originally tick borne, but, having become adapted to lice, has been spread throughout the world by these widely diffused carriers.

#### CONCLUSIONS

1 Relapsing fever in the southwestern part of the United States is an important clinical entity and is being recognized with increasing frequency.

2 It is believed that as physicians become "sensitized" to this disease the endemic area will be found to be of much wider extent than at present.

10 Francis, Edward, director, National Institute of Health, Washington, D. C. Personal communication to Lieut. Col. C. R. Callender, M. C. U. S. Army Station Hospital, Fort Sam Houston, Texas.

11 Bohls, S. W., and Schubardt, V. T. Relapsing Fever in Texas and the Laboratory Method of Diagnosis. Texas M. J. 13: 435 (July) 1933.

12 Porter, C. S., Beck, M., Dorothy, and Stevens, J. M. Relapsing Fever in California. Am. J. Pub. Health 22: 1136 (Nov.) 1932.

13 Dunn, L. H., and Clark, H. C. Notes on Relapsing Fever in Panama, with Special Reference to Animal Hosts. Am. J. Trop. Med. 13: 201 (March) 1933.

14 Rogers, Leonard. Recent Advances in Tropical Medicine. ed. 7. Philadelphia: P. Blakiston's Son & Co. 1929. p. 142.

- 3 *Ornithodoros turicata* has been proved a vector in Texas but in no other parts of the endemic area
- 4 Armadillos, opossums, tamarack squirrels and chipmunks may serve as reservoirs of infection in the endemic area
- 5 By simple laboratory methods available to all practicing physicians a positive diagnosis can readily be made
- 6 A specific remedy exists and it is important that it be administered properly to avoid unnecessary relapses and complications
- 7 Inadequate dosage results in a prolongation of the febrile interval

## A RAPID METHOD FOR THE IDENTIFICATION OF DIPHTHERIA BACILLI

ALSO A NEW METHOD FOR IDENTIFICATION OF CARRIERS OF DIPHTHERIA BACILLI

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Many patients with diphtheria do not receive antitoxin until a positive laboratory report on the nose or throat culture is obtained. This is common practice, even though medical students are taught to administer antitoxin if there is even a clinical suspicion of diphtheria. Moreover it is generally agreed that, the earlier antitoxin is given in diphtheria, the better the prognosis. At present at least eighteen hours and frequently more than twenty-four hours elapse between the time a throat culture is taken and the time a report is received, and such a delay before antitoxin is administered may mean the difference between recovery and death. Since so much dependence is placed on the bacteriologic diagnosis of diphtheria, we wish to familiarize the practicing physician with a rapid and accurate method for the identification of diphtheria bacilli.

In a previous communication we described briefly our early experience with the rapid culture method.<sup>1</sup> Further work has shown that the new method is not only more rapid but also more accurate than the Loeffler blood serum slant method, which at present is used almost universally for the culture of diphtheria bacilli. Sole<sup>2</sup> states that a description of the method was first given by Folger at a medical meeting in Carinthia thirty-six years ago but was not published. The technic, which is extremely simple, is as follows.

Sterile cotton swabs are impregnated with undiluted unheated horse serum to which no preservative has been added.<sup>3</sup> The swabs are then squeezed lightly against the sides of the tube to remove any surplus serum. They are removed and lightly heated over a flame to obtain surface coagulation and possibly, as

Sole states to destroy any antibodies in the serum. The swabs are then used to take the nose and throat cultures in the routine manner. Instead of being implanted on a culture medium the swabs are put in dry sterile tubes, placed in the incubator and examined at the end of two and four hours. The physician's vest pocket may serve as an incubator. At the end of the incubation period, smear preparations are made on slides directly from the swab.

### OUTLINE OF INVESTIGATION

The method was investigated for its reliability in cases of clinical diphtheria and in cases showing a nasal or pharyngeal membrane of nondiphtheritic etiology. From each nasal or pharyngeal lesion investigated, two Loeffler slants were inoculated and three swabs for the rapid cultures were made. One rapid culture swab was examined at the end of an incubation period of two hours and the second at the end of four hours. The third swab was incubated four hours and then the growth was transplanted to Loeffler medium. The transplant was incubated and this culture was used for fermentation tests and virulence tests in guinea-pigs for further verification of the morphologic diagnosis. One of the two Loeffler slants inoculated directly from the lesion under investigation was sent to the Board of Health laboratory and the other examined in the hospital laboratory. Thus we could compare the results of the rapid method with two independently examined Loeffler slants, as well as with the fermentation and virulence tests. The laboratory data were then correlated with the clinical diagnosis.

We used the following two types of cases in our study: (1) clinical diphtheria, and (2) those with membranous lesions in the pharynx due to streptococcal infections, Vincent's angina or leukemia. The second group served as a control series. The results in each group have been tabulated separately. We found as Sole<sup>2</sup> reported, that in cases of clinical diphtheria about 80 per cent of the rapid cultures show diphtheria bacilli at the end of two hours. We again corroborated Sole's work in finding that the optimal incubation period is four hours, and therefore only the results with the four-hour culture are recorded in the tables.

### RESULTS

*Cases of Diphtheria*—The results in sixty-eight separate cases of clinical diphtheria are recorded in table 1. Some presented a membrane in both the nose and the throat, and therefore the number of examinations reported under the heading "culture from lesion" is greater than the total number of cases. Throat cultures were taken in sixty-five cases and nose cultures in forty-one cases. Of the sixty-five throat cultures, sixty-four were positive by the rapid method. In these sixty-four cases with positive rapid cultures the results of the Loeffler cultures reported by the two laboratories were as follows:

- 1 In fifty-two, both laboratory reports were positive
- 2 In nine, one laboratory report was positive, the others being negative
- 3 In three, both laboratory reports were negative

In no instance was the Loeffler method positive and the rapid method negative. One case of nasal diphtheria showed negative throat cultures by both methods. Similarly in cultures taken from the nose a larger number of positive results was obtained by the rapid method than by the Loeffler method in either one or both laboratories.

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1 Braddy M B, Brody H, Gaffney C A, Lenarsky Maurice and Smith L W. Comparison of a Rapid Method and the Routine Loeffler Method for Diagnosis of Diphtheria. *Proc Soc Exper Biol & Med* 32:548 (Dec.) 1934.

2 Solé Alphonse. Rapid Culture of Diphtheria Bacilli. *Wien Klin Wchnschr* 47:713 (June 8) 1934.

3 Horse serum saturated with chloroform as a preservative may be used.



Since it is the culture from the membrane that is of greatest practical importance to the clinician, the last line in table 1 is of especial interest. There were seventy-four cultures taken from seventy-four different diphtheria membranes. All were positive by the rapid method. On the other hand, the two Loeffler slants, inoculated from each membrane, were reported positive in one or both laboratories seventy-one times. This

TABLE 1—*Sixty-Eight Cases of Clinical Diphtheria with Membrane: Comparison of the Rapid Culture Method with Loeffler Cultures from Two Laboratories*

	Total Taken	Positive 4 Hour Rapid Culture			Negative Rapid	
		Positive Loeffler (Both Labs)	Negative Loeffler (One Lab)	Negative Loeffler (Both Labs)	Positive Loeffler (Both Labs)	Negative Loeffler (Both Labs)
Throat culture	60	64	52	9	3	0
Nose culture	41	30	20	7	"	11
Culture from lesion	74	74	63	8	"	0

\* Case of nasal diphtheria. Nose culture positive by rapid method.  
† Case of tonsillar diphtheria. Throat cultures positive by both methods.  
‡ Cases of tonsillar or pharyngeal diphtheria with negative nose cultures.

left three "double" Loeffler cultures, taken directly from the membrane, which were reported negative for diphtheria bacilli but which were positive by the rapid method.

**Controls**—The control group consisted of twenty-eight patients with membranous lesions in the throat due to various conditions such as streptococcic tonsillitis or pharyngitis, Vincent's angina and leukemia. Patients with an atypical membrane in the nose or throat are admitted to the hospital with the classification of "observation for diphtheria" because they do not present definite cases of diphtheria. If successive nose and throat cultures on Loeffler medium are negative for diphtheria bacilli, the diagnosis of streptococcic infection is made (if no other etiology for the membrane is found).

There were twenty-eight sets of throat cultures and fifteen sets of nose cultures taken in the control group. Most of the cultures were negative by both methods, as shown in table 2. Four patients with negative throat cultures on Loeffler medium but positive rapid cultures are of particular interest. The bacilli isolated from three of these four patients were virulent. We correlated the clinical data with our laboratory results. One of the three patients with virulent bacilli had a negative Schick test and was apparently a carrier with a non-diphtheritic membrane in the throat. Another patient received antitoxin at the time of admission when his temperature was 103 F. The temperature gradually subsided and was normal after five days. The third patient had exudate on her tonsillar tabs and a temperature of 103 F. Some of the examining physicians thought she had diphtheria and others did not. Cultures (Loeffler) from the Board of Health laboratory were negative and therefore the diagnosis of streptococcic infection was made. A Schick test examined at the end of twenty-four hours looked as if it might become positive and for that reason diphtheria antitoxin was administered. The patient's temperature was normal after three days. Did these two patients have diphtheria with negative Loeffler cultures? We are not certain that they had diphtheria but we do know

that the rapid cultures showed that they harbored virulent bacilli, a fact entirely missed in the Loeffler cultures.

#### COMMENT

The factor of greatest importance in the prognosis in diphtheria is how early in the disease antitoxin is administered. During the past decade the incidence of diphtheria has decreased, with the result that physicians are less "diphtheria minded" and less familiar with the appearance of the diphtheritic pseudomembrane. Perhaps for these reasons antitoxin is not administered in many cases of diphtheria until a positive report on a culture is obtained. At present culture reports necessitate a delay of at least eighteen hours and usually more than twenty-four hours. Although we do not advise waiting for the report of a culture before giving antitoxin in suspected cases of diphtheria, this dangerous waiting period is decreased to four hours by the rapid culture method. Furthermore, the rapid culture of diphtheria bacilli can be done by the practicing physician because no special incubator is necessary.<sup>4</sup> We have found that the culture will be satisfactorily incubated by placing the test tube in the vest pocket for four hours. At the end of that time slide smear preparations can be made and stained with alkaline methylene blue or preferably Ponder's stain.<sup>5</sup>

#### DIPHTHERIA BACILLUS CARRIERS

The diphtheria bacillus carriers are an irksome problem in a contagious disease hospital. These perfectly well children and adults are confined to the hospital because in a routine nose and throat culture organisms resembling diphtheria bacilli were found.<sup>6</sup> For both the hospital and the patient it is desirable to determine, as quickly as possible, whether diphtheria bacilli are present and if so, whether they are virulent. Only those harboring virulent diphtheria bacilli need be hospitalized. The usual cultures on Loeffler medium from a particular carrier will be positive on some days and negative on others. Whether this is because there are relatively few organisms present or for some other reason we do not know. In order to determine more accurately whether diphtheria bacilli were present and,

TABLE 2—*Twenty-Eight Control Cases with Membrane: Comparison of the Rapid Culture Method with the Loeffler Culture Method (Loeffler Cultures Examined in Two Laboratories)*

Culture	Total Taken	Negative Rapid Negative Loeffler (Both Laboratories)	Positive Rapid Negative Loeffler (Both Laboratories)	Positive Rapid Positive Loeffler (Both Laboratories)
Throat	28	24	4*	0
Nose	15	12	2†	1

\* Virulence tests showed that three of these cultures contained virulent bacilli. In the one with nonvirulent bacilli fermentation tests identified the organisms as *B. diphtheriae*.

† Both were cultures of virulent bacilli.

if so, whether they were virulent, we developed the following technic at the Willard Parker Hospital.

A four-hour rapid culture was transplanted to a Loeffler slant and incubated eighteen hours. Colonies were fished from the Loeffler slant and examined. If diphtheria bacilli were present, the growth on the

4. Within a few months the method will be further simplified. Through the cooperation of the Lederle Laboratories a culture set ready for immediate use will be made available.

5. Ponder C. The Examination of Diphtheria Specimens. A New Technic in Staining with Toluidine Blue. *Lancet* 2:22, 1912.

6. By a recent order of the Board of Health of New York City, presumptive diphtheria carriers are not hospitalized unless the bacilli which they harbor are shown to be virulent (*Quart. Bull. City of New York Department of Health* 3:1, 1935).

Loeffler medium was emulsified and used immediately for an animal test for virulence. The intracutaneous test in guinea-pigs was employed as a routine.

RESULTS

The results obtained with the new rapid method are compared with the routine Loeffler cultures in table 3. Culture sets were taken in twenty-two carriers and the results tabulated separately for nose and throat cultures. To simplify the comparison of the old method with the new one the total number of cultures recorded in the last line of table 3 may be used. All cultures were positive twelve times. The transplant was positive and one Loeffler culture was negative ten times. Animal tests in these ten cases showed that the bacilli in nine of them were virulent. Even more striking were the fifteen culture sets that were negative on both Loeffler slants but positive on our transplants. Among the fifteen there were six with virulent bacilli as shown by animal inoculation. The new transplant method for

TABLE 3—Twenty Two Carriers Comparison of the New Transplant Method with the Old Loeffler Method (Loeffler Method Culture Examined in Two Laboratories)

	Positive Rapid Culture Transplant			Negative Rapid Culture Transplant	
	Positive Loeffler (Both Labs)	Negative Loeffler (One Lab)	Negative Loeffler (Both Labs)	Positive Loeffler (One Lab)	Negative Loeffler (Both Labs)
Throat culture	8	5	6	1	2
Nose culture	4	5	9	1	3
Total cultures	12	10 (9 virulent)	15 (8 virulent)	2 (1 virulent)	5

identifying carriers failed in one throat culture and one nose culture, which were reported positive on Loeffler medium by one of the laboratories.

COMMENT

In comparison with the methods used until now, our new method gave more uniform results in the morphologic identification of diphtheria bacilli. Although Jarema and Smith<sup>7</sup> and others have shown that there is a relationship between the morphology of the diphtheria bacillus and its virulence, most laboratories still depend on animal tests in determining virulence. To obtain a culture pure enough for animal inoculation, the old methods require subcultures on agar plates, which are time consuming and as a result, a minimum of five days is necessary for a virulence test. By our rapid culture transplant method a growth pure enough for animal inoculation is obtained within twenty-four hours, thus saving from two to five days in performing a virulence test.

CONCLUSION

A rapid method for the morphologic identification of diphtheria bacilli is described and the work of Sole corroborated. The technic is simple and can be used by the practicing physician. The method is quicker and more accurate than that employing the Loeffler blood serum medium. A new more reliable method for the identification of diphtheria bacilli in suspected carriers is described in detail. This forms the basis for a more rapid technic for the virulence test in animals.

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<sup>7</sup> Jarema J. J. and Smith L. W. Relationship of the Morphology of the Diphtheria Bacillus to Its Virulence. J. Infect. Dis. 55: 306 (Nov. Dec. 1934).

FROM PATHOLOGY TO EPIDEMIOLOGY  
IN TUBERCULOSIS

SOFTENING OF THE CASEOUS TUBERCLE  
AND ITS RESULTS

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The approach to epidemiology in current teaching is commonly by way of bacteriology. In diphtheria, scarlet fever, influenza, pneumonia, plague and infectious diseases in general, hygienists and sanitarians have concerned themselves chiefly with the etiologic agents of the diseases, the means by which they are spread and the measures that may be taken for prevention.

In tuberculosis epidemiologic stress has been laid on the tubercle bacillus, the sputum that acts as a vehicle in its dissemination, the closeness of contact between patients and healthy children or neighbors, and the methods by which the chain of infection from man to man may be broken, including isolation of the sputum-positive patient, the collapse of the infected lung to prevent the outflow of infected sputum and, at times and in some places, attempts at immunization of the patient's children.

In their clear perception of the means by which this chain may be cut, physicians have generally overlooked the phenomenon that starts the chain in the first place. This phenomenon, which puts pathology and epidemiology on common ground, is softening of the caseous tubercle. It is on this phenomenon that clinical medicine also, in treatment of the individual patient, should focus more of its attention than is at present the case.

The problem of softening of the caseous tubercle may justly be considered the key problem in tuberculosis. If caseous tubercles did not soften the disease would be self limited and would die out with the end of the present cases, except for occasional cases dependent on unusual methods of transmission. The simplicity of facts concerned may readily be seen in the following brief summary of the course and spread of progressive pulmonary tuberculosis. The lung is infected by tubercle bacilli; cellular and subsequently caseous tubercles are formed, and some of these soften. The softened caseous matter is discharged into the bronchioles and aspirated into other parts of the lung, with the production of new tubercles, some of which in turn soften, or it is coughed into the outside world, where other people may be infected. That is, in short, the whole story.

The specific character of softening of the caseous tubercle has not been sufficiently emphasized. In textbooks on general pathology the two phenomena of caseation and softening are commonly not separated, and the distinctive nature of the latter process is not stressed in spite of the fact that the first adequate description of the morbid anatomy of tuberculosis gave clear expression of the distinction. In the *Médecine expérimentale* of Laënnec<sup>1</sup> the course of tuberculosis is divided into stages of infiltration, crude tubercle and softening. Laënnec wrote:

In whatsoever manner these crude tubercles [i. e., caseous tubercles] may be formed, they finish by becoming

Read before the Olmsted-Houston-Fillmore-Dodge-County Medical Society at the Mayo Clinic, Rochester, Minn., Nov. 22, 1934.  
<sup>1</sup> Laënnec R. T. H. *Traité de l'auscultation médiate*. Paris, 1819.

softened and liquefied. When the tuberculous matter has completely softened, it breaks its way into the nearest bronchial tube. The resulting aperture being narrower than the cavity with which it communicates, both remain fistulous even after complete evacuation of the tuberculous matter

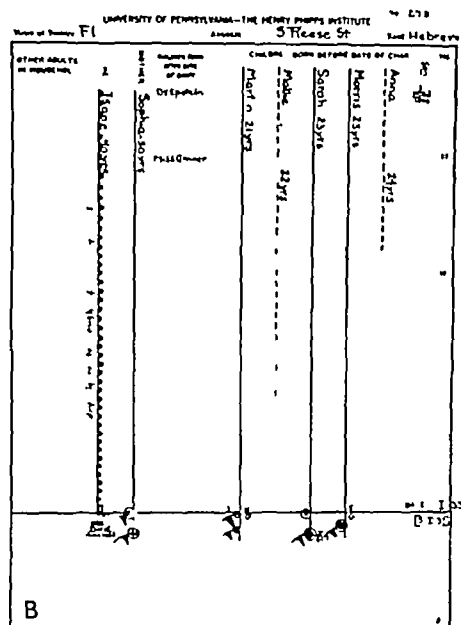
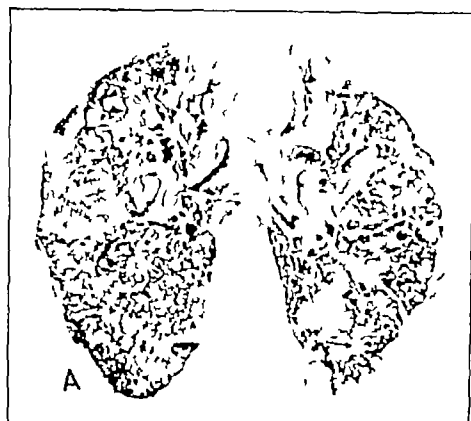


Fig 1—A section of lungs of I F aged 74 who had tuberculosis for forty years and who was presumably responsible for the familial spread shown in B. B chart of family of I F showing active tuberculosis in I F and presence of first infection and latent reinfection tuberculosis in members of his household. For further explanation see the text

But if the phenomenon of softening of the tubercle has been underemphasized in the pathogenesis of tuberculosis, even less attention has been directed to a collateral event that gives the process of softening both its pathologic and its epidemiologic importance. Associated with the softening, an extraordinary multiplication of tubercle bacilli occurs. At the stage when the product of tuberculous infiltration first discharges into a bronchus, it has maximum infective power. Not before, nor again after, are tubercle bacilli to be found, in the region concerned, in the concentration coincident with softening.

This fact also has long been known. In the Etiology of Tuberculosis,<sup>2</sup> which bears the same classic relation to the bacteriology of tuberculosis as the Mediate

auscultation to its pathology and clinical care, Robert Koch wrote

The bacilli are present in greatest number in fresh caseous infiltrations and the interior of cavities the walls of which are undergoing rapid liquefaction. They are encountered less numerous in cavities with indurated walls and are least frequent in scarred, contracted, pigmented lung tissue.

Indeed, the soft yellow lumps sought by the technician examining sputum, in order to save time in finding tubercle bacilli, are nothing more than bits of debris from the liquefying caseous nodules. Their presence in sputum is proof of softening with fresh excavation, and they are as good indexes of progressive disease as the elastic fibers described at length in all textbooks of clinical pathology.

The extraordinary abundance of tubercle bacilli in freshly softening caseous tubercles, if not generally appreciated, is, nevertheless, well known to specialists in the pathology of tuberculosis. In his comprehensive monograph on the Pathologic Anatomy of Tuberculosis, Huebschmann<sup>3</sup> emphasized the fact that, whenever liquefaction processes are developing, quantities of tubercle bacilli are easily recognizable, adding that he had never seen progressive liquefaction begin without some bacilli. In his well known studies on the early lesions of reinfection, Assmann<sup>4</sup> was impressed by the huge numbers of bacilli to be found in these lesions at the time of beginning excavation. Yet the facts are not current teaching, and new direction of attention to their existence seems timely.

In illustration of the double phenomenon of softening and abundance of tubercle bacilli, three cases will be cited from the experience of the Henry Phipps Institute, as representative of three types of case. The



Fig 2—A low power view (hematoxylin and eosin stain) of wall of large cavity in lung of I F (left apex fig 1 A). B, high power view of inner margin of same (upper margin of A stained for acid fast bacteria). Only one or two tubercle bacilli are visible.

three patients concerned were an elderly Jew with pulmonary tuberculosis of exceptional chronicity, a young American white adult with fatal pulmonary tuberculosis

2 Koch Robert. Die Aetiologie der Tuberkulose. Mitt. d. Kaiserl. Gesundheitsamte, Berlin 2. 1884.

3 Huebschmann Paul. Pathologische Anatomie der Tuberkulose. Berlin Julius Springer 1928.

4 Assmann H. Fruhinfiltrat. Ergebn. d. ges. Tuberk. 1. 145 1930.

of ordinary duration and a Negro child with "adult type" tuberculosis of extraordinary severity and rapid progression. The phenomena of softening and bacillary multiplication were qualitatively the same in all three but varied quantitatively with the type. The three cases cited may be considered to represent the two extremes and the average in the intensity of the processes concerned.



Fig. 3—A low power view (hematoxylin and eosin stain) of softening nodule in lung of I F. B high power view of the same (central region of A stained for acid fast bacteria). Large number of tubercle bacilli present.

#### REPORT OF CASES

CASE 1—I F, a Jew, aged 74 married and the father of six children, five living and one dead, entered the clinic of the Henry Phipps Institute Jan 5, 1933 stating with pride that he had never had a doctor in his life. He admitted, on questioning, that he had had a 'dry cigaret cough for forty years.' He came to the clinic because for the past four months he had suffered with more severe cough with expectoration and from dyspnea and exceptional fatigue. On physical and roentgen examination he was found to have far advanced bilateral pulmonary tuberculosis. The sputum was positive for tubercle bacilli with a Gaffky count of 5. He was sent to the Philadelphia General Hospital where he died June 1 1933. Post-mortem examination showed bilateral fibroplastic and ulcerative pulmonary tuberculosis, with disseminated chronic bronchogenic tuberculosis throughout all lobes, with numerous spots of softening and early cavity formation in the bronchogenic tubercles. Almost no normal tissue remained (fig 1A). A large calcified tubercle was found in the base of the left upper lobe and a small calcified tubercle in a left hilus lymph node.

The wife and three children were examined in the clinic of the Phipps Institute. One child had died at the age of 6 years of an unknown cause. Two children said to be well had left the family and could not be examined. The wife, aged 50 and the other children one aged 21 years and a pair of twins aged 23 all had large healed primary infections readily visible by x rays and definite evidence of latent apical tuberculosis of the reinfection type.

The life lines for I F the wife and the children are shown as routinely drawn in the Phipps Institute family charts in figure 1B. In view of the almost total involvement of the lungs, it is probable that the 'cigaret cough' which had lasted for forty years was really due to tuberculosis and I F's line is marked

with solid dots (presumptive tuberculosis) accordingly. The solid blocks at the bottom of the line, extending to the right and left of the line, indicate clinical tuberculosis and positive sputum respectively. On the lines of the wife and children the solid circles, the solid circles within circles, and the triangles attached to segments of circles represent respectively nodules of first infection, calcified tracheobronchial nodes, and latent apical tuberculosis of adult type.

In this case the tuberculosis of the children is probably to be attributed to long contact with the father, since the lesions were diagnosed as of long standing (McPhedran) and since experience in the Phipps Institute indicates that universal infection of the children of a family is usually the result of intrafamilial spread. As to the tuberculosis of the wife, little can be said, as she was about 25 years old when she married. However the experience of the institute indicates that conjugal superinfections are common when one partner has positive sputum.<sup>5</sup>

The character of the exposure to which the family was subjected is indicated by figures 2 and 3. Bacilli were readily demonstrable in the cavity walls and the areas of softening and were much more numerous in the latter than in the former. It may reasonably be assumed that the sputum at all times contained moderate numbers of bacilli from the walls of the old cavities (fig 2) and that they were present in much larger numbers intermittently whenever caseous bronchogenic nodules



Fig. 4—Section from lung of A S. Note spot of softening and drainage into bronchiole in upper right quadrant.

softened and discharged their contents (fig 3). On all occasions corresponding with the last named event the chances for infecting others by cough must have been exceptionally great. In most of the regions of softening, tubercle bacilli were from ten to twenty times as

<sup>5</sup> Opie, E. L. and McPhedran, F. M. Exogenous Tuberculous Infection of Adults. Arch. Int. Med. 50:945 (Dec.) 1932.

numerous as in the walls of old cavities. They were, however, in general much less numerous than in corresponding areas of softening in cases 2 and 3. This fact is to be correlated with the much greater chronicity of the disease in case 1. I F represented the well known type of Jew with extreme chronicity of tuberculosis. The wife and children, subject to heavy infection with tuberculosis present but inactive, may be considered as of the same relatively resistant type.

**CASE 2**—A S, a white man aged 29 married, the father of one child, admitted to the clinic of the Henry Phipps Institute Oct 28 1933 complained of cough, expectoration and weakness. On physical and roentgen examination he was found to have far advanced bilateral pulmonary tuberculosis with tuberculous laryngitis. He was sent to the Philadelphia General Hospital where he died December 14. At postmortem examination far advanced ulcerative tuberculosis of each upper lobe was found, with extensive bilateral chronic bronchogenic nodular tuberculosis, with numerous foci of softening (fig 4), regions of caseous bronchopneumonia, and tuberculous bronchitis and tracheitis.



Fig 5—A, low power view (hematoxylin and eosin stain) of wall of a large cavity in lung of A S (not pictured in figure 4). B, high power view of inner necrotic margin of same (upper margin of A stained for acid fast bacteria). Few tubercle bacilli are present (note small group on upper margin).

His wife, aged 26, was not tuberculous on roentgen examination. A tuberculin test was not done. The 2 year old child reacted intensely to tuberculin (four plus i. e., reaction with superficial necrosis, to 0.01 mg of old tuberculin) and was found by roentgen examination to have a tuberculous nodule in the lower lobe of the right lung and several enlarged lymph nodes in the right hilus, some of them partly calcified.

In figures 5 and 6 some indication is given of the exposure to which those surrounding A S were subjected. As in case 1, tubercle bacilli were present both in the necrotic debris lining the walls of old cavities and in the semiliquid matter of softening caseous nodules or newly forming cavities. They were, however, literally hundreds of times as numerous in the latter as in the former location, the growth was essentially like that on artificial culture mediums. The section illustrated in figure 6 comes from the area seen in the upper right quadrant in figure 4. As shown in figure 4, this soft area has been partly excavated. The region communicates as the illustration shows, with a

bronchiole, and since it was partly excavated it may be assumed that, shortly before the death of A S, discharge of semiliquid matter containing enormous numbers of tubercle bacilli had taken place in this bronchiole. Other similar regions were in the neighborhood, some in a more and some in a less advanced stage of softening and excavation. It is not surprising that the child of 2 years, living in the household of this patient, was heavily infected. Again, as in case 1, it may be assumed that, intermittently, corresponding with periods of discharge from such softening nodules, as shown in figure 4, A S was more dangerous than ordinarily to those around him. The bacilli were growing in his softening nodules on a greater scale than in case 1, and the much shorter life of A S may be related to this fact.

**CASE 3**—C D, a Negro boy, aged 8 years was referred by his school to Clinic No 3 of the Philadelphia Health Council because he had been coughing violently and persistently in class for some weeks past. Physical and roentgen examination, March 8 1933 showed far advanced bilateral pulmonary tuberculosis of the adult type. The sputum contained tubercle bacilli (Gaffky 4 by count). The boy was sent to the Philadelphia General Hospital where he died September 24. At postmortem examination extensive ulcerative and caseous tuberculosis with massive areas of softening was found in the upper two thirds of each lung. A retrogressing tuberculous primary complex was found in the left lung. There was a recent generalized tuberculosis in addition.

The source of infection was not determined with certainty, although it was probably the landlady of the house, who lived with the family, who was emaciated and had a chronic persistent cough and who frequently took care of the boy in the absence of the parents. The parents appeared to be well, but they and the landlady refused to be examined for tuberculosis.

On the basis of figure 7, one may speculate on the infection for which C D, in turn must have been responsible. The lungs contained many foci, like that represented in figure 7, with tremendous numbers of tubercle bacilli growing in colonies as in culture mediums. In microscopic sections stained for tubercle bacilli the colonies were so large as to be easily visible to the naked eye. According to his teacher's statement, he had been coughing in class for weeks. Countless tubercle bacilli must have been sprayed around the room in that time. Had it been possible to tuberculin test the children of his classroom, probably an exceptionally high incidence of reactors would have been found. Hetherington, McPhedran, Landis and Opie<sup>6</sup> have reported instances in which pupils have apparently widely infected their comrades in the classroom. Such infection does not commonly occur in the lower grades of grammar school, because ordinarily children in the preteen ages do not have ulcerative pulmonary tuberculosis. Occasionally, however, tuberculosis of this character does occur in children, and more commonly in Negro than in white children, as in case 3. Such cases are responsible for some proportion of the positive tuberculin reactions in children when no contact with tuberculosis is present within the family.

#### COMPARISON OF CASES

These three cases illustrate the same phenomenon—the presence of enormous numbers of tubercle bacilli in caseous lesions undergoing softening. In all cases the number of bacilli was much greater in the softening lesions than in the walls of old cavities. The latter, which are commonly considered the chief source of

6 Hetherington H W, McPhedran F M, Landis H R M., and Opie, E L. A Survey to Determine the Prevalence of Tuberculosis Infection in School Children. *Am. Rev. Tuberc.* 20: 421 (Oct.) 1929.

spread of bacilli represent a late stage in the process of excavation and the residua of acute excavations which at their height contained huge numbers of bacilli but long previously discharged their contents

The three cases represent fairly well three groups that may be distinguished as respects severity and rapidity of progression of pulmonary tuberculosis



Fig 6—A low power view (hematoxylin and eosin stain) of softening region in lung of A S (the softened region in upper right quadrant in figure 4) B high power view of same (central region of A stained for acid fast bacteria) showing a huge number of bacilli

These are (1) very chronic cases lasting from twenty to fifty years, traditionally common in Jews, as was the fact in case 1 of this series, but by no means confined to this race nor constant in it, (2) cases of a few years' duration, commonly less than three, seen typically as average examples of "consumption" in white adults, as in case 2, and (3) cases of rapid progression, lasting only a few months as far as can be determined clinically seen typically in this country in Negroes, and in especially severe degree in Negro children, as in case 3. The numbers of bacilli found in the softening lesions, when averaged for several regions in each type, are found to be in direct proportion to the severity of the type, being most numerous in the type of case illustrated in case 3. Corresponding numbers of bacilli may be expected in the sputum. Direct evidence that such is the case is seen in the work of Opie and Isaacs<sup>7</sup> and of Hughes,<sup>8</sup> who found by a long series of Gaffky counts that the average number of tubercle bacilli in the sputum from progressive pulmonary tuberculosis is much greater in Negro than in white patients. The chances for infection in the neighborhood of Negro patients are therefore presumably greater.

#### THE NATURE OF THE PHENOMENON

Neither the cause of the softening of caseous nodules nor the explanation of the enormous number of tubercle bacilli present is definitely known. It is commonly taught that softening is due to the proteolytic action of

leukocytes, present as a result of secondary bacterial invaders or as a direct response to the tubercle bacilli themselves. But softening occurs quite as commonly in the absence of leukocytes as in their presence. In the cases here illustrated (figs 3, 6 and 7) leukocytes were not particularly numerous in the softening regions. The phenomenon is not equivalent to suppuration.

Occasionally bacteria and fungi, not chemotactic for leukocytes but possibly rich in proteolytic enzymes, are present. This was true in case 2 of this series, but softening is common when such microbic forms are not present and when nothing can be distinguished microscopically but disintegrating caseous matter and tubercle bacilli.

It has frequently been suggested that softening is an allergic process comparable to the Koch phenomenon, representing a reaction between tubercle bacilli, with their content of tuberculin, and highly hypersensitive tissue. Huebschmann<sup>9</sup> considered softening "the most intense reaction of hypersensitiveness to be encountered in the human body." He felt that clinical correlation with it might be detected. Pagel<sup>9</sup> presented experimental evidence for the allergic nature of the phenomenon. Jaffe<sup>10</sup> recently stated with regard to the infraclavicular infiltrations that these much discussed lesions, "with their massive exudation and quick liquefaction, carry the earmarks of an allergic inflammation." There are however, several objections to the view that all softening of this character is on an allergic basis. The chief of these is the fact that the allergic state, as far as it can be measured by the tuberculin skin reaction is commonly of low degree in late stages of the disease when softening and resultant excavation are at their height. In case 3 which illustrated the highest

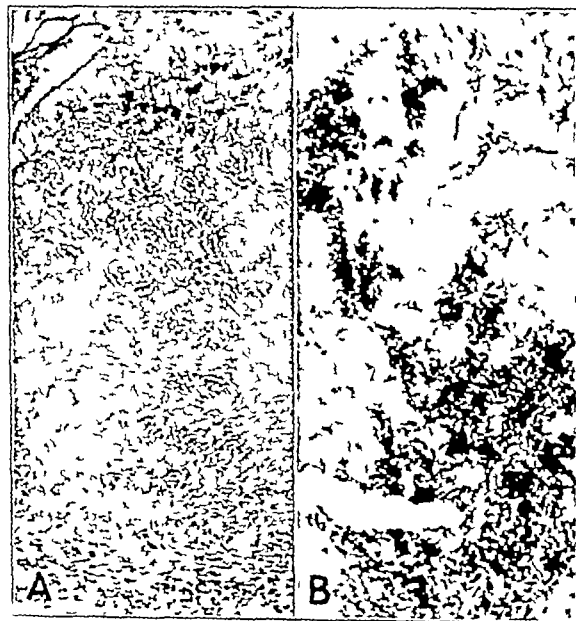


Fig 7—A low power view (stained for acid fast bacteria) of softening region in lung of C D B, high power view of same (from upper quarter of A same stain) showing a huge number of bacilli

degree of softening and multiplication of bacilli in the cases here recorded, the tuberculin reaction was only one plus to 0.01 mg of old tuberculin six months before death. Commonly the reaction is negative shortly

<sup>9</sup> Pagel W. Studien über tuberkulöse Erweichung. Beitr. z. Klin. d. Tuberk. 76: 414 1931.  
<sup>10</sup> Jaffe R. H. Pathogenesis of Postprimary Progressive Tuberculosis of the Lungs. Arch. Path. 18: 712 (Nov) 1934.

Opie E. L. and Isaacs E. J. Tuberculosis in Jamaica. Am. J. Hyg. 12: 1 (July) 1930.  
<sup>8</sup> Hughes J. A. Technique for Estimating the Number of Tubercle Bacilli in Sputum. Am. Rev. Tuberc. 28: 279 (Aug) 1933.

before death. It may be, however, that some other type of sensitization than typical tuberculin allergy is concerned, as has recently been suggested by Lurie.

Lurie<sup>11</sup> has shown that the phenomenon of softening and multiplication of bacilli is in every way comparable in experimental tuberculosis to that seen in human cases. He has found repeatedly that coincident with the softening of tubercles in rabbits a huge increase in the number of bacilli can be demonstrated both by comparative counts of bacilli present in unsoftened and softened lesions and by plating out equivalent weights of the two types of tissue and counting the colonies cultured.

It is not yet clear whether this tremendous growth of tubercle bacilli precedes or follows the softening. If the former, the nutritional factors permitting the multiplication are hard to understand, in this case, however, the large number of bacilli present might well be the cause of the softening. If subsequent research proves that the softening comes first the multiplication of bacilli can be explained on the basis of the new opportunity afforded by the softening for oxygen ingress and flow of fluids containing nutritive elements.

#### CLINICAL ASPECTS OF PHENOMENON OF SOFTENING

It is questionable whether softening lesions can be recognized clinically. Exacerbations of cough may have this origin, but obviously there is nothing constant about cough at any time. The areas are as a rule multiple and too small (fig. 4) to yield distinctive physical signs. Roentgenograms do not distinguish unsoftened and softening caseous nodules until the latter progress to small cavities. Softening may be suspected only by inference from the general course of the case. It is of constant occurrence in rapidly progressive cases.

Yet it is a matter of vital concern in the treatment of tuberculosis. The disease spreads, inside of the lung and in the outside world largely because of the vast numbers of tubercle bacilli in the softened areas. The ideal treatment, for the sake of the patient and of those around him, is one that will prevent this spread. The only method of absolute prevention would be obstruction of the outlet. Tuberculous regions, unlike abscesses due to pyogenic bacteria, do not tend to "point" and so may be imprisoned with safety. Localization approaching that from complete obstruction may result from mere nonmovement of the lung, for in a motionless lung no active force is in play that will lead to discharge of the softened contents. The retention of this highly infective material is not as dangerous as might be supposed. Investigations in this laboratory indicate that such lesions, if they cannot drain commonly become encapsulated, and the huge numbers of bacilli tend to die off, presumably for want of nutriment and oxygen.

Relaxation of the lung, with kinking of the soft-walled bronchioles into which softened regions drain, "kinking of the type stressed as favorable by Coryllos," will also tend to prevent escape of the highly infective contents. Either effect may be the result of proper pneumothorax. Improper pneumothorax, which in this case would be pneumothorax with positive pressure, might well result in expulsion of the semiliquid,

bacillus-rich mass and aspiration into healthy parts of the lungs.

In any event, in the treatment of pulmonary tuberculosis by lung collapse, the matter of freshly softening caseous nodules should be kept in mind. In general clinical practice the collapse of cavities has been used as a gage of the success of pneumothorax, and the change of the patient from the sputum-positive to the sputum-negative state is commonly credited to the cavity collapse. As a matter of fact, this change must be attributed to the retention of the soft matter of small liquefying tubercles as much as or more than to the obliteration of cavities, the walls of which are ordinarily poor in bacilli as compared with the zones of fresh softening. Therefore in the procedure of lung collapse and search for improvement in its technic, the pathologic process of softening of caseous nodules should be considered of first importance.

#### SUMMARY

1 Tuberculosis in its epidemiologic aspects has its source in a specific pathologic phenomenon, softening of the caseous tubercle.

2 The phenomenon of softening of the tubercle has long been recognized but not commonly identified as a specific pathologic process, distinct from caseation.

3 The significance of softening of the caseous tubercle for epidemiology lies in the fact that associated with it is an enormous multiplication of tubercle bacilli. The latter are commonly hundreds or thousands of times as numerous in the semiliquid contents of softening caseous nodules as in the necrotic walls of old cavities.

4 Three types of case (illustrated by reports in this article) may be distinguished in a general way on the basis of the number of bacilli in the softening regions, a chronic type with a moderate concentration of bacilli in the softening lesions, an intermediate type, and an acute type with vast numbers of bacilli.

5 The fundamental nature of the process of softening is still unknown. It is not equivalent to suppuration. Attempts to put it on an allergic basis have not been entirely successful.

6 The softening tubercle should receive more clinical consideration than is at present the case. Successful treatment of tuberculosis by lung collapse owes its favorable outcome as much to prevention of drainage of liquefying tubercles as to the obliteration of large cavities. Lung collapse, improperly applied, particularly with excessive pressure, even when obvious cavities are obliterated, may result unfavorably through expulsion of highly infective liquefying matter into tributary bronchioles. The most appropriate lung collapse, as far as the softening tubercle is concerned, is that which stops motion of the lung and partially or completely obliterates the small bronchiolar outlets from the liquefying masses.

Seventh and Lombard streets

**Origin of the Name Protein**—In 1838 the Dutch chemist Mulder separated and described such a material and believing it to be the fundamental constituent of tissues, he gave it the name protein, derived from the Greek verb meaning "to take the first place." While Mulder's chemical work did not prove to be of great permanent value, the word which he coined has lived and is used essentially as he intended, except that now we know so many such substances that the term usually takes the plural form—Sherman, H. C. Food and Health, New York, Macmillan Company 1934.

11 Lurie, M. B. A Correlation Between the Histological Changes and the Fate of Living Tubercle Bacilli in the Organs of Reinfected Rabbits, *J. Exper. Med.* 57: 181 (Feb.) 1933.  
12 Coryllos, P. N. How Do Rest and Collapse Treatment Cure Pulmonary Tuberculosis? *J. A. M. A.* 100: 480 (Feb. 18) 1933.



BLOOD VESSEL TUMOR OF THE  
SPINAL CORD IN A BOY  
AGED NINE YEARSWITH SPECIAL REFERENCE TO A NEW  
DIAGNOSTIC SYNDROME

WILLIAM C. BLACK, M D

AND

HAROLD K. FABER, M D

SAN FRANCISCO

Blood vessel tumors and varices of the spinal cord are rare. Globus and Doshay<sup>1</sup> in their comprehensive review of the subject in 1929 were able to collect only fifty-eight cases from the literature, which include three distinct pathologic entities. There have been reports of five new cases since that time making a total of sixty-three cases. Of the total number, about 10 per cent were purely arterial or presented an arterial component. The remaining 90 per cent were composed of about equal numbers of true neoplastic hemangiomas and of venous dilatations, the latter are not neoplastic formations but have been included in all reviews of the subject, presumably because of the similarity of the clinical syndrome. Guillain<sup>2</sup> reports one other instance in which both conditions were found. In most cases the lesion has not been fully exposed at operation and the suspicion may be entertained that in at least some

## REPORT OF CASE

E. S., an American schoolboy, aged 9, admitted to Stanford University Hospital, Jan 17, 1934, complained of pain in the lower part of the back of fourteen months' duration. Adenotonsillectomy had been performed shortly before, during an acute attack of tonsillitis. After the operation he was very ill with a high fever. Four days later he began to have lumbar pain, which persisted till the time of admission. When he began to walk, about the fifth day after the adenotonsillectomy, his legs were weak and he walked 'bent over like a little old man'. The weakness of the legs became gradually worse and finally, about a month before entering the hospital, he became completely bedridden. His illness was punctuated by periods of severe sciatic pain and by attacks of muscle cramps, which would double him up into grotesque postures for hours or days at a time. He lost a great deal of weight. There was some dribbling of urine and one attack of complete retention during the two or three months before admission.

On physical examination there was a marked generalized emaciation, most apparent in the legs. The lower part of the spine was fixed in a smooth kyphosis and there was tenderness to jarring over the lower three lumbar spines. The erector spinae muscles and those of the buttocks and posterior part of the thighs were extremely atrophied and were practically powerless. The knee jerks were absent. The achilles jerks were hyperactive, with a poorly sustained clonus on the right. The Babinski sign on both sides was positive. The abdominal reflexes were absent except in the left upper quadrant. The cremasteric reflexes were absent. Temperature and deep pain sensations were diminished in the legs up to the groin, but there was no sharp sensory level. Position and touch sensations were intact.

## Results of Spinal Puncture

Case	Author	Lesion	Location	Pressure	Cells	Xanthrochromia	Protein	Queckenstedt Test	Iodized Oil
1 Cobb <sup>3</sup>		Varices	T6-T10	Increased	20				
2 Bland M E J A M A 80:1452 1923		Varices	T8-T11	Increased	11		Increased	(—)	
3 Sargent <sup>4</sup>		Varices	T6-T12		5		0.1%		No block
4 Kortzborn A Zentralbl. f. chir. 50:888 1929		Varices	T8-T11						Distributed T9-L1
5 Globus and Doshay <sup>1</sup>		Varices	T3-T4	Called normal	no details				
6 Rand <sup>5</sup>		Varices	T11-L2		7	+	Congulated		
7 Globus and Doshay <sup>1</sup>		Varices	L3-S1		6			10-14 cm	No block
8 Globus and Doshay <sup>1</sup>		Varices	L3			(—)		(—)	
9 Sargent <sup>4</sup>		Varices	L1			+	0.5%		
10 Adson A W and Ott W O Arch Neurol & Psychiat 8:570 1922			Lumbar		5	(—)	Normal		
11 Globus and Doshay <sup>1</sup>		Large vein	T7-T11	Increased	2	(—)		(—)	
12 Sargent <sup>4</sup>		Angioma	T10-L2		30		Increased		Partial block
13 Cabot case Boston M & S J 107:441 1907		Angioma	C8-T10	Low		+		+	Distributed C8-T12
14 Urechia C I and Elekas N Rev Neurol 2:537 1932		Angioma	D4		3		Increased		Block D4
15 Russell D S J Path & Bact 35:103, 1932		Angioma	O7-C8		1	+	0.4%		Block C6
16 Guillain Schmitte and Bertrand <sup>2</sup>		Large vein angioma	C8-S1 T6	22	1		(1.25 Gm) Increased		No block
17 Black and Faber		Varices angioma	T9-T11 T12-L2	20	Many R B C	+	Congulated	(—)	Distributed T8 T10

of the cases described as simple vascular dilatations a true neoplasm has also been present. Only one case of blood vascular cord tumor has been reported, prior to the present one, in an individual under 10 years of age.<sup>6</sup> The illustration of the lesion in Cobb's report shows a mass of dilated veins such as was found at the first laminectomy in our case.

From the Department of Pediatrics, Stanford University School of Medicine.

<sup>1</sup> Globus J H and Doshay L J. Venous Dilatations and Other Intraspinal Vessel Alterations Including True Angiomata with Signs and Symptoms of Cord Compression. Surg. Gynec. & Obst. 48:345 (March) 1929.

<sup>2</sup> Guillain G, Schmitte P, and Bertrand I. Hémangioma médullaire. Rev. neurol. 1:420 (March) 1932.

<sup>3</sup> Cobb Stanley. Hemangioma of the Spinal Cord. Ann. Surg. 62:641 1915.

## LABORATORY REPORTS

Roentgenograms of the spine showed no bone disease but did reveal kyphosis and scoliosis.

Examination of the blood showed hemoglobin 80 per cent, erythrocytes 5,000,000, leukocytes, 7,700, polymorphonuclear neutrophils 50 per cent, lymphocytes 41 per cent. The urine was normal. The tuberculin test was positive (1,200 intracutaneous). The blood Wassermann reaction was negative. The sedimentation rate was 8 mm in one hour. There was no reaction of degeneration.

On lumbar puncture the fluid was markedly xanthochromic and coagulated spontaneously, with a pressure of 20 cm. The Queckenstedt test was definitely and repeatedly negative on several trials. Pressure over the jugular veins caused the fluid to rise promptly in the manometer, and when the jugular pres-

sure was removed the fluid level fell promptly to the original level. After 5 cc of spinal fluid was withdrawn, however, the pressure fell to zero, the Queckenstedt test became positive and no more fluid could be obtained. Straining and jugular pressure would produce only a few drops more and then air went back into the needle showing it still to be in place.

On cisternal puncture 0.75 cc of descending iodized poppy-seed oil was injected. Roentgenograms showed a curious distribution of the oil in droplets of varying size from the eighth to the tenth thoracic vertebra (fig 1).

January 25 a laminectomy was performed by Dr E B Towne. The arches of the ninth, tenth and eleventh thoracic



Fig 1—Roentgen appearance of 0.75 cc of descending iodized poppyseed oil seen in anteroposterior projection distributed from the eighth to the tenth thoracic vertebra.

and between the coil of veins in the upper part. No arterial component was found. The dura was left open and the wound closed.

For a while after the operation the patient did well. He was given 800 roentgens of high voltage therapy in four days. On the eighth postoperative day he could stand. The knee jerks returned and the ankle clonus disappeared. The degree of sensory loss diminished. The Babinski sign remained positive on both sides. Within a month he was able to walk from twenty to thirty steps unassisted. Then occurred the first of his setbacks, of which he has had four to date, consisting of sudden increase in the muscular weakness of the legs, occurring every month or two with gradual improvement between, each exacerbation being more severe than the last. After the fourth of these exacerbations on physical examination the lower extremities showed a complete flaccid paralysis, except for slight motion at the hip on the right and a little more motion at the hip on the left. All deep reflexes in both legs were absent. Atrophy of the muscles was more marked than before. The ankles were swollen. Touch, pain and temperature sensations were somewhat diminished up to the groin, but there was no definite sensory level. The position sense remained intact. Another lumbar puncture was performed. The changes were identical with those encountered four and a half months before. The Froin syndrome was present and Queckenstedt's sign was negative, becoming positive after the removal of 5 cc of fluid. The pressure on this occasion was 25 cm., 0.5 cc. of descending iodized poppy-seed oil was injected into the lumbar sac and roentgenograms, after inversion of the patient, showed the lower border of the lesion to be at the level of the second lumbar vertebra, three segments below the lower border of the previous operation.

Dr Towne performed a second laminectomy, June 23. The arches of the twelfth thoracic and the first, second and third lumbar vertebrae were removed and the lesion was found to extend to the lower border of the second lumbar vertebra, where it appeared to end. The notable differences between the appearance of the lesion on this occasion and that seen previously were that there was definite erosion from pressure

vertebrae were removed. The dura pulsated in the upper two thirds of the field. The dura was opened, the arachnoid being left intact. Through the latter could be plainly seen a tangled mass of large veins, from 0.5 to 2 mm in diameter over and around the cord. The bulk of the cord seemed to be increased. In the upper and lower fourths of the operative field a considerable area of spinal cord could be seen between the enlarged and tortuous veins. Droplets of iodized oil could be seen collected around

of the laminae of the second lumbar vertebra and the tumor pressed out the dura more than before—so much so that it was with some apprehension that the dura was opened over it. When this was done a picture quite different from that seen at the previous operation was revealed. There was a large red, homogeneous tumor, no varices were seen. It seemed certain that this was a hemangio endothelioma. It did not seem safe to excise a piece for microscopic examination.

The boy was given another course of high voltage roentgen therapy. At the present time two months later he is slightly better than he was before the second operation.

Cases of the sort under consideration have proved difficult to diagnose prior to operation. Globus and Doshay<sup>1</sup> undertook their study with the professed hope that analysis of the cases would provide some means of making clinical diagnosis possible but concluded that there are no specific diagnostic features. Sargent<sup>4</sup> first emphasized the characteristic variability of symptoms and physical signs from time to time during the clinical course of the disease. In only two instances has an angioma of the overlying skin segment given a clue to the spinal cord lesion.<sup>5</sup> Referring to the value of special procedures Globus and Doshay<sup>1</sup> state that laboratory, manometric and iodized oil tests have not been carried out systematically and hence offer no data which would permit of an analysis. The accompanying table shows the changes in each of the seventeen cases that have been so studied.

In only four of the sixteen cases, all reported by Globus and Doshay,<sup>1</sup> were the results of spinal puncture entirely normal (cases 5, 7, 8 and 11). It is worthy of note in view of the observations made in our case that the Queckenstedt sign was positive only once (case 13), an instance in which the lesion occupied nearly the entire subarachnoid space from one end of the cord to the other. Further, in two cases (7 and 13) out of eight in which iodized oil had been injected a distribution of the droplets similar to that in our case has been present, and in one of the remaining cases (12) "partial obstruction" was present. In two others (cases 14 and 15) there was a complete block to iodized oil. In case 3 there was



Fig 2—Lateral view

anthochromia without any evidence of block to iodized oil, which Bucy<sup>6</sup> suggests is probably due to transudation of serum and blood pigments, which discolors the spinal fluid above as well as below the tumor. He reports a case in which anthochromia without obstruction was found above a blood vascular tumor and led an unwary surgeon into operating at the wrong level.

4 Sargent P. Hemangioma of the Pia Mater Causing Compression Paraplegia. *Brain* 48: 259 (June) 1925.

5 Cobb J. Rand, C. W. Hemangioma of the Spinal Cord Arch. Neurol. & Psychiat. 18: 755 (Nov.) 1927.

6 Bucy P. C. Blood Vessel Tumors of the Spinal Canal. *S Clin North America* 12: 1323 (Oct.) 1932.

# ECZEMA VACCINATUM—ELLIS

1891

## ECZEMA VACCINATUM ITS RELATION TO GENERALIZED VACCINIA

REPORT OF TWO CASES

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It is apparent that our case presents a unique combination of spinal fluid changes. The conjunction of the From syndrome with a negative Queckenstedt test, which becomes positive when the lumbar sac is drained of a relatively small amount of fluid, could probably not be produced by any type of lesion other than the one under consideration. The vascular tumor, whether composed of varices or smaller vessels transmits pressure from the subarachnoid space above to the lumbar sac below thus acting essentially as a column of liquid even though there is no direct communication between the two. However, when the fluid is drawn off below and the tumor sags down under the unopposed pressure from above the attachments of the tumor are drawn tight, producing an obstruction in the spinal canal like that of a solid tumor and so causing the Queckenstedt test to become positive.

Worthy of special attention is the peculiar distribution of iodized oil in droplets over two or more segments present in the case here described and in two others (cases 4 and 13). The combination of such a distribution of iodized oil, a From syndrome and a Queckenstedt test changing from negative to positive after the removal of spinal fluid below the lesion affords a characteristic and probably pathognomonic picture of subarachnoid varices and vascular tumors large enough to cause obstruction.

The progress of the case here reported harmonizes with the pessimistic view expressed by Sargent<sup>4</sup> and Rand<sup>5</sup> that operation is of little or no permanent value. Globus and Doshay<sup>1</sup> believe that operation affords some benefit as the result of decompression. Our patient was slightly improved after operation but only for a short time. Spontaneous remissions, especially in cases of varices, have been repeatedly noted and may explain temporary improvement as well as does decompression. High voltage roentgen therapy was without detectable effect.

### SUMMARY

In a case of intradural venous blood vascular tumor, probably hemangio-endothelioma with associated varices, in a boy aged 9 years, the combination noted of the From syndrome, a negative Queckenstedt test becoming positive after withdrawal of spinal fluid below the lesion, and a peculiar distribution of iodized oil in droplets suggests that it may be pathognomonic of subarachnoid varices and vascular tumors of the cord large enough to obstruct the subarachnoid space. Clay and Webster streets

Reports of cases of eczema vaccinatum in the American literature are relatively few, and the fact that this disease and generalized vaccinia are basically the same is not generally accepted.

The vaccine virus used today is a smallpox virus that has been attenuated by many passages through calves, and Schamberg and Kolmer<sup>1</sup> state that this attenuation is permanent and irreversible even by innumerable transfers. The virus in a case of variola is definitely disseminated by the blood stream but that the vaccine virus is also disseminated in this manner is not universally recognized.

Gins and his co-workers<sup>2</sup> demonstrated that the virus in an uncomplicated case of vaccinia was present in the throat on the third and fourth days after vaccination and then disappeared even before the take developed. They also showed that the virus could be found at about this time in the internal organs such as the liver, spleen and brain. Paschen<sup>3</sup> gave a full discussion of the observations of the various investigators on the proof of whether the vaccine virus enters the general circulation after cutaneous inoculation. He concluded that in many cases, if not in all, the virus is disseminated by the blood stream sometime after vaccination.



Fig. 1 (case 1).—Appearance September 15 (biopsy taken the same day) on about the fifth day of the eruption showing the extensiveness of the lesions and their tendency to become confluent.

### CUTANEOUS REACTIONS DUE TO THE VIRUS

In this article only those skin eruptions will be considered which are directly due to the virus itself and in which the etiologic agent can be proved by performing Paul's test<sup>4</sup> (inoculation of the virus on a rabbit's cornea) on the suspected lesion.

The importance of these fortuitous eruptions was shown by Blockmann's<sup>5</sup> review of the literature from 1880 to 1904. His eczematous son developed an eczema vaccinatum accidentally from an older vaccinated

From the Department of Dermatology University of Maryland School of Medicine and College of Physicians and Surgeons Philadelphia.  
1 Schamberg J F and Kolmer J A Acute Infectious Disease  
2 Gins H A and Hackenthal H and Kamentzowa N Neue Erfahrung  
3 Paschen E 110 115 118 (Jan 24) 1929  
4 Pauli Bakt Inokulation der Vaccine auf bereits vorher verkrankte Hautpartien in Jadassohn Handbuch der Haut und Geschlechtskrankheiten 2 240  
5 Blockmann F Ist die Schutzpockenimpfung mit allen notwendigen verbundenen Falle von Vaccineubertragung Tubingen F Pretzker 1904

**The Limitations of Mental Testing**—All sorts of tests have been devised for all sorts of purposes particularly and the best known is the test of intelligence which, as it is now used, is used in the form of the Stanford modification of the Binet-Simon. This test has now been in use for many years and yet if we tried to find out what this intelligence is that we are testing we would find that no one knows. Intelligence up to the present time is indefinable. It is so complex and so intricate that it eludes any effort to compress it into a single formula. This has finally become obvious to the people who are engaged in this work themselves and so instead of speaking of intelligence they speak of test intelligence which is equivalent to saying in response to the question 'What is this intelligence that you test?' It is that which is tested by the intelligence tests. Nevertheless again we discover that by using these tests we have unearthed an enormous amount of information.—White W A The General Implication of Psychiatric Thought third of the Thomas W Salmon Memorial Lectures read before the New York Academy of Medicine April 26 1935

brother Lesions developed mostly on the eczematous areas but also on the right cornea, which caused blindness in the affected eye Blockmann collected 135 cases of vaccinia with fortuitous lesions, twenty of which were in eczematous children, six of which were fatal Forty-six of the 135 cases presented ophthalmic lesions, but the exact extent of this complication was not usually stated, although some did result in blindness Of the 135 patients, only twenty had definitely never been vaccinated Accidental vaccinia is relatively common and its danger depends primarily on the site Neben pocken is the development of vaccinia lesions in the region about the site of the take This type of reaction is seen only occasionally, and is due to local spread of the virus by scratching or by way of the lymph spaces It is practically harmless, only increasing the amount of scarring necessary for a successful take

Generalized vaccinia is considered as that type of reaction to vaccination in which lesions develop on the normal skin on distant parts of the body These lesions may occur concurrently with the original inocu-



Fig 2 (case 1)—Discrete and fusing vesiculopustules on the arm and chest Note the opalescent elevated and umbilicated lesions characteristic of vaccinia

lation or a few days later If later, the lesions tend to become more and more atypical or of an abortive type All authors on this subject agree that the virus is disseminated by the blood stream when this complication occurs The frequency of generalized vaccinia lesions in vaccination cases is estimated by Danziger<sup>6</sup> in 900,000 cases as one in about every 30,000 cases and by Anders<sup>7</sup> on the basis of 3,000,000 vaccinations as one in 40,000 Marick<sup>8</sup> reported a case in the American literature, which occurred in a girl, aged 3 years, who had a severe primary take, as this began to involute, successive crops of generalized pustules appeared on the normal skin, accompanied by mild general symptoms and fever This condition persisted for four weeks Froumy's<sup>9</sup> experiences with generalized vaccinia are unique and frequently cited He revaccinated 175 cadets with the same vaccine, fifty-five had no reactions, but twelve had generalized

eruptions, four of which were severe and one was fatal Cases of generalized vaccinia have also been reported by Haslund,<sup>10</sup> Swoboda,<sup>11</sup> Althoff,<sup>12</sup> Korach,<sup>13</sup> Groth,<sup>14</sup> Chalke,<sup>15</sup> Pautrier,<sup>16</sup> Anders<sup>7</sup> and Shortt<sup>17</sup> Anders' and Shortt's cases were fatal, and Haslund's patient had been vaccinated successfully many years before

Eczema vaccinatum is essentially a generalized vaccinia occurring in a patient who has a skin eruption, usually an eczema It may occur in secondary syphilis (Danziger), impetigo and the like and is thought by most authors to be due to auto-inoculation of the virus from the operative wound to the diseased areas

Templeton's<sup>18</sup> case was very unusual Unknown to him, his patient was vaccinated two days before he removed about ten moles from her face and neck A primary type of reaction developed in the vaccinated area and in the desiccated lesions Templeton did not state whether the wounds were dressed or if an antiseptic was applied

In 1882 Martin<sup>19</sup> reported a case of eczema vaccinatum in a 7 months old eczematous boy, who, Martin thought, was inoculated by way of the intestinal tract after being nursed by the infant's recently vaccinated mother Contact between the eczematous child and another brother, who was vaccinated at the same time as the mother, was disclaimed Recently Platou<sup>20</sup> reported a fatal case in an eczematous infant An excellent illustration accompanies the article

Cases of this type have been reported by Sprengel,<sup>21</sup> Werther,<sup>22</sup> Jessner,<sup>23</sup> Finkelstein,<sup>24</sup> Steiner,<sup>25</sup> Eichhoff,<sup>26</sup> Lortat-Jacob,<sup>27</sup> Kobrak,<sup>28</sup> Kritz,<sup>29</sup> Geronne,<sup>30</sup> Gate,<sup>31</sup> Esquer and Germain,<sup>32</sup> Uffenheimer,<sup>33</sup> Hegler,<sup>34</sup> Haslund,<sup>10</sup> and Kaiser and Blass,<sup>35</sup> making a total

6 Danziger F Ueber Vaccine generalisata Munchen med Wchn schr 54 1583 1907

7 Anders Ueber einen fall von allgemeinen Kuhpocken (Vaccina generalisata) mit todlichem Ausgange Ztschr f Hyg u Infektionskr 88 116 1919

8 Marick, S W Generalized Vaccinia Report of a Case of True Vaccinia Arch Pediat 49:552 (Aug) 1932

9 Froumy cited by Haslund A Vaccina generalisata und deren Pathogenese Arch f Dermat, u Syph 48 371 1899

10 Haslund A Vaccina generalisata und deren Pathogenese, Arch f Dermat u Syph 48 205 and 371, 1899

11 Swoboda N Ueber Vaccina generalisata Munchen med Wchn schr 55 1475 1908

12 Althoff Ein Fall generalisierter Vakzine nach spontaner Infektion, Med Klin 10:27 (March 4) 1923

13 Korach S Ueber Vaccina generalisata Deutsche med Wchnschr 51:1403 (Aug 21) 1925

14 Groth A Beitrage zur Kenntnis der Neberpocken im Verlaufe der Vaccination sowie der postvaccinalen Exantheme Munchen, med Wchnschr 50 108, 1903

15 Chalke H D Observations on Skin Eruptions Following Vaccination Lancet 1 578 (March 14) 1931

16 Pautrier L M Eruption generalisee consecutive a une vaccination Bull Soc franc de dermat et syph 30:481 (June) 1929

17 Shortt C A Case of Generalized Vaccinia Brit M J 1:1004-1005 (June 10) 1933 Lancet 1 580 (March 18) 1933

18 Templeton H J Postvaccinal Cutaneous Reactions J A M A 81:2115 (Dec 22) 1923

19 Martin, H A A Most Rare, Possibly Unique, Case of General Eruption of Vaccine M Rec New York 21:393 1882

20 Platou E S Eczema Vaccinatum Am. J Dis Child 48:333 (Aug) 1934

21 Sprengel H Ein Fall von Vakzineinfektion bei einem Ekzema-kranken, Dermat Wchnschr 92:645 (May 2) 1931

22 Werther Eczema vaccinatum Zentralbl f Haut u Geschlechtskr 14 300 1924

23 Jessner Max Zwei Falle von vaccinierter Dermatoze (sogenannt Ekzema vaccinatum) Zentralbl f Haut u Geschlechtskr 13:238 1924

24 Finkelstein H Galewsky E and Halberstaedter L Hautkrankheiten und Syphilis im Sauglings und Kindesalter Berlin Julius Springer 1922 pp 10 and 56

25 Steiner R Generalisierte Vakzine nach Ekzema vaccinatum Jahrb f Kinderh 114 192 1926

26 Eichhoff P J Ein neuer Fall von Vaccineinfektion, Deutsche med Wchnschr 34 1475 1908

27 Lortat-Jacob L Vaccine generalisee par inoculations multiples chez une malade de prurigo eczematise Bull Soc. franc de dermat. et syph 30:156 1923

28 Kobrak Erwin Infektion eines Kindes mit generalisierter Vakzine ubertragen von den normalen Impfpusteln des Bruders Med Klin 41:1540 1908

29 Kritz Case Report Munchen med Wchnschr 54 1845 1907

30 Geronne A Ueber Vaccineerkrankungen und ihre Prophylaxe Berl klin Wchnschr 47:133 1910

31 Gate, J Michel P J and Boyer C E Vaccine etendue du visage et du cou chez un enfant atteint d'eczema de la joue D'eccepsphalite probable Bull Soc. franc de dermat. et syph 30:46 (Jan.) 1932

32 Esquer and Germain Un cas de vaccine avec localisation aux deux joues chez un nourrisson de 13 mois Bull Soc. franc de dermat. et syph 30:1401 (Nov) 1932

33 Uffenheimer Case Report Munchen med Wchnschr 54 1967 1907

34 Hegler C Ueber generalisierte Vakzine Dermat. Wchnschr 58 29 1914

35 Kaiser M and Blass, G Ein pockenverdachtiger Fall von Ekzema vaccinatum mit folgender generalisierter Vaccine Arch f Dermat u Syph 164 357 1931

of twenty-two cases. The age varied from several months to 42 years, and five of the cases were fatal. Paul's test was made in two cases and both were positive.

Danziger<sup>6</sup> reported the occurrence of six cases within a period of eleven days with a vaccine that gave many normal takes. Most of the inoculations were accidental and one was fatal. He also mentioned ten other cases which he had previously seen, and he stated that the disseminated lesions were due to auto-inoculation. Busch<sup>36</sup> cited a case in an eczematous boy who had two attacks within a period of four years. The second eruption was fatal and lesions occurred even in the scars caused by the first attack.

#### REPORT OF CASES<sup>37</sup>

**CASE 1**—Stanley S., aged 3, was one of twins, both of whom had eczema. The eczema first appeared on Stanley when he was 19 months old and was of the severe infantile type occurring mostly on the face and arms with a tendency to moderate remissions and marked exacerbations. He was first admitted to the University Hospital in October 1931 because of marked eczema of the face and scalp and to a less extent over the rest of the body. Much secondary infection was present and two positive blood cultures were obtained which showed *Staphylococcus haemolyticus*. The rectal temperature varied from 100 to about 104 F, and the leukocyte count averaged 15,000 with 20 per cent eosinophils. While in the hospital he contracted mumps and was discharged soon afterward, March 1, 1932, unimproved. He was readmitted March 25, 1932, to be put on a milk-free diet but whooping cough developed and he was again discharged. At this time his leukocyte count varied between 15,000 and 20,000 with 6 per cent eosinophils.



Fig 3 (case 1)—Section under low power of a lesion in the vesiculopustular stage with marked destruction of the epidermis. Note the dense polymorphous infiltrate in the rete and subepidermal layers. Figure 4 is a high power view of the area marked 4.

The patient was admitted to the Bon Secours Hospital July 14 and was discharged September 2. Here his improvement was moderate and the clinical course was negative, except for occasional peaks of fever up to 103 F. About the first of September his older brother Joseph was vaccinated in preparation for entering school and a large take developed about 4 by 5 cm in diameter. September 12, Stanley was readmitted to the University Hospital because many discrete pustules had

appeared about the face and later on the rest of the body. The pustules were round or oval about 1 cm in diameter, raised, pearly white or opalescent, and rapidly became umbilicated, later fusing and finally covering the face with a thick purulent crust. The child was very toxic, with marked abdominal distention and a fever that varied between 103 and 104 F. On the morning of the seventeenth, the possibility of variola was suggested and the patient was taken to an isolation hospital, where he died the next day.

A biopsy was performed September 15, from two fusing lesions on the abdomen that were beginning to become delled.



Fig 4 (case 1)—Section under high power. The intracellular edema and the pathognomonic intracellular extranuclear Guarnieri inclusion bodies (denoted by the arrows) are clearly shown.

Under low power there was a partially destroyed hair follicle separating the two lesions which were in a vesiculopustular stage. The infiltrate and debris were greatest in the region of umbilication. There was a thin layer of stratum corneum present over the entire lesion, but in many areas most of the epidermal tissues were destroyed, leaving only occasional islands of squamous cells which were apparently parts of hair follicles. About the border of the lesion the interpapillary pegs were elongated and broadened, and the cells themselves were paler and larger than usual, with some in various stages of ballooning degeneration. Under high power, occasional mitotic figures were seen, while in other areas definite inclusion (Guarnieri) bodies could be demonstrated. Below the thin stratum corneum in the area of vesiculation which contained besides serum fibrin and leukocytes were partially destroyed cells of various sorts and debris. These elements were increased in the deeper tissues giving the entire vesicle a broad base made up of polymorphonuclear cells in various stages of degeneration and nuclear fragments. These changes extended into the middle of the corium. Bacterial stains showed groups of organisms just below the surface of the lesion.

**CASE 2**—The other twin, William, in the course of investigating contacts was found to have many lesions on the face and body especially about the upper left eyelid, axillae, arms, scapulae and knees. These lesions were of the same type as on Stanley, whitish, opalescent papules of from 0.75 to 1 cm in diameter which as they enlarged became umbilicated. He also had a few larger crusted lesions, especially on the abdomen. The child was vaccinated at this time but it did not take.

When William was seen in June 1934, a chronic dry excoriated eczema was still present about the flexor surfaces of the arms, and several oval, 1 cm sized nonpitted, depigmented scars were present about the axillae and knees.

The diagnosis of eczema vaccinatum was finally made for the following reasons: 1. The eczematous child who died was home just at the time when his older brother was developing a severe primary reaction due

<sup>36</sup> Busch, N. Ueber Eczema vaccinatum. *Arch f. Derm. u. Syph.* 107: 471, 1933.

<sup>37</sup> Private cases of Dr. H. M. Robinson and reported with his permission.

to vaccination 2 The clinical course, the primary lesions and the microscopic appearance substantiated that diagnosis 3 William the twin brother, who also had eczema, developed an eczema vaccinatum at this time which healed with slight scarring and subsequently his vaccination did not take 4 Many unvaccinated infants were exposed while Stanley was in the University Hospital but they did not develop variola

It is regrettable that Paul's test was not made or that Paschen bodies were not looked for in the fresh lesions

#### DIFFERENTIAL DIAGNOSIS

In the diagnosis, besides variola Kaposi's varicelliform eruptions and Juliusberg's<sup>38</sup> pustulosis varioliformis or vacciniiformis acuta must be considered Only variola and vaccinia will give a positive Paul test

Concerning the term Kaposi's varicelliform eruptions it should be understood that even up to 1900 varicella was considered a mild form of variola These cases, as exemplified by Brown's<sup>39</sup> and McLachlan's<sup>40</sup> recent reports, usually occur in eczematous patients, and these cases cannot be differentiated from eczema vaccinatum on clinical grounds The same applies to the disease described by Juliusberg<sup>38</sup> in 1898 as pustulosis acuta vacciniiformis Juliusberg in his original report mentioned that his case was similar to Kaposi's varicelliform eruptions Recently similar cases have been reported by Feit,<sup>41</sup> Baar,<sup>42</sup> and Freund.<sup>43</sup> The latter author attempted a Paul test on the suspected lesions, but a severe keratitis developed It is questionable whether Kaposi's varicelliform eruption and Juliusberg's disease will prove to be variants of some other cutaneous disease or definite entities

Freund,<sup>44</sup> early in 1934, expressed the same opinion when he reported a case under the ambiguous title of "pustulosis vacciniiformis acuta" (Kaposi-Juliusberg) and definitely proved the case to be eczema vaccinatum by causing a keratoconjunctivitis in a rabbit On microscopic examination the cornea showed numerous inclusion bodies, although apparently grossly just a severe nonspecific keratitis was present He suggested that the clinical picture in eczema vaccinatum may vary as the virulence of the vaccine virus and that of the secondary bacterial invader

#### COMMENT

The vaccine virus is a modified variola virus and the latter is definitely spread through the body by the blood stream, attacking specifically the epidermal tissue It has been stressed again and again that areas which have been traumatized, even only by pressure, tend to be attacked more than other areas That the vaccine virus is disseminated at times by the blood stream causing generalized vaccinia is not disputed

The fact that in eczema vaccinatum the lesions appear mostly or only in the eczematous areas does not prove that the virus arrives there by automoculation because, as with smallpox, the virus may be prone to develop in an area of lowered resistance Certainly the extensiveness of many of these eruptions, their occurrence

also at times in noneczematous areas and the involvement of internal organs such as the liver, spleen and meninges, all point to clinical evidence of blood stream dissemination of the virus

The fact that Paul,<sup>45</sup> by the use of a protective bandage to the operative area in an eczematous patient, prevented (?) the development of an eczema vaccinatum really proves nothing There is no inkling in the literature of the number of patients with skin eruptions such as eczema and impetigo who do not develop a generalized vaccinia after vaccination<sup>46</sup>

#### CONCLUSIONS

1 In a review of the literature on generalized eruptions due directly to the vaccine virus, only a few cases were found in the American literature To these are added the two cases presented

2 From the literature and the evidence from the cases presented it is thought that eczema vaccinatum and generalized vaccinia are essentially the same and that in both diseases the virus is disseminated by the blood stream

3 Eczema vaccinatum is apparently at times diagnosed Kaposi's varicelliform eruption or Juliusberg's pustulosis vacciniiformis or varioliformis acuta

104 West Madison Street

## Clinical Notes, Suggestions and New Instruments

#### DUODENORENAL FISTULA

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A fistulous communication between the duodenum and the pelvis of the right kidney though described only casually even in the more elaborate treatises on urology, constitutes an extremely rare clinical entity That its potentiality has been recognized since time immemorial is indicated by the fact that even Hippocrates makes mention of it in his *Opera Omnia*, yet in all these centuries I have found but three cases recorded in the entire medical literature

The earliest report is that of Rayer,<sup>1</sup> in which he describes the case of Dr Campaignac A tailor, aged 45, was admitted to the hospital, Jan 10, 1835, and died March 6 of the same year without operation The duodenorenal communication was discovered at autopsy Turner<sup>2</sup> reports the case of a youth aged 18, admitted to St George's Hospital with severe hematuria and advanced tuberculous disease of the lungs At autopsy the right kidney was found to be scrofulous and its pelvis communicated with an abscess cavity situated in front of the organ and in contact with the colon and duodenum There were several ulcerated openings in the second portion of the duodenum by which the bowel communicated with the abscess There are several reports of fistulous communications between the large bowel and the kidney, typical of which is the case of d'Allaines and Rouffiac,<sup>3</sup> in which an opening between the colon and the left kidney existed Recently Davis<sup>4</sup> reported an interesting case of ureteroduodenal fistula which he was able to demonstrate by urography

45 Paul G. Studie über die Aetologie und Pathogenese der sogenannten generaliserten Vaccine bei Individuen mit vorher gesunder oder kranker Haut, Arch f Dermat u Syph 52:13 1900

46 Dr J C G Ledingham director of the Lister Institute of London in a personal communication states that the virus in vaccination is always generalized that it tends to localize in areas of lowered resistance that the guarantier bodies are pathognomonic of either vaccinia or variola, and that the inoculations for diagnostic purposes are made preferably in the rabbit's skin rather than in the cornea

Read before the Long Island City Medical Society New York, Feb 20 1935

1 Rayer Traite des maladies des reins 3 293 1839

2 Turner cited by Pervv and Shaw Guy's Hosp Rep 42 186

1893

3 D Allaines and Rouffiac Bull et mem Soc anat de Paris 93:324

4 Davis E G Duodeno-Ureteral Fistula of Spontaneous Origin J A M A 70 376 378 (Feb 9) 1918

38 Juliusberg F Ueber Pustulosis acuta varioliformis Arch f Dermat u Syph 46 21 1898

39 Brown W H Kaposi's Varicelliform Eruption Brit J Dermat 46:1 (Jan) 1934

40 McLachlan A D Brit J Dermat 46 8 (Jan) 1934

41 Feit H Pustulosis Vacciniiformis Acuta (Juliusberg) Followed by Anuria and Tetanic Spasticity New York State J Med 33:645 (May) 1933

42 Baar Ein Fall von Pustulosis vacciniiformis Wien med Wchnschr 81:1157 (Aug 29) 1931

43 Freund P Wien med Wchnschr 81:1157 (Aug 29) 1931

44 Freund H Zur Aetologie der Pustulosis vacciniiformis acuta (Kaposi-Juliusberg) Dermat Wchnschr 98:53 (Jan 13) 1934

Since careful search of the medical literature in this country reveals no record of any occurrence of true duodenorenal fistula, the following case is reported

S W, a white woman, aged 28 born in Germany a hair dresser, applied for treatment at the urologic clinic of St John's Hospital, Long Island City, N Y, April 12 1933 Her symptoms for the past nine months had been those of marked dyspepsia with frequent vomiting soon after eating and paroxysms of severe, lancinating pain in the right flank radiating anteriorly below the costal margin and down toward the groin These attacks came on often at night without ingestion of food lasted from one half to three hours, and generally assumed such an intensity that the patient was compelled to remain at home for two months She managed to return to work, but early in December she had to be taken home during another seizure and from then until admission to the hospital she spent most of her time in bed There was no frequency of urination until about one month prior to hospitalization, when it increased to about eight times a day and once at night with some dysuria The appetite was poor and vomiting was easily instigated by the ingestion of meat condiments or sweets The weight was 116 pounds (52.6 Kg) the patient having lost only 11 pounds

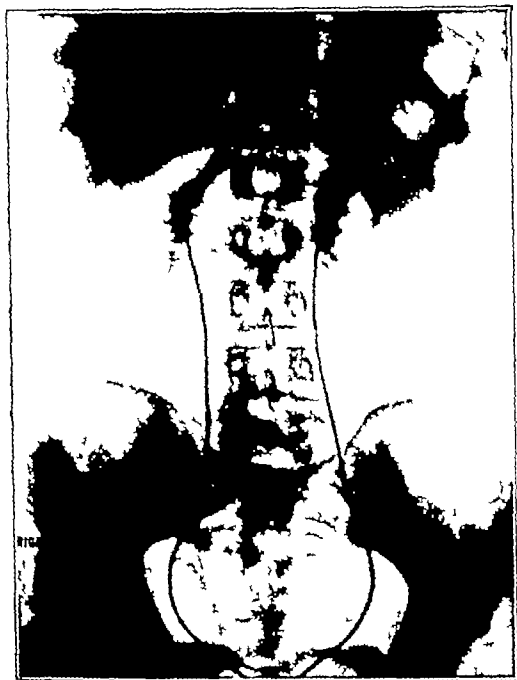


Fig 1—The opaque fluid instilled by the retrograde method has extravasated from the right renal pelvis into the duodenum

(5 Kg) since the beginning of her illness The blood pressure was 120 systolic 68 diastolic the temperature was 101.8 F

Physical examination revealed the scar of an appendicectomy performed five years previously the questionable presence of a mass in the right upper quadrant tenderness somewhat below the right costal margin, and exquisite rebound tenderness on hammer percussion over the right costolumbar angle

April 19, 15 cc of a 20 per cent solution of skiodan was introduced into the right renal pelvis and 7 cc into the left one through 5 F shadowgraph catheters

Figure 1 shows the dye to have extravasated from the right renal pelvis into the duodenum

Against our advice the patient deferred entering the hospital until May 3

The clinical examinations showed repeated catheter specimens of urine to contain usually 2 plus albumin sometimes acid at other times alkaline and the pus on microscopy would vary from 10 cells per low power field to a heavy sediment The blood counts showed a variation in leukocytes from 12,000 to 22,000 in erythrocytes from 3,170,000 to 4,200,000 in hemoglobin from 59 to 80 per cent in polymorphonuclears from 73 to 87 per cent Chemical examination of the blood revealed

a urea nitrogen of only 10.3 mg creatinine 1.22 mg and sugar 877 mg per hundred cubic centimeters The blood Wassermann reaction was negative

On cystoscopy, May 8, about 1½ ounces of purulent milky-looking, foul urine was recovered from the bladder On inspection the sphincter was congested, the 'bas-fond' showed large



Fig 2—The opaque fluid instilled into the right renal pelvis has traversed a considerable portion of the small intestine

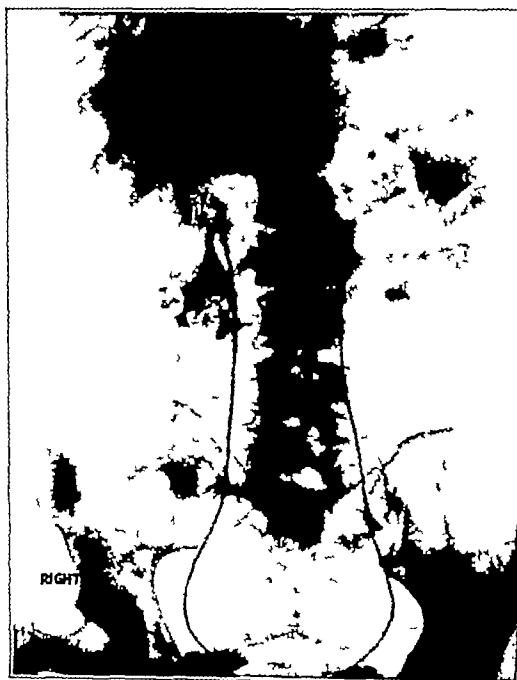


Fig 3—Fistulous communication through which the dye and the shadowgraph catheter have entered the duodenum

patches of mucus adhering to the mucosa which was considerably injected Both ureteral ostia were visualized in their normal location and both catheters were advanced easily for 28 cm The urinary drip was so slow that after forty-five minutes only about 3 cc was obtained from either side, that from the right being milky and foul The patient seemed to be dehydrated on account of attacks of vomiting



Figure 2 taken after the instillation of 125 per cent solution of sodium iodide in both renal pelvis shows the opaque fluid to have traversed a considerable portion of the small intestine. Another ureteral catheterization, on May 12, was performed for the purpose of obtaining more definite information regarding the function of the left kidney, and it is worthy of mention here that the patient seemed to feel much relief for a day or two after each cystoscopy. The drip from the left renal pelvis at this time was much more satisfactory, but none came from the right, though 5 cc of a creamy looking fluid was obtained on suction.

Phenolsulphonphthalein, 1 cc intravenously, appeared in three and one-half minutes from the left side only and the specimen collected for the next ten minutes showed a 12 per cent color concentration.

#### Laboratory Report May 12

	Right	Left
Pus	Heavy sediment	5 leukocytes per high power field
Urea	Sufficient specimen	2.64 Cm per thousand cubic centimeters
Tubercle bacilli	Smear negative	Smear negative
Culture	Gram positive cocci	No growth in 48 hours
	Large and small gram negative bacilli	
	Occasional gram positive bacillus	
	Nonhemolytic streptococci	

May 19, through a shadowgraph catheter advanced high up into the right ureter, 1 ounce (30 cc) of 25 per cent sodium iodide was injected into the renal pelvis and exposures were taken at fifteen minute intervals. While the last portion of the dye was being instilled rather rapidly, the patient experienced a salty taste in the mouth accompanied by nausea and a gush of projectile vomiting, but no pain.

Figure 3 demonstrates most accurately the point of union between the two structures, the shadowgraph catheter having entered the lumen of the intestine through the renal pelvis.

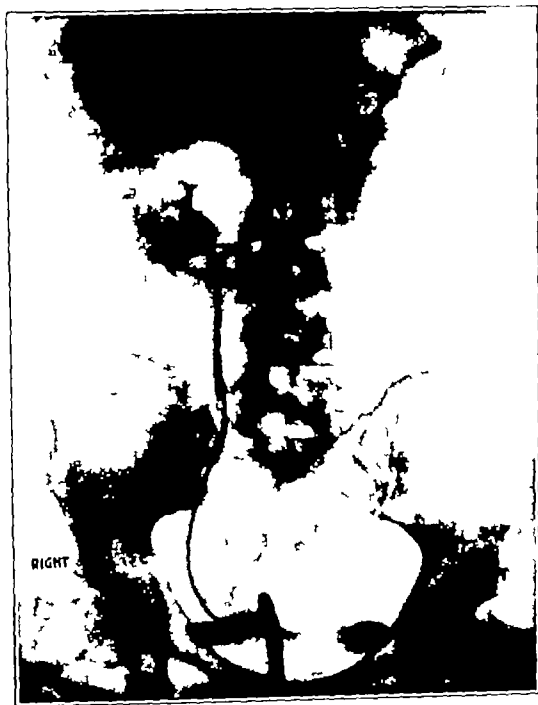


Fig. 4—Pyelographic study of the right kidney the day before discharge from the hospital.

At the completion of the last exposure, 5 cc of indigo carmine solution was injected through the catheter, but it evidently underwent decomposition, the result of the enema the following morning showing only a coffee brown fluid containing the same color stool. A gastro-intestinal series also was done but the results were only prolapse of the transverse colon and periduodenal adhesions. Operation was performed, May 26 by the transperitoneal route. A difficult and painstaking

dissection demonstrated a perfectly fitting anastomosis, about one-half inch in diameter, the descending portion of the duodenum being united with the pelvis of the right kidney. After the repair of the intestine was completed it was thought advisable to remove what appeared to be a hopelessly hardened and enlarged kidney, but in the manipulation of freeing it from the peritoneal adhesions a large abscess broke open from its posterior surface and the field of operation was literally bathed in thick, greenish pus. Drainage was quickly established ante-



Fig. 5—The iodized poppy seed oil injected into the sinus in the right flank has entered the abscess in the kidney.

riorly and posteriorly, and the abdomen was closed in layers. Convalescence was very stormy and in the course of the next five weeks intravenous therapy had to be constantly administered and often supplemented by blood transfusions. July 19 the day before discharge from the hospital, the pyelogram (fig. 4) to check up the condition of the right kidney revealed a dilatation of the pelvis with blunted and misshapen calyces. Phenolsulphonphthalein appeared in four and one-half minutes on this side but the color concentration was only 7 per cent in fifteen minutes.

Weekly inspection in the outpatient department was carried out because of slight but persistent drainage from a sinus of the posterior incision which did not close until the latter part of February 1934. The general condition was then excellent. She weighed 135 pounds (61.2 Kg). The patient felt well until June 20, at which time she experienced a sudden throbbing pain in the right flank with tumefaction, chills and fever. A large abscess broke open spontaneously on the examining table and she was again admitted to the hospital.

Catheterization of the right ureter at this time showed only a faint trace of phenolsulphonphthalein after twenty-five minutes, roentgen examination revealed a very small kidney outline and an intrarenal abscess was demonstrated by injecting iodized poppy seed oil through the sinus in the flank (fig. 5).

Nephrectomy yielded a kidney the size of a small lemon, the actual weight being only 40 Gm, although at the previous operation it had appeared to be close to 40 ounces (1,134 Gm). There was no appreciable pulsation of the vascular pedicle; there was only a vestige of the fatty capsule, and the few adhesions encountered were not at all troublesome. The pathologic diagnosis was tuberculosis of the kidney.

#### COMMENT

A thought in retrospect of this unusual case comes, of necessity, to every one's mind. Was a perforating duodenal

ulcer the initial factor in the *modus operandi* or was there a preexisting kidney lesion which, by way of a perirenal abscess, became attached to and finally ulcerated into the duodenum? In proportion, renal lesions certainly occur with overwhelmingly greater frequency. In 17,652 postmortem examinations at Guy's Hospital there were only seventy cases in which an ulcer of the duodenum, either open or healed was discovered.<sup>5</sup> Yet all the authors who refer to this condition agree to the two way possibility and the majority state that the initial focus of infection is usually of the tuberculous type.

I believe that the ulcerative process originated in the duodenum, because the gastro-intestinal complaint preceded the urinary disturbance by several months because of the repeated failure to encounter any obstruction of the right renal tract, and because of lack of evidence of tuberculous changes on pyelography.

125 East Fifty-Fifth Street

# IDIOSYNCRASY TO HEXYLRESORCINOL

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The unusual severity of the manifestation of an acquired sensitivity to hexylresorcinol warrants the report of this case. Idiosyncrasy to hexylresorcinol has been described by Templeton and Lunsford<sup>1</sup> and by Cummer.<sup>2</sup>



Fig 1—Second degree burn caused by contact with hexylresorcinol

## REPORT OF CASE

**History.**—An American woman aged 57, a housewife scratched the dorsum of her left hand on a jagged piece of glass protruding from the frame of a broken window. A wet

dressing of hexylresorcinol solution was applied for approximately thirty minutes, and the injury was dismissed as trivial. Twenty-four hours later the area moistened by the dressing began to itch and burn, and the skin about the scratch became red and swollen. Vesicles formed in the center of the lesion during the following day. As the lesion spread, the vesicles coalesced to form large blebs. Itching and burning sensations were supplanted by a dull throbbing ache. Three days following the original injury the patient sought medical advice at the outdoor department of the Peter Bent Brigham Hospital.

The family history showed that there was asthma in the mother, brother and nephew.

The patient had had five pregnancies, one complicated by phlegmasia alba dolens. Two daughters have hay fever, one having rheumatic heart disease as well. In another hive develops following the ingestion of lobster or strawberries, a phenomenon first noted during an attack of chorea.

Strawberries and tomatoes cause hives in the patient. Recurrent ulcers of the left leg were treated with numerous salves for twelve years. During the period from May to October 1931, moist dressings of hexylresorcinol solution were applied to the ulcers in conjunction with pressure bandages. The ulcers healed temporarily. Following this the patient could recall no contact with hexylresorcinol until the present illness.

**Examination.**—The patient was obese and well preserved and had a ruddy complexion. The general physical examination was unremarkable except for a blood pressure of 180 systolic, 130 diastolic, with slight cardiac enlargement and the usual evidence of postphlebotic ulcer over the lower left leg.

A vesicular and bullous eruption surrounded by an elevated, erythematous, sharply demarcated border covered the dorsum of the left hand and wrist. The purplish red bullae contained a serosanguineous viscid fluid. There was no increased warmth, and tenderness could not be elicited. Motions of the hand and arm were painless. No lymphadenopathy was noted. The extent and characteristics of the lesion are illustrated in figure 1.

**Course.**—On the first visit to the clinic a small area over the solar aspect of the right arm was scarified lightly and fresh hexylresorcinol solution was poured over the area. An erythematous wheal appeared within a period of one hour and the area began to sting. Intense burning and itching preceded vesicle formation. In twenty four hours the lesion appeared as illustrated in figure 2.

Treatment consisted of bland washes during the first forty-eight hours. Then, because of the extension of the original lesion and the development of headache, lassitude, feverishness (temperature 99.5 F) and thirst the areas were thoroughly tanned with tannic acid and ointment (5 per cent). The systemic reaction ceased promptly. When the eschar was removed after ten days, complete healing had occurred.



Fig 2—Skin test twenty four hours after application of hexylresorcinol to scarified area.

<sup>5</sup> Perry and Shaw. Guy's Hosp. Rep. 42: 197, 1893.  
From the Surgical Clinic of the Peter Bent Brigham Hospital.  
<sup>1</sup> Templeton, H. J. and Lunsford, C. J. Cheilitis and Stomatitis from S. T. 37 Toothpaste. Arch. Dermat. & Syph. 25: 439 (March) 1932.  
<sup>2</sup> Cummer, C. L. Dermatitis from the Use of Hexylresorcinol Solution. S. T. 37. Acquired Sensitivity. J. A. M. A. 100: 884 (March) 1933.

Laboratory studies showed that the urine was normal and the Wassermann reaction negative, culture from blebs taken on the third day yielded *Staphylococcus aureus*.

On a follow-up examination eight months later the skin of the hand appeared normal. A second skin test was applied resulting in erythema and vesicle formation in twelve hours.

#### SUMMARY

Cutaneous sensitivity to hexylresorcinol was acquired by external application of the drug over a period of five months. Twenty-six months later, severe dermatitis resulted from a single brief contact with the drug.

### URETERAL STRICTURE AND HYDRONEPHROSIS AS LATE SEQUEL OF KIDNEY INJURY

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In cases of kidney injury in which recovery has occurred after nonoperative treatment one is apt to overlook the late effects of such an injury to the kidney and the corresponding ureter. Only a few articles have thus far appeared which show the value of intravenous (excretory) and of ascending (retrograde) pyelography in the determination of how much damage has been done in these cases.

The importance of the subject from the standpoint of industrial and ordinary accident insurance cannot be overestimated. In all cases thus far reported the interval between the time of injury and that of the examination has been a relatively short one, hence the report of a case in which the accident occurred twenty years before the reappearance of symptoms referable to the injured kidney may be of interest.

A man, aged 39 while traveling in Europe had a sudden symptomless hematuria. When I first saw him at the American Hospital, Paris he stated that the hematuria had first been noticed three days before. The onset had been sudden, without any prodromal symptoms. The urine had remained uniformly bloody during these three days without any pain or other symptoms that could aid in localizing the source of the hematuria. He stated that he had fallen on a slippery sidewalk twenty years before and immediately noticed pain over

the patient had no symptoms referable to the injured kidney until the sudden onset of the hematuria for which he came to the hospital twenty years later.

Examination of the urinary tract, Dec. 1, 1934, revealed the following: Urine passed before the introduction of the cystoscope contained a large amount of blood (grade 4) intimately mixed with the urine. Intravenous (excretory) pyelography revealed a normal renal pelvis and calices on the right, but a complete absence of any shadow on the left side (fig. 1) at the end of fifteen minutes. Plain radiography failed to show any abnormal shadows due to calculi. On cystoscopy the bladder urine was found to contain a large amount of blood. Aside from marked hyperemia of the walls and the trigon the bladder examination failed to reveal anything abnormal. The left ureteral orifice was edematous, but the right one was normal in appearance. Urine obtained by ureteral catheterization from the right kidney was normal on examination and in dugo carmine given intravenously appeared in four minutes on the right side, showing an apparently good function of the corresponding kidney. The urine obtained by ureteral catheterization from the left side was as bloody as that in the bladder. Ascending (retrograde) ureteropyelography on the left side showed a moderately advanced degree of hydronephrosis in the shape of a large, obliquely placed shadow (fig. 2) in the left kidney region. Where this shadow passed over into that of the ureter there was a sudden interruption or filling defect about 1 cm. in length in which one could see only a faint shadow, indicating a narrowed passage between the renal pelvis and the ureter. The latter from this level down to the bladder showed a wider shadow than normal, but this was interpreted as being due to the fact that the opaque medium employed for the ascending pyelography had encountered a resistance at the upper end of the ureter with a resultant artificial widening of the ureteral shadow.



Fig. 2—Results of ascending (retrograde) ureteropyelography on the left side. Note the large diffuse shadow in the kidney region indicating the hydronephrosis. Between this large shadow and the ureter there is an almost complete filling defect, indicating the seat of traumatic stricture of the ureter.



Fig. 1—Results of intravenous pyelography at end of fifteen minutes. Note the absence of any excretion on the left (injured) side and the presence of shadows of the normal pelvis and calices on the right side.

the left kidney region. The first urine passed after the accident contained considerable blood. Both the pain and the hematuria continued for two weeks but gradually decreased until the urine, on macroscopic examination became clear. Since that time microscopic examination of the urine has revealed at intervals, the presence of red blood cells. At the time of the accident, twenty years before, cystoscopy and ureteral catheterization showed that the source of the hematuria was the left kidney. The injury was treated conservatively and

My interpretation of these changes is that at the time of the injury twenty years before the ureter had been almost completely torn across at its junction with the renal pelvis. The result of this ureteral injury had been the formation of a stricture sufficiently patent however to allow some of the opaque medium, injected from below to pass through and fill the dilated renal pelvis. The patient was kept under observation for five days. The severe hematuria continued during this period and was at times accompanied by the passage of clots. Nephrectomy was advised on account of the constantly increasing anemia but the patient refused any operative intervention and returned to New York.

The case is reported because it shows in the first place that an injury of the ureter may be followed by as serious a sequel as injury of the kidney itself and secondly that it may serve

to direct attention to the necessity of keeping a patient who has sustained a severe reno-ureteral injury under surveillance for a much longer period than one has been accustomed to deem necessary. Bleeding from a hydronephrosis is not at all uncommon, and this best explains the severity and persistence of the bleeding. In all probability, the gradual decrease in the lumen of the ureter, at its point of origin from the renal pelvis, explains the slow development of the hydronephrosis and the consequent absence of symptoms during the interval of twenty years from the time of injury.

The case is important from the standpoint of indemnity, both industrial and ordinary (nonindustrial).

About two months after examination of the patient a letter was received from Dr. Paul W. Aschner of New York stating that he had removed the left kidney. The specimen showed an S-trap ureteropelvic obstruction and an enormous hydronephrosis. Dr. Aschner was of the opinion that the obstruction was of congenital origin and that it had been present at the time of the original injury twenty years before and that it had predisposed the patient to the hemorrhage following the injury.

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## Special Articles

### GLANDULAR PHYSIOLOGY AND THERAPY

#### CORPUS LUTEUM THERAPY

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*NOTE.—These articles and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—Ed*

The title of this article, "corpus luteum therapy," of course indicates scarcely more than a hope for the future, I am sadly aware that its perusal cannot immediately result in curative benefit to a single patient. Nevertheless it will be profitable to consider the subject as it stands today, from the mutual standpoint of the practitioner and the investigator. Such consideration will not only explain the physiologic basis on which practical applications are to be worked out but also help, it is hoped, to clear away the misconceptions and false hopes by reason of which in the past so many bottles and pill boxes have been filled with elegant but inert pharmaceuticals.

#### FUNCTION OF THE CORPUS LUTEUM

Speaking broadly, the endocrine function of the corpus luteum is now well understood, the gland is a part of the mechanism of pregnancy, and its general action is exerted on the uterus to put that organ into a proper state for the reception and nutriment of the embryo. When an ovum begins its journey through the fallopian tube, the follicle wherein it took origin gives place to the corpus luteum, and this organ thereupon begins to deliver into the blood stream a substance that has the property of causing extensive development of the uterine glands so that the histologic structure of the endometrium is greatly altered.

By the time the fertilized ovum reaches the uterus the endometrium is therefore already in a state of

heightened secretory activity, by which presumably nutritive substances are provided for the embryo, moreover, it is in some way sensitized so that it responds to the presence of the embryo by forming the maternal part of the placenta and the decidua. Experiments on animals have amply shown that removal of the corpus luteum during the earlier part of pregnancy causes failure of implantation of the embryo, or, if the embryo is already implanted, it causes destruction of the pregnancy.

So far as is known at present, the corpus luteum has no useful action except in pregnancy, but in most mammals, including the human species the gland is formed in every cycle, in anticipation (so to speak) of pregnancy, and therefore in each human cycle the corpus luteum normally acts for about two weeks, giving rise to the so-called premenstrual stages of the endometrium. Thus in the adult nonpregnant human female the corpus luteum is functioning about half the time, but in animals with less frequent cycles the proportion of corpus luteum function is much less, the nonpregnant bitch, for example, gets along in perfect health without corpora lutea for about ten months of the year. Obviously, therefore the corpus luteum is not necessary for general well being.

#### PROGESTIN

The hormone of the corpus luteum, which gives the effects described, has been extracted from the ovaries of swine and has been named "progesterin" (i. e., favoring gestation) by myself and my colleague Willard Allen. The name "corporin" has been applied by Hisaw and his collaborators to the same hormone as it occurs in their extracts. Investigations by Butenandt<sup>1</sup> and by Allen and Wintersteiner<sup>2</sup> reveal that progesterin is a crystalline hydrocarbon of formula  $C_{27}H_{48}O_2$ , melting at 128 C., having both oxygen molecules in ketone linkage. Beyond this point its chemistry is at the time of writing unknown. A recent statement by Slotta, Ruschig and Fels,<sup>3</sup> that besides such a substance a second compound is necessary to produce the full effect, is not in agreement with the results of Allen and Wintersteiner.

Progesterin is administered subcutaneously, usually in solution in a vegetable oil, it cannot be given by mouth, because either it is not absorbed from the gastrointestinal tract or it is inactivated by the processes of digestion.

In castrated rabbits, progesterin readily produces pregnancy changes in the uterus, in rabbits castrated during early pregnancy, it will protect the embryos against the loss of their mother's corpora lutea and will maintain the pregnancy to full term. In guinea-pigs it sensitizes the uterus to produce the maternal placenta (Loeb's deciduoma).

Hisaw, Meyer and Fevold,<sup>4</sup> Smith and Engle,<sup>5</sup> and I have severally succeeded in producing in monkeys the

<sup>1</sup> Butenandt, A. *Neuere Ergebnisse auf dem Gebiet der Sexualhormone*, Wien klin. Wchnschr. 47: 934 (July 27) 1934.

<sup>2</sup> Allen, W. M., and Wintersteiner, O. *Crystalline Progesterin*, Science 80: 190 (Aug. 24) 1934.

<sup>3</sup> Slotta, K. H., Ruschig, H., and Fels, E. *Reindarstellung der Hormone aus dem Corpus luteum*, Ber. d. Deutsch. chem. Gesellsch. 67: 1270 (July) 1934.

<sup>4</sup> Hisaw, F. L., Meyer, R. K., and Fevold, H. L. *Production of a Premenstrual Endometrium in Castrated Monkeys by Ovarian Hormones*, Proc. Soc. Exper. Biol. & Med. 27: 400 (Feb.) 1930.

<sup>5</sup> Smith, P. E., and Engle, E. T. *Prevention of Experimental Uterine Bleeding in Macacus Monkey by Corpus Luteum Extract (Progesterin)*, Proc. Soc. Exper. Biol. & Med. 29: 1225 (June) 1932.

premenstrual endometrium with progestin, and Kaufmann<sup>6</sup> and a number of other European gynecologists have produced premenstrual endometrium in castrated women by administering large doses of estrogenic substance to bring the uterus back to its normal interval stage, and then progestin to effect the premenstrual changes

The standard assay of progestin is performed by administering it for five days to an adult rabbit that has been mated and then castrated. A rabbit unit (Corner and Allen<sup>7</sup>) is the minimum quantity which, divided into five equal daily doses, produces on the sixth day a state of the uterus equal to that of the eighth day of a normal pregnancy. This unit is generally used in the American laboratories but in Germany a number of workers are using the Clauberg unit,<sup>8</sup> which is measured in the same way except that immature rabbits of 600 Gm weight are used, being primed with ten doses of estrogenic substance preceding the five days course of progestin. This Clauberg unit is apparently somewhat smaller than the American unit.

**Action on Uterine Muscle**—Besides the progestational effect on the uterine mucosa, extracts containing progestin also produce certain effects on the uterine muscle. Thus Reynolds<sup>9</sup> has injected such extracts into rabbits in which he can study the spontaneous uterine contractions through a uterine fistula and finds that the drug renders the uterus temporarily quiescent. Knaus,<sup>10</sup> who uses the excised rabbit's uterus in vitro, finds that corpus luteum extracts inhibit the normal response of the uterine muscle to the oxytocic principle of posterior pituitary. It is not yet certain whether such inhibition of uterine smooth muscle is due to progestin itself or to another hormone, the weight of published evidence favors the latter but experiments now in progress in my laboratory suggest reservation of judgment on this point. These reactions are not all the same in various animal species that have been tried, but there is evidence<sup>10</sup> that the nonpregnant human uterus fails to respond to oxytocic principle of posterior pituitary during the latter half of the interval when the corpus luteum is present.

#### RELAXIN

Hisaw<sup>11</sup> has described another substance found in extracts of the corpus luteum, called relaxin, which is totally distinct from progestin and which has the property of relaxing the symphysis pubis in the guinea-pig in a manner similar to the normal relaxation which occurs in that species during pregnancy. The existence of relaxin as a specific hormone has not yet been inde-

pendently confirmed, but the details of the question need not detain us here, since no clinical considerations are as yet involved.

#### AVAILABILITY OF PROGESTIN

Returning to progestin, it must be said first that the expense and difficulty of preparation will greatly retard clinical trial, which will probably have to wait until the chemists discover how to synthesize the drug. In the United States, progestin has scarcely passed beyond the laboratories in which it was discovered. The experimental divisions of two or three of the large drug houses have prepared small quantities of the crude extract for trial and are experimenting with commercial purification, but as yet no preparation for clinical use has been put on the market. Several European manufacturers are, however, actually advertising the drug under various names, i. e. Proluton (Schering and Kahlbaum), Luteogan (Henning), Lutex (Leo).<sup>1</sup> These preparations are assayed in rabbit units and certainly contain the hormone as indicated by the fact that they were successful in the tests on human patients already mentioned.

#### CLINICAL POSSIBILITIES

Here then is a definite hormone, about to be handed to the medical profession to take the place of the meaningless corpus luteum preparations of the past. It has the property of bringing about premenstrual changes and the uterine conditions of early pregnancy. What is to be done with it? A few clues from the experimental side may be useful to the clinical investigators who must answer the question.

1 If there are, among the cases of sterility and of habitual abortion any which are specifically due to uterine disturbances caused by deficiency of the corpus luteum, progestin will help them, for it maintains pregnancy in castrated pregnant animals. Perhaps the drug will be useful in classifying such cases by therapeutic test. There is a report in the German literature of two cases of threatened abortion treated with supposedly favorable results.<sup>12</sup>

If, as many people still think, the corpus luteum has the property of inhibiting ovulation, it would be distinctly contraindicated in sterility of ovarian origin. The animal experiments on this point are however, not yet decisive.

2 With regard to the treatment of disorders of menstruation, the trouble is that there is simply not enough information about the part played by the corpus luteum in the menstrual cycle. At present it is difficult to believe that the corpus is primarily connected with menstrual rhythm. A discussion of the question will be found in a recent paper.<sup>14</sup> If progestin has any effect, it is probably as a suppresser of menstruation. Any use of the hormone to affect the cycle will necessarily be in the nature of an experiment.

3 The German gynecologists who have had small amounts of progestin-containing preparations for clinical use have been interested in their action on metro-

6 Kaufmann, C. Echte Menstruation bei einer kastrierten Frau durch Zufuhr von Ovarialhormonen. *Zentralbl. f. Gynäk.* 57:42 (Jan 7) 1933.

7 Corner G W and Allen W M. Physiology of the Corpus Luteum. II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum. *Am. J. Physiol.* 88:326 (March) 1929.

8 Clauberg Carl. Zur Physiologie und Pathologie der Sexualhormone, im besonderen des Hormons des Corpus luteum. I. Mitteilung. Der biologische Test für das Luteohormon (das spezifische Hormon des Corpus luteum) am infantilen Kaninchen. *Zentralbl. f. Gynäk.* 54:2757 (Nov 1) 1930.

9 Reynolds S R M and Allen W M. The Effect of Progestin Containing Extracts of Corpora Lutea on Uterine Motility in the Unanesthetized Rabbit with Observations on Pseudopregnancy. *Am. J. Physiol.* 102:39 (Oct) 1932.

10 Knaus Hermann. Zur Technik der Registrierung von Bewegungen der menschlichen Gebärmutter. *Zentralbl. f. Gynäk.* 57:2658 (Nov 11) 1933.

11 Hisaw F L. The Corpus Luteum Hormone. I. Experimental Relaxation of the Pelvic Ligaments of the Guinea Pig. *Physiol. Zool.* 2:59 (Jan) 1929.

12 These products appear not to be readily available on the American market. They have not been considered by the Council.—Ed.

13 Knab F. Beiträge zur Behandlung ovarial bedingter Blutungen mit dem Hormon des Corpus luteum. *Zentralbl. f. Gynäk.* 57:987 (April 29) 1933.

14 Corner G W. The Nature of the Menstrual Cycle, *Medicine* 12:61 (Feb) 1933.

rhagia and menorrhagia Kaufmann and Bickel<sup>15</sup> report partially favorable results, including clinical cures of glandular hypoplasia with bleeding, and Knab<sup>12</sup> has had good results in two cases of "juvenile uterine hemorrhage" and six cases of "ovarian bleeding without pathologic observations." Presumably the theory underlying this work is that an agent which is able to cause growth changes in the endometrium may thereby improve the condition of a deteriorated bleeding mucosa, or perhaps the favorable result in some of these cases, if genuine, may come from the known power of progesterin to antagonize estrogenic substance in some of its actions. Progesterin might be useful, therefore in menorrhagia when (if ever) it is due to overaction of estrogenic substance. In these matters it will be best for the clinicians to go ahead with cautious trials for the time being, leaving the explanation to be worked out in the laboratory.

*Attempted Indirect Therapy*—In view of the present difficulty of getting authentic corpus luteum extracts for clinical trial, it has been proposed<sup>16</sup> that corpus luteum therapy be achieved by treating the patient with the so-called anterior pituitary-like luteinizing factor of the urine of pregnancy. To this end preparations known on the market as "follutein" and "antuitrin-S" made from human pregnancy urine have been used. These extracts are highly potent in producing corpora lutea in rats and it was hoped that they would also luteinize the human ovary and thus give the patient a self-made supply of corpus luteum hormone, but evidence is totally lacking that the human ovary can be so luteinized. Monkey ovaries certainly cannot be so affected. If favorable therapeutic results follow the use of pregnancy urine extracts the relief of symptoms can therefore scarcely be considered to be due to the corpus luteum.

#### EMPIRICAL PREPARATIONS

Corpus luteum preparations of current American manufacture all date from the time before the physiology of the corpus luteum was well known, and they were all put into use on the basis of a vague hope that an organ obviously related to pregnancy and the menstrual cycle might somehow do good if given to patients with various reproductive disorders. None of them are assayed for progesterin and so far as is known none of them contain it in effective amounts, because the methods of preparation or of administration are mostly such as to remove or destroy the hormone, if any of them contain any useful substance it is something unknown to science. Their use is therefore quite empirical and it may safely be predicted that they will become obsolete as fast as genuine assayed hormone-containing products become available.

In brief, the American practitioner now has at his disposal no corpus luteum therapy that has passed the test of experiment but current work with progesterin promises to give in the future a corpus luteum hormone with which the possibilities of therapy may be explored.

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15 Kaufmann C and Bickel L. Ueber die Behandlung genitaler Blutungen mit Corpus luteum Hormon. Zentralbl. f. Gynäk. 56: 1329 (May 23) 1932.

16 Novak, Emil and Hurd G B. Use of Anterior Pituitary Luteinizing Substance in the Treatment of Functional Uterine Bleeding. Am. J. Obst. & Gynec. 22: 501 (Oct.) 1931.

## MENSTRUATION

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Recently the process of menstruation has been observed microscopically in the living animal by Markee<sup>1</sup>. This was accomplished by transplanting small pieces of endometrium into the anterior chamber of the eye, where they became vascularized and could be observed frequently for considerable periods. A graphic description of the onset and course of menstruation helps to vivify impressions of this hemorrhagic process as drawn from previous descriptions of histologic specimens.<sup>2</sup>

#### OBSERVATIONS ON THE MENSTRUATING ENDOMETRIUM

The main features may be summarized as follows. Endometrial transplants were observed in the eyes of six monkeys. Vasoconstriction began from six to twelve hours before the onset of menstruation and persisted throughout the first day. Menstruation began in the endometrium implanted in the eye, sometimes three hours before blood from the uterine hemorrhage entered the vagina. When several transplants were made into the same eye, the onset of menstruation was not simultaneous in all. Subepithelial hematomas formed and small papillae appeared on the epithelial surface. A papilla ruptured and hemorrhage continued for from twenty-five to seventy minutes. New ones formed and ruptured. Only a small part of a transplant bled at one time. (This explains the variability in different regions of the same endometrium recently stressed by Bartelmez<sup>3</sup>.) No desquamation of epithelium occurred during the first few hours and only small bits during the first day. There was much variation in the amount of tissue desquamated. Reepithelization occurred from outgrowths of free extremities of glands. This description further justifies the characterization of menstruation as a unique physiologic hemorrhage.

There are several operative procedures that will precipitate menstruation in normal adult primates: ovariectomy,<sup>4</sup> damage to large follicles,<sup>4</sup> excision of corpora lutea,<sup>5</sup> and section of the nervous connections to the ovaries either peripherally<sup>6</sup> or in the spinal cord.<sup>7</sup> Section of the spinal cord precipitates menstruation but does not terminate the menstrual function, for regular cycles are resumed later.<sup>7</sup> Since the menstrual hemorrhage is the most obvious feature, it has been greatly emphasized, and the whole cycle of endometrial changes has been dated from the onset of bleeding. Physiologically, however, menstruation is the last event, not the first in the menstrual cycle.<sup>8</sup>

From the Department of Anatomy Yale University School of Medicine. This paper logically follows a discussion of the Physiology of Endogenous Principles earlier in this series.

1 Markee J E. Menstruation in Ocular Endometrial Implants. Anat. Rec. 55: 66 (March 25) 1933.

2 Bartelmez G W. Histological Studies of the Menstruating Mucous Membrane of the Human Uterus, Contributions to Embryology Number 142. Carnegie Institution of Washington Pub. 435: 1933.

3 This has been observed repeatedly in women. It has also been noted experimentally in the monkey (footnote 4).

4 Allen Edgar. The Menstrual Cycle of the Monkey Macacus rhesus. Observations on Normal Animals, the Effects of Removal of the Ovaries and the Effects of Injections of Ovarian and Placental Extracts into the Spayed Animals. Contributions to Embryology Number 98. Carnegie Institution of Washington Pub. 380: 19: 1 (Aug.) 1927.

5 Pratt J P. The Corpus Luteum in Relation to Menstruation and Pregnancy. Endocrinology 11: 195 (May June) 1927.

6 Zuckerman S. The Preganglionic Pathways of the Ovarian Nerves of the Rhesus Monkey. Anat. Rec. 58: (supp.) 43 (March 25) 1934.

7 van Wagenen Gertrude. A Study of Induced Menstruation in the Monkey. Anat. Rec. 52: 40 (Feb. 25 supp.) 1932.

8 (a) Corner G W. The Nature of the Menstrual Cycle. Medicine 12: 61 (Feb.) 1933 (Harvey Lecture). (b) Allen Edgar. Sex and Internal Secretions. Baltimore: Williams & Wilkins Company 1932.

# MENSTRUATION INDUCED AFTER OVARIECTOMY BY ESTROGENIC SUBSTANCE

The essential features of the endocrine mechanism controlling the menstrual cycle have been worked out experimentally,<sup>9</sup> and the analogy to the estrous cycle of lower mammals has been clarified.<sup>10</sup> Recently, Goodman and Wislocki<sup>10a</sup> have added the spider monkey to the number of primates known to menstruate. They discovered by microscopic examination of material obtained from the vagina by the lavage method that a slight hemorrhage appears periodically which is seldom apparent externally. Although slight in amount, this hemorrhage may be an intermediate stage in the development of typical menstrual function. In women<sup>11</sup> and in monkeys,<sup>12</sup> after menstruation has disappeared following ovariectomy, it can again be induced experimentally by treatment with estrogenic substance. The important reaction here, as mentioned in the section of this series concerned with the estrous cycle of lower mammals,<sup>13</sup> is stimulation by the injected hormone of a general growth reaction in the accessory genital organs—vagina, uterus, uterine tubes and mammary glands. Extremely rapid hyperplasia in the endometrium is indicated by the extraordinary number of mitotic figures. After this growth has been induced, either decrease in the dosage (Hisaw) or cessation of injections of the estrogenic substance is followed by menstrual hemorrhage.<sup>14</sup> Even when this hormone therapy is continued at a uniform level by daily injections menstruation may appear.<sup>11</sup> Abnormal endometrial conditions have been produced by long continued injections.<sup>15</sup> Many details as to optimum dosage, absorption of injected hormone and similar variables need further clarification. It is clear, however, that this hormone must act on the uterus before the onset of menstruation. The growth phase is therefore the first stage of the menstrual cycle, and menstruation the last stage.

## CORPUS LUTEUM HORMONE NOT ESSENTIAL FOR MENSTRUAL HEMORRHAGE

That the ovarian follicular hormone is the necessary ovarian endocrine factor has been shown by the definitely established fact of menstruation without ovulation, and therefore without corpus luteum formation, as a frequent occurrence in normal monkeys,<sup>16</sup> and as an occasional occurrence in women,<sup>8</sup> and also by the

induction of menstruation in both monkeys and women by therapy with theelin alone.<sup>17</sup> That the endocrine function of the corpus luteum is involved, when ovulation does occur, in either a supplementary or a regulatory capacity, is indicated by postponement of the experimental menstrual periods that should follow theelin therapy by superimposing progesterin (or theelin) treatment.<sup>18</sup> Apparently the actual process of menstrual hemorrhage with or without a previous ovulation is fundamentally the same. The premenstrual or progestational transformation of the endometrium under the action of the corpus luteum hormone, though occurring normally in a fertile cycle, is not a necessary forerunner of the events leading to the actual hemorrhage.

## VASCULAR AND GROWTH EFFECTS

As described in the section on estrogenic principles, vasodilatation of the vessels of the rabbit's endometrium has been included as one of the principal reactions following injections of theelin.<sup>10</sup> Therefore, operative procedures that interfere with secretion of the estrogenic factor in the normal animal, or cessation of theelin treatment or decreased dosage of either theelin or progesterin during replacement therapy in ovariectomized animals, might well explain the vasoconstriction observed immediately preceding onset of the flow.

It should be further stressed, however, that after destruction of the outer layers of the endometrium, new growth of vessels is required to sustain the rapid repair and growth of the endometrium for the next cycle. The growth of these new capillaries and the changes in the arterioles, with distribution of longitudinal muscles in their walls as in erectile tissue, has been stressed in relation to the control of menstrual hemorrhage.<sup>2</sup> This further emphasizes the importance of the preliminary growth phase, which precedes menstruation.

## THERAPY WITH ESTROGENIC SUBSTANCE IN WOMEN

Probably the most successful therapy in women with theelin alone aimed at alleviation of operative menopause symptoms following complete ovariectomy is that reported by Werner and Collier.<sup>11</sup> They demonstrated considerable growth in the genital organs of ovariectomized women induced by daily injections of a crystalline preparation of theelin. Menstruation appeared both during the course of injections and after the cessation of treatment. For controls in Werner and Collier's experiments, biopsy specimens were taken before injections were begun, which showed the atrophic endometrium of the typical castrate. Other biopsies taken periodically during the course of injections showed marked hyperplasia. The degree of development induced in the endometrium was equivalent to that of the normal intermenstrual stage—there was no progestational transformation. There was a definite increase in vascularity and size of the cervix and a noticeable growth of the mammary glands. The experimental menstrual hemorrhage was qualitatively indistinguishable from the menstrual discharge of normal women. There was a distinct alleviation of the usual subjective menopause symptoms. In some instances there was a decided increase in libido.

9 Footnote 4 Hisaw F L. Physiology of the Corpus Luteum Chapter XI Sex and Internal Secretions (Edgar Allen Editor) Baltimore Williams & Wilkins Company, 1932

10 (a) Hartman C G. The Homology of Menstruation J A M A 92 1992 (June 15) 1929, (b) Studies in the Reproduction of the Monkey Macacus (Pithecus) Rhesus with Special Reference to Menstruation and Pregnancy Contributions to Embryology Number 134 Carnegie Institution of Washington Pub 433, 1932 (c) Westman A. Studien über den Sexualzyklus bei Makakus Rhesus Affen nebst einigen Bemerkungen über den menstruellen Blutungsmechanismus Acta Obst et Gynec Scand 12:282 1932 (d) Goodman, L. and Wislocki G B. Cyclical Uterine Bleeding in a New World Monkey (Ateles Geoffroyi) Anat Rec. 61:379 1935 (e) Zuckerman S. The Comparative Physiology of the Menstrual Cycle Brit J 21 1093 (Dec 17) 1932

11 Werner, A. A., and Collier W D. The Effect of Theelin Injections on the Castrated Woman J A M A 100:633 (March 4) 1933

12 Footnote 4 Saika Seuchi. Relation of the Hypophysis and Ovaries to Experimentally Induced Uterine Bleeding in Monkeys Am J Physiol 100 8 (March) 1932

13 Allen Edgar. Physiology of Estrogenic Principles J A M A 104 1498 (April 27) 1935

14 Allen Edgar. Further Experiments with an Ovarian Hormone in the Ovariectomized Adult Monkey Macacus Rhesus, Especially the Degenerative Phase of the Experimental Menstrual Cycle Am J Anat 42:467 (Nov.) 1928

15 Burch J C Williams W L and Cunningham R S. The Etiology of Endometrial Hyperplasia Surg Gynec & Obst 53 338 (Sept.) 1931

16 Hartman 1930 Allen 4 Corner G W. Ovulation and Menstruation in Macacus Rhesus, Contributions to Embryology Number 75 Carnegie Institution of Washington Pub 332 15 74 1923, The Relation Between Menstruation and Ovulation in the Monkey Its Possible Significance for Man J A M A 89 1838 (Nov. 26) 1927

17 Allen 4 Werner and Collier 11  
18 Smith P E. and Engle E T. Prevention of Experimental Uterine Bleeding in Macacus Rhesus Monkey by Corpus Luteum Extract (Progesterin) Proc Soc Exper Biol & Med 29 1225 (June) 1937  
19 Markee J E. Rhythmic Vascular Uterine Changes Am J Physiol 100 52 (March) 1932



In later experiments, Werner and Collier<sup>20</sup> reduced the dosage somewhat but still obtained results that confirmed the conclusions of their first report. They suggest about 2,800 rat units of theelin as the minimum clinical dosage over an interval of from two to four weeks.

Among the many other reports of clinical trials of estrogenic preparations, the recent paper by Papanicolaou is of interest. Although the wave of growth in the vaginal epithelium is not so clear-cut in primates as in rodents, careful examination shows a cyclic fluctuation in both growth and desquamation (Corner,<sup>18</sup> Allen,<sup>4</sup> Hartman,<sup>20b</sup> Papanicolaou<sup>21</sup>). By this method of examination, effects of injected estrogenic preparations may be followed in clinical tests.

Another extremely good indicator of follicular hormone concentration in experiments with monkeys is the reddening and swelling of the "sexual skin." In the normal animal these phenomena are more intense during the intermenstruum.<sup>22</sup> As the time for menstruation approaches, the color becomes paler and swelling decreases.<sup>4</sup> The reddening and swelling can be induced after ovariectomy by injections of estrogenic substance.<sup>4</sup>

In my opinion the experiments of Werner and Collier are of great significance because they extend a demonstration of the essential mechanism of menstruation to women. However, since absence of menstruation is compatible with good health, there seems little reason for attempting to reestablish menstruation as a routine therapeutic procedure after complete ovariectomy. The treatment at best can only be temporary, and the value (other than psychologic) of experimental menstrual periods in such patients is still problematic. It is good, however, to know that it can be done.

#### SYNERGISTIC ACTION OF FOLLICULAR AND CORPUS LUTEUM HORMONES

Work on purification and standardization of corpus luteum hormones has advanced rapidly.<sup>23</sup> Typical progestational endometrium has been produced in ovariectomized monkeys by successive theelin and progesterin injections,<sup>24</sup> and similar well controlled experiments have been reported in ovariectomized women.<sup>25</sup> If progesterin is to be used therapeutically, it is obvious from the experiments in monkeys and rabbits that it should be preceded by treatment with estrogenic substance unless there are indications that ovaries in situ are providing this necessary preliminary growth stimulus. Furthermore, a proper balance between these hormones is essential, for estrogenic substance has been demonstrated in the human corpus luteum during the

premenstrual stage of the menstrual cycle.<sup>26</sup> Much work will be required to determine the optimum clinical dosage. These two hormones are closely related in chemical structure. That they are secreted by the same cells in different phases of life (follicular and luteal) suggests the possibility that progesterin may be formed by a change in the molecule of the estrogenic hormone.

#### DEPENDENCE OF OVARIAN ENDOCRINE FUNCTION ON ANTERIOR PITUITARY

It seems to be well established now that secretion of the ovarian hormones from both follicles and corpora lutea is dependent on the normal function of the anterior pituitary.<sup>27</sup> Treatment with estrogenic substance has not been effective in producing experimental menstrual periods in ovariectomized monkeys if they have also been hypophysectomized.<sup>28</sup> Furthermore, injections of estrogenic substance do not increase function of the ovary itself.<sup>29</sup> If ovarian therapy succeeds in establishing growth of genital tissues followed by menstruation, only a temporary effect is to be expected.

Smith and Engle followed their demonstration of the anterior pituitary effects on the ovaries of the rat by convincing experiments in monkeys.<sup>29</sup> They induced intense follicular hormone reactions by anterior pituitary stimulation of the ovaries, then terminated the follicular phase by ovariectomy, and menstruation followed. Injections of theelin, however, following ovariectomy delayed the onset of the experimental menses. Engle<sup>30</sup> reported the interesting experiment of injecting anterior pituitary-like gonadotropic substance from pregnancy urine. He was able to induce experimental menstruation without changing the secondary sex characteristics of the "sexual skin." Hisaw,<sup>31</sup> with the use of pyridine extracts of anterior pituitary, stimulated follicular growth which resulted in reddening and swelling of the "sexual skin" followed by menstruation.

#### EXPERIMENTAL OVULATION OF MORE THAN THE USUAL NUMBER OF EGGS

Following the demonstration of the striking effect of the anterior pituitary upon the ovaries, especially Engle's production of superovulation in the mouse,<sup>32</sup> attempts were made to induce the monkey to ovulate more than one or two eggs at a time.<sup>33</sup> The earlier attempts resulted in cystic follicles without ovulation. Hisaw, Greep and Fevold finally succeeded in inducing a monkey to ovulate a "litter" of eight eggs by the proper balance of follicle-stimulating and luteinizing fractions of anterior pituitary extracts.<sup>34</sup> This work of

20 Werner A. A. and Collier, W. D. Production of Endometrial Growth in Castrated Women. *J. A. M. A.* 101:1466 (Nov. 4) 1933.

21 Papanicolaou G. N. and Shorr E. Action of Ovarian Follicular Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears. *Proc. Soc. Exper. Biol. & Med.* 32:585 1935. Papanicolaou, G. N. The Sexual Cycle of the Human Female as Revealed by Vaginal Smears. *Amer. J. Anat.* 52:519 1933.

22 Collings M. R. A Study of the Cutaneous Reddening and Swelling About the Genitalia of the Monkey *Macacus Rhesus*. *Anat. Rec.* 33:271 1926.

23 Corner G. W. and Allen W. M. Physiology of the Corpus Luteum. II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum. *Am. J. Physiol.* 88:326 1929. Allen W. M. Physiology of the Corpus Luteum. VI. The Production of Progestational Proliferation of the Endometrium of the Immature Rabbit by Progesterin (an Extract of the Corpus Luteum) After Preliminary Treatment with Oestrin. *Am. J. Physiol.* 92:612 (April) 1930. The Preparation of Purified Progesterin. *J. Biol. Chem.* 98:591 (Nov.) 1932.

24 Hisaw F. L., Meyer R. K. and Fevold H. L. Production of a Premenstrual Endometrium in Castrated Monkeys by Ovarian Hormones. *Proc. Soc. Exper. Biol. & Med.* 27:400 (Feb.) 1930.

25 Kaufmann C. Umwandlung der Uterusschleimhaut einer kastrierten Frau aus dem atrophischen Stadium in das der sekretorischen Funktion durch Ovarialhormone. *Zentralbl. f. Gynäk.* 56:2058 (Aug. 20) 1932.

26 Allen, Edgar, Pratt J. P., Newell Q. U. and Bland L. J. Hormone Content of Human Ovarian Tissues. *Am. J. Physiol.* 92:127 (Feb.) 1930.

27 Smith, P. E. and Engle, E. T. Experimental Evidence Regarding the Role of the Anterior Pituitary in the Development and Regulation of the Genital System. *Am. J. Anat.* 40:159 (Nov.) 1927. Smith P. E. The Effect on the Reproductive System of Ablation and Implantation of the Anterior Hypophysis. Chapter XV. Sex and Internal Secretions (Edgar Allen, Editor). Baltimore: Williams & Wilkins Company 1932. Smith P. E. and Engle E. T. The Role of the Anterior Pituitary in the Maintenance and Regulation of the Reproductive System. Chapter LXVII. Obstetrics and Gynecology (A. H. Curtis Editor). Philadelphia: W. B. Saunders Company, 1933.

28 Hartman C. G., Firor W. M. and Geiling E. M. K. The Anterior Lobe and Menstruation. *Am. J. Physiol.* 95:362 (Dec.) 1930. *Saika* 19.

29 Smith P. E. and Engle, E. T. Prevention of Experimental Uterine Bleeding in *Macacus Monkeys* by Corpus Luteum Extract (Progesterin). *Proc. Soc. Exper. Biol. & Med.* 29:1225 (June) 1932.

30 Engle E. T. Uterine Bleeding of the Interval Type in *Macacus Monkeys* During Injections of Extracts of Pregnancy Urine. *Proc. Soc. Exper. Biol. & Med.* 29:1224 (June) 1932.

31 Hisaw F. L. Personal communication to the author 1935.

32 Engle E. T. Pregnancy Following Superovulation in the Mouse. *Proc. Soc. Exper. Biol. & Med.* 25:84 (Nov.) 1927.

33 Allen Edgar. Precocious Sexual Development from Anterior Hypophysis Implants in a Monkey. *Anat. Rec.* 39:315 (Aug. 25) 1928.

34 Hisaw F. L., Greep R. O. and Fevold H. L. Experimental Ovulation of *Macacus Rhesus* Monkeys. *Anat. Rec.* 61:24 (supp.) 1935 (abst.).

Smith and Engle and of Hisaw in producing ovulation of more than the usual number of eggs has far reaching implications for the problem of sterility. Insufficiency of the anterior pituitary gonad-stimulating hormone may explain the frequent anovulatory menstrual cycles of monkeys.

#### TIME OF OVULATION IN THE MENSTRUAL CYCLE

Evidence placing the time of ovulation in the menstrual cycle has been accumulated for the monkey (Corrigan,<sup>10</sup> Allen,<sup>4</sup> and Hartman<sup>16b</sup>). Hartman's method of rectal palpation in the monkey has determined ovulation time without laparotomy in successive cycles in the same animals. For woman, in addition to data as to age of corpora lutea, definite evidence in the form of recovery of eggs from the uterine tubes has been presented by Allen, Pratt, Newell and Bland<sup>35</sup> and by Warren Lewis.<sup>36</sup> Ovulation occurs most frequently at the approximate midpoint between onset of two successive menses.

#### ENDOCRINE INFLUENCE ON SEX URGE

Although the statement is usually made that there is no period of estrus, a restricted period of increase in mating instincts, during the menstrual cycle, Ball and Hartman<sup>37</sup> have recently shown that just before ovulation in the monkey there is a definite rise in sex desire. Most primates, however, will allow copulation at any time in the menstrual cycle. Mating instincts are easily induced in ovariectomized rats and mice by injections of large amounts of estrogenic material.<sup>38</sup> Other reports have confirmed and extended these observations. The reader is referred to a recent review by Seward.<sup>39</sup>

#### SUBJECTIVE SYMPTOMS

As to the subjective symptoms that accompany menstruation and its cessation after the menopause, considerable caution must still be used. Analyses of blood and urine show a diminution of secretion of estrogenic substance after the menopause.<sup>40</sup> Beneficial results have been reported from theelin therapy.<sup>41</sup> An extensive clinical trial of theelin has been made recently by Severinghaus.<sup>42</sup> He recommends therapy with estrogenic substance for the alleviation of severe menopause symptoms. He finds that small doses which are insufficient to produce menstruation or to increase libido may be effective for relief of vasomotor and mental symptoms. This phase of the problem is an extremely difficult matter to evaluate, but it cannot be dismissed lightly. The psychologic side of the menopause with the depressions accompanying involutional bodily conditions are recognized as serious factors by both gynecologists and psychiatrists. Hormone therapy may be

useful for a transitional period until a compensatory endocrine balance is reached or a more gradual psychotherapy can be undertaken.

#### OPTIMUM DOSAGE AND EXCRETION OF ESTROGENIC SUBSTANCE

So far, attempts to reduce excessive uterine hemorrhage in woman with theelin therapy have not proved very effective. That some types may be due partly to abnormal endocrine function involving secretion of estrogenic hormone is indicated by increased excretion of hormone in some of these cases.

The optimum dosage of estrogenic substances must be given further experimental test. Analyses of hormone content of the blood and of urine indicate that there may be cyclic fluctuation in the estrogenic hormone secreted in the normal female.<sup>43</sup> Should the clinical dosage be designed to simulate this periodic increase or should the dosage be continued at uniform levels? Until more is known about the absorption of injected extract from subcutaneous or intramuscular sites, the rapid disappearance of injected hormone from the circulation and the control of excretion of the hormone, the matter of dosage must still continue on an empirical basis. Now that quantitative analyses of extremely small amounts of estrogenic substances are possible in twenty-four hour samples of urine,<sup>44</sup> it will be possible to check the matter of possible overdosage from injections of large amounts of theelin in water soluble preparations. One thing that has definitely been decided is that such huge doses of theelin as computed for women on the basis of ratios of body weight to that of small laboratory animals are not required. From 50 to 400 rat units of hormone daily seems to be adequate in most cases for the reestablishment of menstruation and relief of subjective symptoms, especially if atrophy following ovariectomy or the menopause is not too far advanced. Even smaller doses may be effective for other theelin effects than the reestablishment of menstruation, for there undoubtedly exists a difference in threshold level for various reactions to this hormone.

#### VARIATIONS IN REACTIVITY

Variations in the reactivity of certain organs to hormones during long periods of treatment require further extensive consideration. Also the possibility of the development of some sort of immunity in long continued hormone treatment must be tested further.<sup>45</sup> Since theelin is a crystalline preparation free from proteins, this whole matter must be carefully investigated before generalizations are possible. A recent report indicates that injections of estrogenic substance do not result in the formation of antihormones.<sup>46</sup>

#### CONCERNING THE PRIMARY CAUSE OF SEXUAL RHYTHMICITY

In looking for the primary cause of the rhythmic nature of menstrual processes, attention has been focused on the anterior-pituitary gonad-stimulating function. A variation in the amount of gonad-stimulating substance in the pituitary at different times in the

35 Allen, Edgar, Pratt, J. P., Newell, Q. U. and Bland, L. J. Human Tubal Ova Related Early Corpora Lutea and Uterine Tubes. Contributions to Embryology Number 414. Carnegie Institution of Washington. Pub. 22: 45 (1930).

36 Lewis, W. H. A Human Tubal Egg Unfertilized. Bull. Johns Hopkins Hosp. 48: 368 (June) 1931.

37 Ball, Josephine and Hartman, C. G. Sexual Excitability as Related to the Menstrual Cycle in the Monkey. Am. J. Obst. & Gynec. 29: 117 (Jan.) 1935.

38 Allen, Edgar and Doney, E. A. The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicular Hormone. Am. J. Physiol. 69: 577 (Aug.) 1924.

39 Seward, G. H. The Female Sex Rhythm. Psychol. Bull. 31: 153 (1934).

40 Mazer, Charles and Goldstein, Leopold. Clinical Endocrinology of the Female. Philadelphia: W. B. Saunders Company, 1932.

41 Werner, A. A., Johns, G. A., Hocter, E. F., Ault, C. C., Kohler, L. H. and Weiss, M. W. Involutional Melancholia. Probable Etiology and Treatment. J. A. M. A. 103: 13 (July 7) 1934. Novak, Emil. A Summarizing Appraisal of Gynecological Endocrinology and Organotherapy. Mellon Lecture. University of Pittsburgh, 1933.

42 Severinghaus, E. L. The Relief of Menopause Symptoms by Estrogenic Preparations. J. A. M. A. 104: 624 (Feb. 23) 1935.

43 Frank, R. T. and Goldberger, M. A. Clinical Data Obtained with the Female Sex Hormone Blood Test. J. A. M. A. 90: 106 (Jan. 14) 1928. Frank, R. T. The Role of the Female Sex Hormone. *ibid.* 97: 1852 (Dec. 19) 1931.

44 Gustavson, R. G. and Green, D. F. Quantitative Determination of Amount of Estrogenic Substances Excreted Daily in Urine of Normal Human Female. J. Biol. Chem. 105: xxxiv (May) 1934.

45 Collip, J. B. and Anderson, Evelyn M. The Production of Serum Inhibitory to the Thyrotropic Hormone. Lancet. 1: 76 (Jan. 13) 1934.

46 D'Amour, F. E., Dumont, Charlotte, and Gustavson, R. G. No Antihormones Against Estrin. Proc. Soc. Exper. Biol. & Med. 32: 197 (Oct.) 1934.

estrous cycle has been demonstrated<sup>47</sup> When no obvious reason for this change could be found inherent in the pituitary itself, the theory of mutual reaction between anterior pituitary and gonads was introduced to explain female sexual rhythmicity Then it was demonstrated that removal of the ovaries increases the power of the anterior pituitary to stimulate the ovaries,<sup>48</sup> and that injections of estrogenic hormone would decrease this gonadotropic function<sup>49</sup> This resulted in the theory that the anterior pituitary stimulates the gonads to secrete a specific hormone, which in turn depresses the gonad-stimulating secretion of the pituitary<sup>49</sup> With the demonstration, especially by Hisaw and his collaborators, of the two pituitary factors influencing the ovaries, the follicle-stimulating and the luteinizing factors, this theory of interaction must be expanded further The demonstration of the balance of these purified extracts necessary to induce ovulation in the monkey<sup>50</sup> and cat<sup>50</sup> seems conclusive It would seem that the follicle-stimulating hormone of the anterior pituitary induces growth of follicles and secretion of follicular hormone, which in turn reacts on the pituitary to induce secretion of the luteinizing factor This aids development of the corpora lutea, which produce progesterin The follicular hormone (and possibly progesterin also) may act on the pituitary temporarily, depressing its secretion of follicle-stimulating hormone until released from the influence of gonad hormones Although the interaction of pituitary and gonads seems complex at present, extremely rapid recent progress encourages the belief that continued accumulation of experimental evidence will clarify our understanding of this mechanism The time required for growth of both follicles and genital organs must be considered in any working theory In my opinion, the decrease in the level of follicular hormone, after a certain amount of growth has been induced in the endometrium, seems well established as the ovarian cause of menstruation

#### CONCLUSION

To date the greatest practical value of replacement of ovarian function with hormones has come from providing a foundation of experimental evidence for understanding the basic endocrine mechanism of the menstrual cycle The "interval" stage of the old classification based on morphologic study of the endometrium may well be omitted

The menstrual cycle in the endometrium, when considered from the point of view of the ovarian endocrine mechanism responsible, should be characterized as follows

Stage 1 A period of postmenstrual growth and serous secretion of the glands is the preparatory event This is the follicular phase under the stimulus of the estrogenic factor

Stage 2 (a) If ovulation occurs a gradual transition leads to a period of transformation of glands, with change in the nature of their secretion This is the luteal stage, under the supplementary stimulus of progesterin (with some estrogenic substance still present in woman) It should be recognized that this second stage is not necessary for menstruation

(b) If ovulation fails to occur, there follows a phase characterized by sustained but waning hyperplastic endometrium under the influence of diminishing concentration of estrogenic hormone from follicles in regression This type of cycle is normal in monkeys out of breeding season and is an occasional occurrence in adult women and may be a frequent occurrence near the times of puberty and the menopause

Stage 3 The menstrual hemorrhage is physiologically the terminal event of the cycle

Although histories of menstrual cycles will probably continue to be counted from the onset of hemorrhage, the place of menstruation as the last phase of the cycle, possible only after endometrial growth under the action of the estrogenic hormone, seems clearly established

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS  
HOWARD A. CARTER Secretary

### BURDICK THERAPEUTIC BAKER ACCEPTABLE

Manufacturer The Burdick Corporation, Milton, Wis

This device is a very practical variety of therapeutic baker It is approximately 24 inches high, 18 inches wide and 30 inches long It may be extended  $4\frac{1}{4}$  inches higher The reflector is nickel plated inside, and there is an air space between the reflector and the outside hood It is equipped with eight carbon filament lamps of 60 watts capacity The entire baker is rated at 660 watts, 110 volts There is a dual switch, which enables the operator to switch on four or eight lamps at a time

The unit has been tested for its electrical consumption It was found that with all lamps burning on a 110 volt line the current reading was 38 amperes, or approximately 420 watts The unit is finished in white enamel and is of rugged construction Its weight is about 25 pounds In view of the usefulness of the unit, the Council voted to include the Burdick Therapeutic Baker in its list of accepted devices

### AURATONE NOT ACCEPTABLE

Manufacturer The Auratone, Inc., Grand Rapids, Mich

Claims are made for the Auratone that it will determine relative hearing ability of individuals afflicted with deafness and that it will correct defects in hearing by administering controlled vibrational exercises

The unit was investigated in a physical laboratory acceptable to the Council The report stated that the Auratone appeared to give consistent results, as far as frequency and volume were concerned The same frequency and the same volume within reasonable limits of observation, were observed with dials set at the same position from day to day These results were checked by means of an oscilloscope and an oscillator

The device was placed in a clinic acceptable to the Council to determine the value or possible harmful effects of the Auratone as a method of treating deafness Treatment by this instrument consists in running an ascending and a descending scale of musical tones determined by the limits of the machine, that is from a low frequency of about 124 to a high frequency of slightly over 2,000

This investigation covering a period of about ten months, consisted in giving a total of 777 treatments to both ears<sup>1</sup> of twenty-five partially deaf people An average of thirty-one treatments was given the patients The types of deafness were not selected but were taken as the individual applied to the clinic A clinical diagnosis of nerve type deafness was made in fourteen of the patients, three had a diagnosis of otosclerosis one patient seemed to have a combined otosclerosis

1 In two instances only the right ears were treated

47 Smith P. E. Evidence of a Correlation Between the Amount of Gonad Stimulating Hormone Present in the Pituitary of the Guinea Pig and the Stage of the Reproductive Cycle *Anat Rec* 42:38 1929  
48 Engle E. T. The Role of the Anterior Pituitary in Compensatory Ovarian Hypertrophy *Anat Rec* 37:275 1928  
49 Moore C. R. and Price D. Gonad Hormone Functions, and the Reciprocal Influence Between Gonads and Hypophysis with Its Bearing on the Problem of Sex Hormone Antagonism *Am J Anat* 80:13 1932  
50 Foster M. A. and Hisaw F. L. Experimental Ovulation and the Resulting Pseudo-Pregnancy in Anestrous Cats *Anat Rec* 62:75 (April) 1935

and chronic middle ear deafness, three had what seemed to be a mixed type of deafness, that is, a partial nerve deafness and a partial chronic adhesive otitis media. Two patients were diagnosed as having chronic middle ear deafness. One patient had had a sudden attack of deafness, tinnitus and vertigo resembling Ménière's syndrome. One other patient had a nerve type deafness of twenty-five years' standing but with a sudden onset with symptoms of Meniere's syndrome. All the patients were adults, their ages ranging from 25 years to 76 years, with an average age of about 49 years.

An effort was made to give the treatments or "exercises" three times a week. Some of the patients came two times a

## Council on Pharmacy and Chemistry

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS

PAUL NICHOLAS LEECH Secretary

### HEXYLRESORCINOL SOLUTION S T 37 OMITTED FROM N N R.

Hexylresorcinol Solution S T 37 was accepted by the Council in 1928 as a dosage form of Caprokol (Sharp & Dohme). The product is a solution of Caprokol (Hexylresorcinol S & D) 1 part in a liquid composed of glycerin 30 per cent and water 70 per cent, 1,000 parts. The expression "S T 37" was at that time accepted as an abbreviation for the surface tension of the solution, which is 37 dynes. It was stipulated that the use of the term "S T 37" was not to be preempted, and that the product should not be referred to as "S T 37" but as "Hexylresorcinol Solution S T 37".

The acceptance of Hexylresorcinol Solution S T 37 expired with the close of 1931. Since that time the product has been retained in N N R by sufferance, pending settlement of the various objections and new considerations raised by the firm in regard to the conditions on which the Council voted to reaccept it. The status has therefore been that of a nonreaccepted product.

After much discussion and correspondence, Sharp & Dohme definitely refused to comply with an essential condition on which the Council was forced to base the reacceptance of Hexylresorcinol Solution S T 37, namely, discontinuance of the expression "S T 37" in connection with the name of the product. This will be discussed later. Other matters questioned in the Council's reconsideration of Hexylresorcinol Solution S T 37 were

- The claims of efficacy permissible for the product.
- The use by the firm of advertisements featuring the use of the product in great hospitals.

#### CLAIMS OF ANTISEPTIC AND GERMICIDAL EFFICACY

No claim for Hexylresorcinol Solution S T 37 as such was given in the New and Nonofficial Remedies description of the product. Caprokol (Hexylresorcinol-Sharp & Dohme), its chief constituent, is stated to possess marked germicidal properties, but equal efficacy could not, of course, be ascribed to a one-tenth per cent solution (1 part of Hexylresorcinol [Caprokol] in 1,000 parts of a solution containing 30 per cent glycerin). The Council recognized the claim of Sharp & Dohme that the reduction of surface tension in the glycerin solution increased the germicidal power. In reviewing the advertising of the firm at the time of reconsideration, the Council found that certain limitations were needed. The Council adopted the following statement of limitations, which was transmitted to Sharp & Dohme:

- that the surface tension reducing properties of Hexylresorcinol (Caprokol) are advantageous in aiding this germicide to come into contact with bacteria
- that solutions of this substance (including the 1:1,000 solution in 30 per cent of glycerin) are aided by the surface tension reducing properties to penetrate small cracks and crevices
- that within the resorcinol series of compounds up to the heptyl derivative, there is a parallelism between surface tension reducing properties and germicidal action
- that claims may not be based on the comparison of disinfectants solely in terms of their ability to reduce surface tension, or based specifically on the particular surface tension value of the Sharp & Dohme 1:1,000 solution of Hexylresorcinol in 30 per cent glycerin
- that Caprokol (or Hexylresorcinol Solution) has not been shown on internal administration to produce analgesic action on the genito-urinary tract
- that claims for analgesic action of the solution applied for short periods in gargles or in other ways to mucous membranes are not acceptable unless there is direct convincing evidence that analgesia is produced by the particular method of application
- that the claim for a moderate (limited) but distinct analgesic action for this solution when applied continuously as a moist dressing to burns, scalds and inflamed surfaces is acceptable, and
- that recommendations for application of Hexylresorcinol Solution to the conjunctiva should be accompanied by reference to the considerable though brief irritation caused by such application

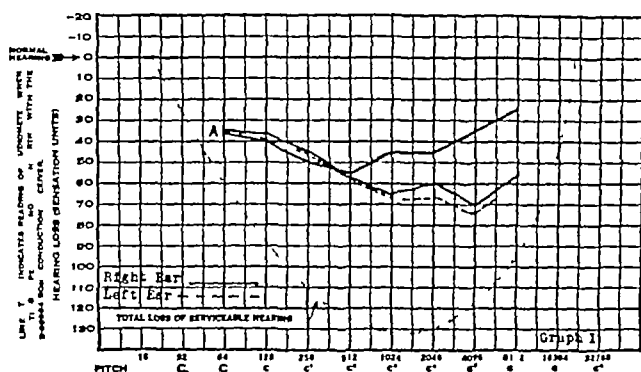


Chart 1—Average of twenty five patients before treatments with Auratone

week and some were intermittent in their attendance, with occasional lapses.

Graphs of hearing in each ear as determined by the 2-A Audiometer were taken of each patient before treatment was begun. Additional graphs have been taken about every ten treatments. Special effort was made to exercise the areas of more marked deafness. Care was taken to give only sufficient volume to be comfortable to the patient, as it was felt from former experiences that a detrimental result might follow with excessive amplitudes.

Chart 1 is an average of twenty-five patients taken before treatments were begun. Chart 2 is an average of these twenty-

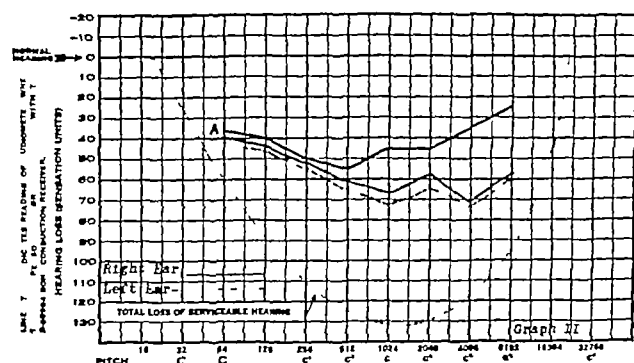


Chart 2—Average of twenty five patients after treatments with Auratone

five patients after they had had from ten to seventy-seven treatments each.

An average of the various frequencies in both ears before treatment compared with an average of the frequencies in both ears at the end of the treatment period gives an average loss of  $3\frac{3}{4}$  sensation units for each frequency of 64 to 8,192 inclusive. However, five patients who had had from twenty-six to forty-one exercises showed an average improvement of 3 sensation units in the voice range of frequencies.

Many of the patients seemed to think they could hear better after the treatments. However, this does not seem to be borne out by the Audiometer.

In view of the foregoing, the Council voted not to include the Auratone in its list of accepted devices for physical therapy, because, as a method of treating deafness it has not proved of value in the cases treated.

The firm has repeatedly signified its intention of meeting these limitations in advertising of the product but has not done so, and at the time of the omission of Hexylresorcinol Solution S T 37 from N N R nearly two years later it still had not put into effect many of the limitations set forth

# ADVERTISEMENTS FEATURING "GREAT HOSPITALS"

For some time the Council's office has been receiving letters from physicians objecting to advertisements of Hexylresorcinol Solution S T 37 in lay publications featuring the use of the product in certain hospitals in such a way as to make this use an endorsement to influence lay persons to use the product. The Council's referee reported the matter to the Council as follows

In order to show the basis for the objections which have been made to the Council the text of the advertisement from the September 1933 issue of *Hygeia* is herewith reproduced

Used Daily by leading Specialists at the Grace Hospital New Haven  
Use it in your own home

Hexylresorcinol Solution S T 37 is used regularly for its great germ-destroying power combined with safety  
Grace Hospital New Haven Conn

The Grace Hospital in New Haven Conn., justly priding itself on its splendid modern equipment and unrivaled medical care is still another of the great hospitals regularly using Hexylresorcinol Solution S T 37 (1 1000)

This hospital says So powerful is this antiseptic that it is used here daily for the cleansing of wounds and in operations. This efficient antiseptic spreads more rapidly and more deeply than many other antiseptics into the crevices of wound tissue

Hexylresorcinol Solution S T 37 is stronger than carbolic acid in any usable solution—yet so safe, you can use it freely in your own home.

Pour it at once into scratches cuts open wounds In case of serious injury consult your physician Hexylresorcinol Solution S T 37 does not sting or burn Teach your children to use it freely The seal of the Council on Pharmacy and Chemistry of the American Medical Association should serve as an indication of its trustworthiness

Hexylresorcinol Solution S T 37 is economical The 50c bottle is now a whole 25 bigger than before And you get the large size for only \$1.00 instead of \$1.25 Prices are now the same in both the United States and Canada Buy a bottle today!

Hexylresorcinol Solution S T 37 [Picture of bottle.]

Made by Sharp and Dohme [The seal of the Council]

The salient features of this text are

1 An advertisement of the Grace Hospital of New Haven as another of the great hospitals' having splendid modern equipment and unrivaled medical care.

2 A statement that Hexylresorcinol Solution S T 37 is used daily in this hospital by leading specialists

3 Several statements of claims for Hexylresorcinol Solution S T 37 as a powerful antiseptic, as a substance which spreads rapidly and deeply into the crevices of wound tissue as a preparation combining great germ-destroying power with safety These claims although expressed in the stock phrases of the manufacturer are published as quotations from the Grace Hospital

4 Claims for the product made by the manufacturer

5 Directions for use of the solution by laymen

6 Imperative recommendations for the layman to use it in his home and to teach his children to use it freely

7 A statement that the Council's seal should serve as an indication of the trustworthiness of the solution

The firm received permission to use the name of the hospital photographs taken in the hospital and to quote the hospital An affidavit to this effect including the quoted statements was given by Mr. H. V. Whipple who was superintendent of the Grace Hospital on June 28, 1933 the date of the signing of the affidavit It will be shown that this affidavit cannot cover all the statements in this advertisement.

The referee has the following objections to the advertisement

1 Without prejudice to the Grace Hospital, it seems to the referee inappropriate for one of the American Medical Association publications to advertise this hospital as one of the great hospitals with unrivaled medical care unless the hospital has been examined to determine the truth of the claim. The referee understands that this was not done in this case. Furthermore it seems to the referee not in good form to advertise a hospital in this manner

2 The advertisement is the publication of a sort of double testimonial a testimonial from a personified hospital and a testimonial from unnamed specialists Sharp & Dohme has in the past used testimonials abundantly The Council has never approved of them and has specifically required the firm to abandon their use in advertisements The firm has discontinued numerous testimonial pamphlets in conformance with the Council's requirements but continues to use this type of testimonial

The use of hospital endorsements of Hexylresorcinol Solution was a subject of special investigation by the Council in 1932 Answers to a questionnaire disproved most of the firm's statements that great hospitals were using the preparation It appeared to be especially objectionable for the firm to quote or so to arrange phrases as to give the laymen the impression that since the solution was used in some great hospital it should be used freely at home by laymen.

3 The statements quoted as coming from the Grace Hospital setting forth the antiseptic, germicidal spreading and penetrating powers and safety of the preparation are expressed in well known words of the firm's advertising copy writer The point here is Does the hospital know from the results of its own tests that these statements are true? A hospital should state only the results of its own experience an advertisement containing the endorsement by a hospital may be acceptable only to the extent to which it gives expression of the hospital's actual knowledge It seems obvious from the text of this advertisement that the hospital is using phrases furnished by the manufacturer The affidavit does not include any affirmation that these properties of the solution were determined by experiment in the hospital Whether the hospital has made necessary tests could be determined by inquiry Sharp & Dohme should be informed that the Council considers it misleading for a firm to credit to second parties statements that are lifted from the claims of the firm itself

4 The statement of the significance of the Council's seal in this advertisement appears to the referee to be objectionable both on account of the context of the paragraph in which the statement occurs and because of the phraseology The sentence is cleverly written in the conditional mode. Nevertheless the reference to trustworthiness seems to go beyond the statement as to the significance of the seal regarded as permissible according to New and Nonofficial Remedies 1933 page 12 It is stated there that a firm may refer to the significance of the seal as follows "The accepted seal denotes that (name of article) has been accepted for New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association and that 'further statements in regard to the seal must be submitted to the Council and found acceptable before they may be used' The Council has taken no action justifying the firm's advertisement to the lay the implication that the Council vouches for the 'trustworthiness' of the preparation in all sorts of scratches cuts and open wounds and in the miscellaneous free use of the solution by children

No objection can be raised to the parts of the advertisement which give direct statements on the use of the solution in the Grace Hospital and the firm's claims for the preparation which are permissible under the description in New and Nonofficial Remedies

The Council voted 1 That the advertising department of the American Medical Association be informed that the Council does not approve of certain features of the Grace Hospital Hexylresorcinol Solution S T 37 advertisement published in *Hygeia* September, 1933, for the reasons set forth in this report 2 That Sharp & Dohme and any other firms submitting advertisements containing hospital endorsements be informed that the Council regards such advertisements as unacceptable testimonials unless the statement of the endorsement is limited to the name and place of the hospital a simple statement of the use of the preparation in the hospital and statements of properties and results supported by reports of actual tests made in the hospital Advertisements mentioning a hospital must also conform to the type deemed permissible under the Principles of Medical Ethics issued by the American Medical Association 3 That the Council regard as unacceptable the use of a hospital's endorsement of a preparation as a general recommendation for free application of the preparation in the layman's home. 4 That as a general rule the Council will not deem acceptable advertisements from manufacturing firms containing statements extolling the equipment medical service or other conditions of a hospital and the Council further voted that the Council may approve of an advertisement containing a hospital endorsement of a preparation provided the advertisement is limited to a direct statement based on the hospital's use of the preparation and texts of its properties and does not conflict with any of the general rules and special requirements of the Council

A member of the Council in discussing the report, commented that such a statement should be signed by the individuals who did the work

## THE OBJECTIONS TO S T 31

During 1931 the dangerous and confusing multiplication of number and letter abbreviations had prompted the Council so to extend its enforcement of its rule 8 as to provide against the use of letters and numerals in the names of products The Council had always held this objectionable because of the tendency to substitute them for the actual name which in the case of Council accepted products is required to be informative The following proposed revision of the rules was adopted

Since the use of numeral or alphabetical designations in connection with drug names tends to take the emphasis away from the name and to displace the name thus leading to confusion the Council will not recognize the name of a drug in which the numeral or letter is an integral part of the name except in special cases in which the use of a numeral or letter seems desirable because further improvement of the product is anticipated in which case the Council may grant a special exemption from the rule. Under this rule the use of numerals or letters in connection with the name of a product will not be permitted on labels or in advertising unless the numeral or letter is clearly separated from and subordinated to the name by type, and if feasible by position

Since the reacceptance of Hexylresorcinol Solution S T 37 was being considered, the Council voted that the manufacturer be required to meet the following conditions with regard to the name before the product could be reaccepted

- to adopt the simple name Hexylresorcinol Solution
- to agree to discontinue the use of the abbreviation S T 37' in the name on the label and in all advertisements circulars and pamphlets relating to this preparation

- (c) to print the statement "surface tension 37 dynes in type smaller than the name and separated from the name on labels, circulars, pamphlets and advertisements, and
- (d) to complete these changes before a specified date

When the firm was informed of these conditions, it raised the objection that the Council had previously recognized the use of the expression "S T 37" and in consequence that permission to use it should not be revoked.

The Council took cognizance of the firm's contention that it had accepted the name Hexylresorcinol Solution S T 37. In counterargument it was pointed out that the Council's agreements are limited to three years, with a reservation that this term may be shortened if new facts come to light. The rules state expressly that the Council will enforce any new rules when the three year period has expired. The clause referred to reads:

Any amendments to the rules by specific requirements or by interpretation which may be made after the acceptance of an article, shall not apply to such article until the period of acceptance has elapsed. At the end of this period the article if it is not eligible under the amended rules will be omitted.

This leaves no doubt as to the right of the Council to enforce new rules.

It is true that special leniency has been extended to proprietary names that were established before the rules were promulgated, this leniency being justified by the vested interest in such names and the losses which changes would entail. However, when the Council adopted the ruling to exclude numbers and letters from names, it did not exempt established preparations, and properly so, because it had never accepted the use of such devices as an integral part of a proprietary name. It was merely clarifying a situation which had undesirable implications. Manufacturers in general seem to have accepted this as a just ruling, especially as the Council has been liberal in giving time to effect the change without unnecessary hardship—and the Council indicated its intention of doing so in the case of Hexylresorcinol Solution S T 37. It became clear that the difficulty in the Council's reconsideration of Hexylresorcinol Solution S T 37 has arisen because the firm had broken a rule of the Council, which was in force when "S T 37" was first accepted, and against which the manufacturer had been specifically warned, but which it violated without notice to the Council. In brief, the firm had been warned that "S T 37" could not be accepted as a proprietary (i. e., protected or monopolistic) name because the rules prohibit the use of two proprietary names for a given substance. The Council had accepted the use of the letters as part of a descriptive non-proprietary name because the firm has already preempted its proprietary name "Caprokol Solution" for an oily solution and because it seemed fair that attention should be called to the special property represented by the abbreviation. Notwithstanding these warnings, it appears that the firm copyrighted the expression "S T 37" (without the knowledge of the Council—in fact the Council was not informed of this step until it came to light in the present controversy) and thus made it a proprietary name instead of a description of a property and applied it to articles, such as a tooth paste, which could not have the surface tension quality for the description of which the abbreviation had been accepted. The legality of trademarking a descriptive name is itself doubtful, but there seems no doubt that the firm permitted the Council to believe that it was using a nonproprietary name when, in fact, it had converted this in a proprietary name. Had the firm abided by the rules—which, it is believed, were fully understood on its part—no difficulty would have arisen for there would now be no special interest in retaining the letters "S T 37," which any one could use. Since the physical property to which the firm intended to call attention has ceased to be a novelty, the only interest which the firm has in retaining these letters is the interest which it secured by the apparently secret violation of the Council's rules.

The foregoing reasons for the Council's decision were communicated to Sharp & Dohme and were the subject of correspondence between the Council and the firm. In the end, the firm informed the Council that it could not agree to discontinue the use of the objectionable expression "S T 37" in the name of the product. In the public interest, the Council was therefore compelled to omit from New and Nonofficial Remedies the product which had been accepted as "Hexylresorcinol Solution S T 37."

## SUBSEQUENT CONSIDERATION

When a report of the foregoing decision of the Council was sent to Sharp & Dohme, the firm replied that it desired to publish an advertisement in *THE JOURNAL* and in all publications of the American Medical Association. The Council felt, and the Trustees of the Association concurred, that as this advertisement obscured and thereby misrepresented the essential point at issue, it should not be accepted as an advertisement, but that its wording might be appended to this report, so that those who have read the foregoing article may also have before them the point of view of the manufacturers. This wording is as follows:

### "A STATEMENT FROM SHARP & DOHME TO THE MEDICAL PROFESSION"

The Council on Pharmacy of the American Medical Association has recently revised Rule 8 to prohibit the use of letters and numerals as an integral part of a product name.

Since the Council has stated that it cannot make permanent exceptions to any of its rules, this revision of Rule 8 operates retroactively and therefore renders the established name HEXYLRESORCINOL SOLUTION S T 37 and the product so named, ineligible for further inclusion in New and Nonofficial Remedies.

Sharp & Dohme has been forced therefore to regret fully submit to the omission of Hexylresorcinol and its previously accepted dosage forms from N. N. R. and so notified the Council on January 12, 1934.

We wish to emphasize the fact that the product and the claims made for it during six years of Council acceptance remain unchanged, the sole reason for this action on our part being the conflict between an established name and a new Council rule as to nomenclature.

SHARP & DOHME  
Philadelphia  
Baltimore

[END OF PROPOSED ADVERTISEMENT]

All the points raised by the firm had been already answered in the Council's report, but it seems advisable to recapitulate them.

(1) The advertisement gives the impression that Rule 8 has been recently revised. The correct statement would be that Rule 8 was revised in January 1932.

(2) The advertisement gives the impression that revision of the Rule operates retroactively. In the opinion of the Council this is not an accurate statement since the Rule has been applied at all acceptance dates. The statement is particularly untrue with reference to Hexylresorcinol Solution S T 37. Hexylresorcinol Solution S T 37 was accepted for only three years. By sufferance it was kept in New and Nonofficial Remedies two years after the expiration of the last period of acceptance. At the time it was accepted it was stated clearly that the use of the abbreviated expression "S T 37" could not be preempted. Years later the Council was amazed to find that the firm had trademarked S T 37. When products are accepted for only three years there is no claim of retroactivity because the Council's rules specifically provide:

Unless otherwise determined at the time of acceptance, Articles admitted to New and Nonofficial Remedies will be retained for a period of three years provided that during that period they comply with the rules and regulations which were in force at the time of their acceptance. At the end of this period, all articles will be carefully re-examined for compliance with existing rules. Any amendments to the rules by specific requirements or by interpretation which may be made after the acceptance of an article shall not apply to such article until the period of acceptance has elapsed. At the end of this period the article if it is not eligible under the amended rules will be omitted. (See N. N. R., 1934, pp. 13-14.)

Insofar as all measures which correct past undesirable practices are retroactive then the action of the Council could be considered retroactive but only in this restricted sense. The firm placed itself in the wrong by arrogating to itself, without notice to the Council, a proprietorship in the descriptive abbreviation "S T 37." The Council had not intended or conceded that the firm should have a proprietary right to this abbreviation of the name, and in fact repeatedly warned against the firm's taking this action. The chief deprivation as indicated by the foregoing advertisement concerning the Council's action,



is to take away from the firm something that had never existed so far as the Council is concerned. Indeed, had the Council known that the firm had secured a copyright on this abbreviation, even though this new number rule had not been passed, the name would have been subject to rejection. Furthermore, no other firm has refused to comply with the rule that numbers cannot be used for, or as part of, a name.

(3) The last paragraph of the advertisement is essentially true for the six years during which the product was accepted. But it fails to state that the claims remained practically the same although the Council repeatedly stipulated that some of them should be changed. Many forms of advertising were in fact discarded by the firm. Other claims to be questioned were not further considered because of the argument on the name.

A further report of the Council's proceedings in reference to Hexylresorcinol Solution S T 37 was conveyed to the firm of March 30, 1935. The firm replied (April 8).

We have nothing further to add except to reiterate that we have always been ready and willing to comply with every suggestion of the Council regarding our printed matter and promotional efforts relative to Hexylresorcinol Solution S T 37, with the exception of the change in the title of our established name for this product."

In the opinion of the Council the reply of the firm is only a reiteration of the argument which has been covered by the statements embodied in the preceding report. The Council reaffirmed its previous decision and authorized publication of the original report with the foregoing statement of subsequent consideration.

#### CAPROKOL OMITTED FROM N N R.

Caprokol (Hexylresorcinol-S & D) was accepted for inclusion in New and Nonofficial Remedies in 1924. The following dosage forms were accepted by the Council:

Capsules Caprokol (Hexylresorcinol-S & D) 0.15 Gm

Caprokol (Hexylresorcinol-S & D) 2½ per cent Solution in Olive Oil

Hexylresorcinol Solution S T 37

When the customary three year period of acceptance expired in 1931, the Council voted to reaccept Caprokol provided the manufacturers agreed to make a drastic revision in their advertising propaganda and to submit convincing evidence of the therapeutic value of the drug in all the numerous conditions in the treatment of which its use was recommended. Later, substantiation of the claims that the substance has analgesic action and has special germicidal properties due to its ability to lower surface tension were added to the requirements of the Council for the reacceptance of Caprokol. In the course of the next two years the firm omitted a number of the most objectionable circulars and submitted evidence on the question of the analgesic action. During this time, however, the firm did not submit any new evidence on the therapeutic value of the preparation in the treatment of genito-urinary infections and numerous other conditions in which its use was recommended as a beneficial germicidal agent.

In the discussion of claims made on the basis of the surface tension of both Caprokol and of the dosage form, Hexylresorcinol Solution S T 37, the question of nomenclature arose leading to the final refusal of the firm to dispense with the initials and numerals in the name and the consequent omission of Hexylresorcinol Solution S T 37 from New and Nonofficial Remedies. At that time the firm requested the omission of Caprokol also, stating that its continued inclusion after the exclusion of Hexylresorcinol Solution S T 37 might prove a source of misunderstanding with the Council. The Council considered this a reasonable request.

Meanwhile the firm had not submitted the new evidence required to substantiate the claims made for the product as a germicide and as a genito-urinary antiseptic. It had furthermore indicated disagreement with the Council's objection to the use of antiseptics as gargles and mouth washes. As a result of these considerations the Council voted to omit Caprokol because the claims for its therapeutic value have not been substantiated and because the manufacturer finds it impossible to handle this substance and certain of its dosage forms separately from the unacceptable dosage form Hexylresorcinol Solution S T 37.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

#### BAUMGARTEN'S PROCESS ALLISON COTTON-SEED FLOUR, PARTIALLY DEFATTED, COOKED

*Manufacturer*—The Schulenburg Oil Mill, Schulenburg, Texas

*Description*—Partially defatted cooked, cottonseed flour

*Manufacture*—Choice cottonseed is cleaned, freed from lint and hulls, passed between steel rolls, and cooked in four consecutive cookers, in each of which the mass is cooked for twenty minutes, the temperature of the fourth cooker being from 114 to 116 C. A large portion of the oil is expressed from the cooked material by hydraulic pressure. The resulting "cake" is cooled, ground fine, bolted, and packed in sacks.

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	6.3
Ash	5.8
Fat (ether extract)	11.0
Protein (N $\times$ 6.25)	50.2
Crude fiber	3.9
Carbohydrates other than crude fiber (by difference)	22.8

*Calories*—39 per gram 111 per ounce

*Non-toxicity*—Feeding experiments with rats indicate the absence of toxicity in cottonseed flour processed according to this method.

*Claims of Manufacturer*—Rich in high quality protein and vitamins B and G. Free from toxic form of gossypol.

(1) STAYSWEET LIGHT CREAM  
(STERILIZED)

(2) STAYSWEET HEAVY CREAM  
(STERILIZED)

*Distributor*—Seggerman Nixon Corporation, New York

*Packer*—S M A Corporation, Cleveland

*Description*—(1) Canned sterile homogenized cream of 18 per cent milk-fat content. The same as Pantry Table Cream (Sterilized) (THE JOURNAL Feb 25 1933 page 576)

(2) Canned sterile homogenized cream of 36 per cent milk-fat content. The same as Pantry Whipping Cream (Sterilized) (THE JOURNAL, March 4, 1933 page 662)

*Vitamins*—The vitamin content may be expected to approximate that of the pasteurized cream used.

*Claims of Distributor*—For all table uses of cream and whipping cream respectively.

#### SPARKLE GELATIN DESSERT—CHERRY, LEMON, LIME, ORANGE, RASPBERRY, STRAWBERRY FLAVORS

*Manufacturer*—Quaker Maid Company, New York

*Description*—Gelatin dessert powders containing sucrose, gelatin, tartaric acid, fruit flavors (respectively terpeneless oils of orange or lemon, distilled oil of lime, and natural concentrated strawberry, raspberry or cherry flavors) and certified food colors.

*Manufacture*—The ingredients in formula proportions are automatically mixed, dried and packed in cartons.

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	1.5
Ash	0.2
Protein (N $\times$ 5.53)	9.5
Sucrose	86.8
Total carbohydrates (by difference)	86.6
Titratable acidity as tartaric acid	2.2

*Calories*—18 per gram 108 per ounce



# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 25, 1935

## STATUS THYMICOLYMPHATICUS

Few conditions have been so imperfectly understood as status thymicolymphaticus. There has been no agreement on a definition for this condition, on its essential pathologic or physiologic features, or on its etiology. The diagnosis status thymicolymphaticus or "thymic death" has far too frequently served to conceal the examiner's ignorance of the real cause of death. It has been supposed that the condition depends in some way on hyperfunction or dysfunction of the thymus. Such relationship has not been demonstrated, and evidence is lacking that the thymus is a factor in the mechanism of death in the cases so assigned. Even in the rare cases in which the thymus is so enlarged as to embarrass respiration by pressure on the trachea, death has not been shown to be the result of such obstruction. Indeed, some authors<sup>1</sup> relegate status thymicolymphaticus to the realm of medical mythology. The condition was recently made the subject of investigation by a special committee of the Medical Research Council and the Pathological Society of Great Britain and Ireland. The report<sup>2</sup> concludes that the facts revealed "afford no evidence that so-called 'status thymicolymphaticus' has any existence as a pathological entity."

Notwithstanding this summary dismissal, the fact remains that death occurs in certain cases from relatively trivial and apparently inadequate causes. A small percentage of apparently normal persons have an increased susceptibility to infections, intoxications, drugs, anesthetics and physical trauma. In such persons death may follow a minor infection, a slight blow, the extraction of a tooth, a trivial surgical procedure, or the administration of anesthetics, vaccines or serums. Death occurs by circulatory failure, which in some cases resembles shock. Necropsy frequently does not show an adequate cause for the death. The conditions

often found and regarded as significant are hypoplasia of the adrenals, the genitalia, the heart and great vessels, underdevelopment of secondary sex characteristics, and general lymphoid hyperplasia associated with persistence of the thymus.

Recent investigations on the function of the adrenal cortex have produced evidence which may have a bearing on so-called status thymicolymphaticus. Hyperplasia or adenoma of the adrenal cortex results in virilism and sexual precocity. There is hyperactivity of the reproductive function and prominence of secondary sex characteristics. Presumably, opposite features would result from adrenal cortical deficiency. Severe cortical deficiency results in the gradual development of circulatory failure, ending in death. Experimental cortical deficiency of sublethal degree results in weakness, low blood pressure, ease of fatigue, abnormal sensitivity to intoxications and other changes. At post mortem examination, lymphoid hyperplasia may be found. Such experiments have resulted in hyperplasia of the thymus in young animals, and in its active regeneration in older animals when partial involution of the thymus has already occurred.<sup>3</sup> These analogies are suggestive and support the belief that this condition may be related to a dyscrasia of adrenal cortical function. The evidence is not conclusive, but it supplies a working hypothesis on which further investigations are proceeding. The newer studies may yet yield an explanation of status thymicolymphaticus.

## THE ACTIVE OXYTOCIC PRINCIPLE OF ERGOT

For centuries it has been recognized that ergot possesses a property of stimulating uterine contractions. The accurate therapeutic administration of ergot, however, has been handicapped by variations in oxytocic potency of different preparations and difficulties in standardization. Much effort has been directed toward obtaining an extract or purified preparation that can be readily standardized and that possesses stability, with actions and dosage that are constant. Ergot itself is a complicated mixture, but in the past the active principle has generally been believed to rest in the alkaloidal constituents.

Recently workers in the United States and in England have reported almost simultaneously derivatives of ergot that they respectively believe are the most refined and active ones yet described. In February 1935 an article by a group of Chicago workers<sup>1</sup> appeared in which they state that their preparation "contains all the oxytocic principles (alkaloidal as well as nonalkaloidal)" and say that it is "the crude extract

<sup>1</sup> Greenwood Major and Woods Hilda M. Status Thymicolymphaticus Considered in Light of Recent Work on Thymus. *J Hyg* 28: 305 (Aug.) 1927.

<sup>2</sup> Young Matthew and Turnbull H M. An Analysis of the Data Collected by the Status Lymphaticus Investigation Committee. *J Path & Bact* 34: 213 (March) 1931.

<sup>3</sup> Marine David. Status Lymphaticus. *Arch Path* 5: 661 (April) 1928. Britton S W. Adrenal Insufficiency and Related Considerations. *Phys Rev* 10: 617 (Oct.) 1930. Jaffe H L. The Suprarenal Gland. *Arch Path* 3: 414 (March) 1927.  
<sup>1</sup> Davis M E, Adair F L, Rogers Gerald, Kharasch M S, and Legault R R. A New Active Principle in Ergot and Its Effect on Uterine Motility. *Am J Obst & Gynec* 29: 155 (Feb.) 1935.

but in reality, it is a very fine, almost crystalline powder. It is completely soluble in alcohol and all hydrophilic solvents. It has no unpleasant properties characteristic of the fluidextract of ergot. This preparation was dissolved in alcohol and administered as such or given in the form of a capsule. The total amount of the drug administered in each instance was the residue from a 3 Gm sample of the crude drug.<sup>2</sup> By the colorimetric test or the precipitant reagent the total alkaloidal content per dose is less than 1/100,000. A note at the end of this communication states that since the work was reported it has been possible to isolate the pure active principle in crystalline form, which has been found therapeutically active in doses of 0.1 mg in the postpartum patient. This statement, coming at the end of the report, naturally gives rise<sup>3</sup> to the supposition that the studies reported were made with a product less pure than the ultimate crystalline substance. The Chicago workers have, however, conducted investigations with the pure crystalline "ergotocin" on more than 200 patients.<sup>4</sup>

The most satisfactory method of assay for this principle was found to be on the human postpartum uterus by a method previously described<sup>4</sup> and on the postpartum uterus of the dog. With this method it was possible to make accurate determinations of the oxytocic effect.

In March, an article by Dudley and Moir<sup>5</sup> appeared on the same subject. They reported the isolation of 0.82 Gm of crystals from 10 Kg of defatted ergot. In clinical trial, by a method on the postpartum human uterus, this crystalline substance was found actively oxytocic. An adequate dose for intramuscular administration appeared to be from 0.25 to 0.5 mg, which produces strong uterine contractions in from three and one-half to four and one-half minutes.

There seems no question that the work of the two groups was done entirely independently. The chemical and physiologic identity of the two substances is not a matter of equal certainty. In the derivative obtained by the Chicago investigators,<sup>6</sup> from 3 to 4 Gm of crude defatted ergot yields 0.3 mg of the purified substance, which they have named "ergotocin."<sup>7</sup> The British workers obtained a roughly equal portion of their crystalline product (approximately 0.8 mg per gram of crude defatted ergot). A satisfactory chemical comparison of the two substances is not yet possible on the basis of published statements. It is necessary to point out, however, that the British workers report a specific rotation of  $[\alpha]_D$  of the material recrystallized from benzene —  $45^\circ$ . The Americans<sup>6</sup> state that "the optical rotation of the salts of 'ergotocin' so far inves-

tigated is positive." On this basis there is no reason to conclude that the two substances are chemically identical.

Whatever the ultimate outcome, it is certain that one or more crystalline derivatives of ergot have now been prepared. The method of assay on the human postpartum uterus is relatively satisfactory and in all probability a more active and stable substance will soon be available for clinical administration.

#### HORMONES AND BLOOD LIPIDS

A vast amount of experimental investigation during the last few years has demonstrated that the quantity of body fat may be significantly influenced by the secretions of certain endocrine glands. The effects on fat metabolism of the hormones thyroxine, insulin and some substance present in the pituitary are well known. Recently,<sup>1</sup> the relation of insulin and of posterior pituitary extract to lipid metabolism has been studied by a method in which the results of fat tolerance tests were compared in thin and obese subjects treated with and without insulin or pituitary extract. The patients were given a fat test meal consisting of 100 Gm of fat in the form of 500 cc of 20 per cent cream. The plasma cholesterol was then determined on the alternate hours as an indicator of the level of blood lipid, since the quantity of cholesterol in plasma varies fairly consistently with the total amount of blood fat. In normal subjects the plasma cholesterol level remained practically unaltered after the ingestion of the test meal. Similar results were obtained in the untreated thin subjects. When, however, these patients were given insulin, the plasma cholesterol curves were strikingly different, the cholesterol value rose sharply and remained elevated for several hours.

The cholesterol curves obtained in the untreated obese subjects differed markedly from those in the untreated normal and thin individuals. The plasma cholesterol usually showed a prompt rise after the ingestion of the fat meal and remained high for several hours, just as was the case in the insulin-treated, thin patients. When posterior pituitary extract (solution of pituitary, U S P) was given either intranasally or intramuscularly to obese patients, the usual increase in plasma cholesterol did not occur. The value remained virtually unaltered for as long as eight hours. Further data indicating a similar relation between blood lipids and the pituitary were obtained in a group of patients with diabetes insipidus. Following the ingestion of the test meal there was a marked rise in plasma cholesterol, and the level remained high during the entire eight hour period. Also, as in the case of the treated obese subjects, the administration of posterior pituitary extract prevented the rise in the plasma lipid. The foregoing data clearly indicate that the preparations in

<sup>2</sup> Ergotocin. *Lancet* 1:848 (April 6) 1935.

<sup>3</sup> Personal communication to the Editor.

<sup>4</sup> Adair, F. L. and Davis, M. E. A Study of Human Uterine Motility. *Am J Obst & Gynec.* 27:383 (March) 1934.

<sup>5</sup> Dudley, H. W. and Moir, C. The Substance Responsible for the Traditional Clinical Effect of Ergot. *Brit. M J* 1:520 (March 16) 1935.

<sup>6</sup> Kharasch, M. S. and Legault, R. R. Ergotocin. *Science* 81:388 (April 19) 1935.

<sup>7</sup> Ergotocin is not to be confused with ergotoxin.

<sup>1</sup> Blotner, Harry. Blood Fat Tolerance Tests in Malnutrition and Obesity. *Arch Int Med* 56:121 (Jan) 1935.

question may exert a profound regulatory effect on fat metabolism, insulin promoting an increase in the blood lipid whereas the posterior pituitary extract exerts an inhibitory action

The possibility that insulin and pituitary extract may be of clinical value in the control of body fat is of immediate interest. At the present time there is considerable evidence<sup>2</sup> that the administration of insulin to thin individuals promotes an increase in body weight. The effect of posterior pituitary extract in reducing body weight is now under investigation.<sup>1</sup> Preliminary studies with six obese patients have shown that the administration of the pituitary preparation intranasally, three times a day, promoted an average weekly loss of from 1½ to 2 pounds. These data are of course too few to permit conclusions regarding the efficacy of posterior pituitary extract in the treatment of obesity. It is necessary to keep in mind the many physiologic changes produced by extracts of the posterior lobe of the pituitary in employing such products clinically. As Geiling<sup>3</sup> has pointed out in the series on glandular physiology and therapy now appearing in *THE JOURNAL*, striking effects are produced on the cardiovascular and respiratory systems on the gastro-intestinal tract and on metabolism in addition to the well known oxytocic action. Thus harmful results might readily obtain from the ill considered use of posterior pituitary extracts, particularly in certain disease states, for instance those involving the circulatory system. Much more work needs to be done under carefully controlled conditions before the indications and contraindications to the employment of these preparations in the treatment of obesity are known. Routine clinical applications are not yet warranted.

## Current Comment

### ROSENWALD FUND ANNOUNCES PLAN FOR SOCIALIZATION

The following item from the *Chicago Tribune* of May 20 indicates the plans of the Rosenwald Fund for the coming year:

Trustees of the Julius Rosenwald fund voted yesterday an appropriation of \$284,000 to be expended in the fiscal year beginning July 1 for welfare work and rural education among colored persons, and for furthering socialized medicine. Edwin R. Embree, president of the fund said that the Rosenwald effort to place competent medical service and hospitalization within the reach of persons of moderate means paralleled the program of the medical profession. He quoted Dr. Michael M. Davis of the fund's medical division as reporting that 344 plans to cut the cost of medical care, or to make it easier for the average family to pay for it, had come to his office in the last year. Certain of these projects he said had been endorsed in principle by the American College of Surgeons.

<sup>2</sup> Nahum, L. H. and Hinrich, H. E. Insulin and Appetite. I. A Method for Increasing Weight in Thin Patients. *Am. J. M. Sc.* 183 (May) 1932. Blotner, Harry. The Use of Insulin in Malnutrition. *New England J. Med.* 211, 103 (July 19) 1934.  
<sup>3</sup> Geiling, E. M. K. The Posterior Hypophysis. *J. A. M. A.* 104: 737 (March 2) 1935.

The medical profession should be aware of this propaganda in behalf of state medicine. In the crystallization of public opinion, physicians will do well to bring the point of view of the medical profession to the attention of their patients, women's clubs, Rotary clubs, Kiwanis clubs, chambers of commerce and similar organizations.

### PNEUMOCONIOSIS

The Bureau of Mines<sup>1</sup> has recently issued a statement reviewing the literature on the effects of breathing dusts, especially silica dusts. Two further reports dealing with prevention and treatment of dust diseases and some of their economic and legal aspects in industry are to appear later. The material in the report is extensive and few general conclusions are drawn. It is fairly safe to infer, however, that the silicotic lung is more susceptible to bacterial infection than the average lung. This is probably due to the irritation of the respiratory tissues by the inhaled dust particles, which weakens the mucous membranes and renders them susceptible to infection. The toxic influence of certain inorganic dusts on the tissues may be a contributing factor. There are almost as many classifications of stages of silicosis as there are studies of the subject. Thus, the Committee on Standard Practices in Compensation of Occupational Diseases of the American Public Health Association describe three arbitrarily divided stages. Pancoast and Pendergrass suggest the following: (1) peribronchial-perivascular-lymph node predominance type, (2) early interstitial predominance, (3) advanced interstitial predominance, (4) nodular predominance and (5) advanced diffuse or terminal fibrosis. A detailed statement of occupation is important in diagnosis. The mere fact that a man is a miner has slight, if any, value. The cardinal physical observation in silicosis is diminished chest expansion. It is generally accepted, however, that the roentgenogram offers the best and most reliable indication of the lung changes that occur in silicosis, particularly in the early stage. Finally it was agreed at the International Congress on Silicosis in 1930 that, to produce the pathologic condition, silica must reach the lungs (1) in a chemically uncombined condition, although the dust inhaled may be either a natural mixture of silicon dioxide with other dusts, such as occurs in granite, or an artificial mixture, such as scouring powder, (2) in fine particles of less than 10 microns in diameter, and (3) in sufficient amount and over a certain period of time, the latter two factors being reciprocal variants. The minimum of these two factors has not yet been determined.

<sup>1</sup> Harrington, D. and Davenport, Sara J. Review of Literature on Effects of Breathing Dusts, with Especial Reference to Silicosis. Information Circular 6835. Department of Interior. Bureau of Mines.

**Animal and Vegetable Proteins**—Animal proteins usually contain a more satisfactory assortment of amino acids than those of vegetable origin. The much vaunted gelatin is, however, a glaring exception, since it is devoid of tryptophan and contains at most a trace of tyrosine and cystine. Since none of these amino acids can be formed in the animal's body, gelatin affords a mixture of amino acids that is wholly inadequate.—Newburgh, L. H., and MacKinnon, Frances. *The Practice of Dietetics*. New York: Macmillan Company, 1934.

## Association News

### THE ATLANTIC CITY SESSION

#### Hotel Reservations for Members of the House of Delegates

Tentative reservations for all members of the House of Delegates of the American Medical Association have been made at the Ambassador Hotel in Atlantic City, and each delegate whose name has been made known to the Secretary of the American Medical Association has received a letter concerning this matter. It appears that a number of delegates have not yet made their final reservations. It is important that each member of the House of Delegates who wishes to have accommodations at the Ambassador Hotel should write at once to the hotel management stating the kind of accommodations desired and the time of expected arrival in Atlantic City.

#### Dinner of Section on Gastro-Enterology and Proctology

The Section on Gastro-Enterology and Proctology of the American Medical Association will hold its annual dinner at the Hotel Shelburne in Atlantic City Thursday evening, June 13, at 6:30. The cost of the dinner will be \$2.50, and tickets may be procured during the meetings of the section Wednesday and Thursday afternoons.

#### Annual Dinner of Medical Veterans

The dinner of the Medical Veterans of the World War will be held at 7 p. m., Wednesday, June 12, at Kornblaus, Atlantic City. The charge will be \$2.50 per plate. Tickets will be on sale at the Central Information and Ticket Bureau of the American Medical Association beginning June 10. Groups desiring to make reservations prior to that date should communicate with the president of the section, Major Albert G. Hulett, 20 Hawthorne Avenue, East Orange, N. J., or the chairman of the local committee of arrangements, Lieut. Comdr. David Allman, 104 St. Charles Place, Atlantic City.

#### Change in Date for Luncheon

The Phi Delta Epsilon Fraternity luncheon will be held Thursday, June 13 at 12:30 p. m. at the Ambassador Hotel, Atlantic City. The luncheon had previously been announced for Tuesday, June 11.

#### Chicago Medical Society Special Train

Dr. Thomas P. Foley, secretary of the Chicago Medical Society, 185 North Wabash Avenue, Chicago, announces that an air conditioned special train to be known as the Chicago Medical Society Special, will be operated over the Pennsylvania Railroad from Chicago to Atlantic City. This train will leave the Chicago Union Station at 12 noon central standard time, June 9, will leave Fort Wayne Ind. 2:57 p. m. central standard time, June 9 and will arrive in Atlantic City at 9:15 a. m. eastern standard time, June 10.

The Chicago Medical Society extends an invitation to members of the American Medical Association who are going to Atlantic City to join the Chicago party on this special train. For the trip from Chicago to Atlantic City no extra fare will be charged.

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 central standard time). The next two broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

May 30 Holiday no broadcast  
June 6 Wound Infection  
June 13 Summer Camps

#### National Broadcasting Company

The American Medical Association broadcasts under the title Your Health on a Blue network of the National Broadcasting

Company each Tuesday afternoon from 4 to 4:15, Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

May 28 Health Frontiers W. W. Bauer, M.D.  
June 4 The Crippled Child W. W. Bauer, M.D.  
June 11 From Philadelphia speaker and topic to be announced

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Bills Introduced**—H. 360 proposes to grant to physicians and surgeons attending a person during his last illness liens on the proceeds of any policy of insurance on the patient's life, regardless of who may be the named beneficiary of such insurance. H. 368 to amend the workmen's compensation act, proposes, among other things, to require an employer to furnish medical and surgical treatment to a worker disabled in an industrial accident, during the first ninety days (rather than sixty days) of disability and to raise the employer's liability for such services to \$300, rather than \$100 as the present law provides.

### CALIFORNIA

**Bill Introduced**—A. 2441 proposes to prohibit the sale of dinitrophenol or thyroid and compounds, preparations or derivatives thereof, including all such substances as are or may hereafter be trademarked, patented or copyrighted and proprietary medicines, except on the written prescription of a licensed physician or "osteopathic physician duly licensed under the state medical practice act."

**Compulsory Health Insurance Is Dead**—According to the San Francisco *Examiner*, May 18, the issue of compulsory public health insurance in California is dead, at least until 1937, as far as the state legislature is concerned. On petition of thirty-eight of the forty members of the senate, a resolution was passed, May 17, to create an interim committee to study further the question of health insurance and to report at the 1937 session. On this committee have been appointed Senators Tickle, Williams, Difani, Pierovich and Knowland, the first three of whom were members of the 1933-1935 committee, which filed an exhaustive report on health insurance. The new committee will be empowered to accept donations from private sources to continue the inquiry, but the bill introduced in the senate creating a state organization to carry on for health insurance will not be pressed.

### FLORIDA

**Annual Short Course**—The third annual short course for physicians will be conducted at the University of Florida, June 24-29, under the auspices of the general extension division and the Florida Medical Association. Included among those directing the course will be:

Dr. Fred L. Adair, Chicago, professor of obstetrics and gynecology, University of Chicago  
Dr. Oscar W. Bethea, New Orleans, professor of clinical medicine, Tulane University of Louisiana School of Medicine  
Dr. Horton R. Casparis, Nashville, professor of pediatrics, Vanderbilt University School of Medicine  
Dr. Emil Novak, Baltimore, associate professor of obstetrics, University of Maryland School of Medicine  
Dr. Willis C. Campbell, Memphis, professor of orthopedic surgery, University of Tennessee School of Medicine  
Dr. Arthur M. Shipley, Baltimore, professor of surgery, University of Maryland School of Medicine, and associate professor of surgery, Johns Hopkins University School of Medicine  
Dr. Oliver C. Wenger, Hot Springs, National Park, surgeon, U. S. Public Health Service

### ILLINOIS

**Motor Accidents Increase**—The state health department announces a total of 2,572 deaths from motor vehicle accidents in 1934, the highest annual number in the history of the state. The mortality rate was 32.6 per thousand of population as compared with 29.5 in 1930, the previous high record. Collision with other motor vehicles and with fixed objects such as telephone poles and bridge abutments accounted for the great-

est proportionate increases in fatal accidents last year. The department reports that running down pedestrians accounted for almost half the fatal accidents, a total of 1,249.

### Chicago

**Personal**—Floyd S. Markham and Sion W. Holley, students in the Division of Biological Sciences, University of Chicago, have been awarded the Howard Taylor Ricketts Prize, which is given annually for the best results in research in either pathology or hygiene and bacteriology.

**Rockefeller Gift to Psychiatry Department**—The University of Chicago has received a gift of \$243,000 from the Rockefeller Foundation of which \$168,000 will be used to establish a department of psychiatry in the medical school for research into the causes and cure of mental diseases. It is planned to open the new department July 1. The remaining \$75,000 will be used to aid the university's research in the humanities.

### INDIANA

**Chiropractors' Health Certificates Not Acceptable**—City health officers are not required to accept health certificates signed by chiropractors according to an opinion handed down by the attorney general of Indiana recently. The opinion was written in connection with the recent refusal of Dr. Herschel G. Cole Hammond to accept certificates signed by Holloway Ford, a chiropractor. Dr. Cole, secretary of the health board of Hammond, refused to accept two certificates attesting the health of two persons asking permission to handle food, according to the *Journal of the Indiana State Medical Association*. The opinion points out that a licensed chiropractor is limited to practice in his profession, as a drugless physician and that a health certificate, to be recognized as such, should bear the signature of one authorized to diagnose human ills generally.

**Annual Graduate Meeting**—The fourth annual graduate educational meeting of the Indiana State Medical Association was a joint session with the First District Medical Society at the Elks Home, Evansville, May 8. Speakers on the program included:

Rolla N. Harger, Ph.D., Indianapolis: New Developments in Vitamins.  
Dr. Ernest O. Asher, New Augusta: Obstetrics in the Home.  
Dr. Paul D. Cramm, Evansville: Newer Methods in Diagnosis and Treatment of Pulmonary Tuberculosis.  
Dr. Everett E. Padgett, Indianapolis: Diagnosis and Surgical Management of Gallbladder Disease.  
Dr. Clyde G. Culbertson, Indianapolis: Role of the Clinical Pathologist as a Consultant to the General Practitioner.  
Dr. Maurice V. Kahler, Indianapolis: Female Sex Hormones.  
Dr. Beaumont S. Cornell, Fort Wayne: Diseases of the Colon.  
Dr. Nelson K. Forster, Hammond: Emergency Surgical Treatment.  
Dr. John H. Warvel, Indianapolis: Diabetes.  
Dr. Roscoe L. Senneich, South Bend: The Medical Economic Picture Up-to-Date.  
Dr. Louis H. Segar, Indianapolis: Common Sense in the Care of Children.

### MARYLAND

**State Society Benefits by Physician's Will**—The Medical and Surgical Faculty of the State of Maryland will eventually receive the bulk of the estate of Dr. John Ruhräh, according to the terms of his will, it is reported. The faculty may have immediately whatever books it desires from the physician's library but will receive the remainder of the legacy on the death of Dr. Ruhräh's survivors. When this takes place, the Ruhräh Fund for the Benefit of the Library will be created, its use to be governed by provisions in the will.

**Conference of Health Officers and Boards of Health**—The fifteenth annual conference of health officers and boards of health of Maryland will be held at Johns Hopkins University School of Hygiene and Public Health, May 31-June 1. The tentative program includes the following speakers:

Dr. Reginald M. Atwater, executive secretary American Public Health Association, Team Work in the County Health Unit.  
Dr. Henry D. Chadwick, commissioner of health of Massachusetts Tuberculosis Program in Massachusetts.  
Dr. Stanley H. Osborn, commissioner of health of Connecticut Occupational Diseases.  
Dr. George C. Ruhland, commissioner of health of the District of Columbia Measles Control.  
Dr. William A. McIntosh, Rockefeller Foundation New York General Policies in the Field of County Health Administration.

The governor of Maryland, Harry W. Nice, will be on the program.

### MASSACHUSETTS

**Hospital News**—The Forest Hills Hospital recently opened an outpatient department with Dr. Alonzo J. Shadman as managing director. Dr. Archibald McK. Fraser has been appointed surgeon in chief of the first surgical service, and Dr. Howard M. Clute, of the second surgical service at Carney Hospital, Boston. Dr. Fred B. Lund, surgeon in chief for the past

nine years, is now consulting surgeon.—The Hospital Council of Boston was recently organized with Dr. Joseph B. Howland, superintendent of Peter Bent Brigham Hospital, as president and Dr. Charles F. Wilinsky, superintendent of Beth Israel Hospital, secretary. Twenty-four hospitals are members.

**Dr. Mallory Receives the Gold Headed Cane**—At the annual meeting of the American Association of Pathologists and Bacteriologists, April 17, it was voted to confer a gold headed cane on Dr. Frank Burr Mallory, emeritus professor of pathology, Harvard Medical School, Boston. Before his death in 1922, Dr. Harold C. Ernst, who had for years been secretary of the association, turned over to it this cane to serve as a symbol of tribute by the association to distinguished pathologists. According to Dr. Howard T. Karsner, Cleveland, now secretary of the organization, the cane has been held by Drs. William H. Welch and Theobald Smith.

### MICHIGAN

**Personal**—Dr. Robert G. White, Detroit, has been appointed school physician in Ann Arbor, succeeding Dr. Earl E. Kleinschmidt, resigned after three years service.—Dr. Wellington B. Huntley, Hudson, has been appointed head of the medical staff of the Michigan State Prison Hospital, Jackson, succeeding Dr. John W. Speck.—Dr. Francis A. Hargrave, who has completed fifty years in practice in Palo Alto, was recently honored at dinner in recognition of his seventy-eighth birthday.

**Health Council Created**—The Health Council of Metropolitan Detroit has been organized with Dr. Hugo A. Freund as permanent chairman. The council, which was unanimously endorsed at a meeting of the Wayne County Medical Society in December (*THE JOURNAL*, February 9, p. 482), held its first meeting, April 4. The twenty-four members of the council are representatives of the various health agencies in the city. It proposes to procure health service for all the people at a minimum of expense and will seek to reach a common ground of understanding between medical and social groups devoted to the care of the sick as well as to harmonize views of all groups interested in health problems.

### NEBRASKA

**Hospital Anniversary Clinics**—The Lincoln General Hospital celebrated its tenth anniversary in April with a two day program of clinics attended by about 250 physicians. Guest speakers and clinicians were Drs. John H. Musser, New Orleans, who held a medical clinic; Fred H. Albee, New York, who spoke on surgery of the bones and joints; Noble Sproat Heaney, Chicago, obstetric conditions; and Gioacchino Failla, Sc.D., New York, therapeutic use of high voltage roentgen rays.

**Society News**—Dr. Albert C. Furstenberg, Ann Arbor, Mich., addressed the Omaha-Douglas County Medical Society, April 17, on "Acute Infections of the Face and Neck."—Dr. Edward C. Rosenow, Rochester, Minn., addressed the Lincoln District Medical Society and the Lancaster County Medical Society, March 4, on infections centralized in the nose, throat and teeth.—A symposium on anemias was a part of the program of the Third Councilor District Medical Society at Falls City, April 18, presented by Drs. James P. Tollman, Archibald R. McIntyre, Howard B. Hamilton and John B. Potts, all of the faculty of the University of Nebraska College of Medicine, Omaha.—Drs. Arthur E. Hertzler and George A. Westfall, Halstead, Kan., addressed the Southwestern Nebraska Medical Society, McCook, April 11, on gastroduodenal ulcers and other gastroenterologic subjects.

### NEW HAMPSHIRE

**State Medical Election**—Officers elected at the recent annual meeting of the New Hampshire Medical Society are: Drs. Clifton S. Abbott, Laconia, president; Frank E. Kittredge, Nashua, vice president; and Carleton R. Metcalf, Concord, secretary-treasurer. The next annual meeting of the association will be held in Manchester, May 12-13, 1936.

### NEW YORK

**Dr. Fronczak Honored**—Dr. Francis E. Fronczak, Buffalo, was honored at a reception given by friends and associates at the Lafayette Hotel, March 27, on his completion of twenty five years as health commissioner of the city. Polish-American citizens presented to him a brief case and his fellow workers a watch. Dr. Fronczak is a native of Buffalo and a graduate of the University of Buffalo School of Medicine, class of 1897. He entered the department of health in 1907 as assistant commissioner and was made commissioner in 1910. During the World War he served overseas and was decorated by Poland.

with the Order of Polonia Restituta and the Cross of Valor of Poland for his service with the army and as a member of a relief mission. He also received the cross of the Legion of Honor of France.

**Health at Albany**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended May 11, indicate that the highest mortality rate (21.3) appears for Albany and for the group of cities as a whole, 12. The mortality rate for the corresponding period last year was 11.9 for Albany and 11.8 for the group of cities. The annual rate for eighty-six cities for the nineteen weeks of 1935 was 12.6 as against a rate of 12.5 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

#### New York City

**League to Abate Noise**—With the organization of the League for Less Noise, May 16, the efforts of several agencies in New York will be coordinated to reduce the noise of the city. The new league includes the recently formed League for Noise Abatement and will have its headquarters at 580 Fifth Avenue. Included among the representatives of civic, business and science leaders at the meeting were those of the police and health departments and the New York Academy of Medicine. E. H. Peabody, president of the Peabody Engineering Corporation, who was chairman of the conference meeting, was unanimously elected president. Speakers at the meeting included Drs. Shirley Wynne, former health commissioner, E. H. Lewinski Corwin, Ph.D., and John Oberwager.

**Public Exhibit of Cancer Facilities**—The New York City Cancer Committee sponsored an exhibit to show the facilities available in New York for the diagnosis and treatment of cancer and for the care of the needy cancer patient, at the Hotel Plaza, May 14-20. A number of hospitals participated, including Bellevue Hospital and the division of cancer of the department of hospitals, Lenox Hill, Mount Sinai, Montefiore, New York, Presbyterian, Roosevelt, Fifth Avenue, St. Vincent's, Sloane, Woman's and St. Luke's hospitals, Memorial Hospital for Treatment of Cancer and Allied Diseases, and New York Skin and Cancer Unit of New York Post-Graduate Hospital. Various organizations for cancer control and several social agencies also took part. At a luncheon at the Plaza May 15, Prof. Stephen Leacock, McGill University, Montreal, spoke on "The Conquest of Disease," Dr. John A. Hartwell, "How New York Is Meeting the Cancer Problem," and Mr. W. Kingsland Macy, "The Lay Person's Share in the Cancer Campaign."

**New Regulations for Private Hospitals**—The department of hospitals of New York issued new regulations to provide stricter control of private hospitals and sanatoriums, April 22, following a study made jointly by the department and the coordinating committee of the five county medical societies. Under the new rules each proprietary hospital must be supervised by a medical board including an internist, a surgeon, an obstetrician if maternity service is offered, and a pathologist. This board is to make yearly inspections and is to be responsible for the maintenance of proper professional and ethical standards. Each hospital must have a resident physician, and at least one graduate nurse must be present at all times. Payment of commissions, bonuses or gratuities in any form to any physician or to any organization directly or indirectly is forbidden. All hospitals must be licensed for a definite number of beds and, if the number is changed, an amended application must be filed. Other rules concern compliance with fire and sanitary laws, isolation rooms for communicable diseases, laboratories for all hospitals with capacities over thirty beds, x-ray apparatus and annual statistical reports. The department will not recognize as hospitals any establishments occupying sections of hotel or multiple dwellings.

#### OHIO

**Bill Introduced**—S. 344 proposes to levy a tax of 3 per cent on charges made for professional services. The bill proposes that "the tax hereby imposed shall apply and be collected when the service is rendered, regardless of the time when the agreement therefor is made, or when the price is paid or delivered."

**Executive Secretary Appointed**—Mr. Charles Nelson since 1928 assistant to Don K. Martin as executive secretary of the Ohio State Medical Association, has been made executive secretary to succeed Mr. Martin. Mr. Nelson is a native

of Marion and was engaged in newspaper work before he entered the office of the state society. Mr. Martin resigned recently to become executive secretary of the Ohio Manufacturers Association.

**Society News**—At a meeting of the Hempstead Academy of Medicine at Portsmouth, April 8, Dr. Gordon F. McKim, Cincinnati, spoke on "Differential Diagnosis of Prostatic Conditions."—Weston A. Price, D.D.S., Cleveland, addressed a combined meeting of the Columbus Academy of Medicine and the Columbus Dental Society, April 15, on "Studies Among Primitive Races for Light on Why Modern Civilization Hastens Physical Degeneration."—Four Detroit physicians presented the following program of the Summit County Medical Society, Akron, at its meeting May 15: Drs. Frederick L. Sperry, "Chronic Irritable Colon"; John A. Maloney, "Psychogenic Concepts of Migraine"; Silas W. Wallace, "Focal Infections in Relation to Systemic Diseases. Complement Fixation as a Diagnostic Aid," and Howard C. Walser, "Asphyxia Neonatorum."—The Union Medical Association of the sixth councilor district met in Canton, April 10, with addresses on acute conditions of the ear, nose and throat presented by Drs. James R. Dowling, Massillon, James E. Springer, Akron, George L. King, Alliance, William H. Evans, Youngstown, John N. Hoffmann, Canton, and Edward W. Douglas, Wooster.—At a meeting of the Adams County Medical Society, West Union, April 17, Dr. Clifford G. Foor, Hillsboro, discussed diseases of the stomach and duodenum and Dr. Samuel C. Clark, Cherry Fork, mumps.—Dr. Louis J. Karnosh, Cleveland, addressed the Lorain County Medical Society, April 9, on "The History of Neuropsychiatry."—Dr. Kenneth F. Lowry, Troy, addressed the Miami County Medical Society, Piqua, April 5, on "Postoperative Care of Surgical Patients."—Dr. Stanley S. Sidenberg, Cleveland, addressed the Marion Academy of Medicine, Marion, on treatment of tuberculosis by pneumothorax.—Dr. Thomas R. Brown, Baltimore, delivered the annual Alpha Omega Alpha lecture of the Cincinnati Academy of Medicine, May 20, on "Problems in the Digestive Field."

#### OREGON

**Fiftieth Anniversary**—The Multnomah County Medical Society entertained Dr. and Mrs. Edward Allen Pierce, Portland, at dinner at the Multnomah Hotel, April 15, to celebrate Dr. Pierce's fiftieth anniversary in the practice of medicine. Dr. Pierce was president of the Oregon State Medical Society in 1909-1910 and was a member of the state board of health for many years.

**Society News**—Drs. Richard F. Berg and Thomas D. Robertson, Portland, addressed the Multnomah County Medical Society, April 3, on pathology of the knee joint and examples of clinicopathologic correlation. Speakers April 17 were Drs. Merle W. Moore, on "Points to Consider in Diagnosis of Gastro-Intestinal Allergy," and Warren C. Hunter, "Chemical and Pathologic Correlation of Dissecting Aortic Aneurysm."

#### PENNSYLVANIA

**Cancer Meeting at Meadville**—The Cancer Commission of the Medical Society of the State of Pennsylvania held its annual western sectional meeting at Meadville, May 15. Dr. George E. Pfahler, Philadelphia, chairman of the commission, made an address on "Diagnosis and Treatment of Cancer of the Bladder by Means of X-Rays" and the following New York physicians spoke: Drs. Ralph E. Herendeen, "Treatment of Bone Tumors"; Hayes E. Martin, "Diagnosis and Treatment of Intraoral Cancer," and Frank E. Adair, "Diagnosis and Treatment of Breast Lesions." Dr. Harry C. Winslow, Meadville, was chairman.

#### Philadelphia

**Society News**—The Philadelphia County Medical Society presented a program on cancer, April 24, with the following speakers: Drs. Frank E. Adair, New York, on "The Attitude of the Modern Surgeon Toward Cancer Therapy"; George P. Muller, "Diagnosis of Tumors Within the Chest"; Thomas Grier Miller, "Nonspecific Management of the Cancer Patient," and Stanley P. Reimann, "Current Events in Cancer Research."

**Seminars on Infections**—The current series of graduate seminars presented by the Philadelphia County Medical Society on Friday afternoons is made up of the following:

- May 10: Drs. Frank B. Lynch Jr. Pneumonia from the Laboratory Angle, Hobart A. Reimann Minneapolis from the Clinical Angle.
- May 17: Dr. William Bates Minor Surgical Infections as Seen in the Office of the General Practitioner.
- May 24: Drs. William P. Bell Ardmore, Pa., Infections of the Kidney and Prostate from the Laboratory Angle. Leon Herman from the Clinical Angle.
- May 31: Dr. Clifford B. Lull Infections of the Cervix as Seen in the Office of the General Practitioner.



## RHODE ISLAND

**Society News**—Dr Walter C H Weigner, Providence, addressed the Washington County Medical Society, Westerly, April 10, on "Functional Factors in Disease"—Dr Gilbert Horrax, Boston, made an address at the State Hospital for Mental Diseases, Howard, March 19, on "Neurosurgical Conditions of Interest to Psychiatrists"—The Providence Medical Association held a joint meeting with the New England Pediatric Society, May 6, at which the following papers were presented: Drs Dennett L Richardson, "Immunization Against Measles", Maurice Adelman, "Purpura as a Complication of Scarlet Fever," and Murray S Danforth, "Review of Cases of Legg-Calve Perthes Disease"

## SOUTH DAKOTA

**Personal**—Dr Raymond P Frink, Wagner has been appointed agency physician for the Yankton Indian Reservation, as successor to Dr Andrew Rittan—Dr August E Bostrom, De Smet, has resumed private practice after several years as epidemiologist of the state board of health and more recently with the Indian Medical Service.—Dr Emil G Ericksen has been appointed health officer of Sioux Falls—Dr Burt A Dyar, De Smet, has been appointed by the state relief administration to make a survey of tuberculosis and other contagious diseases among the adult indigent

**State Society's Radio Program**—Since December 1934 the South Dakota State Medical Association has sponsored a radio program Sunday evenings from 6:45 to 7 o'clock over Station WNAX, Yankton. District societies are responsible for a month's broadcast in turn. A committee of the state association with the following members is in charge of the general plan: Drs Silas M Hohf, Yankton, Edward W Jones, Mitchell, Edwin L Perkins, Sioux Falls, and John F D Cook, Langford, secretary of the state association. This committee passes on all papers, requiring that they be submitted sixty days before the broadcast date. In addition, there is an editorial board consisting of the councilor president and secretary of each district. Mimeographed copies of the papers may be obtained from Dr Cook. Dr Robert A Buchanan, Huron broadcast, May 19 on Breast Feeding in Infants

## WASHINGTON

**Personal**—Dr Lunsford D Fricks, for the past eight years district director in Seattle for the U S Public Health Service was transferred to Honolulu as chief quarantine officer, March 1

**Society News**—Dr Maurice F Dwyer addressed the King County Medical Society, Seattle, May 6 on cancer of the uterus—Drs John F LeCocq and Glenn N Rotton, Seattle addressed the Chelan County Medical Society, April 3 on "Perthes Disease and Allied Conditions and Breech Delivery," respectively—Dr Albert J Bowles, Seattle, addressed a joint meeting of the Skagit County Medical Society and the Mount Baker District Dental Society, Mount Vernon, April 2, on "Hypoparathyroidism and Calcium Metabolism"

## WISCONSIN

**Bills Introduced**—S 401 proposes to authorize the establishment in Madison of a hospital for the observation, diagnosis and treatment of the sick, and particularly of persons afflicted with mental diseases, to be operated in connection with and under the direction and supervision of the medical department of the University of Wisconsin. The bill also proposes that every physician on the staff of any county hospital for the insane is to devote at least two weeks in each year to psychiatry work in this hospital. A 948 proposes that "any one practicing chiropractic who shall fail to perform or who shall negligently or unskillfully perform or attempt to perform any duty assumed which is ordinarily performed by authorized practitioners shall be liable to the penalties and liabilities for malpractice." A 909 proposes to provide that an injured person having a claim or a right of action on account of his injuries may assign to the hospital treating him such part of any recovery had or to which he is entitled, sufficient in amount to cover the cost of his hospital care. A 933 proposes to require a physician who has attended or examined an injured workman at the request of the employer or of his insurance carrier to give to the worker or if he is deceased to his personal representative, a copy of each report he makes to the employer or insurance carrier. However in cases in which the giving of such a report to the worker would be deemed inimical to the interests of the employer, a copy of the report must be filed with the industrial commission. If any physician fails to make the reports required by this bill his testimony is not to be received in evidence by the industrial commission.

## GENERAL

**Medical Bills in Congress**—Changes in Status S 2472 has been reported to the Senate, proposing to authorize an annuity to Frances Agramonte, the widow of Dr Aristides Agramonte, member of the yellow fever commission, H J Res 249 has passed the House, providing for participation by the United States in the Eighth International Congress of Military Medicine and Pharmacy to be held at Brussels, Belgium in 1935

**Society News**—The annual meeting of the American Association of Industrial Physicians and Surgeons will be held in Philadelphia, June 10-11, at the Hotel Pennsylvania.—The American Neisserian Medical Society will meet in annual session at the Claridge Hotel, Atlantic City, June 11.—The University of Minnesota and Mayo Foundation Alumni dinner will be held at the Ambassador Hotel, June 12.—The Society of Plastic and Reconstructive Surgery will meet in Atlantic City at the Chalfonte-Haddon Hall Hotel, June 14-15

**Changes in Status of Licensure**—At a meeting of the California Board of Medical Examiners recently, the following action was taken:

Dr Horsep Hagop Mahdesian, Fresno, placed on probation for two years without narcotic privileges or possession

Dr Edward Peter Genocchio, San Francisco, found guilty of violation of the terms of the medical practice act concerning advertising was placed on probation for three years

The North Carolina Board of Medical Examiners recently reported the following:

Dr John Harvey Hudson, Greenville, license restored Dec. 3, 1934 it was revoked July 15, 1929

**National Tuberculosis Association**—The thirty first annual meeting of the National Tuberculosis Association will be held in Saranac Lake, N Y., June 24-27, under the presidency of Dr Henry Kennon Dunham, Cincinnati. The preliminary program announces, among other features, a group of papers on pneumothorax treatment to be presented by Drs. John Alexander, Ann Arbor, Mich., Richard H Morgan, Detroit, Hugh B Campbell, Norwich, Conn., George C Turner, Chicago, Dean B Cole and Edgar C Harper, Richmond, Va., and Philip B Matz, Washington D C. At the opening general meeting there will be special tributes to Dr Edward L Trudeau, founder of Saranac Lake Sanitarium fifty years ago, presented by Drs Allen K Krause, Tucson, Ariz., Charles C Trembley, Saranac Lake N Y., and Harry A Pattison, Livingston N Y.

**Broadcasting Company Prohibits Certain Advertising Programs**—The Columbia Broadcasting System has announced certain new policies which among other things will exclude the advertising of laxatives, deodorants and depilatories. Restrictions have also been placed on the amount of advertising on the air, effective July 30. After 6 p m the advertising will be held to 10 per cent of the total scheduled time while the day time programs will be restricted to 15 per cent. The new rules provide that no new laxative or other products 'describing graphically or repellently any internal bodily function or matters not generally acceptable topics in social groups' will be accepted and that accounts in this category will all be removed from the air by March 1, 1936. Contracts of this type expiring in the meantime will not be renewed. The Columbia Broadcasting System is engaging the services of an "eminent child psychologist, who will have the benefit of an advisory board of qualified members with the special purpose of pointing the way toward programs designed to meet the approval of parents, children and educators."

**Winners in Health Conservation Contests**—The United States Chamber of Commerce at its annual meeting in Washington, D C, April 29, announced the winners in the sixth annual city and the first rural health conservation contests. For the second consecutive year Baltimore was the winner in the class of cities with populations over 500,000. In the five other population groups winners were: between 250,000 and 500,000, Newark, N J.; between 100,000 and 250,000, Honolulu, Hawaii; between 50,000 and 100,000, Pasadena, Calif.; between 20,000 and 50,000, Hackensack, N J.; and under 20,000, Palo Alto, Calif. Special awards were given to Detroit, Milwaukee, Brookline, Mass., New Haven, Conn., and Syracuse, N Y., all of which have twice won the award in their respective groups and were therefore excluded from the contest. In six geographic divisions the rural awards were as follows: northeastern, Cattaraugus and Westchester counties, New York; eastern, Kent County, Maryland; southeastern, Glynn County, Georgia; north central, Woodbury County, Iowa; south central, El Paso County, Texas; and western, San Joaquin health district, California. This contest is conducted in cooperation with the American Public Health Association.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

April 27, 1915

#### Collapse of the Osteopaths' Attempt to Obtain Registration

At the tenth sitting of the committee of the house of lords on the bill for the registration of osteopaths, a volume was handed in which had been prepared in eight days by Dr W. K. Macdonald (a qualified physician who is also an osteopath) entitled "The Scientific Basis of Osteopathy." It embodied the seven "Bulletins of the A. T. Still Research Institute" which figured in the previous evidence, and contributions selected from the *Journal of the American Osteopathic Association*. It was a response to Lord Dawson's invitation to produce any scientific basis available. Sir Morton Smart, late medical officer in charge of the electrical department of the Hospital for Sick Children, Great Ormond Street, was the last witness called by the British Medical Association. He said that he had a large practice in manipulative surgery which was valuable in certain cases but should be based on a wide knowledge of anatomy and pathology and preceded by skilled diagnosis. In certain cases it could do great harm. He had studied the literature of osteopathy and found no scientific evidence for the theory. Both in America and in this country osteopaths while trying to adhere to the theory of Still, had ventured far from it and now used practically every method known to scientific medicine. They therefore realized that this theory cannot account for the causation of diseases. It was not in the public interest to give registration to a group of practitioners who based their practice on an unsound theory. If given the corollary was that the medicine of all civilized countries should be prohibited and it would be impossible to deny it to other cults such as chiropractors, nature curers and Christian scientists.

Prof G. E. Gash, director of the surgical unit at St. Bartholomew's Hospital, said that he had never been able to find anything which could be called an osteopathic lesion though since he had been called to the inquiry he had gone back to the wards and looked for it. Sir Norman Walker, president of the general medical council, presented a memorandum of evidence on behalf of that body. It could not find in the bill any definition of the scope of osteopathy or of the nature of that which was to be practiced. Its effect would be to exclude physicians from a field of practice which they possessed. On the other hand the medical acts contained nothing to prevent a physician from adopting any theory of medicine or surgery including osteopathy. Sir Arthur Robinson, secretary to the ministry of health presented a memorandum on behalf of the minister who held that there should be included in the statute a definition of osteopathy distinguishing it without possibility of mistake from other forms of practice. Unless this could be done, proper administration of the register would be impossible. It appeared to him that a sufficiently strong case had not been made out for the bill and that the proper action was to set on foot a scientific inquiry into the principles and practice of osteopathy. Mr S. P. Vivian, registrar general, presented a memorandum on the importance of certificates of death. Unless the new class of practitioners were as fully equipped as the present class of registered physicians their admission would prejudice the important public interests served by certificates of death both to public safety and to medical statistics. He would regard any osteopathic evidence as to the cause of death as lay evidence. Mr R. C. Elmslie, surgeon in charge of the orthopedic department of St. Bartholomew's Hospital and a member of the council of the Royal College of Surgeons gave evidence

on behalf of that body. He said that the education of the majority of those whose names would be placed on the register was not of a character which entitled them to be officially recognized and it would be impossible within any reasonable time to establish a system of education of osteopaths in any way comparable to that of the medical student. Risks were attached to manipulative treatment carried out by osteopaths who had not had an adequate training in diagnosis, and the theory of osteopathy was based on the presence of spinal lesions that had not been proved to exist.

The mass of expert evidence against the bill proved too much for the osteopaths. Their lawyer said that the medical profession had raised the issue that before a register was granted the osteopaths must produce scientific justification of their theory. He could not resist that issue and the committee was asked to make a finding on a matter that was beyond it. Moreover Dr Macdonald had said that he was not satisfied with the standard of the British School of Osteopathy. His clients therefore felt that they could not ask for that particular bill. But it should not be thought that they had lost any faith in their theories and they welcomed inquiry. A voluntary register of osteopaths would immediately be formed and as soon as possible a school qualified to give proper training would be constituted. The lawyer representing the Royal Colleges of Surgeons said that he was prepared to bring forward evidence severely commenting on the A. T. Still bulletins and other documents put in by the osteopaths. The committee decided to hear two further witnesses. Dr H. K. Graham, university teacher of radiology, said that the roentgenograms which had been put in to demonstrate osteopathic lesions were merely examples of adolescent curvature of the spine. He had submitted the statement made by Dr Macdonald that local edema and fibrosis could be shown in roentgenograms to experimental test and found it to be wrong. Sir Henry Dale, F.R.S., director of the National Institute of Medical Research said that the bulletins of the A. T. Still Institute submitted were of no scientific value. They were not attempts to discover the meaning of the suggested relation between particular spinal lesions and particular physiologic facts which might be valuable but were attempts to provide evidence for a theory already accepted. He did not think that the evidence tendered in "The Scientific Basis of Osteopathy" would justify the expenditure of public money on an investigation.

Thus after twelve sittings of the select committee of the house of lords, held over a period of nearly six weeks this attempt of the osteopaths collapsed. Their success in getting so far with their bill was due to the credulity always shown by a section of the British public for the claims of irregular practitioners. As the majority for the second reading of the bill in the house of lords shows, this section includes persons high in the social scale who indeed seem to be the most amenable to quackery. The vaunted cures ascribed to osteopathy seem to them most convincing. Success with the public engendered in the osteopaths an overweening conceit manifested by this attempt to obtain a status similar to that of physicians claiming that their fantastic theory was the key to the treatment of all disease—a claim which however broke down on cross examination. But it was the absence of any scientific basis for their theory that proved fatal. This point was driven home by the evidence of eminent witnesses, many of whom were engaged in purely scientific work or were high officials and were therefore not in practice and so were not open to the taunt of self interest. Thus the temporary success of the osteopaths only ended in discredit.

#### Anesthetic Explosions

At the Section of Anesthetics of the Royal Society of Medicine an anesthetist Dr Ironside, described an explosion that took place in a hospital. The anesthetic trolley had been in

use for two and one-half hours, with oxygen passing over ether. While it was being wheeled out of the operating theater into the anesthetic room a violent explosion occurred. The ether container broke into small pieces, and two bottles of ether on the other side of the room exploded. The theater attendant was knocked down, a sister was blown over, the patient fell off the trolley, and the whole room was a sheet of flame. The fire department was called and soon extinguished the fire. The floors and corridors of the hospital were laid with rubber, those of the anesthetic room and operating theater with granolithic flooring. The air in these two rooms was changed every ten minutes by a special apparatus supplying filtered air. The sterilizers were steamless, and the whole atmosphere was very dry. Nurses had complained of sparks from the trolleys carrying food or patients. The trolleys were insulated by rubber wheels. The anesthetic table was also on rubber wheels. A government expert put forward the theory that the explosion was caused by the oxygen passing through a metal tube to the ether container or by a spark from the patient's trolley. He also suggested that by bad luck the anesthetist had attained in the container the highest explosive mixture of ether and oxygen, 75 per cent of oxygen and 5 of ether. An important factor was a static charge of electricity when inflammable volatile substances were present. A discharge occurred when there was not sufficient moisture in the air to bring about earthing. Explosions appeared to be due to dust particles or droplets of liquid in the path of the electric current, which allowed discharge to take place. A source of discharge might be the rubbing of the covering of the gas bag on the rubber of the bag itself. To prevent such accidents the humidity of the air of the operating room should be increased and proper earthing should be secured to reduce the static risk. If the relative humidity of the room at 70 °F was 55 there was no guaranty against a static discharge.

Prof G. I. Finch dealt with ignition of explosive mixtures by discharge of static electricity, or by low tension arc discharges, such as could arise from rupture of an illuminating circuit. Explosion limits varied greatly according to the combustible and the supporting medium, whether air, oxygen or nitrous oxide. In the case of methane and air the explosive limits were between 5 and 14 per cent, of methane and oxygen, from 5 to 60 per cent. Little was known of the limits for nitrous oxide, but this gas was a more generous supporter of combustion than oxygen. Though under normal conditions ether-air mixtures were explosive only in the range of 15 to 75 per cent, mixtures of ether in air could propagate a cool flame, which traveled slowly and would not be detected except in a darkened room but was quite capable of producing an explosion. Although the nitrous oxide mixture for anesthesia was outside the explosion limit, it was impossible in practice to avoid subsequent dilution with air, which rendered the mixture explosive. Static discharges could be prevented by ensuring that all bodies which could come in contact with each other should be of equal potential. In an operating theater this called for efficient earthing of people, objects and controls.

#### The Prevention of Automobile Accidents

The latest measure for the prevention of automobile accidents is a speed limit of 30 miles an hour in built-up areas. At one time there was a general speed limit, but this was abolished and speed was punishable only when it could be shown to constitute dangerous driving. Red circular signs with the figure 30 marked on them have been set up on all the roads showing motorists when they enter the area in which their speed is limited. The exits from these areas are indicated by a circular sign showing a black bar drawn across a white background.

#### PARIS

(From Our Regular Correspondent)

April 19, 1935

#### The Causes of Mortality in France—Syphilis, Tuberculosis, Alcoholism

An active discussion on the causes of mortality in France has been taking place at recent meetings of the Academy of Medicine. Roubakaine, a former expert in the section on hygiene, tried to show that the depopulation of France as claimed by some is a deception. Richet attacked the accuracy of the statistics quoted by Roubakaine as to the increase of deaths over births, and Rist, a well known authority, disputed the statements of Roubakaine as to the tuberculosis figures. Roubakaine maintained that the decrease in the number of births in France is a myth. In 1933 the birth rate in the principal countries of Europe was, per thousand inhabitants: Sweden 137, England 144, Germany 147, Belgium 165, Switzerland 165 and France 164.

In proportion to the number of inhabitants, the excess of births over deaths is lowest in Germany and next lowest in France.

With a population almost equal to that of Great Britain and Italy, the number of deaths in France greatly exceeds that of these other two countries, hence the apparent decrease in population.

The mortality during 1933 in France, 158 per thousand inhabitants, is relatively high as compared to that of Germany 112, Great Britain 123, Italy 140, Belgium 131, Switzerland 114, Holland 86, and Sweden 112. The only European countries having a higher mortality than France are Spain, Portugal and Rumania. These figures show that the cause of the relatively slight increase of population in France is not due to the decreased number of births but rather to the relatively high number of deaths as compared to other European countries. The number of births depends more on social and economic conditions, according to Roubakaine, than on any amount of governmental encouragement. Medical and sanitary organization alone cannot act in decreasing mortality, because this depends almost exclusively on the social and economic conditions of the masses, which dominate human biology. When one analyzes the causes of death in France, the most frequent cause is cardiovascular disease, which necessarily directs attention toward the incidence of syphilis. This disease affects from 8 to 10 per cent of the population in France. The syphilologist Fournier estimated it as high as 30 per cent. This calls for such measures as suppression of prostitution and its ulterior causes, such as unemployment, misery and white slavery. The number of deaths from tuberculosis is higher in France (1,516 per million inhabitants) than in any country of Europe except Finland. The infantile mortality, however, is small as compared to other countries. In France, as elsewhere, the percentage of deaths of illegitimate children is twice that of the legitimate. In 1933 there were 487,000 distilleries and saloons in France. Instead of directing attention to the necessity of more births, it would be far better to concentrate on combating the mortality from syphilis, tuberculosis and alcoholism, which are the real causes of the apparent denatality in France.

Richet challenged the accuracy of Roubakaine's figures but endorsed his statement that every effort must be made to decrease the number of deaths in France.

The mortality of new-born children has greatly decreased in nearly all countries during the past thirty years. The question of an increase in the number of births in any country is a purely voluntary one on the part of its inhabitants. In comparing the ratio of births to deaths, for a given population of certain European countries and that of Japan, the latter shows a much higher percentage.

The natality has greatly decreased in most European countries in comparison with that of Japan. In the case of Great Britain and Germany, this decrease in ratio is particularly striking. These two countries are at present at about the same level as France.

In the case of France the decreased ratio between births and deaths, as Professor Richet pointed out, is more serious than appears at first sight. From 1921 to 1931 about 1,300,000 foreigners came to France. The majority of these were adults. Hence the natality, or ratio of deaths to births, is much higher than in the case of the French native population. During this period (1921-1931) there were 55,000 births and 35,000 deaths among these foreigners. This foreign immigration is responsible for the small percentage, 0.5 per thousand, which represents the excess of births over deaths in France. In Austria and Sweden the percentage is 3 per thousand, while in Japan it is 15 per thousand.

The number of births was less in all European countries except Portugal, Greece and Ireland, in 1933 than in 1932. Professor Richet did not agree with Dr. Roubakaine that the aid given to young married couples and to those with large families had not greatly aided a rise in the natality ratio in Germany. Richet is of the opinion that legislative and economic aid play a far more important part in increasing the number of births than Roubakaine believes. If France would give a prize of 10,000 francs for every birth, there would be two million every year instead of only 661,000 as in 1933. The total number of births has decreased by about 400,000 in all European countries. This, in Richet's opinion, is not due to the economic crisis. Statistics show that such a factor does not play any part in the question. He believes that the number of births depends on the psychologic state of a people. The wards in Paris that represent the more prosperous portion of the population show the smallest number of births. The same is true of the departments of France. Hence the economic crisis cannot be held responsible. There are twenty-eight million births annually in Asia compared to one million in Europe (not including Russia). Professor Richet was alarmed by these figures and believed that the white races of Europe would be supplanted by the yellow, black and red races. If, in France, no effort is made in the near future to raise the number of births, the natality ratio will fall far below the present low percentage.

At the April 16 meeting, Roubakaine replied to the criticisms of Richet as to the inaccuracy of his statistics. As to the high mortality in France being due to the relatively large number of elderly individuals this was equally true of other countries or would be so shortly.

In the group above the age of 65, the mortality in France is 926 per hundred thousand and in England 828. Tuberculosis is the most common cause of death of elderly individuals in France. The immigrant population that has flocked to France since the World War is no more prolific than the native population. Twenty years ago France was at the bottom of the list of European countries as regards natality, but in 1933 it had moved up to sixth place and will rank still higher in the near future, if the present relatively high rate of births continues. He agreed with Richet that the natality is three times less in well-to-do families than in poorer ones.

Rist had challenged the statement of Roubakaine that France had a larger number of cases of syphilis, tuberculosis and alcoholism than any other country. Roubakaine cited the fact that, between 1920 and 1931, more than a million persons with syphilis applied for a primary consultation in public dispensaries. As to tuberculosis only four countries had a higher death rate from this cause than France. Of these four countries Hungary, Japan, Finland and Czechoslovakia, the last named had brought its death rate from tuberculosis to a lower figure than that of France.

The morbidity of tuberculosis has been greatly decreasing as the result of the excellent prophylactic work in France. This will no doubt greatly lessen the death rate in the near future. As to the consumption of alcoholic beverages, figures were cited showing that this is higher per inhabitant in France than in Germany, Italy or England.

## BERLIN

(From Our Regular Correspondent)

March 25, 1935

### Increases in the Average Height and Weight of Children

In the past twenty years, an increase in the average height and weight of school children has been observed. In Leipzig the increases, as announced by Dr. Koch in the *Deutsche medizinische Wochenschrift* amount to 11.6 cm. and 11.1 Kg respectively. This improvement has been regarded as an expression of an unusually good general condition. This phenomenon has been observed in Europe, America and Australia. The extensive Leipzig material, which goes back to 1918, covers the records of from 18,000 to 20,000 school children. This study revealed that the whole period of growth in man has undergone a material change. Although the length and weight of children at birth have changed but slightly, the rapidity of growth has been increased, so that the children equal in height children from one and a half to two years older of the prewar period. In both sexes there has been a compensatory shortening of the period of growth amounting also to from one and a half to two years. The height, after completion of growth, has not undergone a corresponding change, nor has there been much increase in the average body weights. In keeping with the accelerated growth, maturity is advanced to a corresponding extent. This is revealed in various ways, for example, by the onset of the first menstruation, which occurs about two years earlier than before the war (in Leipzig, at about age 13). Thus, this whole change, as Koch points out, is characterized by an approximation to the early development occurring in the tropical zones, to which in Germany, and apparently in other temperate regions, a whole generation appears to be subject. A premature aging of the population may possibly result from this early maturity. It is also likely that a corresponding advancement of the menopause will occur. If marriages continue to be contracted at the same average age as heretofore, the child-bearing period will be shortened by two years, which will effect a reduction in the number of births. As Koch points out this deficit in the number of births may jeopardize the federal government's attempts (thus far rather successful) to combat the low birth rate. These manifestations are assumed to be due to the fact that, during the past twenty years, the human body has been incomparably more exposed to the sun than formerly. This view is termed "the heliogenic acceleration of human growth" for, according to the observations of biologists, sunlight is capable of accelerating the growth and the maturation of living organisms.

### The Relative Fecundity of Women

In connection with the sterilization law for the prevention of offspring with hereditary defects, the question as to the probability of a woman of a certain age having children is significant. Dr. Münzer and Dr. Löer have done research on the subject. For the year 1931 they found that, of all women just entering on the child-bearing period, whether married or unmarried, only about two thirds (68 per cent) have prospects of giving birth to a child. For this estimate the average length of life of 15-year-old girls is taken. Up to age 18 the probability of giving birth to a child remains for women who have had no children about the same as for those who are just entering the child-

bearing period. Beginning with age 19, the chances of a woman giving birth to a child become, at first slowly and then more and more rapidly, less and less, and reach, at the age of 45, which is usually regarded by statisticians as the upper limit of the child-bearing period, practically zero, although even at age 45 0.2 per cent of the women still give birth to a child. Further details are given in the tabulation.

*The Percentage of Women Who Having Had No Children,  
Will Give Birth to a Child*

Age	Percentage to Bear Children	Age	Percentage to Bear Children	Age	Percentage to Bear Children	Age	Percentage to Bear Children
15	68	23	61	31	25	39	4
16	68	24	58	32	21	40	3
17	68	25	54	33	17	41	1.8
18	68	26	49	34	14	42	1.1
19	67	27	45	35	11	43	0.7
20	66	28	40	36	9	44	0.4
21	65	29	35	37	7	45	0.2
22	63	30	30	38	6		

The average number of children that a woman entering the child-bearing period is likely to give birth to was according to the fertility figures of 1931 only 1.72. This figure also remains about the same up to age 18 and with increasing age drops more and more rapidly, reaching at the age of 45 the value of 0.01 (these figures refer to the women who have given birth to one or more children). According to these figures, it is doubtful whether an increase in the fecundity of the older women can be brought about by the promotion policies of the government. Whether the fecundity of the younger women can be raised by such methods remains to be seen. These figures for 1931 give only the actual birth frequency—that is figures that are influenced by the willingness to bear children. The biologic birth possibilities, to judge from the results of the statistics on miscarriages, would doubtless be much higher—even for the women of the older age groups although after age 45 the number of children born would be exceedingly small.

#### The Hufeland Society

The Hufelandische Gesellschaft, which is one of the most honored medical societies of Germany celebrated recently its one hundred and twenty fifth anniversary. The society was founded in 1810 by Dr. Hufeland, Berlin's best known physician of that day, who made a place for himself in the history of medicine by his work 'Makrobiotik'. In that day a select group of representatives of various branches of medicine met once a week to discuss scientific questions. The Hufelandische Gesellschaft played a leading part for many decades—beyond the confines of Berlin in other regions of Germany. After the founding of the Berliner Medizinische Gesellschaft by Virchow and Graefe, in the second half of the previous century, the Hufelandische Gesellschaft concerned itself mainly with practical demonstrations. In this chosen field the Hufelandische Gesellschaft is still highly esteemed by practitioners because of the quality of the demonstrations. This society supports also a foundation for the rendering of aid to physicians and to the widows and orphans of physicians.

#### Influenza in Children

Einzelstein groups under influenza in children all the disorders of the respiratory passages that appear as an acute infectious catarrh. According to Dr. Nassau of Berlin 17 per cent of these disorders in childhood occur from May to August. The public continues to speak of colds, and some physicians consider chilling a causal factor in influenza but Nassau affirms that he can nearly always trace the disorder to an infection. Although the season influences the outbreak of the disease the severity and form of influenza are determined by

the age of the patient. Children under 6 months of age seldom suffer from an attack of influenza. Up to the fifth or sixth year, influenza takes a febrile course, with varying degrees of severity. Around the eighth to the tenth year, it takes the form of a troublesome catarrh, with little or no fever, and its harmlessness leads to the wrong impression that the number of attacks are decreasing. The children who suffer repeated attacks appear to belong to a special constitutional group. They are for the most part large boned and obese. The lymphatic tissues appear swollen and spongy, although there may be no actual enlargements. The skin is usually moist. A study of the family history reveals frequent cases of arthritis, a tendency to formation of kidney stones, rheumatism, and an early appearance of arteriosclerosis. Many children who are subject to frequent attacks presented an exudative diathesis as infants. Tonsillotomy has no influence on the predisposition.

#### ITALY

(From Our Regular Correspondent)

Feb. 28, 1935

#### The Academy of Medicine of Turin

The Academy of Medicine of Turin met recently under the chairmanship of Professor Tirelli. Battistini Ciommi and Herlitzka discussed the influence of adrenal cortex extract on the metabolism of carbohydrates. They studied in normal persons the capillary and venous glycemia, and the venous lacticacidemia, following the injection of the cortical extract into the veins and the muscles, not only fasting but also after the administration of dextrose. After the injections while fasting, there usually resulted a diminution of the venous glycemia and an increase of the capillary glycemia. With dextrose there was a slight increase of the capillary and the venous glycemia. The extract always exerted a frank action on the lactic acid, which was always diminished. It was evident that even small doses of cortical extract act on the metabolism of carbohydrates in normal persons.

Marengo and Massimello reported their research on the skin tests for the diagnosis of icterus. Among various tests to detect light forms of hyperbilirubinemia and to distinguish the various types of icterus, the Klein histamine test and the morphine test become positive when bilirubin blood values of from 0.6 to 0.7 mg per hundred cubic centimeters are reached. The speakers usually found that the results of the two tests agree closely with a little less intensity for the morphine test. The Brugsch test is less sensitive. The tests mentioned aid in the diagnosis particularly of latent icterus, but they cannot replace the qualitative and quantitative determination of bilirubinemia.

Dominici and Oliva reported observations to the effect that the protracted administration of vitamin A causes a marked increase of diuresis, which in patients affected with cirrhosis of the liver may reach values twice the normal quantity. The speakers consider it likely that the action of the vitamin on diuresis may be explained by the functioning of the liver.

#### Consultation Center for Pedagogic Medicine

At the observation center for wayward and abandoned children there has been created in Rome a consultation center, the purpose of which is to apply promptly to these young persons the treatment necessary for their physical and mental reeducation. The management of the consultation center has been entrusted to Professor Di Tullio, occupant of a chair in criminal anthropology at the University of Rome.

#### Bürger's Disease

Rolando of Genoa presented before the Società Piemontese di chirurgia the results of studies on the pathogenesis of Bürger's disease. To the results heretofore observed in the treat-

ment by means of removal of the adrenal capsule the author added his observations in two cases occurring in men aged 22 and 29 respectively, both subjected without avail to the removal of the left adrenal capsule, and, in a second operation to amputation of the hip and of the distal portion of the metatarsus. According to the speaker, persons affected with B rger's disease present a hypoplasia general or partial of the arterial system. Hence their tissues are insufficiently irrigated. Over a long period of time there may be adjustments but owing to added causes such as traumas, intoxications and tobaccoism, thromboses and small peripheral infarcts develop, the work of the heart increases and the organ hypertrophies. In the small arteries there is concentric hypertrophy of the tunica media, the epithelium becomes necrotic, and parietal thrombi develop, which later become total and occlude the vessel. The speaker emphasized the uselessness of the treatment heretofore in vogue, both medical and surgical.

#### Prof Ernesto Pestalozza

Prof Ernesto Pestalozza, senator, director of the Obstetrico-gynecologic Clinic of the University of Rome, died recently. He was of the school of Pavla. At the age of 30 he became director of a clinic. His scientific researches were prolific. His chief work was a series of studies on sarcoma deciduocellulare, which culminated with his research on chorioma. His operative methods in uterovaginal prolapse and in uterine retroversion have been accepted in the ordinary practice of the Italian and foreign gynecologic schools. He was an ardent journalist and was the director of the review *La quaccologia* which he founded at Florence.

#### BELGIUM

(From Our Regular Correspondent)

April 6 1935

#### Blood Changes in Radiologists

Addressing recently the Soci t  belges de radiologie, Dr Maisin considered the morphologic changes in the blood of radiologists. The circulating blood is not easily affected by radiations. The circulating blood in the ears of the rabbit may be irradiated for several hours without evidence of changes in the blood. On the other hand, the hematopoietic organs are very sensitive to radiations. One observes most frequently irritation of the red marrow. A permanent inversion of the white cells is observed at the same time. The relative number of the mononuclears is increased at the expense of the polymorphonuclears. If the irradiations are continued they eventually effect a persistent mild anemia with inversion of the blood picture in favor of the mononuclears; then the anemia becomes more marked under the effects of the rays and finally takes on an aplastic form, the aplasia affecting both the red cells and the white cells. As a rule, death intervenes with a purpuric syndrome and a noticeable diminution of the blood platelets.

The question arises as to where in this blood picture leukemia belongs. Leukemia must be regarded as a reactional condition due to an irritative state, whether of the lymphoid type, the myeloid type or the Blumenthal type in which an augmentation of the red cells and of the white cells is observed.

Two Belgian radiologists have died from leukemia. Nevertheless the leukemias are relatively more rare than the aplastic anemias. Recent statistics show that 25 per cent of the radiologists are affected with lymphoid leukemia. In 1913 Aubertin called attention to the inversion of the blood picture due to mononucleosis. Maisin taking account of only frank cases, noted in twenty-eight radiologists anemia 12 cases leukopenia 5 cases mononucleosis 8 cases polynucleosis 4 cases polyglobulia 6 cases marked 12 cases relative. The anemia is usually mild; the most marked case presented 1800 000

erythrocytes. The author observed anemia in very young radiologists and in elderly radiologists who had been exposed to rays over a long period. Leukopenia is the most grave sign. It may disappear with suitable rest and proper precautions. Mononucleosis is of less importance. It may develop sometimes after only a few weeks of professional practice and it has a tendency to be permanent. A suspension of practice for two months does not reestablish the normal blood picture. It persists sometimes after two or three years. It does not develop in all persons its appearance being due to an individual susceptibility. It may disappear during infections and reappear later in a graver form.

Polynucleosis is rare. It is not pathognomonic if there are elsewhere disorders capable of provoking it. It is found nearly always if there is any polyglobulia. It is an expression of irritation of the bone marrow.

Polyglobulia is found in young radiologists who are normally exposed and in elderly radiologists who have been slightly exposed over a long period of time. The highest figure was 6 300 000 erythrocytes. Young types are lacking. If the person affected takes a rest the figure will frequently drop to five or four million and will sometimes go below normal.

The reticulocytes—filamentous red cells—amount to about 1 per cent in a normal person but may rise to 20 per cent. They are an expression of an irritation of the bone marrow.

Is absolute protection possible? Yes, so far as diagnosis and therapy are concerned, but not for curietherapy. Four assistants in the radiotherapeutic department of the author have an absolutely normal blood owing to the use of adequate leaden screens. For the radiologist it is therapy that presents the gravest danger owing to the use of inadequate protecting screens and observation windows with insufficient protecting glass. These should be equipped not only with one thickness of leaden glass but also with sliding leaden shutters. One should be suspicious of joints of doors and should demand everywhere an adequate protection of lead.

#### BUDAPEST

(From Our Regular Correspondent)

April 12, 1935

#### International Dermatologic Congress at Budapest September 13-21

The ninth International Congress on Dermatology will deal with the pathology and therapy of skin diseases. Any qualified doctor can be a member of the congress provided he gives notice to his national secretary or to the organizing committee in Budapest, VIII Maria ucca 41, and at the same time submits the fee, which for ordinary members is 60 pengos (about \$15) and for invited nondermatologist members 30 pengos (\$7.50). The member fee entitles to the publications issued by the congress. The central bureau of the Congress is at the Budapest Dermatologic Clinic, VIII Maria ucca 41. The telegraphic address is Dermaklin, Budapest, the telephone number is 311-96. The congress will be in session from September 10 to 21 at Budapest V Vigado (a concert hall, telephone number 812-12). The official languages of the congress will be English, French, Italian and German. The following national secretaries have been appointed: United States, Howard Fox, 140 East Fifth-Fourth Street, New York; Argentina, Jose J. Puente, calle Santa Fe 995, Buenos Aires; Brazil, E. Rabello, 15 rua Alcindo Guanabara Rio de Janeiro; Mexico, Jesus Gonzales Uruena, Avenida Oaxaca 80, Mexico City; Uruguay, Jose Brito y Foresti, 1424 Rua Rio Branco, Montevideo.

Independently of the congress but at the same place September 14, the *Union internationale contre le peril venerien* will meet. No papers are admitted which have appeared either in whole or in abstract in any of the four official languages, prior to September 1.

## THE FUNCTION OF THE COMMITTEES

The permanent committee of the international Dermatologic Association will determine the possibilities of bringing to life the International Dermatologic Association.

A second committee will endeavor to secure uniformity in the naming of skin diseases. Hereafter diseases should be named according to rational principles. The committee will announce that the terms psoriasis, lichen and pemphigus shall be applied only to the corresponding diseases. Such denominations as psoriasis palmaris syphilitica, herpes tonsurans and pemphigus syphiliticus should be discarded. The question of too long symptomatologic denominations, as erythema exudativum multiforme and erythema vesiculosum recidivens neurogenes will be decided by this committee.

A third committee, under the presidency of Howard Fox, will try to group skin diseases on the basis of modern pathogenic research. It will delimit the boundaries of dermatology from those of general diseases (syphilis, tuberculosis) and venereal diseases.

A fourth committee will deal with the principles of the most practical method of teaching medical students, postgraduate studies for practitioners, and the training of specialists. As teaching should be mainly visual, a lecture hall will be recommended that has a northern light and is equipped with modern apparatus for the demonstration of films, histologic preparations, experimental animals and, above all, patients. It is desirable that the dermatologic literature should be organized and made cheaper through international agreements.

A fifth committee will deal with the ways and means for interchanging histologic preparations between dermatologic institutes and supplying a great number of preparations of rare cases, and the establishing of a center for the interchange of photographs, moulages, histologic preparations, epilated hairs, parasites, cultures, antigens, vaccines and reprints. All exchanges are to be free of charge, excepting, of course, the costs of freight and postage.

A sixth committee will consider the present crisis in dermatologic practice, the question of clinics, social insurance, industrial cosmeticians, masseurs, quacks, the proportionate distribution of specialists to the population, the access of private practitioners to special hospitals, dermatology and the prevention of diseases, the compulsory notification of single diseases and the dermatologic enlightenment of the people, the responsibility of the dermatologist in practice, professional secrecy, and infections and injury threatening dermatologists, dermatology and eugenics, and the problem of sterilization.

All these committees will meet prior to the congress, so that on the last day of this congress the plenary meeting can vote on the proposals made by the committees.

Besides the six committees, four conferences will deal with dermatologic questions, chiefly from social points of view. 1 Skin tuberculosis. 2. The defense against venereal diseases. 3 The social aspects of skin diseases caused by industrial occupations. 4 A comparative dermatovenereologic conference. Some of the addresses will be made by Aynayd, on la stomatite pustuleuse des ovins, Balogh, on skin lesions in human glanders, Van Hedsborghen, on poultry tuberculosis in men and in animals, Mócsy, on diseases caused by fly larvae, Siegfried, on lesions on the skin of milkers, Weidman of Philadelphia, on dermatoses of monkeys.

## PROGRAM OF THE SPECIAL BRANCHES

1 The recently recognized functions of the skin. 2. Reciprocity, correlation and antagonism between the skin and the internal organs. 3 The role of allergy in dermatology and syphilology. Coca of New York and Hopkins of New York will read papers, Dr. Coca speaking on the classification of allergic diseases of the skin, with diagnosis and treatment. 4

The disturbances of metabolism in dermatology, including avitaminoses and endocrinodermatoses. Whitfield of London will read a paper on dermatoses and disturbances of nutrition (excessive eating and drinking). Frasier of Peiping will read a paper on the role of metabolism in dermatology. 5 The importance of external influences on the forms and frequency of skin diseases. The chief speaker will be Graham of London. 6 The importance of filtrable viruses in the etiology of skin diseases. Bayarri of Madrid, Levaditi of Paris and Eagles of London will read papers. 7 The latest achievements in the field of tuberculous skin diseases. 8. The immunobiologic, non specific and medicinal treatment of syphilis. 9 The criteria of the cure of syphilis.

## SPECIAL LECTURES

- 1 Sabouraud of Paris. The evolution of dermatomycology.
- 2 Memorial lectures by Hoffmann of Bonn and Rille of Leipzig.
- 3 Riecke of Göttingen. The present position of dermatology in the medical sciences.
- 4 Mariani of Bari, Italy, and Siemens of Leiden, Holland. Genodermatoses.
- 5 Morrow of San Francisco, Rogers of Hampstead and Reuss of Shanghai. Recent achievements in the treatment of leprosy.

## INDIVIDUAL PAPERS IN SEPARATE HALLS

In addition to papers on the main themes, Andrews of New York will discuss pustular bacterids, Bodon of Budapest, un nouveau traitement de la douleur de l'aortite syphilitique, Castellani of London, less known tropical skin diseases, Kenyeres of Budapest, the forensic aspects of treatment with thallium, Pearce of New York, animal syphilis. Other papers will be read by Harrison of London, O'Leary of Rochester, Minn., and Thomkinson of Glasgow, among others.

## OFFICIAL PUBLICATIONS OF THE CONGRESS

In addition to the main report on the transactions of the congress there will be reports on the work of the committees and conferences and a memorial volume on the evolution of modern dermatology in the last fifty years compiled from the works of Bechet, Howard Fox, Howard Fox Jr., Pollitzer of New York, Pusey of Chicago, Castellani, Graham Little of London, Darier, Sabouraud, Dubreuilh of Bordeaux, Jadassohn of Zurich, Matsumoto of Kyoto, Marcus of Stockholm, Hoffmann of Bonn, Rille of Leipzig, Peyri of Barcelona, Truffi of Padua, Riehl of Vienna, and Torók of Budapest. There will also be a catalogue of the exhibitions.

## EXHIBITS

There will be three exhibitions. 1 Dermatologic relics, medals, plaquettes, souvenirs, pictures, manuscripts, documents, books, apparatus and instruments. 2 Modern histologic preparations, photographs, moulages, charts, reports of analyses, statistical graphs, collections of parasites and cultures, vaccines and toxins. A mycologic exhibit will be demonstrated by Arzt of Vienna, Rivalier of Paris, Castellani of London and Benedek of Leipzig. 3 Industrial exhibits: optical, electrical, radiologic, thermal, mechanical and chemical instruments and apparatus, laboratory and operating equipment, drugs and dressings, administrative and hospital equipment, nursing, cosmetics, dietetic and curative articles of food, also periodicals and books. An international jury will award prizes and medals to the exhibitors.

The IBUS (Hungarian Enterprise for Encouraging Foreigners to Come to Hungary) will ensure members first class hotels and boarding houses, according to three different categories (as to price).

Special committees will arrange excursions, entertainments, concerts and recitals for ladies who accompany their husbands.

## Marriages

HARRY JOHNSON SCHMIDT, Convent, La., to Miss Margaret Mary Heath of New Orleans at Ocean Springs, Miss., May 25  
LAWRENCE P. COGSWELL, New York, to Miss Marjorie Smith Garde of New Haven, Conn., at Hartford, Conn., May 18  
JOSEPH LEROY STEVENS to Miss Ruth Wager Turner both of Dayton, Ohio, at Richmond, Ind., Dec 6 1934  
ROBERT WILSON JR., Charleston, S. C., to Miss Gabrielle Palmer McColl of Bennettsville, April 27  
THOMAS ARCHER GIBSON, Winchester, Va., to Miss Helen Hawke of Clifton Heights, Pa., May 4  
WILLIAM MERVEN SEABOLD, Boston, to Miss Esther Jeanette Solomon of Newton, Mass., May 4  
EDWARD M. HOLMES JR. Richmond, Va. to Miss Sarah Daily Walsh of Norfolk, April 27  
DAVID MANNING WOLFE to Miss Georgia Louise Neal, both of Augusta, Ga., April 23  
CLINTON R. COULTER, Parkers Landing, Pa. to Miss Virginia Evelyn Glazier, May 2  
ROSS PARKER COV., Rome, Ga. to Mrs. Julia B. Holland of Atlanta, March 5

## Deaths

Elizabeth Burr Thelberg, Poughkeepsie, N. Y., Woman's Medical College of the New York Infirmary for Women and Children, New York, 1884, member of the Medical Society of the State of New York for many years professor of hygiene and physiology at Vassar College, past president of the Medical Women's National Association, chairman of the Medical Council of the American Council of Women and the International Council of Women, member of the executive board and at one time director of American Women's Hospitals and was decorated by France and Serbia for work in this organization, which maintains hospitals and clinics for the destitute in various foreign countries, aged 74 died, April 22, of diabetes mellitus and coronary thrombosis  
Arthur Cushing Pearce, Boston, Harvard University Medical School, Boston, 1903, member of the Massachusetts Medical Society at one time assistant instructor in pathology and bacteriology and instructor in genito urinary diseases Tufts College Medical School aged 59, for many years on the staffs of the Boston Lying-in Hospital and of the Boston City Hospital where he died, March 16 of coronary thrombosis  
William Royster Thompson of Lexington Ky University of Louisville (Ky) Medical Department 1892 formerly health officer of Montgomery County and member of the board of health for many years assistant physician and psychiatrist of the Eastern State Hospital aged 64 on the staffs of the Good Samaritan Hospital and St. Joseph's Hospital, where he died, April 29, of pneumonia  
Julius Ola Cobb of Senior Surgeon, U. S. Public Health Service, Los Angeles Medical College of the State of South Carolina Charleston, 1883 veteran of the Spanish-American War, member of the American Clinical and Climatological Association fellow of the American College of Surgeons, aged 72 died, March 26  
Walter Andrew Crowe, Smyrna, Ga. Bellevue Hospital Medical College, New York, 1881, member of the Medical Association of Georgia fellow of the American College of Surgeons at various times on the staffs of the Grady and Wesley Memorial hospitals and St. Joseph's Infirmary, Atlanta, aged 78, died, April 4, in the Georgia Baptist Hospital, Atlanta  
George William King Secaucus, N. J., University of Michigan Department of Medicine and Surgery Ann Arbor, 1879 member of the Medical Society of New Jersey, and the American Psychiatric Association for many years superintendent of the Hudson County Hospital for Mental Diseases aged 78 died suddenly, April 15, of cerebral hemorrhage  
Clifford Robert Weiss of Dayton Ohio Ohio State University College of Medicine, Columbus, 1921, fellow of the American College of Physicians member of the Radiological Society of North America aged 39 on the staffs of St. Elizabeth's Hospital and the Good Samaritan Hospital, where he died April 2 of pulmonary tuberculosis  
Matthew Carroll Baines, Canandaigua, N. Y., Jefferson Medical College of Philadelphia 1903 member of the American Psychiatric Association and the Association for Research in Nervous and Mental Diseases served during the World War as manager of the Veterans Administration Facility, aged 60, died, April 23, at Rochester, Minn  
Joseph Augustus Mulholland, New York, Cornell University Medical College, New York, 1900, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, served during the World War, on the staff of St. Vincent's and New York Foundling hospitals, aged 56, died, April 4  
John Lear Treacy, Helena Mont., Rush Medical College, Chicago, 1910, member of the Medical Association of the State of Montana, served during the World War, on the staffs of St. Peter's and St. John's hospitals member of the school board, aged 50 died, February 24, of cirrhosis of the liver  
Joseph Henschel of New York College of Physicians and Surgeons, Medical Department of Columbia College New York Hospital and St. Elizabeth's Hospital, aged 63, died suddenly, May 1 of coronary thrombosis, while delivering a lecture.  
David Ellsworth Clopper, Kansas City, Kan., University Medical College of Kansas City, 1896, member of the Kansas Medical Society, formerly mayor of Argentine, member of the school board, aged 67, died, March 15, in the Providence Hospital, following an operation for appendicitis  
Clyde Richard Nicholson, Statesville N. C., North Carolina Medical College, Charlotte, 1912, member of the Medical Society of the State of North Carolina, aged 45 on the courtesy staff of the H. F. Long Hospital, where he died, April 13, of hypernephroma of the right kidney  
Albert August Axley of Washburn, Wis., Rush Medical College, Chicago, 1912, served during the World War, formerly health officer, president of the board of education medical superintendent of the Washburn Hospital, aged 47, died, April 16, of cerebral hemorrhage  
George Frederick Curley, Milford, Mass., Jefferson Medical College of Philadelphia, 1896 member of the Massachusetts Medical Society, fellow of the American College of Surgeons, on the staff of the Milford Hospital, aged 62, died, April 15, of heart disease  
Joseph Stephen Healy, New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890 member of the Medical Society of the State of New York, aged 77, died, March 9, in the New York Eye and Ear Infirmary  
Charles Daniel Chambers, Selmer Tenn. Memphis Hospital Medical College, 1912, served during the World War, aged 46 died April 21 in the Veterans Administration Facility, Memphis, of peritonitis, following an operation for ruptured appendix  
William A. Carpenter, Cleveland, Miss., Mississippi Medical College, Meridian, 1909, member of the Mississippi State Medical Association, at one time health officer of Lauderdale County, aged 49, died, February 26, of lobar pneumonia  
Harry J. Bennett, Lincoln Park, Mich., Queen's University Faculty of Medicine, Kingston Ont. Canada 1905 aged 56, died, April 26 in the Wyandotte (Mich.) General Hospital, of injuries received when he was struck by an automobile  
William Ernest Packwood, Riverton, Neb., Bennett College of Eclectic Medicine and Surgery, Chicago, 1906 member of the Nebraska State Medical Association, aged 58, died, March 5, of cerebral hemorrhage and arteriosclerosis  
James Clyde Johnson of Richmond, Texas Tulane University of Louisiana Medical Department, New Orleans, 1884, president of the Fort Bend County Medical Society, aged 71, died, April 22 of coronary occlusion.  
Edward Manning R. Casey, Montreal, Que., Canada, McGill University Faculty of Medicine, Montreal, 1928, member of the Associated Anesthetists of the United States and Canada aged 34 died, March 29  
Young Ernest Colville, Hilo, Hawaii, Chattanooga (Tenn.) Medical College, 1903 member of the Hawaiian Territorial Medical Association, aged 57, died, January 30, of myocarditis, arteriosclerosis and hypertension  
Frederick P. B. Bender of Detroit, University of Michigan Department of Medicine and Surgery Ann Arbor, 1902 served during the World War aged 60, died, April 8, in the Jefferson Clinic and Diagnostic Hospital  
Hermann Christopher Hoefling of New York College of Physicians and Surgeons Medical Department of Columbia College New York 1885 aged 74, died, April 4, in the New York Hospital of carcinoma

## DEATHS

1923



**Carroll Reid Copple**, Keyesport, Ill., National University of Arts and Sciences Medical Department, St. Louis, 1914, served during the World War, aged 42, died, April 19, of pulmonary tuberculosis

**William Ford Botts**, Center, Mo., Kansas City Medical College, 1897, member of the Missouri State Medical Association, formerly mayor of Santa Fe, aged 62, died, February 1, of angina pectoris

**Lewis Rousseau Scudder**, Rampet, Arcot, India, University of the City of New York Medical Department, 1888, for many years a medical missionary, aged 73, died, April 18, of heart disease

**Wellman D. Conn**, Bambridge, Ind., Louisville (Ky.) Medical College, 1893, member of the Indiana State Medical Association, aged 74, died, April 4, in the Putnam County Hospital, Greencastle

**Ernest Le Roy Bennett**, Bambridge, N. Y., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888, aged 69, died, March 13, of gastric carcinoma

**Thomas Bailey Marquis**, Hardin, Mont., University Medical College of Kansas City, Mo., 1898, served during the World War, aged 65, died suddenly, March 22, of acute dilatation of the heart

**William Duncan McKim**, Washington, D. C., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878, aged 80, died, April 11, in Pasadena, Calif.

**Francisco J. Rucavado**, Chicago, Northwestern University Medical School, Chicago, 1893, aged 76, died May 6 in the Mercy Hospital, of prostatic hypertrophy and chronic nephritis

**Judge Barclay Cruse**, Beaumont, Texas, Vanderbilt University School of Medicine, Nashville, Tenn., 1893, member of the State Medical Association of Texas, aged 65, died, April 22

**Allen Douglas Brown**, Mineral Point, Wis., Rush Medical College, Chicago, 1883, formerly mayor, aged 76, died, April 12, in St. Joseph's Hospital, Dodgeville, of coronary embolus

**Oscar Augustus Newman**, Harrisburg, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1897, aged 60, died, February 23, of carcinoma of the left lung

**Thomas W. Swalm**, Pottsville, Pa., New York Homeopathic Medical College, 1878, for many years member and president of the board of education, aged 79, died, April 5

**John Luther Campbell**, Birmingham, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1880, aged 77, died, April 21, of coronary thrombosis

**William Edgar Hare**, Garnett, Kan., Eclectic Medical University, Kansas City, 1910, member of the Kansas Medical Society, aged 73, died, February 10, of angina pectoris

**Walter Samuel Hargett**, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1905, aged 55, died, March 9, at his home in Penn. Valley, Pa.

**Charles Otto Lowry**, Pasadena, Calif., Central College of Physicians and Surgeons, Indianapolis, 1896, aged 61, died, February 25, of chronic myocarditis and nephritis

**Charles Fisher Mills**, Pismo Beach, Calif., Harvard University Medical School, Boston, 1882, aged 74, died, March 31, of heart disease, hypertension and arteriosclerosis

**James Edward Dempsey**, New York, Harvard University Medical School, Boston, 1911, aged 51, on the resident staff of the Riverside Hospital, where he died, April 9

**Frederick Eben Cummings**, Concord, N. H., Dartmouth Medical School, Hanover, 1882, aged 76, died, April 4, of cerebral hemorrhage and diabetes mellitus

**John Allison Coen**, Cameron, W. Va., University of Pittsburgh School of Medicine, 1911, served during the World War, aged 48, died, April 9, of angina pectoris

**William Sloane Orr**, Denver, Denver Homeopathic College, 1905, served during the World War, aged 71, died, February 17, as the result of an automobile accident

**William Brady Sharkey**, Clinton, Ill., St. Louis University School of Medicine, 1924, aged 35, died April 13, in the Dr. John Warner Hospital, of pneumonia

**Martin John Waldron Jr.**, Denver, Denver and Gross College of Medicine, 1904, aged 53, died, April 6, in St. Anthony's Hospital

**Edwin W. Haradon**, Old Hickory, Tenn., State University of Iowa College of Medicine, Iowa City, 1886, aged 72, died April 11, of cerebral hemorrhage

**Charles Walter McColl**, Wyandotte, Mich., Detroit College of Medicine, 1895, member of the Michigan State Medical Society, aged 69, died April 1

**Archer Wilson Paulette**, King City, Mo., Central Medical College of St. Joseph, Mo., 1896, aged 62, died April 1, in Salisbury, of coronary embolus

**William M. Hilley**, Sidney, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907), aged 59, died, February 25

**Samuel Shaw Crumbaugh**, Toledo, Ohio, Medical College of Ohio, Cincinnati, 1872, aged 87, died, April 4, of arteriosclerosis and myocarditis

**John Henry Watson**, Chicago, McGill University Faculty of Medicine, Montreal, Que., Canada, 1895, aged 64, died, April 19, of myocarditis

**Henry Stein**, Altamont, Ill., Missouri Medical College, St. Louis, 1894, for many years president of the school board, aged 65, died, April 16

**Wyatt Hutchins Alexander**, Blakely, Ga., Atlanta Medical College, 1895, member of the Medical Association of Georgia, aged 60, died, April 17

**Carl Eugene Schulte**, St. Louis, College of Physicians and Surgeons, Keokuk, Iowa, 1896, aged 67, died, April 10, of cirrhosis of the liver

**Robert William Haynes**, Long Beach, Calif., University of Pennsylvania Department of Medicine, Philadelphia, 1881, aged 74, died, March 16

**Henry Merrill Barrett**, Mount Elgin, Ont., Canada, Western University Faculty of Medicine, London, 1912, aged 45, died, March 18

**Frank Maxon Taylor**, Portland, Ore., University of Oregon Medical School, Portland, 1901, aged 61, died, April 1, in the Emanuel Hospital

**Frank D. Glenn**, Blairsville, Pa., Western Pennsylvania Medical College, Pittsburgh, 1904, aged 55, died, March 9, of diabetes mellitus

**John Alexander Heatly**, Schenectady, N. Y., Albany Medical College, 1887, aged 72, died April 3, of gastric ulcer and hemorrhage

**Samuel Newell Smith Jr.**, Providence, R. I., Cornell University Medical College, 1905, aged 53, died recently of lobar pneumonia

**Richard P. C. O'Brien**, Minneapolis, Chicago Medical College, 1885, aged 72, died, April 4, of coronary thrombosis and myocarditis

**Aaron James Hunter**, Orangeville, Ont., Canada, Victoria University Medical Department, Coburg, 1887, died January 31, of septicemia

**Simon Miller**, Mondovi, Wis., University of Pennsylvania Department of Medicine, Philadelphia, 1870, aged 86, died April 23

**William McEnery Brown**, Neustadt, Ont., Canada, Trinity Medical College, Toronto, 1884, L.R.C.P., London, 1884, died April 14

**Edwin Ferdinand Corbell**, Sunbury, N. C., University of Maryland School of Medicine, Baltimore, 1886, aged 73, died, April 11

**Leo Francis Bonner**, Paulsboro, N. J., Hahnemann Medical College and Hospital of Philadelphia, 1928, aged 30, died April 23

**Harry H. English**, Conesville, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1901, aged 72, died, April 2

**Marshall L. Bacon**, Concord, Mich., Detroit College of Medicine, 1890, aged 76, died, April 28, of cerebral hemorrhage

**Louis Nazaire Turgeon**, St. Prime, Que., Canada, Laval University Faculty of Medicine, Quebec, 1922, died, February 19

**John S. Mortlock**, Los Angeles, Hahnemann Medical College and Hospital, Chicago, 1878, aged 84, died, February 1

**Joseph H. Hall**, Norman Park, Ga., University of Georgia Medical Department, Augusta, 1889, aged 68, died, March 1

**Carl George Rahal**, Los Angeles, University of Oregon Medical School, Portland, 1908, aged 48, died, February 9

**Dugald McKenzie**, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1886, aged 74, died, April 1

**Abraham U. Chase**, Tiff City, Mo., Marion Sims College of Medicine, St. Louis, 1892, aged 67, died April 4

**Archie Griffin**, Valdosta, Ga., Louisville (Ky.) Medical College, 1894, aged 65, died May 2, of pneumonia

**Herman Burgin**, Philadelphia, Jefferson Medical College of Philadelphia, 1879, aged 84, died, April 14

**Henry Snyder**, Brooklyn, Long Island College Hospital Brooklyn, 1906, aged 53, died April 16

## Correspondence

### A SIMPLE AND EFFICIENT PATCH TEST

*To the Editor*—Because of the complicating dermatitis that occurs after the use of any adhesive agent, such as tape or the glue-like substance that has been used on the cotton felt rings, the following simple method has proved effective. It eliminates the use of rubber tissue or any agent that might produce a dermatitis through allergy.

A circular piece of sterile absorbent cotton about the size of a silver dollar (38 mm) and from 0.5 to 1 cm thick is used and the suspected agent is placed on this. If a powder is used, an amount covering an area about 1 cm square is placed in the center of the cotton; if a liquid is used a small piece of cotton 1 cm square may be soaked with the agent and placed in the center of the circular pad of cotton.

After the skin has been cleansed with ether, this cotton pad is placed with the agent against the skin on the site chosen, usually the upper part of the back. Flexible collodion is used to stick the test pad to the skin and this is well coated with the collodion. The patient is instructed to return for examination after twenty-four or forty-eight hours and a part of the patch may be loosened for examination and then resealed.

This simple method has proved adequate with insecticides, bakelite powder, soda solution and oil.

H. S. REYNOLDS, M.D., Hartford, Conn.

### INFECTION OF NURSES WITH TUBERCULOSIS

*To the Editor*—The communication of Dr. H. J. Ustvedt in *THE JOURNAL*, March 9, page 851, touches several important problems. The nurses who enter the Ullevaal Hospital in Oslo with negative tuberculin reactions are all apparently infected with tubercle bacilli during a three year period of training. This experience, combined with the additional observation that in this interval 48 and 346 per cent of the nurses who entered the institution with positive and negative tuberculin reactions respectively developed clinical tuberculosis, illustrates the need for the routine observance of strict contagious technic by all who are attending tuberculous patients. Violations of basic principles of communicable disease control by the staffs of hospitals retard the progress of programs designed to eradicate tuberculosis. This situation, prevalent doubtless in hospitals throughout the world, merits immediate correction under the leadership of the medical profession, otherwise a penalty in the form of new cases of clinical tuberculosis of institutional origin continues to be paid for permitting infection to occur.

Dr. Ustvedt presents valuable data derived from studies now in progress in Oslo which he interprets as significant evidence that tuberculin sensitive individuals withstand exposure to infection more successfully than normal uncontaminated persons do.

Certain observations (to be published in the *American Journal of Diseases of Children*) made at Lymanhurst however fail to support this view. During the past thirteen years we have observed and traced 183 children who without exception experienced pulmonary infections in dosage sufficient to produce infiltrations demonstrable on chest films. On the basis of repeated examinations the lesions were recognized as tuberculosis of the first infection type in 131 instances, and as phthisis in the remaining fifty-two cases. One of the group of 131 children with primary tuberculosis died of tuberculous meningitis. In the remaining 130 cases of this series the infiltrations resolved in time without requiring the aid of therapeutic measures to leave several examples each of roentgeno-

graphically negative lungs, Ghon tubercles, calcified mediastinal glands or fibrotic scars. Not one of these pneumonic lesions producing first infections resulted in phthisis.

The experience of these 131 freshly infected children with primary tuberculosis was quite different from that observed for the remaining fifty-two patients who on admission had positive tuberculin reactions and no roentgenologic evidence of phthisis but developed tuberculous pulmonary infiltrations subsequent to their entry to the clinic. These fifty-two new lesions known in each instance to be the result of superinfections and not the immediate product of first infections manifested characteristics deemed typical of phthisis in tending to persist, to spread, to cavitate and to cause illness. In spite of special therapy, thirteen of these patients have died of tuberculosis and several additional cases now show far advanced disease. Not one of the fifty-two reinfection lesions has resolved in the manner exhibited by over 99 per cent of the 131 observed first infection infiltrations. Statistical analysis of these data, involving the computation of chi-square, reveals the existence of no chances per million for accidental sampling to explain the observation that infections capable in all instances of producing pulmonary infiltrations consistently result in a relatively benign type of tuberculosis but fail to cause phthisis when they are primary in nature, whereas lesions producing superinfections or reinfections consistently result in phthisis, a relatively serious condition. This observation is interpreted as significant evidence that a susceptibility to the reinfection or adult type of pulmonary tuberculosis resides solely in patients who have survived the immediate risks that attend an initial infection. By virtue of this dangerous susceptibility created by a first infection, a direct causal relationship seems to exist between primary tuberculosis and phthisis. Apparently the latter develops solely following the antecedent presence of the former, which produced complex abnormal immunologic changes favoring this situation. A susceptibility to phthisis is a serious double liability. Its materialization claims many lives and at the same time it permits the origin of the form of the disease which perpetuates a major health menace. The solution of this public health problem seems to depend mainly on preventing infections rather than on placing reliance on an alleged postinfection acquired immunity.

The use of different methods for classifying tuberculosis may explain a part of the failure of deductions based on independent but otherwise similar studies to be in agreement. Apparently greater attention is paid at Lymanhurst than at Oslo in differentiating the benign primary from the more serious reinfection forms of tuberculosis. This differentiation is made at Lymanhurst on the basis of several points, including knowledge of previous tuberculin reactions, serial x-ray plates and clinical observations. When differentiated on this basis, the death rate observed for the first infection type of pulmonary tuberculosis exhibiting parenchymal infiltrations was found to be 0.76 per cent (one of 131 cases) as compared with a rate of 25 per cent (thirteen of fifty-two cases) for the cases diagnosed as examples of phthisis. Statistical analysis of these observations, employing the computation of chi-square reveals the existence of no chances in a thousand for the difference between the high but as yet incomplete death rate for patients considered to have phthisis as compared with the low and probably final primary tuberculosis death rate for children with lesions diagnosed as the first infection type to be due to accident. These observations are interpreted as reliable evidence that the type of pulmonary tuberculosis present in one of our series of cases is a clinical entity distinct from that present in the other, that the separate identification of these two conditions has been carried out correctly at Lymanhurst, and lastly that normal children control lesion-producing first infections far more satisfactorily than tuberculin-sensitive individuals resist

lesion-producing reinfections. A superior ability to combat tuberculosis seems to be possessed therefore by the previously uncontaminated child.

Before the theory that a tuberculous infection produces a worthwhile immunity can be accepted without qualifications, indisputable evidence should be presented to show that the initial deposit of tubercle bacilli does not create a susceptibility to phthisis and that primary foci of disease are not parent eventually in many instances to clinical forms of the disease of endogenous origin such as tuberculosis of serous membranes, of bones and joints, of different viscera, or of phthisis.

These possible potentialities which often are months or years in materializing, combined with the more immediate serious catastrophes that complicate a certain percentage of first infections with virulent tubercle bacilli, must be balanced as liabilities versus the immunity alleged to arise from a primary infection, before an experience of this character can be definitely identified as conferring positive net benefits on the patient.

Considerable justification exists, I believe, for being reluctant to accept the excellent work in Oslo as final proof that net benefits consistently accrue to those who become contaminated with virulent organisms. The divergence of the opinions derived from independent studies directed toward solving perplexing and important questions is stimulating. Dr. Ustved's communication focuses attention on crucial problems that invite investigators to aid one another in a continued search for the truth.

C. A. STEWART, M.D., Minneapolis

#### PERFUME DERMATITIS

*To the Editor*—I read with a great deal of interest the article by Dr. Norman Tobias on "Emeraude Perfume Dermatitis." In an article on "Lipstick Dermatitis" to be published in the *Archives of Dermatology and Syphilology*, I describe work in which it was found that the factor was the perfume component and the specific substance of the perfume component (methyl heptene carbonate). This is a new synthetic derived from ricinoleic acid and is widely used by the perfumers for violet odor. I have found over 50 per cent of both men and women sensitive to this substance by the patch test.

In his conclusion, Dr. Tobias mentions three possible causative factors in perfume dermatitis, namely, concentration of the perfume, irritants due to aging, and sunlight. I do not know whether or not emeraude contains methyl heptene carbonate, but from my limited observations I believe that this substance is of prime importance in the development of a dermatitis in which perfume may be a factor. Perfumers have recognized methyl heptene carbonate as an eczematizing agent and are eliminating it.

HARRY LEONARD BAER, M.D., Pittsburgh

#### OSTEOPATHY AND LICENSURE

*To the Editor*—Every earnest physician should have a liberal supply of reprints of the article by Etherington on this subject (*THE JOURNAL*, April 27, p. 1549) for distribution to the public. It is quite superior to anything that has been published.

I still have in my files roentgenograms of a neck, which one of the ilk succeeded in fracturing in the then faddish treatment of polishing up the upper end of the spine.

The woman lived several years. She was seen by Dr. Goldthwaite of Boston, and later at autopsy by Dr. J. D. Pilcher, under the direction of the late Dr. Carl Hamann, who was present the fracture was verified.

It may not have been a misfortune to the public that this same chap ultimately located in Chicago, whence shortly afterward he migrated to a place where they probably use some sort of heat, generated by brimstone, for fusing his breaks.

W. F. BROKAW, M.D., Cleveland

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

#### EFFECTS OF EXERCISE ON GASTRIC ULCER

*To the Editor*—What is the current opinion as to the effect of physical exercise either moderate or violent on a gastric or duodenal ulcer in its quiescent stage in an adult of middle age? Please omit name and address.

M.D. New York

ANSWER.—Recent study (Hellebrandt, F. A., and Dimmitt, L. L. *Am J Physiol* 107:355 [Feb.] 1934) has shown that, in general, violent exercise shortly before eating definitely inhibits gastric secretion and motility but that this first phase of inhibition of the digestive cycle is followed by a period of augmented activity. The hypersecretion and hypermotility already present in these patients would therefore be increased and for this reason violent exercise should be contraindicated in a patient of middle age with a gastric or duodenal ulcer in its quiescent stage.

Moderate exercise is as a rule advised by most gastroenterologists as part of a system of hygienic living for the ulcer patient (Harris, Seale. *J Oklahoma M A* 26:287 [Aug.] 1933). Ulcer patients prior to dismissal are given an outline of a system for hygienic living, as follows: "Fifteen minutes exercise with the windows wide open before the morning bath. Follow the bath with massage (brisk rubbing with the open hand) of the entire body until the skin is reddened. A walk of one or two miles in the open air and sunlight each day or, what is better, play golf two or three afternoons a week." In addition there is advised "eight hours for play," which includes morning exercise, bath, golf or outdoor exercises.

It is important to realize that the treatment of an ulcer patient must have as its objective the treatment of the entire patient. This includes to a large extent elimination of the nervous stresses and strains as well as local therapy directed at the ulcer. No ulcer patient should be subjected to a competitive golf match or to any other exercise that increases nervous tension. As far as possible these individuals should be taught serenity and relaxation both in their vocations and in their avocations.

#### ACUTE NEPHRITIS IN A CHILD

*To the Editor*—In May 1934 I saw a boy aged 11 who following a mild respiratory infection began to pass urine of a reddish color. There was also at the onset some puffiness of the eyelids and his mother stated that his face looked a little swollen. These symptoms were noted by the patient's mother for two weeks before I was called to see him. During this time he had attended school and was about as active as usual. At the time of my first visit the patient showed moderate edema of the eyelids and face. He was pale, the hemoglobin was 55 per cent. The temperature was 100 F, the pulse was 90 and respirations numbered 20. The heart, lungs and abdomen were normal. There was no edema of the extremities. The urine was smoky, was red and contained 3+ albumin. There were numerous red blood cells and hyaline and granular casts. The blood pressure was 140 systolic, 100 diastolic. He was put on a diet poor in salt, high in carbohydrates and with enough protein to care for his needs. Fluids were moderately restricted. He was ordered to remain in bed. On this regimen he gradually improved. In two months the albumin, blood and casts were no longer found. There was no edema. The blood pressure, however, remained high but with variations. The systolic pressure ranged from 130 to 170 and the diastolic from 90 to 115. He was kept in bed for a month after the urine cleared up. He was then allowed up part of the time. This seemed to make no difference in the urine and the blood pressure averaged the same as when he was in bed. He has definitely impaired renal function for the maximum non-specific gravity attainable on a concentration test is 1.014. His non-protein nitrogen is 60 mg. per hundred cubic centimeters of blood although the value for creatinine is normal being 1.73. Here then is a boy with chronic glomerulonephritis, hypertension, impaired renal function and nitrogen retention. I need advice on the following questions: 1. At this stage should bed rest be enforced? 2. What is the usual prognosis in a case of this kind? Any suggestions as to diet or management of this case will be greatly appreciated. Please omit name.

M.D. Wisconsin

ANSWER.—1. Five or six months has passed since this child had an attack of acute nephritis, and the condition may now be regarded as subacute or chronic. Since there is no evidence of an active infection, the boy may be out of bed, and he may be allowed activity and exercise, though not up to the point of fatigue.

2. The prognosis in such a case will vary with the extent of actual anatomic damage to the kidney tissues. Many of these

children recover entirely if no additional acute attacks of nephritis occur. It should always be remembered that the recuperative powers of a young person are comparatively greater than those of an adult.

As to the diet and management of such a case, it is being generally accepted that a more liberal diet than was formerly allowed is advisable. Enough protein should be allowed to keep the patient in a positive balance, and this will approximate 1 Gm of protein per pound of body weight. Some children who have been kept on a protein-free diet without results have shown marked improvement when a more liberal diet was given.

These children should be kept warm and warmly clad, and protected against bodily chilling. They should be protected, if possible, against infections, and exercise should not be allowed to the point of fatigue. As a matter of fact, if it is feasible, these children do better if they are sent to a warm climate during the cold winter months.

#### CHRONIC HYPERTROPHIC ARTHRITIS

To the Editor.—A white man aged 43 came to me three years ago complaining of pain, redness and swelling in the right first metatarsophalangeal joint. The roentgen diagnosis was hypertrophic arthritis. This has gradually progressed to the other foot, the hands, the cervical vertebrae, the wrists and the elbows in the order named. When first seen the patient had one nonvital tooth and a prostatitis manifested by swelling and tenderness and from 25 to 50 pus cells per high power field. The tooth was extracted and the prostate treated by diathermy and massage with gradual improvement. Since the marriage of the patient one year ago the pus cells have disappeared from the expressed secretion. A tonsillectomy was performed in June 1933. One year ago a general examination showed a persistent achlorhydria, blood nonprotein nitrogen 33.4, uric acid 3.4 and a basal metabolic rate of  $-3$  per cent. The blood count, urinalysis and Wassermann reaction were negative. The man continues to have increasing involvement of the joints, muscular pains, a feeling of fatigue and gastric distress. He is a mental worker and improves immediately following vacations. Medication including salicylates, cinchophen, ammonium orthoiodoxybenzoate and hydrochloric acid gives little or no improvement. 1. Is there any other drug offering a good chance of success in an arthritis of this type? 2. What is the status of endocrine therapy? 3. Is induction of fever by mechanical means any more than palliative? 4. What are the comparative values of nonspecific protein therapy and autogenous vaccine (prepared for example from the prostatic secretion)? Please withhold name.

M D Michigan

ANSWER.—1. There is no drug that can be used safely which offers much chance of success in treating arthritis of the type described. Elixir of phenobarbital in 4 cc. doses three times a day in addition to the salicylates has been found in some instances to bring about a more gratifying response than do the salicylates alone.

2. Endocrine therapy has proved of little value except in some cases in which the basal metabolic rate was definitely low.

3. The induction of fever by mechanical means often brings about a rather striking degree of improvement. In some patients this improvement has been maintained for long periods, but in most instances it has been temporary. It is doubtful whether the procedure justifies the risk that is entailed except in the case of relatively young persons who are organically sound and for whom the procedure may be repeated at regular intervals.

4. The question concerning the comparative value of nonspecific protein therapy and autogenous vaccine is one that is being widely discussed and on which there is no uniform agreement at the present time. The use of nonspecific protein causes a rise in body temperature that is quite comparable, both in its clinical aspect and in the results obtained, to the production of fever by mechanical means. Theoretically this improves the peripheral circulation and increases the metabolic processes of cells throughout the body. The autogenous vaccine is usually given in minute doses and causes little if any rise in the temperature of the body as a whole. The theory of this therapy would seem to be logical from the standpoint of raising the body's resistance to a specific organism provided the vaccine is obtained from organisms that may be reasonably suspected as being causative agents in the production of the disease itself. Repeated doses of such vaccines, together with the usual program for the care of these patients consisting of a diet low in carbohydrates and rich in vitamins C and D or to which these vitamins have been added in concentrated form and above everything else rest both at night and if possible, for an hour or more during the day, would seem to offer the best prognosis for ultimate recovery.

The fact that the patient reported improvement following a vacation is an almost uniform observation in patients with this type of arthritis. For that reason long periods of rest and if

possible, rest in a hospital or sanatorium where the program of care can be rigidly enforced, makes the prognosis better than is possible for those who for economic reasons have to work while undergoing treatment.

#### VASODILATORS IN HYPERTENSION

To the Editor.—I write to ask why the standard vasodilators are not in good repute for the treatment of hypertension. Although their action is only temporary and palliative no satisfactory remedy for the condition exists. Since vasodilators in my experience act promptly and positively, it seems to me that their administration should be endorsed in selected cases. The ultimate results of hypertension are usually a diseased heart, sclerotic arteries or both. Hence is it not reasonable to assume that any measure that will lower the tension even for a few hours a day may help to postpone the final disaster? Concretely, I have a patient whose pressure falls from 180/100 to 162/84 on the administration of 2 grains (0.13 Gm) of sodium nitrite remaining at the lower point for two or three hours. During this period except sometimes for a slight headache the patient feels more comfortable. Am I not justified in alleviating his condition thus at least until something better comes along? Please omit name.

M D Illinois

ANSWER.—The ill repute of the nitrite vasodilators for the treatment of hypertension has probably been exaggerated. It is a fundamental principle of sound therapeutics that the injured structures be given the maximum of rest. In hypertensive arterial disease the primary injury is the continuous hypertonia of the medial musculature of the arteriole. Arterial sedation, mild and long continued is an important part of the management of hypertension. To be of any permanent or curative value, such sedation must be continued for months.

The chief basis for criticism of the nitrite vasodilators is the transient nature of their pharmacologic effect. Of the soluble nitrites and nitrates (sodium nitrite, amyl nitrite, glyceryl trinitrate ['nitroglycerin'], erythrol tetranitrate, mannitol hexanitrate and spirits of ethyl nitrite) mannitol hexanitrate is said to have the most prolonged effect, the arterial tension usually remaining below previous levels for from five to six hours, whereas the effects of sodium nitrite ordinarily persist for from one to two hours. The extent of fall increases with the dosage, but the duration of action is not much influenced by the amount administered. After the initial violent drop in pressure that occurs on the inhalation of amyl nitrite, the tension may rise to levels in excess of the original reading.

Nitrites are not wholly innocuous. Large doses cause the formation of methemoglobin. Increased tolerance to the alkyl nitrates (especially to nitroglycerol) is acquired quickly, so that the dosage must be increased to obtain the usual effect. Avoidance of the drug for a few days usually restores the responsiveness. It is claimed that tolerance is not acquired to sodium nitrite or to erythrol tetranitrate. Excessive acute reduction of the arterial tension may cause relative hypotension with impairment of the cerebral circulation, especially if the hypertension has been long standing and arteriosclerosis has occurred. The dose of 0.13 Gm of sodium nitrite, although within the accepted range is a liberal one. It would appear more logical to give smaller doses more frequently, so that a milder effect might be maintained longer.

Because the fleeting nature of the vasodilator effects of these soluble compounds makes the induction of persistent and prolonged arterial sedation difficult, the use of a poorly soluble nitrate, which is reduced to nitrite by *B. coli*, has been suggested. Bismuth subnitrate, 0.6 Gm (10 grains) three times daily for weeks, has proved in the hands of a number of investigators to be a safe and often valuable adjunct in the management of hypertensive disease. The slow but continuous liberation of nitrite by the bacteria of the bowel generally maintains a continued mild vasodepressant effect. In the amounts indicated, bismuth subnitrate is nontoxic and rarely induces constipation. Its administration is safe. The thiocyanates, on the other hand, are more active arterial sedatives, but are too toxic to be safe. Although a few have doubted whether appreciable nitrite is obtained for the bismuth subnitrate reaction, it has recently been demonstrated that the nitrite content of the blood is distinctly increased by the injection of bismuth subnitrate as well as by sodium nitrite.

Aside from continued arterial sedation, it is imperative that therapy include correction of any causative factors that may be amenable to therapy. In the query nothing was stated concerning the probable or possible etiology of the hypertension in the case mentioned. Such factors as chronic plumbism, focal infections, dietary indiscretions, fatigue and worry and endocrine dyscrasias must be carefully searched for and, if feasible and safe, corrected. Curative therapeutics must include due consideration of etiology. Vasodilator drugs should be employed as auxiliaries.

## ATROPHY OF MUSCLES AFTER NERVE INJURY

*To the Editor*—A man aged 24 was injured three years ago in an automobile accident. His left hand was amputated just above the wrist immediately after the accident. There were no other apparent injuries to the left extremity except minor abrasions of the skin. However in the three subsequent years there has been a progressive atrophy of the muscles about the left shoulder and arm, suggesting an injury to the left brachial plexus. On examination active movement of the left extremity is practically nil yet many of the groups of muscles react slightly to stimulation with the galvanic current. The patient has requested a higher amputation of the left extremity because of its uselessness and cumbersome. Is it possible to develop the muscles of the extremity by electrical stimulation after three years of progressive atrophy?

A. H. KIMMEL, M.D. Norwalk, Ohio

*ANSWER*—There is no conclusive evidence that atrophy of the muscles can be prevented by electrical stimulation. However, there is clinical evidence that the use of electrical stimulation by means of the galvanic current with the slow sinusoidal current will assist in preventing atrophy.

In this particular case a careful test should be made for the reaction of degeneration also a functional muscle test the same as that which is made for poliomyelitis to determine the strength of the various muscle groups. Both tests should be made in the lying position. If a Hubbard tank is available the patient should be placed in such a tank and the shoulder and elbow joints passively moved in all planes followed by assistive therapeutic exercise for all muscle groups. Even though one is able to feel only faint contractions with the first endeavor one should persist in this type of work and proceed from the resistive to free movement and then to the resistive type. The patient should be dried well after being removed from the Hubbard tank. One should proceed with a light stroking massage for five or ten minutes and follow this with a mild slow sinusoidal current to a point of slowing contraction. This may not be more than three or four contractions just enough current being used to produce a mild contraction.

At the end of a month one should check again with a functional muscle test and an electrical test to determine whether the reaction of degeneration has decreased. If these tests show improvement one should continue with the treatment checking at the end of each month as to the further improvement being made. One need not consider amputation until after the use of treatment as outlined has proved of no value.

Examination in the lying position or in the Hubbard tank may prove that there is more movement than was originally thought.

## URTICARIA WITH TRAUMA

*To the Editor*—A white man aged 42 who is a cornet player has suffered for the past three years from redness, swelling and itching of any part of his body that is used or rubbed. If he sits on a hard chair his buttocks are afflicted if he plays the cornet his hands and lips if he wears a hat and sweats his forehead. About once in four months and especially if he has a head cold he develops a generalized itchy maculopapular erythematous rash. All of these disappear spontaneously after one and one-half to two days. There is no history of allergy. (General physical examination is negative. The Wassermann reaction is negative and the urine and nonprotein nitrogen are normal. Patch tests are negative except for rye, egg, pea and lima beans. Elimination of these has produced no result. Are all of his symptoms allergic? If not can you suggest a diagnosis? What further diagnostic procedures would you suggest? What is the present status of calcium, ephedrine and nitro hydrochloric acid in the treatment of allergy? Please omit name.

M. D. Connecticut

*ANSWER*—The most definite and constant element in the case cited is the precipitation of urticarial swellings at the point of mechanical irritation. Two possibilities are present. One is that an underlying chemical allergy, such as food sensitivity, is present and the trauma is the precipitating factor in the production of the lesion. The other possibility is that it is a pure physical sensitiveness. Even though the latter is the case there is still no reason why it should not be regarded as 'allergic,' since allergy is essentially an abnormal response to a normal stimulus.

Pure physical allergy due to trauma is probably not common and it would be best to assume for the present that other causes are involved. Food sensitization should be considered first. Complete cutaneous tests should be made with foods and also inhalants such as epidermals and pollens. Intradermal tests are indicated if the scratch tests are negative. Food elimination trials are next in order if the tests are not conclusive. Patch tests in urticaria are of almost no value. They find their greatest sphere of usefulness in contact dermatitis. A search for foci of infection should be carefully made since a fair proportion of instances of urticaria and angioneurotic edema are caused by such chronic infections as may occur in the tonsils, sinuses, teeth, gallbladder and disturbed bowel function.

I further credence of such a possibility is evidenced in this case by the advent of acute exacerbations of urticaria following an acute infection of the respiratory tract.

In the event of failure of the foregoing a few other diagnostic and therapeutic procedures are available. Gastric analysis may show an achlorhydria or a hypochlorhydria. The use of dilute hydrochloric acid with meals with the possible addition of other enzymes may be of benefit. Occasionally the basal metabolism may be lowered calling for the use of thyroid extract. The serum calcium is rarely below normal. The administration of calcium salts is rarely of benefit although the use of para thyroid extract subcutaneously frequently controls the condition. A possible endocrine disturbance should be kept in mind. The possibility of nervous and psychic factors should not be neglected since they are at times even more important than the others.

It may be possible to help the patient by repeated attempts to desensitize the skin by mechanical trauma. This may be tried with the method of daily brisk rubs with a stiff brush, for example.

Ephedrine is of course of only temporary benefit and even then it usually does not give the results that one might expect. It is probably however the best and simplest symptomatic remedy, particularly in acute cases of urticaria. In other allergic conditions such as asthma and hay fever its action is more certain. In the main however ephedrine has not quite the degree of usefulness in allergic diseases that was expected a number of years ago. Nitrohydrochloric acid is probably no different than any other acid; its action is probably that of favoring digestion. It may be useful occasionally in food allergy. In the hands of most men of wide experience in allergy it has been an almost universal failure in the treatment of hay fever.

## LEUKOPENIA

*To the Editor*—I am a physician aged 28. After an exhaustive winter for three and one-half months I was bothered by periodic flare ups of marked weakness, easy fatigability and generalized muscle and joint pains without fever and with good nutrition. Exhaustive laboratory and roentgen tests for foci of infection were all negative and no clinical or physical pathologic condition was found except a white blood count of 5,200 and neutrophils 35 per cent with otherwise a normal smear. After perfect hygienic treatment there has been some slight improvement, but exacerbations every seven to ten days still occur with a fall of only 1,000 in the white blood count. I should much appreciate any suggestions for treatment of this condition. Have you heard of mild neutropenia alone causing these symptoms? Should pentnucleotide be used? Would extract of yellow bone marrow be of use? What is the dosage and where can this product be procured? How about liver extract? One month ago I tried three 10 cc shots daily of pentnucleotide with severe immediate and delayed reaction of malaise and fever. I am now trying 5 cc injections every other day. The results have been only questionable.

M. D. New York

*ANSWER*—The influence of physical or mental stress in precipitating the syndrome of relative granulopenia with malaise and exhaustion in individuals with a readily decompensated myelopoietic marrow function should be more widely appreciated. Proper rest and relaxation in the absence of other medication will frequently suffice to eliminate symptoms and restore the granulopoietic function to normal. In another physician with an identical history seen first four years ago the syndrome recurred three times. Nucleotide therapy invoked a remission the first two times but rest and a complete divorce from all professional responsibilities for a six week period was quite as effective the third time. There have been no symptoms and the white count has remained normal for the past two years the physician having resumed active practice. Therefore the first requisite under such circumstances is, temporarily, complete emotional and physical rest.

The degree of granulopenia is not necessarily proportional to the severity of symptoms. A relatively moderate neutropenia may be associated with marked subjective symptoms, while an extreme deficiency sometimes is unattended by the classic signs described by Schultz. In the absence of other demonstrable cause it is possible for the symptoms mentioned to be secondary to the relative neutropenia (35 per cent of 5,200 cells) cited though 1,800 granulocytes, if functionally mature and efficient, have more frequently than not been found to be above the critical level for the development of clinical symptoms. A continued search for some causative factor or factors outside the bone marrow is therefore indicated, as for example in the liver, spleen or lymph nodes.

Liver extract and yellow bone marrow are reported to have stimulated granulopoiesis in a limited number of patients but the rationale of this therapy is not yet clear. The marrow thus far used has been made up in capsules in the laboratories conducting the observations. Leukopenia secondary to megal-

blastic hyperplasia as in pernicious anemia, is, of course, automatically relieved by liver following the restoration of normal erythroblastic marrow, but this is not due to any direct effect on granulopoiesis. The late Roger Morris and his associates have reported a leukopoietic fraction in hog gastric juice capable of mobilizing granulocytes, but only a very limited number of observations have been made thus far and more fundamental studies under controlled conditions in animals must be awaited before this can be fully accepted.

The nucleotides have been administered daily to animals for as long as four months with a maintained elevation of granulocytes throughout this period. Clinically, however, it has not been necessary to maintain the administration of nucleic acid products indefinitely.

The mechanism of hematopoiesis is so complex that it is essential to differentiate sharply between a great variety of leukopenic states of widely divergent etiology, if the problem of the individual patient is to be solved satisfactorily.

#### DIFFERENTIAL DIAGNOSIS IN ARTHRITIS OF SPINE

*To the Editor*—A white man aged 29, seen in May 1934 complained of pain in the sacro-iliac region and inability to stoop or get up from a stooping position. This complaint had been present for two days. The past history was negative except for gonorrheal urethritis ten years previously treated for one month and apparently cured and a fall from a pole in January 1933. He was working strapped to the pole when the strap broke and he slid down the pole about 20 feet striking the ground in a sitting position. At this time he made three visits to the doctor because of low back pain. This pain recurred at intervals but caused no loss of time from work until the onset of the present illness. Physical examination is negative except for extreme tenderness over both sacro-iliac joints considerable enlargement and tenderness of the prostate and almost pure pus expressed from the prostate gland. He was treated with sodium salicylate 10 grains (0.65 Gm.) every four hours strapping of the back hot baths and prostatic massage twice weekly. On this treatment he improved and the prostate returned to normal size but the prostatic fluid was still loaded with pus after four weeks treatment. At this time vaccine therapy was suggested and the patient did not return for further treatment. When next seen September 1 the back pain had recurred and pain and tenderness were present over the course of the left sciatic nerve. He was confined to bed. The prostate was of normal size but the fluid contained many pus cells. The urine contained mucus and pus cells. Roentgen examination September 4 with anterior posterior and lateral films showed no evidence of bone changes or traumatism of the spine. The patient was then referred to an orthopedist who placed him in a body cast for six weeks. This gave him complete relief from the symptoms. The prostatic massage was resumed and the fluid still contains many pus cells but they are much decreased, estimated at about 200 cells to each low power field. Roentgen examination about November 20 by another roentgenologist showed no definite evidence of arthritis of the lumbar spine or sacro-iliac region. The articular facets between the fifth lumbar vertebra and the top of the sacrum were asymmetrically placed. All the inferior facets of the lumbar vertebrae were unequal on the two sides. The left inferior articular facet of the third lumbar vertebra and the right articular facet of the second lumbar vertebra were in two pieces. The roentgenologist believed that there was a slight anterior slipping of the body of the fifth lumbar vertebra on the top of the sacrum. The orthopedist does not agree with the roentgenologist regarding the slipping of the fifth lumbar vertebra. Prostatic smears were negative for gonococci. Pus cells and gram-negative cocci were found. The orthopedist is of the opinion that this disability is due entirely to the trauma incurred in the fall in January 1933. He bases this opinion partly on the fact that gonorrheal arthritis does not attack the spine or sacro-iliac joints as a rule. I am of the opinion that this is an infectious process probably aggravated by the fall. Which opinion do you think is most likely true? Please omit name. M D Ohio

*ANSWER*—The important question involved is the question of trauma plus infection which can produce chronic arthritis. The injury localizes the focal infection in the spine. The spine may or may not have been involved before the trauma.

Trauma plus a chronic gonococcal infection can produce ankylosing arthritis involving the articular facets. As a matter of clinical experience gonococcal infection appears to have a predilection for the spine of young men.

If in the oblique roentgenographic projection the facets appear to be ankylosing one might assume an infectious etiological factor, of which group the gonococcus is a classic example.

One may be dealing here with a nonspecific vesiculitis in which connection the use of Pregl's solution of iodine has been recommended. This treatment or any more appropriate treatment, should be administered by a competent urologist.

The question of spondylolisthesis should be determined by a careful examination of the relationship of the lumbar spine, especially the fifth to the sacrum as presented in a lateral view. In this connection the so-called Ullman's line erected parallel with the anterior border of the first sacral segment should not cut off any of the inferior anterior portion of the fifth lumbar vertebra.

#### INITIAL INFECTION IN SYPHILIS

*To the Editor*—A woman aged 21, single presented herself to me with the chief complaint of nausea not related apparently to meals or to any particular time of day. General examination revealed no organic ailment, but the blood examination showed 4 plus Kahn and Wassermann reactions. The history was negative for any past primary or secondary lesions. Repeated laboratory tests of the blood merely verified the original result. Antisyphilitic treatment was begun in May 1933 and has been continued up to the present with but one month's interruption. From May 1933 to June 20 1933 she received eight injections of nearsphenamine of 0.6 Gm each at weekly intervals. Then up to Oct 1 1933, twenty-four intramuscular injections were given of 2 cc of bismuth sodium tartrate. Then up to the present time the patient has received one injection of nearsphenamine 0.6 Gm and one intramuscular injection of the bismuth preparation 2 cc each week. The total bismuth injections for the total period numbered about sixty-four and the total nearsphenamine injections forty-two. Repeated blood tests have shown no change whatever with the exception of a slight reduction in the quantitative Kahn units. I should like expressions from you as to how this patient received her initial infection considering the fact that the past history was negative and considering also that the patient happened to be a very intelligent graduate nurse. Further, I should like to have an opinion on how the future course of treatment should be planned and what prognosis could be given as to cure. Please omit name. M D Missouri

*ANSWER*—History, particularly in the woman with syphilis is a conspicuously unsatisfactory way of determining the origin of a syphilitic infection. Even an intelligent graduate nurse has eight inches of genital tract wholly inaccessible to her own observation, and the observations of Anwyll-Davies tend to indicate that genitally acquired infections in women frequently begin with a cervical chancre. She may have been the victim of a misinterpreted extragenital infection masquerading as herpes tonsillitis or diphtheria. She may be the victim of a prenatal syphilitic infection and the inquirer's statement gives no particulars suggesting that this possibility had been investigated by clinical examination. If she has an acquired infection at least a spinal fluid examination should have been performed early in the course of the treatment described to determine whether or not the persistent positive blood serologic tests were features of a central nervous system involvement or not.

It is impossible to discuss further treatment or prognosis without the details of an adequate clinical examination and an examination of the spinal fluid. If the case turns out to be one of completely asymptomatic latency the treatment already given approximates and in fact exceeds the standard set by the Cooperative Clinical Group in this country for the management of asymptomatic latency. Should the patient desire to marry and have children the whole situation would be subject to reinterpretation in the light of adequate examination.

#### NUMBNESS OF FINGERS DURING PREGNANCY—DEATH IN COMA

*To the Editor*—1 I have a patient who has a numbness of the middle three fingers on her right hand. This is felt chiefly at night when she lies down. After the hand has become numb for a time it begins to ache. The most peculiar thing about it is the fact that she has it only when she is pregnant. It begins to bother her about the fourth month and then continues on through pregnancy. There are no foci and she is not a hysterical patient. She does have considerable gas otherwise the examination is negative. The pain does not respond to hot packs or to any of the salicylates. What would you recommend? 2 My next question concerns a woman aged 46 who died in coma the coma lasting seventy-two hours. She had had heart trouble for twenty years. She had a severe chronic interstitial nephritis but no hypertension. The phenol sulphophthalein test showed 40 per cent and her urea nitrogen was 20. There was no sugar in the urine on repeated examinations. She had no convulsions and at no time did she have Cheyne-Stokes respiration. Her final illness began with a heart attack. She became very weak unconscious and pale. I gave her some caffeine sodiobenzoate and she became conscious for a short time. At this time she thought she saw her husband who was away at the time. In a few hours she went into I would say a light coma. She opened her eyes at intervals and it appeared that she could see a person in her line of vision. I fed her through a nasal tube for about sixty-eight hours and catheterized her every twelve hours until she had incontinence. The last thirty hours her lungs filled with congestion which finally caused her death. What caused this coma? Her heart did not seem to give out. (She was completely digitized.) Please omit name. M D Nebraska

*ANSWER*—1 Numbness of the middle three fingers does not correspond to the distribution of the peripheral nerves. The fact that the numbness comes only with the patient in the recumbent position suggests that pressure or posture may be a factor. Since the complaint is present only during pregnancy, however, the diagnosis is complicated. Numbness or paresthesia is usually an early symptom of peripheral neuritis, of combined sclerosis in pernicious anemia or of cerebral arteriosclerosis. In many cases no organic cause is found. Neuritis in pregnancy



has been described, but the fact that in this case numbness follows no nerve distribution and is not associated with pain seems to eliminate this etiologic factor. Deficiencies in calcium metabolism during pregnancy, with neuromuscular disturbances are not uncommon. Administration of calcium and viosterol could be tried. It would be well to determine whether the pulsations are normal in the peripheral arteries and whether there is diminished circulation during the periods of numbness. This can be determined by the presence of reduced temperature of the affected fingers. The fact that this condition has persisted for a period of years without evidence of primary disease or serious sequelae would rather incline one to believe that it is an expression of a functional disorder rather than any organic complaint. No special treatment seems indicated if primary disease is not found. Relief of the anxiety associated with the complaint is often effective.

2. The data indicate that renal function was fairly adequate and was not the basis of the coma. The patient's age (46 years) suggests two possible causes of coma and death: (1) cerebral embolism, if valvular heart disease was present, or (2) some primary cerebral disease, such as thrombosis of an artery or acute encephalitis. Coma seemed to predominate in the terminal picture. This is rare in coronary thrombosis or in acute cardiac death. The absence of precordial pain is against this diagnosis. The usual causes of coma of renal or diabetic origin or from drug poisoning seem in this case to be ruled out. The most rational explanation is some cerebral basis, probably encephalitis.

#### CONVULSIVE SEIZURES IN INFANCY

To the Editor—A boy baby aged 5½ months, has had convulsive seizures for one month. The spells last usually not over one minute and may be as frequent as from three to eight attacks in twenty-four hours with periods of freedom from attacks for as long as ten days. A typical spell is ushered in by a sort of overexcited period of a few seconds followed by an expression of distress, rapid shallow respirations, apparent loss of consciousness (variable) lasting half a minute then a muscular convulsion of the whole body lasting a few seconds and then relaxation, drowsiness and fretfulness. The parents can recognize the first symptoms and the procedure can be stopped by giving the child a warm bath. The personal history is that of a normal spontaneous full term birth, normal gain in weight and no other diseases. The convulsions have no effect on the gain in weight; there is no fever. Belching usually follows an attack. The child is on breast milk, orange juice, halibut liver oil and cereals. Physical examination is entirely negative, including the facialis symptoms of Chvostek. Two lower incisor teeth are about to erupt. The urine was strongly alkaline and was acidified but the spells continued. The child's older brother had what is described as the same condition from the age of 3½ to 11½ months. He was taken to many specialists and clinics and no cause ever was found. He recovered spontaneously and now is normal at the age of 4 years. There is no history of convulsions on either side of the family for three generations. The baby's mother has been in the habit of giving him sodium bicarbonate water several times a day on general principles. I had that practice stopped and administered very weak hydrochloric acid water until the urine became acid. This apparently had no effect on the convulsions but it has been only two weeks since this was accomplished. The child has a tendency to constipation. Do you think alkalosis can explain these attacks? What prognosis do you offer? A recent telephone call advises me that convulsions have not occurred for four days.

EVAN B. HUMZ, M.D., Menard, Texas

ANSWER.—The most frequent causes of repeated convulsions at the fifth month of life are tetany, cerebral hemorrhage, acute infections and epilepsy. Other causes, such as tumor or abscess of the brain, imperfect cerebral development and hypoglycemia should also be included. Convulsions in infancy during the first three or four months of life are usually organic in nature and are due to increased cerebral pressure from hemorrhage or injury to the brain, or to asphyxia from atelectasis. In the age group after the first few months of life up to 2 years of age, tetany is the most common cause of convulsions.

In the case in question, although the Chvostek sign is negative, further examinations, such as Trousseau's symptom, the altered electrical reaction described by Erb, and a chemical blood test to determine whether a lowered blood calcium content exists, should be undertaken to rule out tetany as a cause of the convulsions. To rule out other organic causes, examination of the spinal fluid and eyegrounds should be made, to determine whether increased intracranial pressure from tumor, abscess, traumatic injury or maldevelopment of the brain might be the cause of the convulsions. A blood sugar examination would reveal the hypoglycemic origin of the convulsions.

A severe degree of alkalosis might be the cause of the convulsions, though other symptoms, as nausea, vomiting and stupor, are absent. While the urine may be alkaline in alkalosis it need not be so. Laboratory examination of the blood, to determine whether the carbon dioxide content and  $pH$  are increased, will show whether a state of alkalosis exists.

Finally, if all organic causes are ruled out, petit mal or minor epilepsy must be considered as a cause of the convul-

sions. These attacks may be of short or momentary duration, accompanied by muscular twitching, and may recur several times a day, or they may occur at longer intervals. The prognosis depends on the diagnosis in such a case. If the convulsions are due to organic brain disease, the extent and nature of the involvement would decide the prognosis. If the convulsions are due to tetany, suitable treatment would offer a cure. The question states that the infant is receiving halibut liver oil. This substance contains considerable amounts of vitamin A but is rather low in vitamin D. A sufficient amount of vitamin D in the diet would insure against a recurrence of tetany. Epileptic convulsions can be controlled, and perhaps outgrown in later childhood.

#### CHRONIC POSTERIOR URETHRITIS

To the Editor—This may be an example of how not to treat gonorrhea, but perhaps you can give me some advice. The patient is a white man aged 45 divorced. Gonorrhea first occurred at the age of 21. The present infection occurred in October 1933. I saw him about a week after the discharge began and made a diagnosis of acute posterior urethritis. I gave him a hyoscyanus potassium citrate prescription to be alternated with methenamine. Acetylsalicylic acid was used for pain. He was advised to go to bed and use hot sitz baths but because of economic and general living conditions could not do this. His discharge and painful urination persisted about two months and then almost cleared. In December 1933 he had three abscessed teeth extracted. Following this the discharge and pain returned in extreme form. A generalized edema developed and an epididymitis. Drugs of every sort were tried without any relief. Shortly afterward he began to have bladder spasms and to pass varying quantities of pure blood at the end of urination. I took him to a urologist who advised irrigations followed later by prostatic massage. Irrigations were tried but caused an increase in the severity of the symptoms. He was hospitalized for some time. Cystoscopic examination was attempted but failed. Guinea pig inoculations showed no tuberculosis although his discharge diagnosis was tuberculosis of the prostate. He is still having the bladder spasms, from two to ten a day. He urinates about every fifteen minutes and passes occasional blood clots. The spasms are relieved more quickly if he can pass a clot. Recently he passed about 8 ounces of blood through the urethra and an undetermined quantity by rectum. Prostatic examination is unsatisfactory owing to the extreme pain. Smears of pus show large numbers of gonococci and cocci resembling staphylococci. The only drug that will give any relief is morphine and that is not very satisfactory. I have used vaccines with questionable results. Catharsis relieves some probably through reduced urinary output. Is there any chance that foreign protein injections may aid? What courses of treatment would you suggest. Please omit name.

M.D. Indiana

ANSWER.—It is probable from this case history that one is dealing with a chronic posterior urethritis, probably entirely secondary to a specific prostatovesiculitis. One should suspect bullous edema or polyp formation in the posterior urethra or on the vesical neck when there are bladder spasms and hematuria.

In spite of the severe symptoms and the gonorrheal infection, it is imperative to do cysto-urethroscopy in order to make a proper diagnosis. This would also exclude the possibility of double lesions, such as cancer and gonorrhea or contracture of the vesical neck and gonorrhea. If the bladder and its outlet are without pathologic change, ureteral catheterization should be done to exclude chronic gonococcal pyelonephritis or pyonephrosis and other kidney lesions. Cystoscopy could be done easily by means of caudal injection of 20 cc of 1,000 nuperaine solution.

One can use cystoscopic fulguration for inflammatory tissue tags, polyps or bullous edema. Following this procedure the patient should take one 10 minim (0.6 cc) capsule of santal oil after each meal and at bedtime. He should take a ten minute sitz bath every morning and evening. His fluid intake should be moderate. A scrotal supporter should be worn. It is advisable to have the patient inject the anterior urethra every morning and evening with 5 per cent neosivol solution, holding the medicine in the urethra for five minutes.

One week of this management should improve the patient enough to allow a moderate stripping of the seminal vesicles and prostate gland, after which a 5 per cent solution of mild silver protein should be instilled into the bladder, posterior urethra and anterior urethra by means of a small Guyon instillator. This procedure should be carried out every five days. About the third week, one should begin to alternate the passage of urethral sounds with the massages every five days. There would be little value in the use of foreign protein.

If improvement has not taken place after a proper period of the foregoing management, one should consider bilateral vasostomy with injection of 5 per cent collargol solution into the seminal vesicles to help rid them of infection.



## BRONCHIAL ASTHMA

To the Editor—I have under my care a case of bronchial asthma in a young unmarried woman who has had severe attacks only on visits to Boston, which usually occur in the last week in December. Such attacks have occurred on visits as early as November and as late as February. Her home is in Washington D C, where she has never had an attack of asthma. Her visits to Boston last about a week during which period she is severely ill but recovers within two days after leaving. The patient makes visits to the same area every July but has only a slight attack at such times. Close questioning has elicited no significant information with regard to animal contacts food bedding house dust and so on. Please advise what allergens should be used in skin tests. Please omit name.

M D, District of Columbia

ANSWER.—The fact that the attacks of asthma come only in the winter months rules out pollen sensitivity. This leaves for consideration only foods, epidermal substances, drugs and miscellaneous antigens, such as orris root, cottonseed and flaxseed. Bacterial allergy is possible but unlikely.

It is suggested that the history be rechecked, especially with relation to exposure to animals either at the home in Boston or in the homes of friends in that city. Sufficient contact may be had by visiting such homes or by carrying animal hair and dander from houses in which animals live. In addition, any unusual foods should be noted, any unusual drugs should be checked, as amidopyrine, acetylsalicylic acid and quinine, one should look for exposure to unusual cosmetics, as in beauty parlor treatments. The pillows and mattress should be examined to see whether they contain hair or feathers. Because of the frequency of sensitivity to hair, feathers, cottonseed and dust of mattresses and pillows it would be safer to cover these with light rubber sheeting, sewed in securely.

Complete skin tests should be carried out, including all known antigens. It is unwise to do partial testing, as the antigens omitted may turn out to be the important ones.

It is suggested also that the bedroom in Boston be thoroughly gone over with a vacuum cleaner so as to eliminate as much dust as possible.

## INCONTINENT AND INVOLUNTARY

To the Editor—Please give me the proper words to use in describing involuntary action of the bowels and bladder. Is incontinent or involuntary good or are there better terms?

J L PRITCHARD M D San Jose Calif

ANSWER.—The word "involuntary" refers to an act that is performed independently of the will. The word "incontinent" is used when a patient is unable to restrain natural evacuations, normally all persons are continent because they can control the action of the bladder or the bowel. The patient is incontinent because he is unable to restrain his natural evacuations. The action on the part of the bladder or bowel is involuntary. The patient is incontinent.

## HAZARD OF INHALING DUST

To the Editor—Does the dust inhaled in the grinding of casein hardened with formaldehyde constitute a known industrial hazard?

CHARLES B F GIBBS M D, Rochester N Y

ANSWER.—The hazard of inhaling such dust is from traces of the formaldehyde that has not reacted with the casein and the effect is typical of that from low concentrations of formaldehyde vapor. The buffing, polishing and grinding of these casein formaldehyde condensation products should be done under adequate exhausts that prevent the dissemination of the formaldehyde vapors.

## CASTOR OIL AFTER SANTONIN

To the Editor—The staff here disagrees as to the advisability of using castor oil immediately after the use of santonin. Some claim that the use of oil makes santonin toxic. Please advise. Kindly omit name.

M D Georgia

ANSWER.—Castor oil does not increase the absorption of santonin. The castor oil may be given immediately after the santonin or even combined with it.

## ALKALINE RESIDUE DIET

To the Editor—What articles of diet can be used to make an acid urine alkaline or an alkaline urine acid? Please use initials only.

M D Minneota

ANSWER.—Articles of diet that leave an alkaline residue are fruits (except cranberries, prunes and plums) vegetables beans peas and milk. Those which are acid producing are meats fish eggs cereals and the fruits mentioned as exceptions.

## Medical Examinations and Licensure

## COMING EXAMINATIONS

- ALABAMA Montgomery June 24 26 Sec, Dr J N Baker 519 Dexter Ave Montgomery
- AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Oral (Group A and Group B candidates)* New York, June 10 Sec, Dr C Guy Lane 416 Marlborough St, Boston
- AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Final oral and clinical examination (Group A and Group B candidates)* Atlantic City, N J June 10-11 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh
- AMERICAN BOARD OF OPHTHALMOLOGY Philadelphia June 8, and New York June 10 Sec Dr William H Winder 122 S Michigan Blvd, Chicago
- AMERICAN BOARD OF OTOLARYNGOLOGY New York June 8 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha
- AMERICAN BOARD OF PEDIATRICS Atlantic City N J, June 10 and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St, Winnetka, Ill
- AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Philadelphia June 7-8 Sec Dr Walter Freeman, 1726 Eye St N W Washington D C
- AMERICAN BOARD OF RADIOLOGY Atlantic City N J June 8 10 Sec Dr Byrl R Kirklin Mayo Clinic Rochester Minn
- ARIZONA *Basic Science* Tucson June 18 Sec Dr Robert L. Nugent Science Hall, University of Arizona Tucson *Medical* Phoenix, July 2 Sec, Dr J H Patterson 826 Security Bldg Phoenix
- CALIFORNIA San Francisco July 8 11 and Los Angeles July 22 25 Sec Dr Charles B Finkham, 420 State Office Bldg Sacramento
- COLORADO Denver, July 2 Sec, Dr Harvey W Snyder 422 State Office Bldg, Denver
- CONNECTICUT *Basic Science* New Haven June 8 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station, New Haven *Medical* Hartford July 9 10 *Endorsement* Hartford July 23 Sec Medical Examining Board Dr Thomas P Murdock 147 W Main St Meriden
- DELAWARE June 11 13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover
- DISTRICT OF COLUMBIA Washington July 8 9 Sec Commission on Licensure, Dr George C Rutland 203 District Bldg Washington
- FLORIDA Jacksonville June 17 18 Sec Dr William M Rowlett P O Box 786 Tampa
- GEORGIA Atlanta and Augusta, June 11 12 Joint Sec. State Examining Boards Mr R C Coleman, 111 State Capitol Atlanta
- HAWAII Honolulu, July 8 11 Sec, Dr James A Morgan, 48 Young Bldg, Honolulu
- ILLINOIS Chicago June 25 28 Address Department of Registration and Education, Springfield
- INDIANA Indianapolis June 18 20 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis
- IOWA Iowa City June 4 6 Dir, Division of Licensure and Registration Mr H W Greif Capitol Bldg Des Moines
- KANSAS Topeka June 18 19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned
- KENTUCKY Louisville June 5 7 Sec State Board of Health Dr A T McCormack 532 W Main St, Louisville
- MAINE Augusta July 2 3 Sec. Board of Registration of Medicine Dr Adam P Leighton Jr, 192 State St Portland
- MARYLAND *Regular* Baltimore June 18 21 Sec, Dr John T O'Mara, 1211 Cathedral St Baltimore *Homoeopathic* Baltimore, June 11 12 Sec, Dr John A. Evans 612 W 40th St., Baltimore
- MASSACHUSETTS Boston July 9 11 Sec. Board of Registration in Medicine Dr Stephen Rushmore 144 State House Boston
- MICHIGAN Detroit, June 5 7 and Ann Arbor, June 11 13 Sec. Board of Registration in Medicine Dr J Earl McIntyre 202 3-4 Hollister Bldg Lansing
- MINNESOTA *Basic Science* Minneapolis June 4 5 Sec Dr J C McKinley, 126 Millard Hall, University of Minnesota Minneapolis *Medical* Minneapolis June 18 20 Sec Dr E J Engberg 350 St Peter St St Paul
- MISSISSIPPI Jackson June 25 26 Asst Sec State Board of Health Dr R N Whitfield Jackson
- MISSOURI St Louis June 12 14 State Health Commissioner Dr E T McLaughlin State Capitol Bldg Jefferson City
- NATIONAL BOARD OF MEDICAL EXAMINERS The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16 18 Ex Sec Mr Everett S Elwood 225 S 15th St. Philadelphia
- NEBRASKA Omaha June 11 12 Dr Bureau of Examining Boards Mrs Clark Perkins State House Lincoln
- NEW JERSEY Trenton June 18 19 Sec Dr James J McGuire 28 W State St Trenton
- NEW YORK Albany Buffalo New York and Syracuse June 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany
- NORTH CAROLINA Raleigh June 10 Sec Dr Benj J Lawrence, 503 Professional Bldg Raleigh
- NORTH DAKOTA Grand Forks July 2 5 Sec Dr G M Williamson 415 S 3d St. Grand Fork
- OHIO Columbus June 4 7 Sec State Medical Board Dr H M Platter 21 W Broad St Columbus
- OKLAHOMA Oklahoma City June 5 6 Sec, Dr J M Byrum Mammoth Bldg Shawnee
- PENNSYLVANIA *Written* Philadelphia and Pittsburgh July 9 11 *Bedside* Philadelphia July 12 13 Dir Bureau of Professional Licensing Mr W M Denison 400 Education Bldg Harrisburg
- RHODE ISLAND Providence July 2 3 Dir Department of Public Health Dr E A McLaughlin 319 State Office Bldg Providence
- SOUTH CAROLINA Columbia June 25 Sec Dr A Earle Boozer 505 Saluda Ave Columbia
- TENNESSEE Knoxville Memphis and Nashville June 13 14 Sec., Dr H W Qualls 130 Madison Ave Memphis
- TEXAS Austin June 18 20 Sec, Dr T J Crowe 918 19 20 Mercantile Bldg, Dallas
- UTAH Salt Lake City July 8 10 Dir Department of Registration, Mr S W Golding 326 State Capitol Bldg Salt Lake City

VERMONT Burlington June 26 28 Sec, Board of Medical Registration Dr W Scott Nay Underhill  
 VIRGINIA Richmond June 19 21 Sec, Dr J W Preston 28½ Franklin Road Roanoke  
 WEST VIRGINIA Clarksburg July 8 State Health Commissioner Dr Arthur E McClue Charleston  
 WISCONSIN Basic Science Milwaukee June 1 Sec, Prof Robert N Bruer 3414 W Wisconsin Ave Milwaukee Medical Milwaukee, June 25 28 Sec, Dr Robert E Flynn 401 Main St LaCrosse

### Alabama January Examination

Dr J N Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan 8-10, 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Colorado School of Medicine		(1934) 84	2 88 7
Rush Medical College		(1934)	91 3*
Tulane University of Louisiana School of Medicine		(1934)	82 7
83 85 8 89 2			
Johns Hopkins University School of Medicine		(1928)	85 8
Duke University School of Medicine		(1933)	86 3
University of Pennsylvania School of Medicine		(1934)	88 4

\* This applicant has received a four year certificate and will receive an M.D. degree on completion of internship.

### Arizona Reciprocity Report

Dr J H Patterson, secretary, Arizona State Board of Medical Examiners, reports two physicians licensed by reciprocity at the meeting held in Phoenix, Jan 23, 1935. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College		(1932)	Illinois
Dalhousie University Faculty of Medicine		(1928)	Nova Scotia

### Ohio Reciprocity and Endorsement Report

Dr H M Platter, secretary, Ohio State Medical Board, reports 20 physicians licensed by reciprocity and 2 physicians licensed by endorsement at the meeting held Jan 8 1935. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Howard University College of Medicine		(1933)	Missouri
Loyola University School of Medicine		(1932)	Illinois
Indiana University School of Medicine		(1909)	Indiana
Univ of Michigan Med School (1927), (1932) 2		(1933) 2	Michigan
Wayne University College of Medicine		(1934)	Michigan
St Louis University School of Medicine (1932) Missouri		(1927)	California
University of Buffalo School of Medicine (1928)		(1929)	New York
Jefferson Medical College of Philadelphia		(1929)	Penna
Temple University School of Medicine		(1932)	Penna
University of Pennsylvania School of Medicine		(1926)	W Virginia
University of Pittsburgh School of Medicine		(1933)	Ienna
Queen's University Faculty of Medicine		(1898)	Illinois
McGill University Faculty of Medicine		(1922)	Michigan
University of Moscow Faculty of Medicine		(1914)*	New Jersey

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Harvard University Medical School		(1927)	(1933) N B M Ex

\* Verification of graduation in process

### South Dakota January Report

Dr Park B Jenkins, director, Division of Medical Licensure, reports the oral, written and practical examination held in Pierre, Jan 15-16, 1935. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Six physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
College of Physicians and Surgeons of Chicago		(1893)	85
Rush Medical College		(1919)	87
University of Illinois College of Medicine		(1933)	87
University of Minnesota Medical School		(1933)	85
Washington University School of Medicine		(1932)	90
Creighton University School of Medicine		(1930)	83

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
State Univ of Iowa Coll of Med (1886) (1931)		(1933)	Iowa
Boston University School of Medicine		(1930)	Iowa
University of Nebraska College of Medicine		(1926)	California
Universität Rostock Medizinische Fakultät Germany		(1919)	N Dakota

## Book Notices

**Surgical Diseases of the Chest** By Ervarts Ambrose Graham A.B. M.D. F.A.C.S. Professor of Surgery Washington University School of Medicine St Louis Jacob Jesse Singer M.D. F.A.C.P. Associate Professor of Clinical Medicine Washington University School of Medicine St Louis and Harry C Ballou M.D. C.M. F.A.C.S. Cloth Price \$1.50. 1 p 1070 with 677 Illustrations Philadelphia Lea & Febiger 1935

For some time physicians have been eagerly awaiting the appearance of this book. They have been looking forward to it for two reasons. In the first place, there has been a definite need for a book on surgical diseases of the chest in which the medical aspect is emphasized. In the second place, a book by these authors, who have themselves been in the front line of the advance in the progress of chest surgery, should be a good one. Now that the book is available, there is no disappointment on either count. From the first paragraph of the introduction to the last chapter, which describes the set up of the Barnes Hospital Chest Clinic, the book definitely deals with surgical diseases of the chest from the clinical point of view. This does not mean that operative technique and proceedings are not fully described but does mean that physiology, pathology, diagnosis and other factors which every good surgeon must take into account in acquiring a well rounded knowledge of the subject are given ample consideration.

As might be expected, the experimental side of many of the problems in chest surgery has been dealt with, sometimes at length, sometimes briefly. Many of the chapters are actually monographs on the subject rather than the usual subdivision of most textbooks. The text is profusely illustrated not only with diagrams, photographs and roentgenograms but also with case histories and records of patients. In spite of the addition of many subjects often omitted from the telegraphic form of school books, the subject matter is most accessible. This is due to the excellent indexing and the boldface captions that introduce the various paragraphs. The reader who is seeking for some particular phase of any subject can tell at a glance whether or not this or that paragraph will give him the information he wants.

Helen Lamb, chief anesthetist to the Barnes Hospital, has written the pages devoted to endotracheal and endopharyngeal anesthesia.

David H Ballou lecturer on otolaryngology at McGill University Faculty of Medicine, has written chapters having to do with bronchoscopy. Ralph Matson, whose contributions in the field of intrapleural pneumolysis have been noteworthy, has presented this subject, while Dr Roy Matson, since deceased, has written the chapter on oleothorax. A large bibliography on each subject has been appended.

The authors in the preface state that their aim has been to prepare a book "which should appeal both to the internist and to the surgeon. The appeal to the former seems to be particularly desirable because even now there is an insufficient appreciation of the accomplishment of thoracic surgery and of the help in many conditions which a surgical attack offers." They have well accomplished their purpose. This book will be used as the standard text and reference work in surgical diseases of the chest in all medical schools.

**Das Extremitäten Thorax und Partial Elektrokardiogramm des Menschen. Eine vergleichende Studie.** Von Prof. Dr. Franz Maximilian Groedel. Direktor des William G. Kerckhoff Herzforschungs Instituts zu Bad Nauheim. Band I. Text. Band II. 200 Tafeln. Cloth. Pp. 358 with 334 Illustrations. 200 plates. Dresden & Leipzig. Theodor Steinkopff. 1934.

In this monograph the author summarizes his experiences with electrocardiography, especially the newer angles with which he and his associates at Bad Nauheim have recently concerned themselves. It is a highly involved presentation, suited only to the advanced scholar in electrocardiography. This being the case, many of the simple expositions employed by the author in connecting the various portions of the book are unnecessary. The major theme of the presentation is the author's attempt to prove that he has finally been able to determine the true partial electrocardiogram of the right side and of the left side of the heart. This is based on the erroneous belief that the two sides can be conceived as being separated by a dielectric. The right partial electrocardiogram he obtains

by connecting the negative terminal to the right arm and the positive just to the left of the sternum at its midpoint. The left partial electrocardiogram he obtains by connecting the positive terminal to the chest in the left axillary line at the level of the xiphoid process. The evidence presented to show that these leads have finally solved the so-called partial electrocardiogram of each heart is far from convincing. The author's wish seems to be father to the proof. The most valuable part of the book is the author's succinct summary of the more interesting developments in the fundamental studies of the electrical field which his associates have carried out and published. The author errs seriously in ignoring or in dismissing casually the recent fundamental developments that have come from several laboratories in this country, most of which antedate the work presented in the monograph. His casual dismissal of the so-called fourth lead as practiced in this country is unwarranted. In fact, his curves will be useful in advancing the practical use of precordial leads. His curves are the inverse image of those published with precordial leads in this country. He presents a collection of carefully coordinated electrocardiograms obtained from these precordial leads, together with the classic three leads, analyzed x-ray projection of the heart and brief case histories obtained in a large number of normal subjects and patients with heart disease. The present tendency growing among experimental cardiologists to return to the original concept of Waller on the nature of the electrical field and to drop the classic interpretation of the Einthoven triangle is well exemplified in this book. The unwarranted deductions included can be readily excused on the basis that this work was brought to an abrupt close by exigencies over which the author had no control. For the investigator in this field the original protocols will be extremely useful, but the reader should not be swayed by the interpretations as far as the author carries them.

*Memoirs of a Small Town Surgeon* By John Brooks Wheeler A.B. M.D. Sc.D. Cloth Price \$3 Pp 336 with 4 illustrations New York Frederick A. Stokes Company 1935

This is an account of a fortunate life. John Brooks Wheeler got his college education at the University of Vermont. He graduated from Harvard Medical School in 1879, had an internship in the Massachusetts General Hospital, and, preferring to live in a small city rather than a large one, went back to his home, Burlington, Vt., where he spent a long professional life. In addition to having the attractions of a prosperous town of 20,000 people, beautifully situated in the hills of Vermont, it had the professional advantages of having a hospital—the first between Albany and Montreal—and the Medical School of the University of Vermont.

The book is agreeable reading from beginning to end. The author gives an instructive discussion of medical education in the late seventies, when Harvard and the Chicago Medical College were the only schools in the country having a graded course or a three years compulsory course. He reviews the condition of surgery with the eyes of one who has seen the evolution of modern surgical technique and he describes in retrospect the surgery of the late seventies and eighties when the older generation of surgeons were struggling in a half-hearted or awkward way to practice antiseptic surgery. He gives an interesting picture of the Harvard Medical School of his day and of the notables on its faculty, Oliver Wendell Holmes, Henry P. Bowditch, Henry J. Bigelow, David W. Cheever, Reginald W. Fitz and others. One gets the impression that he regarded Fitz as perhaps the leading physician in the faculty. Wheeler spent eighteen months at the Massachusetts General Hospital and he gives an interesting and pleasing account of the hospital in those days. He saw its many defects but on the whole he shows that it was a well conducted institution, with high ideals, and was a fine place for interns. He was on the surgical service and Bigelow and Charles B. Porter were the most prominent surgeons. He regards Porter as one of the two or three best surgical operators that he has ever seen, and in all ways an able surgeon. Bigelow was the notable surgeon in New England and among the most famous in the country at that time. Wheeler paints Bigelow as a very able surgeon, he uses the word 'genius' in connection with him which probably is not deserved. Bigelow was of

the pompous old great surgeon type, and what with his vanity, manifest ostentation, arrogance and self importance does not appear altogether as a pleasant human character.

Then Wheeler went to Europe for a year and a half, where he had the familiar and useful experience of American students who were fortunate enough to go to Vienna at that time. He gives pleasant glimpses of the life of the American students in Vienna of the postgraduate training they got there and of the personalities. He then returned to Burlington to practice. He gives an interesting discussion, with reasons that would appeal to a wise man, for settling in a smaller city such as Burlington.

The second half of the book is devoted to his experiences as a surgeon for fifty years spent in a busy and useful practice. It is the familiar story heard so often from other able men similarly situated, and Wheeler tells it well. As a physician reads it he gets the feeling of pride in his profession that is always stimulated by the accounts of such careers. Wheeler has led a singularly fortunate life. His youth in medicine was spent in wholesome and happy surroundings, and his later career has been similarly circumstanced. He has been able, effective and successful. In retrospect he looks at his life with wisdom and optimism, and it makes his account instructive and refreshing reading.

*Sang et organes hématopœtiques* Par A. Touraine médecin des hôpitaux de Paris Paper Price 30 francs Pp 275 with 21 illustrations Paris Masson & Cie 1934

This volume is one of a series on the subject of diagnosis and treatment of the various specialties in medicine. The purpose of the work is to develop enough fundamental information so that the novice will clearly understand the methods by which diseases are recognized and rationally treated. Hematology lends itself nicely to this purpose since, through the study of the blood-forming organs, the general reactions of the body against disease may be evaluated. The work is presented in a clear and simple manner and is addressed particularly to the medical student. The author has made a definite effort to simplify the controversial terminology in the belief that it is often this phase of the subject that discourages beginners. A concise but thorough discussion of normal blood and its formation is presented with later treatment of blood in pathologic states. The book is well organized and should be of great value to those interested in a short account of the elemental aspects of diseases of the hematopoietic organs and the practical aspects of modern clinical and therapeutic methods in hematology.

*Illustrative Electrocardiography* By Joseph H. Bainton, A.B. M.D. Attending Physician and Chief of the Cardiac Clinic, Morrisania City Hospital, New York City and Julius Burstein, A.B. M.D. Associate Electrocardiographer, Morrisania City Hospital, New York City. Cloth Price \$5 Pp 258 with 100 illustrations New York & London D. Appleton Century Company 1935

This work is an atlas of electrocardiograms. A total of 155 are shown, well reproduced at a reduction to two thirds in size. The only text is a short but concise description accompanying each tracing. The more frequent abnormalities are shown in the most detail, so that greatest emphasis comes on conduction abnormalities and changes in the T waves. A valuable section shows serial tracings made during acute infections, as pneumonia, typhoid and rheumatism. Also serial tracings show the changes due to digitalis action in a variety of abnormalities. Serial tracings after coronary occlusion are shown in detail. There is no mention of technical or mathematical concepts. No controversial material is included. The common sense view of the authors is well exemplified in this paragraph: "The record, therefore, represents an activity which depicts the variations of normal or pathological physiology and is never direct evidence of structural defect."

It has been found that characteristic changes occur in the electrocardiogram with fair regularity in the presence of certain definite structural lesions and rarely with any other lesion. A definite pathological diagnosis, however, is justified only in the presence of additional evidence obtained from the history and the physical signs. The book is of much value in assisting the detailed study of tracings, yet it constantly sends the physician back to the study of the patient for the last word.

**Pflanzliche Therapie. Eine Anleitung mit Beispielen zur Rezeptur**  
Von Dr. Ernst Meyer, Oberarzt der Inneren Abteilung des städtischen  
Krankenhauses, Berlin Spandau. Boards. Price, 4.80 marks. 1 p. 202  
Leipzig: Georg Thieme, 1933.

This is evidence of the recent tendency in Germany to return to the use and study of the herb remedies of the forefathers, with special emphasis on the native herbs. The therapeutic use of herbs, which is being dignified by the special term "phytotherapy," is to be rescued and put into the place it held before the "victorious march of modern chemistry and pharmacology." One cannot charge the author with being narrow or prejudiced, for in addition to the generally accepted and fairly well understood drugs of vegetable origin he overwhelms the reader with mention of dozens of herb products that are claimed to have valuable therapeutic effects. To show that he is not prejudiced he throws in for good measure the names of dozens of remedies employed by the "biochemist" and the homeopath. The scientific value of the book may be measured by the prescription part, which in addition to remedies of established action advises for the treatment of tuberculosis a tea composed of five different herbs, for kidney stone, a tea composed of four different herbs, which is also the number of different herbs recommended for hematuria and uremia. Common herb remedies also are recommended for the treatment of chronic arthritis, gastric catarrh and liver disease. The author rescues from medical oblivion the "spring herb cures," presumably for "spring fever." He has more or less complex teas that he recommends for exophthalmic goiter and others for diabetes mellitus. He seems convinced that herb therapy is of great value in neuroses, to judge from the number and complexity of prescriptions recommended. Fortunately, he advises his herb teas in syphilis and gonorrhea merely as adjuncts to other treatment. Even for leukorrhea he advises internal treatment with polypharmaceutic teas (1) and all this is a result of his studies of books on the subject and personal clinical experience of four years (1). Evidently the author who is the chief physician of the internal medicine department of the City Hospital Berlin-Spandau, believes like a number of other medical men now prominent in Germany in progress by retrospection. It is to be hoped that out of this uncritical resurrection of ancient remedies at least one of real value may arise.

**The Crippled and the Disabled. Rehabilitation of the Physically Handicapped in the United States.** By Henry H. Kessler. Cloth. Price \$4. Pp. 337. New York: Columbia University Press, 1933.

The problem of the care of the crippled and the disabled in the United States involves more than the mere physical rehabilitation of those who can be restored to functional independence through the application of modern medical principles and surgical skill. Education of the public is advised to make the average citizen more cripple conscious and to break down the barriers of psychologic and economic prejudice, which, the author shows, are based on "superstition, misunderstanding and false concepts of capacity to work." There is need for just such a discussion and presentation of facts as are contained in this book. Patients who have been rehabilitated are frequently refused an opportunity of earning their own living even though they may have excellent mental and ample physical capacities for work. Such patients are discouraged by the unfair treatment they have received at the hands of employers who may have contributed to the support of the same hospitals where the cripple received treatment but are unwilling to change a social attitude or legal limitation that prevents the crippled and disabled from earning a livelihood at tasks that he may be able to perform as well as any normal person. Dr. Kessler has handled his subject matter intelligently sympathetically and forcefully. He has called attention to the crippled representatives of professional and industrial groups who have achieved fame. A careful analysis of the efficiency of the physically disabled as compared to the normal employees of large industrial concerns which are willing to employ people of this class, including the Ford Motor Company, has led to the conclusion that the physically handicapped group are "as productive as normal workers, or even more so." Dr. Kessler has given an analysis of the problem from various angles, including that of the child cripple, the military, industrial and chronic disabled,

and the blind deaf and dumb. The suggested remedy calls for better education of the public with regard to the problem itself, state and national legislation, and better cooperation between various agencies, public and private. This book should be of interest and of genuine help as a source of information for all who are socially minded and especially for those who are concerned with the question of the welfare of the large group of both children and adults who are physically disabled and who must be placed in a position for earning their own living or become public burdens for life. The book is recommended to physicians, sociologists and economists and should be of value to every governor of a state, legislator or congressman who is truly concerned with the present and future welfare of his state and country.

**Traité de climatologie. Biologique et médicale.** Publié sous la direction de M. Picot, professeur d'hydrologie thérapeutique et de climatologie à la Faculté de médecine de Lyon. Secrétaire de la rédaction M. M. Haud, assistant d'hydrologie thérapeutique et de climatologie à la Faculté de médecine de Lyon et R. Van der Flis, docteur ès lettres, conférencier de l'Institut Catholique de Paris. Préface du Pr. d'Arsonval. In Three Volumes. Paper. Price 330 francs per set. Pp. 2664 with 458 illustrations. Paris: Masson & Co. 1934.

The foundation of nine chairs of climatology in French medical schools in the last ten years indicates the importance given to this subject in France. Voltaire expressed his belief that "the earth and the atmosphere influenced all the products of nature, beginning with man and ending with mushrooms." And Montesquieu had realized that different climates had produced different customs and diverse laws. Perusal of these three splendid and complete volumes on climatology reflects the neglect of this important subject in this country. Three divisions can be distinguished in this treatise. The first on meteorology, physiology and ecology, the second giving a detailed description of the climate of different countries, the third giving clinical aspects of climatic treatment.

The meteorological and physiologic part is generally good and it is convenient to find all such information so collected. The biologic importance of saturation deficit and evaporation rates is stressed, as opposed to the measurement of relative humidity, which is usually given in meteorological data. An interesting discussion is given of the influence of low atmospheric pressure on the organism, but it seems unnecessary to repeat this discussion by five different authors in five different chapters. While these five authors arrive at substantially the same conclusions two different authors arrive at diametrically opposite conclusions with regard to tropical climates. One holds that a tropical climate is not in itself harmful, but only the tropical diseases, while the other believes that such climate itself has a bad effect on the white race.

While all components of the atmosphere including radioactive gases, products of combustion and bacteria are amply discussed, the presence of pollen in the air is barely mentioned. The extensive American work on pollen distribution during various seasons and in different places is completely ignored. Hay fever and asthma are known to be responsive to climatic treatment, yet in the chapter on "phytoclimatology" no attention is paid to the distribution of plants causing hay fever.

Most of the articles are written by men who are recognized as authorities in their fields, and high standards of scientific accuracy are set. The article by a Russian author on the treatment of tuberculosis by positive and negative ionization of the air by an apparatus of his own invention falls perhaps a little below the standard set by the rest of this monumental work. The same author, in another chapter, tries to explain the succession of liberal and conservative ministries in Great Britain during the nineteenth century by the sunspot activities. The same sun spots are also blamed for alleged influenza epidemics and for almost all social activity since 500 B. C. Such a reductio ad absurdum of the theory of sun spot cycles is hardly to be taken seriously.

The most valuable part of the work is the admirable description of the local climates of France. For every climatological station one finds monthly averages of temperature, rainfall, wind direction and wind velocity, together with a discussion of other advantages. This discussion fills about 500 pages, while the climate of the rest of Europe is described in 180 pages. The climate of the United States is given nine pages. The White Mountains and parts of New Hampshire and Maine are mentioned as resorts for hay fever patients. The Adirondacks and Colorado are referred to for their fame in the cure of

tuberculosis In connection with the former, Trudeau is said to have had a French-Canadian ancestry, whereas his father was of New Orleans Huguenot stock. In regard to the latter, "the sources of the Colorado" probably refers to Colorado Springs.

All altitudes are given both in feet and in meters but the author chose 32.25 centimeters as the equivalent of a foot, while 30.48 is the correct value.

Credit is given Davos investigators for the discovery of the increase of lymphocytes in the blood at altitudes, whereas Webb and Williams in this country were the first to make this observation.

These, however, are minor criticisms and the work is invaluable for the enormous amount of information it contains. A glance will tell what weather to expect in a given month at Madeira, Athens or Nice. Physicians who have patients going to Europe and especially to France will be well rewarded for consulting this truly great work.

**Hachich Herba de folie et de robe** Par Pascal Brotteaux docteur en pharmacie. Paper. Price 20 francs. Pp 103. Paris. Les Editions Vêga 1934.

This treatise on cannabis sativa is timely in view of the interest being taken in the widespread and apparently increasing abuse of cannabis throughout the world. The book is based largely on studies made in northern Africa and in the Near East, but those in the United States interested in investigating the use of marijuana in North America will find in it data useful to them. The author uses the word "hashish" not in its restricted meaning as indicating the particular preparation of cannabis resin called by this name in Egypt, Persia and Turkey but as a general term for all preparations made from cannabis sativa, including not only galenic preparations but also hashish, esrar, madjun, ganja, takruri, kif dagga djamba and bhang. He does not treat at any length of the form in which cannabis is used as an addiction drug in the United States and Canada, i. e., marijuana or the dried leaves and resin of flowering tops of Indian hemp that is smoked in the form of cigarettes. The book reviews the subject first from the historical point of view and then, separately, in respect of botany and materia medica, chemistry, pharmacodynamics and pharmacology. Methods of treating addiction to cannabis are not discussed, although the subject of mental disorders associated with its abuse is touched on. The book contains a complete bibliography but is without an index. It contains a description of the sensations experienced under cannabis intoxication and of the physical and psychologic effects produced by intoxication. The effect of cannabis intoxication leads the author to conclude that the drug has some value in revealing the content of the subconscious mind. As to its therapeutic uses the author concludes that exact knowledge is limited and that it would be desirable to restudy the subject with particular reference to its possible use in psychotherapy.

**Traité de physiologie normale et pathologique** Publié sous la direction de C. H. Roger professeur honoraire de physiologie à la Faculté de médecine de Paris et Léon Binet professeur de physiologie à la Faculté de médecine de Paris. Tome V. Respiration. Par MM. Léon Binet, L. Dautrebande, H. Hermann, C. Heymans et Pierre Thomas. Boards. Price 100 francs. Pp 474 with illustrations. Paris. Masson & Cie 1934.

In addition to the usual chapters on the physiology of respiration, this useful volume includes good sections on basal metabolism (forty-nine pages), on therapeutics of respiration (fifty-seven pages), and on nonrespiratory lung functions. The chapter on the nervous mechanism of the respiration by Heyman (fifty-three pages) is particularly superior.

**Unemployment Insurance. A Summary of Some Existing Governmental and Private Plans.** Monograph One in a Series on Social Insurance. Revised edition. Paper. Gratts. Pp 81. New York. Metropolitan Life Insurance Company 1935.

This monograph brings down to date an earlier one published in 1931. The British system starting in 1911, has been frequently changed. In the early years the changes generally involved extension of coverage and benefits. The limited period of benefit left a large number of unemployed to be cared for by special grants. Recent reorganization and the reduction of unemployment now provides for repayment of the sums advanced for such grants. While unemployment insurance in Germany has existed only since 1927 it also has been revised almost

every year. The latest revision and administration of the act excludes "young people in official labor camps" and "unemployed non-Aryans and "unemployed persons who have exhausted their rights to benefits." As a result "the present unemployment statistics cannot be relied on for accurate information on the situation in Germany." The Danish and Swedish systems depend on national and communal subsidies to trade unions. The monograph contains a survey of recent developments in the United States, including a description of Wisconsin and Ohio plans and proposed national legislation. All important facts also are summarized in extensive analytic tables.

**Traité de physiologie normale et pathologique** Publié sous la direction de C. H. Roger professeur honoraire de physiologie à la Faculté de médecine de Paris et Léon Binet professeur de physiologie à la Faculté de médecine de Paris. Tome VII. Sang et lymphes. Réactions d'immunité. Par MM. Ch. Achard et autres. Second édition. Boards. Price 120 francs. Pp 781 with 9 illustrations. Paris. Masson & Cie 1934.

The standard of this volume is maintained and improved in the present edition. Particularly excellent are the chapters on blood coagulation (100 pages) by Zunz, and on immunity (118 pages) by Bordet. There are good expositions of the blood hemocyanins and blood coagulation of invertebrates, on hemorrhage, on blood transfusion, and on the red bone marrow.

## Medicolegal

**Medical Practice Acts. Board of Medical Examiners May Prosecute Violators.**—The state board of medical examiners of New Jersey instituted this proceeding against Louis Adler, charging him with practicing medicine without a license. Adler was convicted and appealed to the supreme court of New Jersey.

The fact that the medical practice act specifically devolves on district attorneys the duty of prosecuting violations of the act, said the supreme court, does not thereby prohibit the board of medical examiners from prosecuting violators through any other official or attorney. Adler, the court continued, had an office in which he apparently received patients. He was not licensed to practice but he did diagnose physical ailments, prescribe medicines and charge therefor sums clearly indicating that it was for advice as well as for medicine. This conduct concluded the court, established the fact clearly that Adler was engaged in the practice of medicine within the meaning of the medical practice act. The judgment of the trial court was therefore affirmed.—*State Board of Medical Examiners of New Jersey v. Adler* (N. J.), 174 A 215.

**Hospitals for the Insane. Liability for Suicide of Patient.**—The decedent exhibited marked nervousness and his condition became so serious that a neurologist was consulted. The condition was diagnosed as manic-depressive psychosis accompanied by suicidal tendencies. On the advice of the physician, the decedent was placed in the Blythwood Sanatorium, the defendant in this case. The decedent escaped from the institution and committed suicide. The plaintiff, as administrator of the decedent's estate, sued the defendant sanatorium, and the jury returned a verdict for the plaintiff. A motion to set aside the verdict was denied and the defendant appealed to the Supreme Court of Errors, Connecticut.

From the evidence, said the Supreme Court of Errors, the jury was justified in concluding that the decedent was suffering from a manic depressive psychosis and that the sanatorium authorities knew, or should have known in the exercise of reasonable care, that there was an ever present danger that the decedent would commit suicide if the opportunity presented itself. The defendant sanatorium contended however, that it could not be charged with negligence for the reason that the decedent was not committed to its custody by any court that there was no evidence of voluntary submission to restraint and that there being no right on the part of the sanatorium to restrain the decedent his escape and suicide did not render the defendant liable for negligence. In *Mulliner v. Evangelischer Diakonissenverein* 144 Minn 392, 175 N. W. 699 said the Supreme Court of Errors it was stated that when

a patient enters a hospital maintained for private profit, he is entitled to such reasonable attention as his safety may require, and that if he is temporarily bereft of reason and is known by the hospital authorities to be in danger of self destruction, the authorities are in duty bound to use reasonable care to prevent such an act. And with the decision of the Minnesota court in the Mullner case, the Supreme Court of Errors of Connecticut agreed. Even if it were conceded that the sanatorium could not have legally restrained the decedent and prevented his leaving the building, it does not follow, said the court, that the sanatorium was free from negligence in failing to have an attendant with him when he left the institution. The sanatorium had assumed, for a consideration, the duty of keeping the decedent under surveillance and the suicide was the proximate result of its failure to do so. Whether the sanatorium under all the circumstances had failed to exercise reasonable care was for the jury to determine. The court concluded, therefore, that the findings of the jury were not so unreasonable as to call for interference with the verdict and that the trial court did not therefore, err in refusing to set that verdict aside.—*Haathorne v Blytheood, Inc (Conn)*, 174 A 81

**Workmen's Compensation Acts Manifestation of Symptoms of Occupational Disease**—The workmen's compensation act of Connecticut provides that no proceedings for compensation may be maintained unless written notice of claim shall be given within one year from the date of the accident or from the first manifestation of an occupational disease. The employee in this case, Bremner, claimed that when he consulted a physician in January 1931 for a cold and a cough, he believed that he had bronchitis and contended that he did not then actually know that he was suffering from silicosis or from any other disease due to his occupation. On April 29 1932, Bremner was forced to discontinue work, apparently because of silicosis, and filed a claim for compensation March 15, 1933. The commissioner dismissed the claim on the ground that it was not filed within one year from the date of the first manifestation of symptoms of the occupational disease, contending that such symptoms manifested themselves in January 1931. The commissioner made no ruling on Bremner's claim that he did not actually know that he was suffering from an occupational disease until within a year prior to March 15, 1933. Bremner appealed to the superior court from the commissioner's ruling but died pending the appeal. His testatrix was substituted as plaintiff and, from a decision of the superior court sustaining the ruling of the commissioner, she appealed to the Supreme Court of Errors of Connecticut.

The legislature intended, said the Supreme Court of Errors, that the duty of giving notice should arise only when a symptom of the disease should plainly appear, not when it was merely suspected. Furthermore, the duty to give notice was not conditioned by the legislature on actual knowledge but on the fact that the symptom of the disease manifested itself. An employee may not disregard that which is clear and plain, and if the circumstances are such that a reasonable man would clearly recognize the existence of a symptom of an occupational disease, it must be regarded as manifest in the sense of the statute. But, the court said, there must be a clear recognition of the symptom as being that of the occupational disease in question. However plain is the presence of the symptom itself, unless its relation to the particular disease also clearly appears, there cannot be said to be a manifestation of a symptom of that disease. The manifestation of a symptom of an occupational disease which sets running the time within which notice is to be given means its manifestation to the employee claiming compensation. The intent may not be imputed to the legislature to make the right of an employee to compensation depend on the adventitious knowledge of others, perhaps strangers to him, or the knowledge of a physician who deems it in the interest of his patient to conceal the actual facts from him, or the knowledge of a physician the interests of whose employer may well tempt him to keep silent as to the actual facts. The case was therefore remanded to the superior court with directions to sustain the appeal and to return the case to the commissioner for further proceedings.—*Bremner v Marc Eidtitz & Son Inc (Conn)*, 174 A 172

## Society Proceedings

### COMING MEETINGS

- American Medical Association, Atlantic City N J, June 10-14 Dr Olin West 535 North Dearborn Street Chicago, Secretary
- American Academy of Pediatrics New York June 7-8 Dr Clifford G. Grulee 636 Church Street Evanston, Ill. Secretary
- American Association for the Study and Control of Rheumatic Diseases, Atlantic City N J, June 10 Dr Loring T Swaim 3/2 Marlborough Street Boston Secretary
- American Association for the Study of Goiter Salt Lake City June 24-26 Dr W Blair Mosser 133 Biddle Street, Kane Pa Secretary
- American Association for Thoracic Surgery New York, June 3-5 Dr Duff S Allen 3720 Washington Boulevard St Louis, Secretary
- American Association of Genito-Urinary Surgeons White Sulphur Springs W Va June 6-8 Dr Henry L. Sanford, 1621 Euclid Avenue Cleveland Secretary
- American Association of Medical Milk Commissions Atlantic City N J, June 10-11 Dr Harris Mead 360 Park Place Brooklyn, N Y, Secretary
- American Bronchoscopic Society Toronto Canada June 1 Dr Lyman Richards 319 Tonkwood Drive Boston Secretary
- American Child Health Association Iowa City June 19-22 Dr Philip Van Ingen 50 West 50th Street New York Secretary
- American Federation of Organizations for the Hard of Hearing, Cincinnati June 2-6 Miss Betty C. Wright 1601 35th Street N.W., Washington D C Secretary
- American Gastro-Enterological Association Atlantic City N J, June 10-11 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Gynecological Society Hot Springs Va May 27-29 Dr Otto H Schwarz 630 South Kingshighway Boulevard St Louis Secretary
- American Heart Association Atlantic City N J June 11 Dr H M Marvin 50 West 50th Street New York Acting Executive Secretary
- American Laryngological Association Toronto Canada May 29-31 Dr William V Mullin 2020 East 93d Street Cleveland Secretary
- American Laryngological Rhinological and Otolological Society Toronto, Canada June 3-5 Dr Robert I Loughran Sharon Conn. Secretary
- American Neurological Association Montreal Canada June 3-5 Dr Henry Alton Riley 117 East 72d Street, New York Secretary
- American Ophthalmological Society Hot Springs Va June 5-7 Dr J Milton Griscom 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5-8 Dr Ralph E Chormley Mayo Clinic Rochester Minn Secretary
- American Otolological Society Toronto Canada May 27-29 Dr Thomas J Harris 104 East 40th Street New York Secretary
- American Physiotherapy Association Atlantic City N J, June 11-12 Miss Louise Jetter 17 East Styles Avenue Collingswood, N J, Secretary
- American Proctologic Society Atlantic City N J, June 10-11 Dr Frank G Runyon 1361 Perkiomen Avenue Reading Pa Secretary
- American Radium Society Atlantic City N J June 10-11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society of Clinical Pathologists Atlantic City N J June 9-9 Dr A S Giordano 531 North Main Street, South Bend, Ind., Secretary
- American Surgical Association Boston June 6-8 Dr Vernon C. David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City N J June 7-8 Dr Oscar B Hunter, 1835 Eye Street N.W., Washington, D C, Secretary
- American Urological Association San Francisco June 25-28 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary
- Associated Anesthetists of the United States and Canada Atlantic City N J June 10-12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10-11 Dr Warren T Vaughan 808 Professional Building Richmond Va., Secretary
- Association for the Study of Internal Secretions Atlantic City N J, June 10-11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- Conference of State and Provincial Health Authorities of North America, Atlantic City N J June 14-15 Dr A J Chesley State Department of Health St. Paul Secretary
- Maine Medical Association York Harbor June 23-25 Miss Rebekah Gardner 22 Arsenal Street, Portland Secretary
- Massachusetts Medical Society Boston June 3-5 Dr Alexander S Begg 8 The Fenway, Boston Acting Secretary
- Medical Library Association Rochester, N Y June 17-19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J, June 4-11 Dr Alice I Conklin, 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24-26 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary
- Montana Medical Association of Helena July 2-3 Dr E G Balsam, 208 1/2 North Broadway Billings Secretary
- National Association of Private Psychiatric Hospitals Washington N Y, June 1 Dr James M O'Neill St. Vincent's Retreat Harrison N Y, Secretary
- National Tuberculosis Association Saranac Lake N Y, June 24-27 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- North Dakota State Medical Association Minot, May 27-28 Dr Albert W Skelsey 20 1/2 Broadway Fargo Secretary
- Pacific Northwest Medical Association Spokane Wash June 27-29 Dr C W Countryman 407 Riverside Avenue Spokane Wash Secretary
- Rhode Island Medical Society, Providence June 6 Dr J W Leech 167 Angell Street, Providence, Secretary
- Society for the Study of Asthma and Allied Conditions Atlantic City N J June 10-11 Dr W C Spain 116 East 53d Street New York, Secretary



# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (\*) are abstracted below

### Alabama Medical Association Journal, Montgomery

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- Indications for and Technic of Thoracoplasty A Blalock and H Johnson Nashville Tenn.—p 269  
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Infections Following Extraction of Teeth M. Skinner, Selma—p 278  
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A Frequently Neglected Procedure in Physical Examinations R. M. Pool Fairfield—p 285

### American Journal of Anatomy, Philadelphia

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- Cytology of Mammary Gland of Albino Rat I. Pregnancy Lactation and Involution Katharine R. Jeffers Montreal—p 257  
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Histogenesis of Human Aorta J. L. Jackson Winnipeg, Manito.—p 305

### American Journal of Cancer, New York

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- Retroperitoneal Xanthogranuloma C. Oberling Paris France—p 477  
\*Pathologic Conditions Induced by Estrogenic Compounds in Coagulating Gland and Prostate of Mouse H. Burrows London, England—p 490  
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Biologic Effectiveness of Alpha Particles as Function of Ion Concentration Produced in Their Paths R. E. Zirkle Philadelphia—p 558  
Tumors of Blood Vessels. C. F. Geschickter, Baltimore and Louisa E. Keasbey Lancaster, Pa.—p 568

**Pathologic Conditions in Prostate Induced by Estrogenic Compounds**—Burrows observed that the prolonged administration of estrogenic substance to mice causes hyperplasia and metaplasia in the prostate gland. The prostates of children before birth undergo similar changes, presumably under the influence of estrogenic substance derived from the placenta. Both in mice and in new-born children, the prostatic changes thus induced are completely reversible, restitution to the normal state following a cessation of the supply of estrogenic substance. The changes found in benign enlargement of the human prostate in advanced life resemble in character and situation those observed in mice under the influence of estrogenic substance and in new-born babies. The question is discussed whether the benign enlargement of the prostate in elderly men may be due to the action of estrogenic hormones and may be a reversible condition.

**Extramammary Plasma Cell Tumors of Air Passages**—Mattick and Thibadeau give a clinical and pathologic description of a case of plasma cell tumors occurring simultaneously in the nasopharynx and hypopharynx, apparently of neoplastic nature. Details of nineteen such tumors that have been previously reported and variously interpreted as granulomatous inflammatory benign or malignant by different observers are presented. The authors suggest that the occurrence of

polypoid growths in the upper air passages, of single or multiple nature, with a history of long duration, should suggest plasma cell tumor. They also suggest the use of x-rays as an aid to diagnosis. They believe that the tumors in their case are unusual and dissimilar to most of the tumors reported previously, in that they are definitely neoplastic.

### American Journal of Clinical Pathology, Baltimore

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- \*Pathology of Oil Aspiration Pneumonia (Lipoid Pneumonia) K. Ikeda, Minneapolis—p 89  
The Thyroid Gland in Kansas C. A. Hellwig Wichita Kan.—p 103  
Epidermoid Carcinoma of Lung and Pleura versus Endothelioma of Pleura Case Report T. M. Peery and K. M. Lynch Charleston, S. C.—p 112  
Adrenal Disease in Relationship to Hypoglycemia and Death J. C. Norris Atlanta Ga.—p 120  
Postmortem Analysis as to Etiology in One Thousand Cases of Peritonitis C. C. Pfaff Columbia Mo.—p 131  
Paroxysmal March Hemoglobinuria Report of Case E. M. Watson and L. C. Fischer London Ont.—p 151  
\*Very Rapid Flocculation Method for Diagnosis of Syphilis Preliminary Report F. Rytz Minneapolis—p 159  
Studies in Cerebrospinal Fluid II B. Gruskin Philadelphia—p 162  
Technic for Preservation and Microscopic Demonstration of Nodules in Gout Elena de Galantha, Rochester Minn.—p 165

**Pathology of Oil Aspiration Pneumonia**—Ikeda terms oil aspiration pneumonia a definite entity with a fairly characteristic clinical syndrome and constant pathologic changes. Grossly, the lung presents an appearance of bronchopneumonia. The lung is lumpy and rubbery on palpation. Yellowish mottling of the pleural surfaces may be conspicuous. The cut surface is usually dry and may show irregular areas of yellowish peribronchial consolidation usually outlined sharply against the surrounding parenchyma but sometimes merging gradually into it. Bronchopneumonic patches are usually more grayish, while small abscesses are whiter than the typical lesion of oil pneumonia. Only fluid may exude from the cut surface. Pus is expressed only in the presence of bronchopneumonia or purulent bronchitis. Nodular lesions may be encountered in chronic cases. Microscopically, the fundamental pathologic process consists of (1) massive infiltration of macrophages, (2) proliferation of stromal cells and (3) appearance of foreign body giant cells. The macrophages and giant cells usually contain droplets of oil. Globules of free oil are found deposited within distorted alveolar spaces and in the intervening pneumonic areas. In chronic cases, well localized granulomatous lesions may develop round the entrapped masses of oil. The degree of fibrosis is proportionate to the duration of the lesion.

### Rapid Flocculation Method for Diagnosis of Syphilis

—The flocculation method for the diagnosis of syphilis reported by Rytz is performed as follows. The test requires only one tube for each serum. In a tube 75 mm by 10 mm, 0.15 cc of serum is placed and heated in a water bath at 60 C for three minutes. 0.05 cc of half saturated ammonium sulphate is added and mixed by shaking. The antigen emulsion, 0.05 cc., is added mixed by shaking, and 1 cc. of a 0.9 per cent solution of sodium chloride is added and rotated in such a manner that the antigen particles become evenly distributed. This is shaken in the Kahn shaker for three minutes, or by hand in such a manner that the rack, in even back and forth movements, makes about 275 movements per minute, and then 2 cc. of a 0.9 per cent solution of sodium chloride is added and the tube is inverted slowly two or three times just before the reading is taken. In order not to miss a 1 plus reaction, the results are preferably read over the Fisher lamp aided by a hand lens. The slanted part of the contents of the tube should be relied on for estimating the results. A 1 plus reaction consists of tiny densely scattered flocculation particles in a slightly opalescent fluid. Plus 2, 3 and 4 reactions show clumps of flocculation in a clear fluid the clumps varying in size according to the positiveness of the serum. A negative test shows only minute antigen particles in a slightly hazy fluid without clumping. Reliable results may be obtained with spinal fluid in about eight minutes by adding 0.1 cc of half saturated ammonium sulphate to 0.5 cc. of unheated fluid, mixing this then adding 0.05 cc of antigen emulsion and mixing again. This should be shaken for five minutes, 2.5 cc of 0.9 per cent solution of sodium chloride is



added, inverted once or twice and read. The antigen employed is prepared as described by Noguchi and the antigen emulsion is prepared essentially as described by Kline except for the modifications given.

### American Journal of Diseases of Children, Chicago

10: 557-834 (March) 1935

- Enuresis. Genetic Study. Louise G. Frary. Minneapolis.—p. 557
- Lipoid Nephrosis. Clinical and Pathologic Study Based on Fifteen Years Observation with Especial Reference to Prognosis. H. Schwarz and J. L. Koln. New York.—p. 579
- Metabolism in Children During Muscular Work. I. Effect of Racing on Urinary Constituents in Boys. I. Nakagawa and K. Kawano. Tokyo, Japan.—p. 594
- \*Dick Test and Blood Agar Cultures as Aids in Diagnosis of Scarlet Fever. B. M. Gasul and P. S. Rhoads. Chicago.—p. 603
- Calcium Phosphorus and Nitrogen Retention of Children. Effects of Acid Forming and Base Forming Diets. Norma J. Davis. Berkeley, Calif.—p. 611
- Old Tuberculin. Human Tubercle Bacillus Protein and Trichloroacetic Acid Precipitate. C. A. Stewart. Minneapolis.—p. 625
- Hemoglobin Index and Jaundice of the New Born. C. Hollósi and Z. Horváth. Szeged. Hungary.—p. 638
- \*Prophylaxis of Simple Anemia in Infancy with Iron and Copper. Effect on Hemoglobin Weight and Resistance to Infection. S. J. Usher, P. N. MacDermot and E. Lozinski. Montreal.—p. 642
- Influence of Acute Infection and Artificial Fever on Plasma Lipids. A. V. Stoesser and I. McQuarrie. Minneapolis.—p. 658
- Basal Metabolism in Children of Normal and of Subnormal Intelligence with Blood Cholesterol and Creatinine Values. H. B. Rothbart. Ann Arbor, Mich. with assistance of A. B. Haw. Lansing, Mich.—p. 672
- Birth Pains and Blood of the New Born. Z. Horváth and C. Hollósi. Szeged. Hungary.—p. 689
- Studies in Immunity. V. Effect of Acute Diseases on Reaction of Skin to Tuberculin. A. G. Mitchell, W. E. Nelson and T. J. LeBlanc with assistance of Estelle W. Brown. Cincinnati.—p. 695

**Dick Test and Blood Agar Cultures in Diagnosis of Scarlet Fever.**—Gasul and Rhoads state that a persistently positive reaction to the Dick test during the whole course of the disease throws great doubt on the correctness of the diagnosis, while a positive reaction at the beginning of the disease together with a negative reaction during the course of the disease is confirmatory evidence that the disease is scarlet fever. According to their experience cultures negative for hemolytic streptococci, properly taken at the beginning of the disease on a properly prepared medium and properly interpreted, offer strong evidence against the correctness of a diagnosis of scarlet fever. A positive culture, however, in the presence of the other clinical observations of scarlet fever confirms the diagnosis.

**Prophylaxis of Anemia in Infancy with Iron and Copper.**—Usher and his associates compared the results of anemic infants receiving either iron or iron and copper with those of a control group receiving no medication. 1. In a series of normal children confined to an institution the hemoglobin value was found to fall sharply from the high level at birth to approximately 12.2 Gm at the age of from 2 to 3 months, it rose slightly at the age of 5 months and then fell slowly to an average level of 11.2 Gm at the age of 1 year. 2. A group of children receiving daily from 1½ to 3 grains (0.1 to 0.2 Gm) of iron in the form of ferric glycerophosphate showed at the age of 1 year an average hemoglobin value 15 per cent higher than that of the controls. 3. A group of children receiving daily from 1½ to 3 grains of iron supplemented with from ¼ to ½ grain (0.001 to 0.002 Gm.) of copper sulphate showed an average hemoglobin value 19 per cent higher than that of the control group. 4. At the ages of from 8 to 10 and from 12 to 14 months, the average weight of the group receiving iron was slightly less than that of the control group, and that of the group receiving copper was from 8 to 12 ounces more. 5. The children treated with iron showed only a slight advantage over the untreated controls as to the incidence and severity of infections, while those treated with iron and copper showed a more definite advantage. 6. The children treated with iron showed a moderate advantage over the untreated controls in the mortality rate, and those treated with iron and copper a striking advantage. This advantage for the group receiving copper was especially evident in the mortality rate from pertussis. 7. In the infants who died, no relationship could be demonstrated between the ages and the amount of iron and copper per kilogram of liver or between the age and the total amount of iron present in the liver.

### American Journal of Medical Sciences, Philadelphia

180 305-456 (March) 1935

- \*Clinical Value of Alternate Suction and Pressure in Treatment of Advanced Peripheral Vascular Disease. E. M. Landis and L. H. Hitzrot. Philadelphia.—p. 305
- Tentative Working Classification to Facilitate Treatment of Pulmonary Tuberculosis. I. Brown. Saranac Lake, N. Y. and H. L. Sampson. Trudeau. N. Y.—p. 325
- Susceptibility to Tuberculosis. Race or Energy Level? C. A. Mills. Cincinnati.—p. 330
- Obtaining Permissions for Autopsies. Margaret Warwick. Buffalo.—p. 341
- Effect of Standardized Exercise on Four Lead Electrocardiogram. Its Value in Study of Coronary Disease. L. N. Katz and H. Landis. Chicago.—p. 346
- The Effect of Scarlet Fever on the Heart. J. M. Faulkner. E. H. Place and W. R. Ohler. Boston.—p. 352
- The Migraine Physique. E. J. Steiglitz. Chicago.—p. 359
- Ringworm of the Scalp. Curability Without Depilating Measures, of Infections Caused by "Animal Microsporons." G. M. Lewis. New York.—p. 364
- Alleged Increase of Sensitivity of Vascular Response to Epinephrine Following Injection of Plasma from Nephritic Patients. I. H. Page. New York.—p. 371
- Parenteral Liver Therapy in Streptococcus Pneumonia. Note. J. A. Wilson. Meriden, Conn.—p. 374
- Etiology of Alcoholic Polyneuritis. M. B. Strauss. Boston.—p. 378
- Sedimentation Time as an Aid in Differentiating Acute Appendicitis and Acute Salpingitis. C. T. Smith, Thelma Harper and Anna Watson. Rocky Mount, N. C.—p. 383
- Acute Eosinophilic Leukemia. D. J. Stephens. Rochester, N. Y.—p. 387
- Quantitative Study of Renal Injury in Case of Acute Poisoning by Bichloride of Mercury. Note Regarding Treatment. R. H. Freyberg and F. H. Lashmet. Ann Arbor, Mich.—p. 392
- Acute Potassium Bichromate Poisoning. M. Goldman. Hollis, Long Island, N. Y. and R. H. Karotkin. Hartford, Conn.—p. 400
- Clinical Application of Duodenal Extract (Macallum-Laughton) in Diabetes Mellitus. G. G. Duncan, N. P. Shumway, T. L. Williams and F. Fetter. Philadelphia.—p. 403
- Use of Suprarenal Extract and Sodium Salts in Case of Addison's Disease. Note. M. A. Blankenhorn and J. M. Hayman, Jr., Cleveland.—p. 419
- Histologic Changes in Adrenals of Tumor Bearing Rats. C. S. McEwen and H. Selye. Montreal.—p. 423
- Bence Jones Proteinemia in Multiple Myeloma. A. Cantarow. Philadelphia.—p. 425

**Alternate Suction and Pressure in Peripheral Vascular Disease.**—Landis and Hitzrot exposed the extremities of twenty-nine patients suffering from advanced peripheral vascular disease to alternate suction (from -80 to -120 mm. of mercury) and pressure (from +40 to +80 mm. of mercury) for twenty-five and five seconds, respectively. These pressure variations were used for periods of from one to two hours at first once or twice daily, then three times a week and finally, as symptoms diminished once a week. Cyanosis usually diminished, symptomatic improvement was sometimes observed however, without a significant change in the color of the skin. The rest pain of ischemia was usually abolished during actual use of suction and pressure and gradually became less severe in the intervals between exposure to pressure variations. Lasting relief of pain was not observed in the presence of deeply extending gangrene or large sloughs. Ulcers, enlarging or indolent under ordinary conservative treatment, usually began to heal soon after suction and pressure therapy was instituted. Intermittent claudication became, in general, milder and exercise tolerance was slightly, but definitely, increased. Suction and pressure therapy was of no definite lasting service in patients with osteomyelitis, deeply extending gangrene or large sloughs. This form of therapy must be applied with caution, small pressure changes being used at first. The presence of acute spreading infection or encapsulated pus must be definitely ruled out before pressure variations are used. Suction and pressure therapy, if carefully applied, appear to be worthy of clinical trial in the treatment of peripheral vascular disease even when organic obstruction has advanced to the point at which arterial blood flow can no longer be increased by vasodilation. The method may be of service by increasing local blood flow temporarily during episodes of pain or ulceration so that time is gained for the development of adequate collateral blood flow.

**Hypertension in Nephritis.**—Page refutes Hulse's theory that the hypertension in nephritis is due to the occurrence of peptone-like substances in the blood, which are able to sensitize the blood vessels of animals to epinephrine. He observed that native plasma, alcoholic extracts and ultrafiltrates do not alter

the responsiveness of the vascular system to epinephrine either in pithed cats or in etherized normal cats. He finds no basis for Hülse's claim that substances which enhance the vascular action of epinephrine are present in the blood of hypertensive nephritic patients. It is possible that he mistook the increased susceptibility to epinephrine which normally accompanies its repeated administration for an effect due to plasma. Hülse and Strauss's chemical evidence as to the existence of peptone in the blood of hypertensive nephritic patients has not received confirmation by other investigators.

**Etiology of Alcoholic Polyneuritis**—Strauss selected for study ten patients suffering from "alcoholic" polyneuritis and allowed them to continue their customary daily intake of spirituous liquor on condition that they consume a well balanced, high vitamin diet supplemented with yeast or its products. They were further given vitamin B concentrates and liver extract by parenteral injection in order to obviate any possible disturbance in absorption present or resulting from their use of alcohol. Improvement in the polyneuritis occurred in every instance. It is apparent that ingestion of alcohol had no demonstrable neurotoxic effect on peripheral nerves when given in amounts up to a quart a day, in patients who were partaking of an adequate diet and receiving injections of liver extract and vitamin B concentrates. Nevertheless it remains theoretically possible that even smaller quantities of alcohol so administered as to raise the blood alcohol to a high concentration might cause damage to the peripheral nerves. Investigations indicate that alcohol is poisonous to nerve cells unless there is a sufficient amount of vitamin B or some other dietary factor present to act as an antidote. The author's observations do not in any way eliminate the possibility that some impurity which might have been present in the alcohol consumed by his patients before the onset of polyneuritis was responsible for the nerve lesions. However, the data presented clearly indicate that the administration of pure blended whisky in quantities varying from one pint to one quart daily in no way prevents the relief of "alcoholic" polyneuritis when the patients are adequately nourished. The clinical and pathologic aspects of the polyneuritis associated with alcoholism are essentially the same as those of the polyneuritis of beriberi. The high incidence of gastric secretory defects in these patients suggests that poor assimilation of nutriment from the gastro-intestinal tract plays a part in conditioning the deficiency state.

### American Journal of Tropical Medicine, Baltimore

15:91-246 (March) 1935

- The Coccidia of Man. T. B. Magath. Rochester, Minn.—p. 91.  
Fourth Year's Observations on Malaria in Panama with Reference to Control with Atabrine and Plasmochin. W. H. W. Komp and H. C. Clark. Panama, Republic of Panama.—p. 131.  
\*Clinical Study of Intestinal Fungi. A. C. Reed and H. G. Johnstone. San Francisco.—p. 155.  
\*Plasmodium Ovale Considered as a Modification of Plasmodium Vivax After a long Residence in the Human host. A. Giovannola. Rome, Italy.—p. 175.  
Specific Status of Plasmodium Ovale. Stephens. S. P. James. W. D. Nicol and P. G. Shute.—p. 187.  
Amebic Dysentery. Exudate as Guide to Treatment. G. R. Callender. Fort Sam Houston, Texas.—p. 189.  
Food Handlers and Epidemiology of Amebiasis. H. G. Johnstone and Margaret K. Iverson. San Francisco.—p. 197.  
Duration of Motility of Spirochetes of Yaws in Small West Indian Fly Hippelates Pallipes. Loew. H. W. Kumm. T. B. Turner. Kingston, Jamaica. B. W. I. and A. A. Peat.—p. 209.  
Present Status of Malaria in Oklahoma. W. P. N. Canavan. Oklahoma City.—p. 225.

**Clinical Study of Intestinal Fungi**—A study of cultures of fungi from fifty cases with various often multiple diagnoses leads Reed and Johnstone to feel that in no case did the fungus have a pathognomonic relationship to the diagnoses involved. It is possible but difficult of proof that the fungus in any case modified or influenced the symptomatology. The response to therapy was characteristic and average for the diagnoses concerned. Further survey studies would be of value in elucidating the problem of pathogenicity of intestinal fungi. Such studies should use a uniform method of culture and classification. They should be made so far as possible on patients with a single type of disease of localized residential history with repeated cultures, associated cultures of the mouth and of gastric and duodenal contents and close correlative study of the

chemical and bacterial features of the specimens of which cultures are taken.

**Plasmodium Ovale Considered Modification of Plasmodium Vivax**—Both in cases of chronic infections with Plasmodium vivax and in interhuman passage of the same strain with infected blood, Giovannola observed the following modifications: ameboid movement reduced; schizonts globular, compact and of small size, premature tendency to nuclear division, small number of merozoites, and scarcity of gametocytes. Plasmodium vivax as he observed it in chronic infections and in interhuman passages is practically indistinguishable from the usual description of Plasmodium ovale. He does not believe that the modifications of Plasmodium vivax studied in cases of dementia paralytica are due to the debilitated condition of the patients, because he did not find those modifications in the strains passed through paralytic patients by means of mosquitoes even for a long time. He considers these modifications due to the long residence in the vertebrate host to whom the parasite has adapted itself by modifying its habits. The transmission of Plasmodium ovale by mosquitoes and the permanence of its morphology is an interesting experiment, but this passage was effected only for one mosquito cycle. In interhuman direct passages more than one passage is necessary to observe marked modifications of the morphology of the parasite, and further investigations on the morphology of Plasmodium ovale after more than one passage will be of great interest. Oval erythrocytes cannot be accepted as a characteristic, because these often occur in the strains passed directly from man to man. The characteristic cross disposition of pigment in the oocyst is not constant. These observations favor the view that Plasmodium ovale is a modification of Plasmodium vivax in chronic infections.

### Anatomical Record, Philadelphia

61:379-498 (March 25) 1935

- Cyclic Uterine Bleeding in a New World Monkey (*Ateles Geoffroyi*). L. Goodman and G. B. Wislocki. Boston.—p. 379.  
Prepuberal Development of Pig Ovary and Its Relation to Stimulation with Gonadotropic Hormones. L. E. Casida. Madison, Wis.—p. 389.  
Use of Polarized Light in Study of Myelin Degeneration. I. Appearance and Progress of Degeneration After Transection of Sciatic Nerve of White Rat. H. E. Satterfield and T. S. Sutton. Columbus, Ohio.—p. 397.  
Sternalis Muscle in American Whites and Negroes. R. N. Barlow. St. Louis.—p. 413.  
Physiology of the Corpus Luteum. IX. Inhibition of Estrin by Progesterin Containing Extracts of Corpus Luteum. W. M. Allen and R. K. Meyer. Rochester, N. Y.—p. 427.  
Development of Spinal Ganglions Following Transplantation of Spinal Cord With or Without Somites. S. R. Detweiler. New York.—p. 441.  
Studies on Physiology of Reproduction in the Sheep. III. Time of Ovulation and Rate of Sperm Travel. W. W. Green and L. M. Winters. Minneapolis.—p. 457.  
Some Uterine Effects Obtained in Female Monkeys During Continued Estrin Administration with Especial Reference to Cervix Uteri. E. T. Engle and P. E. Smith. New York.—p. 471.  
Influence of Hereditary Dwarfism on Differentiation of Skeleton of Mouse. A. B. Dawson. Boston.—p. 485.

### Annals of Internal Medicine, Lancaster, Pa

8:991-1246 (March) 1935

- Relation of Gastric Secretion to Hematopoiesis. T. G. Klumpp and S. Koletsky. New Haven, Conn.—p. 991.  
Treatment of Lobar Pneumonia by Artificial Pneumothorax. F. G. Holmes and H. Randolph Phoenix, Ariz.—p. 1008.  
Beer in the Diabetic Diet. S. Strouse, S. Soskin and B. Vidgoff. Chicago.—p. 1028.  
\*Diagnosis of Cardiac Aneurysm. Report of Two Cases. L. H. Sigler and J. J. Schneider. Brooklyn.—p. 1033.  
Vascular Crises. D. Riesman. Philadelphia.—p. 1047.  
Multiple Myeloma. N. Enzer and B. Lieberman. Milwaukee.—p. 1062.  
\*Hyperproteinemia. Autohemagglutination. Renal Insufficiency and Abnormal Bleeding in Multiple Myeloma. A. G. Foord. Pasadena, Calif.—p. 1071.  
Tuberculosis of Childhood. C. H. Smith. New York.—p. 1090.  
Hemochromatosis. Review of Literature and Report of Three Cases. J. R. Darnall. Ancon Canal Zone.—p. 1121.

**Diagnosis of Cardiac Aneurysm**—Sigler and Schneider present two cases of left ventricular aneurysm. These cases, together with some reported in the literature, lead them to the following conclusions: 1. Most cardiac aneurysms are left ventricular predominantly in the apical region and usually follow acute coronary occlusion. 2. The subjective symptoms of cardiac aneurysm are not specific being merely those of

cardiac failure or of the angrinal syndrome which may accompany similar cases without aneurysm. 3 The clinical criteria for the diagnosis of ventricular aneurysm are a history of coronary occlusion and an abnormal area of cardiac dulness over which is heard a very weak first sound, associated with a gallop rhythm usually situated near the left sternal border. 4 The roentgenographic criteria include a bulging shadow following the displacements of the heart with changes in respiration and position, and slackening of the movements of the heart or asynchronous pulsation with systolic expansion in that area. If filled with organized clot an increased area of density will be seen, and calcification if present, is suggestive. 5 The electrocardiogram is of no specific diagnostic value. Apical aneurysms, however, seem to be associated with major QRS deflections which are directed downward in the second and third leads and in the first lead with a low voltage, upward. This may perhaps be significant as corroborative evidence. 6 Although only about 0.5 per cent of ventricular aneurysms have heretofore been diagnosed during life the authors believe that, if the condition is borne in mind and attention paid to the criteria, the diagnosis will be made with increasing frequency.

**Multiple Myeloma**—Goord observed that profound auto-hemagglutination of the red cells occurred in dry and wet films in four cases of multiple myeloma and encountered difficulty in counting erythrocytes because of granule formation in the red counting pipet in two cases. Marked hyperproteinemia was present in three cases and was apparently present in the fourth and seemed to be the cause of these abnormal phenomena. Renal insufficiency apparently resulted from plugging of the glomerular capillaries by inspissated protein and possibly by the clumping of erythrocytes or changes in osmotic pressure due to the increased protein. Intravascular clumping was demonstrated during life by the ophthalmoscopic examination of the retinal veins in one case when pressure sufficient to slow down the circulation was applied externally on the eyeball. Prolonged uncontrollable bleeding and clotting time and increased calcium content of the serum with little change in the platelet count occurred in two cases. The observation of marked rouleau formation in the smears of two of the cases led to procedures finally making the diagnosis of multiple myeloma. Multiple myeloma with resultant renal abnormalities should be suspected in cases of atypical nephritis.

### Annals of Surgery, Philadelphia

101: 819-978 (March) 1935

- Palatine Access to Ganglion Sphenopalatinum and to Second Branch of Trifacial Nerve. S. S. Averbukh, I. S. Brevda, D. N. Lubotsky and O. S. Semenova. Leningrad U. S. S. R.—p. 819.
- Mediastinal Ganglioneuroma. L. Sophian. New York.—p. 827.
- Neurofibroma of Hypoglossal Nerve. L. Friedman and A. A. Eisenberg. New York.—p. 834.
- Bleeding Malignant Polypoid Lesions in Cardia of the Stomach Associated with Severe Anemia. Report of Three Cases. J. T. Priestley and F. J. Heck. Rochester, Minn.—p. 839.
- Peptic Ulcers Involving Greater Curvature of Stomach. W. B. Matthews. Chicago.—p. 844.
- Massive Hemorrhage in Peptic Ulcer. Report of Eighty Seven Cases. J. W. Hinton. New York.—p. 856.
- Carcinomas of Large Bowel. Part I. The Colon. T. S. Raiford. New York.—p. 863.
- Intraperitoneal Vaccination in Surgery of Colon. E. B. Potter and F. A. Collier. Ann Arbor, Mich.—p. 886.
- Omentopexy in Portal Cirrhosis of Liver with Ascites. Review of Twenty Three Cases. R. S. Grinnell. New York.—p. 891.
- Acute Cholecystitis. B. Lipschutz. Philadelphia.—p. 902.
- Cholelithiasis Cyst with Double Common Bile Duct. W. B. Swartley and S. D. Weeder. Philadelphia.—p. 912.
- Changes in Biliary System After Cholecystectomy. Causes of Recurrence of Gallbladder Symptoms. S. Eiss and J. H. Whaley Jr. New York.—p. 921.
- Skin Grafting. J. V. Goode. Dallas, Texas.—p. 927.

**Intraperitoneal Vaccination in Surgery of Colon**—Potter and Collier gave intraperitoneal injections of the bacterial antigen prepared from heat-killed colon bacilli consisting of 200,000,000 heat-killed *Bacillus coli* per cubic centimeter suspended in 1 per cent of gum tragacanth in physiologic solution of sodium chloride prepared in ampules of 30 cc. obtained from Steinberg to seventy-nine patients, most of whom required major operations on the colon. A favorable clinical response and striking peritoneal reaction (seen at operation) was observed in practically all cases. This ranged from mild hyperemia of

the peritoneum to the production of an abundant exudate, in some instances giving the appearance of a true fibrinopurulent peritonitis. Peritoneal vaccination is of questionable value in protecting the peritoneum against gross fecal contamination. Its usefulness has been demonstrated as an aid to the peritoneum in its defense against minor degrees of soiling and infection. The low incidence of peritonitis (one case in the group) appears to justify the procedure as a valuable adjunct in the preparation of patients for operations on the colon. Preparation of the peritoneum by vaccination probably has its greatest usefulness in preventing peritonitis due to slight contamination, such as occurs through a microscopic perforation of the intestine at a tumor site or through the trauma to a dilated and weakened portion of intestine incidental to its surgical removal. It is in these instances that a previous peritoneal reaction with hyperleukocytosis is of real value to the peritoneum in its defense against infection.

**Cholelithiasis Cyst with Double Common Bile Duct**—Swartley and Weeder present a case of cholelithiasis cyst with double common bile duct and are of the opinion that it may occur more often and that a thorough search has not been made in those cases of cholelithiasis cyst for a second common duct. An obstruction to the duct would seem to play an important part in the etiology of cholelithiasis cyst, and a second duct if it is present will in all probability be sufficiently large and of sufficient diameter to drain adequately the bile into the duodenum. In their case, during the two months that bile drained from the wound intermittently, the authors were tempted to question the adequate patency or even the presence of a second duct which they had believed existed at the time of operation. The profuse drainage of bile depleted the child so that at one time they contemplated collecting the bile and introducing it through a nasal catheter into the stomach. A rhinopharyngitis prevented this. A subsequent middle ear disease and mastoiditis probably resulted from the lowered resistance due to the loss of bile. The drainage of bile through the abdominal wound ceased after two months and has not recurred. It is therefore obvious that there is a patulous common duct remaining. The hypertrophy of the left lobe of the liver verifies the fact that there was a separate duct for the right and left sides of the liver and, as the duct draining the right side was ligated, the right lobe of the liver has atrophied and the left lobe draining through the remaining duct has undergone a compensatory hypertrophy.

### Archives of Neurology and Psychiatry, Chicago

33: 453-686 (March) 1935

- Critique of Proposed Ideal Sterilization Legislation. A. Myerson. Boston.—p. 453.
- Autonomic Responses to Electrical Stimulation of Hypothalamus, Preoptic Region and Septum. S. W. Ranson, H. Kabat and H. W. Magoun. Chicago.—p. 467.
- Sweating Reaction in Patients with Diseases of Spinal Cord. Study of Reaction Produced by Injection of Pilocarpine Hydrochloride. C. B. Craig and C. C. Hare. New York.—p. 478.
- \*Experimental Studies in Alcoholism. I. Alcohol Content of Blood and Cerebrospinal Fluid Following Oral Administration in Chronic Alcoholism and Psychoses. R. Fleming and E. Stoltz. Boston.—p. 492.
- Psychology of a Certain Type of Malingering. A. A. Menninger. Topeka, Kan.—p. 507.
- \*Cerebrospinal Fluid in Tuberculous Meningitis. H. H. Merritt and F. Fremont Smith. Boston.—p. 516.
- Vasomotor Disturbances Resulting from Cortical Lesions. Margaret A. Kennard. New Haven, Conn.—p. 537.
- Frontal Lobe of Primates. Relation of Cyto-Architecture to Functional Activity. P. C. Bucy. Chicago.—p. 546.
- Functions of Frontal Association Area in Primates. C. F. Jacobsen. New Haven, Conn.—p. 558.
- \*Hypothermia in Cases of Hypothalamic Lesions. C. Davison and N. E. Selby. New York.—p. 570.
- Carbohydrate Metabolism. Effect of Hypothalamic Lesions and Stimulation of Autonomic Nervous System. L. Davis, D. Cleveland and W. R. Ingram. Chicago.—p. 592.

**Experimental Studies in Alcoholism**—Fleming and Stoltz studied the distribution of orally ingested alcohol in the blood and cerebrospinal fluid of fifty-two subjects in order to determine whether differences occur that can be correlated with the differences in the clinical picture or in drinking habits. The volume of alcohol ingested was 0.6 cc. of absolute alcohol in a 20 per cent solution per kilogram of body weight. The chemi-

cal method for the determination of the alcohol was based on Nicloux's principle. The method was modified for use with the Folin blood filtrate. The experimental subjects consisted of eight patients suffering from schizophrenia, eight having delirium tremens, nine manifesting alcoholic hallucinosis, nine having syphilis of the central nervous system, two cerebral arteriosclerotic patients and a manic-depressive psychotic (depressed) patient, fifteen of the cases were without psychosis. According to drinking habits the subjects were divided into three groups: twenty-five heavy drinkers, fifteen moderate drinkers and twelve abstainers. Comparison of composite graphs showed that in heavy drinkers the alcohol of the blood rises more rapidly, reaches a higher maximum and falls more quickly than in abstainers, the values for moderate drinkers occupy an intermediate position. In the cerebrospinal fluid the alcohol rises more rapidly to a higher peak and falls more quickly in the heavy drinkers than in the moderate drinkers, while the curves for the abstainers occupy an intermediate position. No correlation could be demonstrated between the clinical picture and type of curve. The composite curves for the alcoholic psychoses resembled those for the heavy drinkers, and those for the schizophrenic group approached the form in the group of abstainers. The general drinking habits of each group seem to determine the shape of the composite curves.

**Cerebrospinal Fluid in Tuberculous Meningitis**—Merritt and Fremont-Smith point out that the cerebrospinal fluid in tuberculous meningitis has a characteristic syndrome that rarely occurs in any other disease. The determination of the cerebrospinal fluid pressure, cytology, protein, sugar, colloidal gold reaction and Wassermann reaction is necessary to establish the syndrome. Their observations were made on 297 fluids from eighty-four cases of tuberculous meningitis verified by necropsy, inoculation of guinea-pigs or the finding of tubercle bacilli in the clot or centrifugated sediment of the cerebrospinal fluid. In many cases, lumbar puncture was performed on several occasions. They found that the cerebrospinal fluid in tuberculous meningitis has the following characteristics: 1 The pressure is elevated (more than 200 mm of cerebrospinal fluid). 2 The appearance is clear or like ground glass, colorless or faintly xanthochromic, and the fluid usually shows a delicate weblike clot. 3 There is an increase in white cells (from 25 to 500 per cubic millimeter); lymphocytes predominate. 4 There is an increase in the protein content (from 45 to 500 mg per hundred cubic centimeters). 5 The sugar level is decreased (less than 45 mg per hundred cubic centimeters). 6 The chloride content is decreased (less than 650 mg per hundred cubic centimeters). 7 The colloidal gold test shows a mild midzone reaction or no reaction. If a puncture is done early in the disease, the typical cerebrospinal fluid formula occasionally may be absent. Subsequent punctures will, however, nearly always show the typical changes. The complete formula for the cerebrospinal fluid in tuberculous meningitis is nearly pathognomonic of the disease. The authors' data show no appreciable difference in the fluids from infants, children and adults. Their data confirm the syndrome first described by Deniges and Sabrazes and provide many exceptions to former statements. No hard and fast rules can be made for any single constituent in the cerebrospinal fluid. By grouping the data obtained from the several tests outlined, it is possible, however, to establish cerebrospinal fluid syndromes of diagnostic value for various diseases.

**Hypothermia in Hypothalamic Lesions**—Davison and Selby describe a case in which clinically the patient presented slight polyuria and polydipsia, adiposogenital dystrophy, hypersomnia and a prolonged subnormal temperature. For at least three months the temperature ranged from less than 90 to 96.6 F, the average temperature being about 92.5 F. Pathologically, an angioma situated in the floor of the third ventricle, destroyed partially the oral ends of the supra-optic and paraventricular nuclei and the right mamillary body. The nuclei tuberis proper were destroyed throughout their entire extent. In addition, the following hypothalamic nuclei were implicated in the destructive process: the mamillo infundibular and pallido-infundibular nuclei, the substantia grisea centralis and the intercalate and interfornicate nuclei. An attempt was made to attribute the syndrome presented to the involvement of the

hypothalamic nuclei. The slight polyuria and polydipsia were most likely produced by the partial destruction of the paraventricular and supra optic nuclei. The extreme subnormal temperature is ascribed to the extensive implication of the nuclei tuberis proper and of the mamillary bodies.

## Archives of Otolaryngology, Chicago

21: 249-384 (March) 1935

- Effect of Radium Emanations on Laryngeal Cartilage M F Arbuckle, E V Cowdry and R Votaw, St. Louis—p 249  
Allergy and Its Relationship to Sinusitis and Allied Nasal Conditions A I Cohen Boston—p 265  
Chronic Suppurative Sinusitis: Point of View as to Treatment H I Lillie Rochester Minn—p 272  
Pathways of Reflex Pain in Vidian Neuralgia H H Vail Cincinnati—p 277  
Principles Underlying Ciliary Activity in Respiratory Tract III Independence of Tracheal Cilia in Vivo of Drug and Neurogenous Stimuli A M Lucas and L C Douglas, St. Louis—p 285  
Pathology of Otosclerosis: Report of Cases E W Hagens Chicago—p 297  
Fissula Ante Fenestram: Its Form and Contents in Early Life B J Anson and J Martin Jr, Chicago—p 303  
\*Local Tumor like Deposits of Amyloid in Larynx: Report of Case with Review of Literature R Kramer and M L Som New York—p 324

**Tumor-like Deposits of Amyloid in Larynx**—Kramer and Som observed that idiopathic or primary local amyloid tumors occur without corresponding amyloid deposits elsewhere in the body. They are to be distinguished from (1) amyloid deposits occurring secondarily in preexisting neoplasms or areas of chronic inflammation, (2) local tumor-like accumulations of amyloid occurring in the course of generalized amyloidosis and (3) tumor-like amyloid masses in generalized amyloidosis with atypical localization. The idiopathic amyloid deposits occur most frequently in the upper air passages, the larynx being the most favored site. These tumors are usually multiple and present a nodular, waxy appearance. Biopsy and intravital staining with congo red usually establish the diagnosis. Microscopically, the picture is that of a homogeneous, structureless mass of tissue that is readily identified as amyloid with the aniline stains. These tumor-like accumulations of amyloid may be without symptoms, when symptoms are present, they depend chiefly on mechanical pressure. As recurrences are frequent, total extirpation is essential. When radical removal is not feasible, radiotherapy has been found to be of great value.

## Archives of Pathology, Chicago

10: 287-464 (March) 1935

- \*Lesions Induced in Lungs by Intravenous Injection of Tar J P Simonds and J S Curtis Chicago—p 287  
Etiology of Benign Tumors. Helen Ingleby Philadelphia—p 303  
\*Juvenile Dementia Paralytica XII Gross and Microscopic Pathology W C Menninger Topeka Kan—p 316  
Inguinal Lymphogranuloma in Its Relation to Structure of the Rectum M S Wien Minnie Oboler Perlstein and B H Neiman Chicago—p 331  
Experiments on Compensatory Renal Hypertrophy R B Allen, New York, and F C Mann Rochester Minn—p 341  
Experimental Goiter: Functional Chemical and Histologic Studies C A Hellwig Wichita, Kan—p 364

**Lung Lesions Induced by Intravenous Injection of Tar**—Repeated intravenous injections of a mixture of tar and liquid petrolatum given to rabbits by Simonds and Curtis resulted in the following pathologic changes in the lungs. In animals that died in two weeks or less after the first injection there were only marked hyperemia, hemorrhage, thrombosis and tar oil emboli. Several rabbits that survived the last injection for six or more months showed no results from the injections except an occasional obliterated blood vessel. The lungs of seventeen of thirty-two rabbits showed varying degrees of epithelial proliferation and chronic pathologic processes. Except in primary carcinoma of the lung the authors have never observed such an extensive neoplasm-like growth of bronchial and alveolar epithelium in the human lung as was present in the lungs of many of their rabbits. It is probable, therefore, that rabbits possess a species peculiarity whereby the bronchial and alveolar epithelium may undergo extreme grades of hyperplasia and metaplasia without becoming neoplastic. Reservedly, in none of their animals did carcinoma actually develop, but the epithelial growth in several was massive, locally invasive and atypical. The character of the nuclei was not sufficiently

determinative in any case to justify a positive diagnosis of carcinoma. In all cases the changes were of multiple origin, occurring wherever granulation tissue was formed, without acquiring a definitely malignant character.

**Juvenile Dementia Paralytica**—Menninger states that, although there are common observations in the juvenile and the adult form of dementia paralytica, certain features are characteristic of the juvenile form of the disease. The characteristic macroscopic changes in juvenile dementia paralytica include a generalized atrophy, often hypoplasia of the brain, a marked leptomeningitic reaction, the frequent occurrence of hydrocephalus and an extensive ependymitis granulosa. The cerebellum often shows atrophy. In rare cases there is an associated formation of gummas in the brain. Because of proliferation of neuroglia both the cerebrum and the cerebellum are usually very firm in consistency. The characteristic microscopic observations include a generalized round cell infiltration, an extensive proliferation of neuroglia and microglia, an increase in the vascularity with proliferative changes of all the elements of the vessel walls, a reduction in the number of nerve cells in the cortex and changes in the nerve fibers. The frequent appearance of binucleated Purkinje cells in the cerebellum is characteristic of this disease though not limited to it. The author cites a case in which sclerosis of the posterior columns and pyramidal tracts in the spinal cord without symptoms indicating these lesions was observed. One must recognize, however, that hyperactive reflexes can occur if sclerosis of the lateral column predominates over sclerosis of the posterior column. In a small percentage of cases spirochetes can be demonstrated in the brain, the cortex, the basal ganglia and the cerebellum.

### Arkansas Medical Society Journal, Fort Smith

31 191 210 (April) 1935

- Carcinoma of Uterus and Treatment W. D. Smith, Texarkana—p. 191  
Endocrine Therapy in the Climacteric G. R. Siegel, Clarksville—p. 194  
Typhoid Bacillus in Milk and Water Supplies W. B. Grayson and H. V. Stewart, Little Rock—p. 197

### California and Western Medicine, San Francisco

42 145 232 (March) 1935

- \*Treatment of Chronic Arthritis by Diet and Sunlight L. Langstroth, San Francisco—p. 145  
Lymphogranuloma Inguinale. Report of Case Originating in Northern California F. G. Novy, Jr., Oakland—p. 149  
Chloraxia: Its Theory and Application to Clinical Neurology with Presentation of Portable Chloraximeter H. W. Newman, San Francisco—p. 154  
Breach Extractions in the Home B. J. Hanley, Los Angeles—p. 157  
Psychotherapy G. S. Johnson, San Francisco—p. 165  
Compulsory Health Insurance F. L. Hoffman, Philadelphia—p. 168

**Treatment of Arthritis by Diet and Sunlight**—Langstroth bases his discussion on 100 cases of chronic arthritis, describes the degenerative, proliferative and borderline types and states that degenerative arthritis is usually favorably affected, or completely relieved, by proper dietotherapy. In seventy-two cases treated by diet, five were not improved, thirteen were slightly improved, thirty-nine were much improved and fifteen were completely relieved. The dietary history shows that, when a diet high in protective foods is instituted, relief will be most striking in those cases in which the previous inadequacy has been greatest and particularly when the amount of bread eaten has been greatest. Bread stood out most prominently in the dietary histories as having a relation to improvement when a proper diet was instituted. Physical therapy is a helpful adjunct to dietotherapy at times. Actinotherapy has a good general tonic effect on the tissues, heat and diathermy are useful in spinal arthritis with referred pain down the arm, and massage of the back muscles is helpful occasionally in spinal arthritis. Postural exercises are particularly important in sacro iliac disease and arthritis of the spine but should be used generally after the pain has been controlled by diet. The approach to proliferative arthritis is different. The patient should be allowed what small amount of activity he is able to take. The full basic diet of protective foods or as much of it as can be taken is given at once. Heliotherapy is almost indispensable in proliferative arthritis, and artificial sunlight is a poor substitute. The patients who have done best are those

who have moved into regions where sunbathing is possible for eight months of the year. After the patient is thus established and treatment begun there is an interval of several months before improvement begins, and during this period every effort must be made to support his morale. When all signs of activity have disappeared in the joints, massage and passive and active movement are begun and continued as long as there is hope of increasing the range of motion. In the borderline types of arthritis it is best to immobilize the affected joints in some form of splint until the pain is relieved and then gradually to remove it and institute massage, passive motion and diathermy. When this sort of immobilization is added to the dietotherapy and actinotherapy, such a joint will often be restored to full function in a few weeks. While improvement has been marked in both types of arthritis under the treatment outlined, any relaxation of vigilance as to diet in the degenerative group or rest and sunlight in the proliferative group will soon bring on symptoms. The author concludes that he has succeeded in arresting the progress of the disease or in restoring painless function but he cannot say that he cured it in any sense, for the old environmental conditions will allow it to progress again.

### Canadian Medical Association Journal, Montreal

32: 233 356 (March) 1935

- Cancer A. Primrose, Toronto—p. 233  
Id. The Pathologic Aspect W. J. Deadman, Hamilton, Ont.—p. 236  
Place of Surgery in Treatment of Carcinoma of Alimentary Tract. D. C. Balfour, Rochester, Minn.—p. 245  
The Role of Radiotherapy in the Problem of Malignancy E. E. Shepley, Saskatoon, Sask.—p. 252  
Acute Appendicitis: Review of Six Hundred and Fourteen Cases, with Especial Reference to Drainage E. H. Cayford, Montreal—p. 259  
\*Fracture Dislocation and Fracture Dislocation of the Spine. K. G. McKenzie, Toronto—p. 263  
Nickel Dermatitis: Report of Eleven Cases F. E. Cormia, Montreal, and S. G. Stewart, Atlantic City, N. J.—p. 270  
The Pitch Test as an Aid in Diagnosis N. M. Wrong, Toronto—p. 273  
\*Coarctation of the Aorta H. A. Farris, St. John, N. B.—p. 276  
Strychnine Poisoning in Children J. R. Ross and A. Brown, Toronto—p. 282  
Diagnosis and Management of Acute Cholecystitis R. R. Graham, Toronto—p. 283  
Treatment of Glaucoma S. R. Gifford, Chicago—p. 287  
Blended Fish Oils for Medicinal Purposes I. Preliminary Laboratory and Clinical Tests H. N. Brocklesby and R. G. Large, Prince Rupert, B. C.—p. 292  
Radiologic Aspect of Right Upper Abdominal Pain L. J. Carter, Brandon, Man.—p. 296  
Management of Ingrowing Toe Nail H. S. Dolan, Montreal—p. 298

**Fracture-Dislocation of the Spine**—McKenzie states that in the treatment of fractures and dislocations, restoration of the normal anatomic structure is of primary importance. This principle, however, in injuries to the spinal column has been applied only in recent years, and the reason may be attributed largely to excessive fear of causing injury to the cord by attempts at manipulation. It has been found that extensive deformities can be corrected without injuring the subdural structures. Skeletal traction is often the method of choice. High thoracic fractures are treated by hyperextension on a Whitman frame. If the patient is not paralyzed, the Whitman frame can be replaced by a cast after reduction is accomplished. Patients with low thoracic and lumbar crush fractures are allowed to walk a few hours after the application of a plaster cast that holds the spine in an extreme hyperextended position at the site of injury. If paralyzed, these patients are treated on a Whitman frame in a hyperextended position. If they recover from the paralysis, treatment may be ambulatory after the application of a cast to maintain hypertension. The author outlines the care of the skin, bladder and rectum in the paralyzed patient and gives the few indications for open operation.

**Coarctation of the Aorta**—Farris reports two cases of coarctation of the aorta, one verified at necropsy. The diagnosis was not difficult when the condition was considered and the pulse and blood pressure in the lower limb were examined. The absence of the appearance of a collateral circulation should not confuse the diagnosis. Any young person with elevated blood pressure should have the femoral pulse palpated and the blood pressure in the arm and leg checked. The small and definitely retarded pulse and the low blood pressure in the leg are important points in the diagnosis. The blood pressure in the leg will usually have to be taken over the popliteal artery.

as in these cases the pulse in the feet and ankles is frequently not to be felt. The prognosis in coarctation of the aorta is good until adult life, especially if the diagnosis is made and the patient limits his activity. Death usually occurs in early middle life.

### Colorado Medicine, Denver

32: 177-264 (March) 1935

- Fractures of Neck of Femur Whitman Abduction Treatment A Thomas Denver—p 188
- Fractures In and About the Ankle F H Hartshorn Fort Collins—p 192
- Fractures In and Around the Elbow H R McKeen Denver—p 195
- Fractures of the Spine R G Packard, Denver—p 199
- Diagnosis of Acute Mastoiditis H I Laff, Denver—p 202
- Early Registration of Physicians in Colorado J N Hall Denver—p 207

### Georgia Medical Association Journal, Atlanta

24: 81-118 (March) 1935

- Angina Pectoris Associated with Myocardial Disease J L Richardson Atlanta—p 81
- Chronic Coronary Artery Disease (Myocardosis) H C Atkinson Macon—p 83
- Respiratory Disturbances Due to Food Allergy W C Waters Atlanta—p 86
- Personal Experience with Veratrum in Pneumonia J J Pilcher Wrens—p 88
- Surgical Management of Renal Calculi R Bell Thomasville—p 90
- Allergy S A Anderson Milledgeville—p 92
- Measurement of Work of Heart and Its Clinical Significance G L Walker Griffin—p 96
- Screw Worm Infection of Nasal Mucosa Case Report R W Richardson, Macon—p 100
- \*Insulin in Treatment of Typhoid Fever J H Hines and J R Walker Atlanta—p 101
- Appendicitis Associated with Multiple Liver Abscesses Report of Case F K Boland Jr Atlanta—p 102

**Insulin in Treatment of Typhoid**—Hines and Walker administered insulin in addition to the routine treatment of severe cases of typhoid that showed no improvement after forty-five to seventy-two hours of general treatment. Seriously ill patients were given 3 units of insulin three times a day before meals, and this was increased to 10 units as its value was shown. The diet was forced fluids, fruit juices, citrated milk and barley gruel. In a short time the septic symptoms began to clear up fever to abate and delirium to subside, and forced feeding by tube could be discontinued and a regimen of soft diet, which was easily taken up to a point of 4,500 calories was begun. The result was most satisfactory, since the disease following the fourth day of insulin therapy had a mild course, convalescence was uncomplicated, and the patient made a complete recovery.

### Johns Hopkins Hospital Bulletin, Baltimore

56: 117-182 (March) 1935

- Diagnosis of Diseases of Lungs, with Especial Reference to Tuberculosis C R Austrian Baltimore—p 117
- Franklin Paine Mall H E Sigerist—p 139
- Metabolism of Isolated Surviving Tissues from Animals Rendered Hyperthyroid with Thyroxine D McEachern Baltimore—p 145

### Journal of Immunology, Baltimore

28: 161-240 (March) 1935

- Some Observations on Relative Importance of Reticulo-Endothelial Tissues and Circulating Antibody in Immunity II Hypersensitivity and Immunity to Foreign Proteins Analysis of Paris Played by Tissues and Circulating Antibody in These Two States F H Teale London England—p 161
- Antigenic Action of Phosphatides Further Studies of Purified Cephalin A Wadsworth Elizabeth Maltaner and F Maltaner Albany N Y—p 183
- Photodynamic Effect of Methylene Blue on Tetanus Toxin K M Lippert Nashville Tenn—p 193
- Concentration and Purification of Antimeningococcus Serum Note P P Murdick and Sophia M Cohen Albany N Y—p 205
- Merthiolate versus Phenol as Preservative for Diphtheria Toxoids—Diluted and Undiluted at Icebox and Room Temperatures Olga R Povitzky and Minnie Eisner New York—p 209
- Effect of Temperature on Antigenic Value of Diphtheria Toxoid Olga R Povitzky assisted by Minnie Eisner New York—p 215
- Quantitative Study of Serum Precipitin in Anaphylaxis in Rabbit Carol Jackson New York—p 225

**Preservative for Diphtheria Toxoids**—Povitzky and Eisner point out that undiluted or diluted diphtheria toxoids, when kept at icebox temperature and tested after five months did not show any difference in their antigenic or flocculating

value whether preserved with 1 10,000 merthiolate or 0.5 per cent phenol. When kept at room temperature for five months, the phenol preserved toxoid diluted 1:2, though preserving its flocculating value, shows deterioration in its antigenic value. Undiluted toxoids preserved with phenol and kept at icebox temperature for nine and eighteen and five-tenths months do not compare favorably in their antigenic value with the merthiolated toxoid diluted 1:3 and kept in the icebox more than two years. Merthiolated toxoid diluted 1:3 and kept at icebox temperature preserves its antigenic value better than the merthiolated toxoid diluted only 1:2 but kept at room temperature.

### Journal of Industrial Hygiene, Baltimore

17: 37-72 (March) 1935

- Dust Filtering Efficiency of Human Nose and Its Significance in Causation of Silicosis G Lehmann Dortmund Germany—p 37
- Determination of Benzene in Air W A Cook and J B Ficklen Hartford, Conn—p 41
- Treatment of the Common Cold H S Diehl Minneapolis—p 48
- Determination of Comfort Zone for School Children Ruth C Partridge and D L MacLean Toronto—p 66

### Journal of Nutrition, Philadelphia

9: 261-394 (March 10) 1935

- Human Calorimetry II Average Temperature of Tissues of Body A C Burton, Rochester N Y—p 261
- Id III Temperature Distribution Blood Flow and Heat Storage in Body in Basal Condition and After Ingestion of Food A C Burton and J R Murlin Rochester N Y—p 281
- Phytin Phosphorus of Corn Component of Rachitogenic Diet R S Harris and J W M Bunker, Cambridge Mass—p 301
- Production and Composition of Sows Milk E H Hughes and H G Hart, Davis Calif—p 311
- Mineral Exchanges of Man V Balances of Electrolytes in Case of Hyperparathyroidism S H Bassett Rochester, N Y—p 323
- Id VI Effect of Extirpation of Parathyroid Tumor on Balances of Electrolytes S H Bassett and Helen E Van Alstine Rochester N Y—p 345
- Statistical Study of Metabolism of Fasting Albino Rat J C Krantz Jr and C J Carr Baltimore—p 363
- Vitamin Content of Sultanina (Thompson Seedless) Grapes and Raisins Agnes Fay Morgan Louise Kimmel, Anna Field and P F Nichols Berkeley Calif—p 369
- Vitamin Content of Figs Agnes Fay Morgan, Anna Field Louise Kimmel and P F Nichols Berkeley, Calif—p 383

### Journal of Pediatrics, St. Louis

6: 287-426 (March) 1935

- Good Practice in Modern Education The Pediatrician and the Pedagogue P D Smith, Winnetka, Ill—p 287
- New Possibilities of Prognostic Diagnosis in Tuberculosis of Children F von Groer Lwow Poland—p 297
- Congenital Dislocation of Hip in Infancy C C Chapple Philadelphia—p 306
- Physical Measurement and Nutritional Status H H Mitchell, Freeport N Y—p 316
- Brain Tumors in Childhood Review of Thirty Eight Cases C W Rand Los Angeles and R J Van Wagenen Fresno, Calif—p 322
- Suppuration of Middle Ear Complicated by Labyrinthitis Sinus Thrombosis Cerebellar Abscess and Cerebellar Hernia with Complete Recovery Case Report J Stein, Brooklyn—p 340
- Analysis of One Hundred Cases of Acute Poliomyelitis C M Soto and M I Rubin, Philadelphia—p 343
- Chemical Experience with Crystalline Vitamin D Influence of Menstruum on Effectiveness of Antirachitic Factor J M Lewis, New York—p 362
- Observations on Presence of Complement in Cerebrospinal Fluid in Various Pathologic Conditions of Central Nervous System L D Fothergill Boston—p 374
- Gangrene of the Foot Following Measles J A Winstead Rocky Mount N C—p 382
- \*Acro-dynia Its Possible Cause C V Calvin and C C Taylor Bridgeport Conn—p 385
- Improved Container for Hypodermic Syringe A W Jacobsen Buffalo—p 390

**Acro-dynia**—Calvin and Taylor report a case of acro-dynia in which they were able to determine the source of a toxic agent. To the three most commonly advanced theories as to the cause of acro-dynia (that the condition is an infectious one, that it is an avitaminosis and that it is due to dysfunction of the vegetative nervous system) they add a fourth that acro-dynia is the result of metallic poisoning acting on the vegetative nervous system in peculiarly susceptible persons. In their opinion the metals causing this poisoning may be arsenic and lead in combination, such as is found in the widely used insecticide arsenate of lead. Some of their reasons for the theory are that before the use of insecticides the disease was unknown.



and the results of treatment point to the fact that the disease is due to the ingestion of some toxic material. Various treatments have been advocated, ranging all the way from removal of the tonsils to special diets. In almost every instance the change in diet has been brought about by removing the patient to a hospital. That lead arsenate may be the toxic article in the diet is indicated in other reports. Apparently the length of time during which the toxic agent is ingested before a change in diet is made has a great deal to do with the ultimate outcome of the disease. Postmortem observations of the nervous system are not at all incompatible with what one would expect to find in chronic lead poisoning. The authors feel that this symptom complex may well be due to the action of arsenic and lead in combination. In the case presented they know that they were dealing with arsenic and lead poisoning as well, but the clinical picture was that of acrodynia.

## Journal of Pharmacology & Exper. Therap., Baltimore

53: 251-384 (March) 1935

- Ether Anesthesia Concentrations in Inspired Air and in Blood Required for Anesthesia Loss of Reflexes and Death B. H. Robbins Nashville, Tenn.—p. 251
- Oral Toxicity of 6 Alkyl Meta Cresols H. W. Brown and P. D. Lamson Nashville, Tenn.—p. 264
- Splenic Derivatives and Erythrocytic Fragility M. M. Ellis H. L. Motley and M. D. Ellis Columbia Mo.—p. 273
- \*Cardiac Irregularities Produced by Ephedrine After Digitalis M. H. Seevers and W. J. Meek Madison Wis.—p. 295
- Comparative Effect of Caffeine Alone and Caffeine Beverage (Coffee) on Reaction Time in Normal Young Adults R. H. Cheney Brooklyn N. Y.—p. 304
- Action of Beta Dinitrophenol and Gamma Dinitrophenol and of Mononitrophenols on Yeast Respiration J. Field 2d A. W. Martin and S. M. Field San Francisco—p. 314
- Intrapulmonic Absorption of Iodine Versa V. Cole R. H. Dunn and G. M. Curtis Columbus Ohio—p. 327
- Observations on Effects of Dihydro-Morphine Hydrochloride (Dilaudid) on Intestinal Activity of Unanesthetized Dogs J. B. Mitchell Jr. and B. K. Harned Memphis Tenn.—p. 331
- Quantitative Action of Acetylcholine and Histamine on Guinea Pig Uterus Margaret Dorothy Webster Durham N. C.—p. 340
- Action of Diuretics Injected into One Kidney of Aglomerular Toadfish R. N. Brieter Minneapolis—p. 347
- Heat Regulation and Water Exchange IN Reversal of Febrile Liver Hydration with Amidopyrine Antipyresis H. Sherman and H. G. Barbour New Haven Conn.—p. 350
- \*New Experimental Approach to Study of Role of Reticulo-Endothelial System in Cure of Trypanosomiasis C. C. Pfeiffer and A. L. Tatum Madison Wis.—p. 358
- Hyperglycemic Constituent of Posterior Lobe Pituitary Extract D. V. Holman and H. C. Ellsworth Montreal—p. 377

**Cardiac Irregularities Produced by Ephedrine After Digitalis**—Seevers and Meek recorded the effect of ephedrine on cardiac rhythm by the electrocardiograph after the intravenous injection of the drug into digitalized dogs. Doses of the two drugs were of a magnitude to allow of clinical comparison. Amounts of digitalis preparations that did not in themselves alter cardiac rhythm greatly prolonged the duration of arrhythmias produced by ephedrine. In some cases arrhythmias were brought out by the combined poisoning that had not occurred with either drug used singly. Digitalization tended to increase the number of ephedrine irregularities of ventricular type. Weakness and prostration were commonly observed during the combined poisoning. Although the arrhythmias were of a serious nature, no deaths occurred.

**Study of Reticulo-Endothelial System in Trypanosomiasis**—According to Pfeiffer and Tatum, if trypanosomes are treated *in vivo* for five minutes with 5 mg of arsenoxide per kilogram of body weight and the rat's blood is then placed in a test tube, the trypanosomes do not die or disappear in fifteen minutes as they do *in vivo* but continue to live on for eighty minutes. The same is true if the rat is killed five minutes after treatment, when the trypanosomes instead of disappearing from the dead host in fifteen minutes may be found and are still infective for an average of seventy-five minutes. Transplants of the organs of a treated rat taken at the time of disappearance of the trypanosomes from the blood stream indicate a greater accumulation of trypanosomes in the liver than in any other organ. Acute experiments in which the liver, spleen and kidneys are ligated support the foregoing data in that the ligation of the liver is the only procedure which materially lengthens the time of disappearance. The undoubted part played by the spleen under other experimental conditions appears to

be eclipsed by the activity of the liver under the conditions described. Since the drug has no effect on "arsenic resistant" trypanosomes *in vivo*, the logical conclusion is that arsenoxide intoxicates the normal trypanosomes, which are then removed from the circulating blood and subsequently destroyed through the activity of the reticulo endothelial system.

## Journal of Urology, Baltimore

33: 201-330 (March) 1935

- Solitary Renal Cysts Their Symptoms When Situated at Upper Pole of Right Kidney W. C. Quinby and E. F. Bright Boston—p. 201
- \*Frequency of Occurrence of Occult Carcinoma of the Prostate. A. R. Rich Baltimore—p. 215
- Morphology of Small Prostatic Carcinoma R. A. Moore, New York—p. 224
- \*Carcinoma of the Prostate with Metastases R. C. Graves Boston, and R. E. Miltzer Wrentham Mass.—p. 235
- Epithelioma of the Penis A. L. Dean Jr., New York—p. 257
- \*Study of Dissociating Streptococci and Their Electrical Charges in Infections of Genito-Urinary Tract N. J. Heckel L. B. Jensen and I. H. Wood Chicago—p. 284
- Recent Advances in Instrumental Urology J. F. McCarthy New York—p. 303
- New Female Urethroscope and Infant Vaginoscope P. M. Butterfield, New York—p. 310
- Causes of Death After Urologic Operations Study Based on One Hundred and Sixty Eight Cases with One Hundred and Nineteen Autopsies A. Hyman and W. H. Mencher New York—p. 315

**Occult Carcinoma of the Prostate**—In 292 consecutive necropsies on men aged 50 or more, who died from a variety of causes, Rich states that frank carcinoma of the prostate was found in the routine microscopic section in forty-one. There is little doubt that a thorough search throughout each gland would have brought to light an even greater number of these tumors, many of which were so small that they were not seen macroscopically at the time of necropsy. The number discovered, however, indicates plainly that cancer of the prostate is considerably more frequent than is ordinarily supposed. In 65.8 per cent of the forty-one cases the tumor was not recognized clinically, having been in most cases of a size too small to have produced symptoms or to have attracted attention on physical examination. The tumors were most often found near the outer margins of the gland and, even when only a few millimeters in size, showed a tendency to invade the capsule.

**Carcinoma of Prostate with Metastases**—Graves and Miltzer made a study of eighty-one cases of carcinoma of the prostate with metastases. In all but six cases, metastases to the bone were found either by roentgen examination or at necropsy. The pelvis and sacrum were involved in 85 and the lumbar spine in 59 per cent of the cases. Pathologic fractures were observed in five instances. Treatment of the local disease was limited necessarily to measures of palliation. The plan of therapy in carcinoma of the prostate with metastases cannot be standardized, and the procedure adopted in each case will vary with the needs of the individual patient. Transurethral resection sometimes will avoid the need for more extensive surgery. High voltage x-rays and radium proved to be the most effective agents for the relief of pain due to metastases. Postmortem examinations were made in 74 per cent of the patients who died in the hospital. Metastases other than in bone were found most often in the lymph nodes, lungs and liver. Pyelonephritis was the direct cause or the most important contributing cause of death in 41 per cent. Clinically advanced renal infection may exist without significant pain and tenderness in the region of the kidney. Extensive pyelonephritis may be present without marked elevation of blood nitrogen, and the test of renal function with phenolsulphonphthalein frequently affords a more accurate picture of the degree of kidney damage than do blood chemistry determinations.

**Electrical Charges on Streptococci in Genito-Urinary Tract**—The technic of Heckel and his associates for studying the problem of dissociating streptococci in infections involves the determination of electrical surface charges on the bacteria, the determination of specific antibodies in the patient's serum by means of cataphoresis and the application of the newer knowledge of bacteriology causing the infection. They examined twenty cases of prostatovesiculitis to see if they could correlate the results obtained from the cataphoresis technic and the clinical symptoms presented by the cases together with a relationship between the specificity, infectivity and virulence of



the infection and the disease process. Practically all these cases showed symptoms of arthritis or neuritis or a combination of the two. All other foci of infection, such as teeth and tonsils, had been removed and sinuses drained, without any improvement in their systemic symptoms. In the majority of the cases the attention was not directed to the prostate until late in the course of the disease. In every case that presented symptoms of arthritis or neuritis the prostate was infected. In a majority of these cases streptococci were found, and the electrical charges on the streptococci showed direct correlation with the specificity of the infection. Of the twenty patients, eleven were treated with heat killed vaccines prepared from the streptococci isolated from the prostate. Four of the patients were completely cured of their systemic symptoms, six were greatly improved and one showed no improvement. With their technique the authors have been able to isolate and determine the infecting microbes, usually streptococci, in a given case of "nonspecific" infection of the genito urinary tract. Certain oxidizing types of streptococci encountered in the study have shown a virulent and nonvirulent phase that could be correlated with morphologic and biophysical characteristics.

### New England Journal of Medicine, Boston

212 413-462 (March 7) 1935

- Ectopic Testicle as Cause of Ureteral Dilatation. Case Report. G. C. Prather. Boston.—p. 413  
Adenocarcinoma of Kidney Recurrent After Twenty Years. R. C. Graves and R. E. Mabrey, Boston.—p. 416  
Keratoderma Blennorrhagicum (Gonorrheal Dermatitis). A. Riley. Boston.—p. 417  
Calcified Hydrocele of Tunica Vaginalis Testicle. Case Report. C. J. E. Kichham, Boston.—p. 419  
Report of Unusually Large Malignant Growth in Undescended Testicle. E. J. O'Brien, Boston.—p. 420  
Report of Urologic Case Discovered in Course of Examination for Other Ailment. E. H. Trowbridge. Worcester, Mass.—p. 421  
Testicular Biology. Scrotal Function and Male Sex Hormone. C. R. Moore, Chicago.—p. 422  
Visual Mechanism in Diabetes Mellitus. Comparative Study of Two Thousand and Two Diabetics and Four Hundred and Fifty Seven Nondiabetics for Control. J. H. Waite and W. P. Beetham. Boston.—p. 429

212 463-500 (March 14) 1935

- Chemical Nature of Cataract in the Diabetic. Helen Updegraff Carey and Hazel M. Hunt, Boston.—p. 463  
Chronic Gastritis. Clinical Discussion Based on Gastroscopic Examination. E. B. Benedict, Boston.—p. 468  
Some Experiences in Treatment of Young Diabetics from the Point of View of the General Practitioner. Barbara Beatrice Littleton. N. H.—p. 473

### Northwest Medicine, Seattle

34 75-110 (March) 1935

- Large Quantities of Fluids Intravenously. Principles and Practice for Their Use. C. R. Jensen. Seattle.—p. 75  
Treatment of Severe Constipation by Physiologic Surgical Release. P. G. Flothow. Seattle.—p. 80  
Fractures of Vertebrae with Spinal Cord Lesions. Indications for Laminectomy. A. J. McLean. Portland, Ore.—p. 84  
Low Back Pain. Differential Diagnosis and Treatment. E. W. Rocky. Portland, Ore.—p. 89  
Varicose Veins. Observations on Treatment. E. A. Nixon. Seattle.—p. 91  
Outbreak of Dysentery Caused by the Sonne Type Bacillus. H. J. Sears, J. B. Bilderback, C. G. Ashley and Martha Rohner. Portland, Ore.—p. 95  
The Prostate as a Focus of Infection in Trauma. T. E. P. Gocher. San Francisco.—p. 98

**Treatment of Severe Constipation.**—Flothow reports ten cases of severe constipation in which the left lumbar sympathetic ganglionated chain, including the first four lumbar ganglions, has been removed. A comparatively normal intestinal habit has been established in eight cases. One of the failures was due to an extreme degree of asthenia the other to organic pathologic disorders. The sympathetic innervation of the internal sphincter and the lower part of the colon travels by way of the lumbar ganglionated chain and the superior hypogastric plexus. The operation consists in interruption of the sympathetic fibers which cause spasticity of the internal sphincter and inhibit the propulsive action of the parasympathetic nerves. Cases are selected only from that class of subjects in whom constipation is a menace to health and in whom thorough medical measures have failed. The surgeon has the choice of two approaches: removal of the superior hypogastric plexus or of the left lumbar sympathetic chain. The author performs the latter operation because of its simplicity and safety.

### Oklahoma State Medical Assn. Journal, McAlester

28 79-116 (March) 1935

- Mechanical Partial Obstruction of Colon by Pericolic Membrane. J. H. Robinson. Oklahoma City.—p. 79  
Paranoia and Paranoid Thinking. M. S. Gregory, Oklahoma City.—p. 82  
Parathyroidism. A. McMahon. St. Louis.—p. 87  
Explanation and Evaluation of Prostatic Resection Addressed to the General Practitioner. E. H. Fite. Muskogee.—p. 93  
Terminal Ileitis. V. H. Musick. Oklahoma City.—p. 95  
Volvulus. Torsion of the Whole Mesentery. H. M. McClure. Chickasha.—p. 100

### Pennsylvania Medical Journal, Harrisburg

38: 389-464 (March) 1935

- Diagnosis of Leukemia in Childhood. A. F. Abt. Chicago.—p. 389  
Preoperative and Postoperative Treatment of the Jaundiced Patient. H. R. Owen. Philadelphia.—p. 395  
Pityriasis Rosea. Clinical Varieties and Etiology. T. Butterworth. Reading.—p. 400  
Diagnosis of Ectopic Pregnancy. Analysis of One Hundred and Forty Five Consecutive Cases. D. B. Ludwig. Pittsburgh.—p. 403  
Early Diagnosis of Allergic Disease of Respiratory Tract. J. A. Clarke, Jr., Philadelphia.—p. 408  
Will America Copy Germany's Mistakes? Results of Half a Century's Practice of Social Insurance in the Land of Its Inception. German Labor Economist Offers New Plan to Avoid Pitfalls of Old One. G. Hartz.—p. 411

### Public Health Reports, Washington, D. C.

50: 385-420 (March 22) 1935

- Bacterial Purification Rates in Polluted Water. J. K. Hoskins.—p. 385  
Weil-Felix Reaction in Experimental Rocky Mountain Spotted Fever and Certain Other Typhus-like Diseases. G. E. Davis.—p. 404

**Weil-Felix Reaction in Rocky Mountain Spotted Fever.**—Davis shows that agglutinins of *Proteus* OX<sub>19</sub>, as well as for OX<sub>18</sub>, appear in significant titer in the serum of rabbits following injection with the passage viruses of Rocky Mountain spotted fever or São Paulo typhus. Although these agglutinins are perhaps of the group type, they cannot be so considered according to Felix's criteria. Following similar injections with passage virus of boutonneuse fever, Weil-Felix tests with the available *Proteus* X strains are essentially negative. The Weil-Felix reaction with rabbit serums confirms former observations as to the relationships of spotted fever, São Paulo typhus and boutonneuse fever. The presence of agglutinins of X<sub>2</sub> type in human and rabbit spotted fever serums and their absence in human and rabbit endemic typhus (United States) serums suggest that the Weil-Felix reaction may aid in the differential diagnosis, especially in regions where both diseases are endemic.

### Radiology, Syracuse, N. Y.

24 261-390 (March) 1935

- Treatment of Carcinoma of Pharynx and Larynx. L. H. Garland. San Francisco.—p. 261  
Intra Oral Cancer and Its Treatment. O. N. Meland. Los Angeles.—p. 276  
Evaluation of Roentgen Treatment of Laryngeal Carcinoma. Report of Cases. I. S. Hirsch and S. M. Baum. New York.—p. 281  
Radio Frequency High Voltage Apparatus for X-Ray Therapy. R. S. Stone, M. S. Livingston, D. H. Sloan and M. A. Chaffee. San Francisco.—p. 298  
Diagnostic and Therapeutic Value of Intratracheal Use of Iodized Oil in Cases of Intractable Asthma with Especial Reference to Its Use as Contrast Medium and Physicochemical Mechanism on Which Its Therapeutic Value Is Based. R. M. Balyeat, L. E. Seyler and H. A. Shoemaker. Oklahoma City.—p. 303  
Simultaneous Multiple Field Irradiation with a 4.5 Gram Radium Pack. M. C. Reinhard and H. L. Goltz. Buffalo.—p. 315  
Hypernephroma. Three Cases Relieved by Radiation. S. C. Barrow, Shreveport, La.—p. 320  
Experiences in Irradiation Treatment of Hyperthyroidism. S. P. Perry. Chicago.—p. 326  
Radiotherapeutic Treatment of Hypertension and Diabetes. J. H. Hutton. Chicago.—p. 330  
Biliary Colic Fistula. H. B. Podlasky. Milwaukee.—p. 345  
Artefacts in Roentgen Films. G. C. Henny. Philadelphia.—p. 350  
One Thousand Sphenoids Examined in Both the Granger and Mentovertex Positions. A. Granger, New Orleans.—p. 357  
Some Reflections on Etiology of Kohler's Disease. A. Zeitlin, Moscow. L. S. S. R.—p. 360

**Roentgen Treatment of Laryngeal Carcinoma.**—Hirsch and Baum state that 1. In intrinsic cases clinical cures can be obtained by roentgen treatment in cordal, glottic or subglottic, noninfiltrating, keratinizing, fully differentiated squamous cell epitheliomas. In such cases surgery gives equally good results, but with a lesser degree of conservation of func-

tion and with an average operative mortality of about 15 per cent. 2 In extrinsic cases in which the tumor involves the epiglottis, glosso-epiglottic folds, valleculae, pyriform sinus, hypopharyngeal and lateral pharyngeal and postericoid regions the prognosis is usually unfavorable, owing to the tendency to rapid spread and metastatic glandular involvement. In this group, surgery gives a high mortality and offers no assurance of cure. Roentgen therapy can produce a clinical cure in this group with cervical involvement, or, if the case is hopelessly advanced, palliation, comfort and prolongation of life.

**Intratracheal Use of Iodized Oil in Asthma**—Brigert and his associates believe that an ideal medium for the treatment of the mechanical factor in intractable asthma is an iodized oil that is nonirritating, nonabsorbable, of moderate viscosity, of a sufficient gravity (from 1.225 to 1.4) so the oil is not easily coughed up and of an iodine content sufficiently high to make it a good contrast medium for bronchographic purposes. The intratracheal method of administering the oil is the procedure of choice for diagnostic and therapeutic purposes. Usually only the lower section of the bronchial tree need be injected when the oil is used as a therapeutic measure in asthma. The filling of the left lower section is somewhat difficult, the correct position of the patient is important. For bronchograms, from 15 to 20 cc of iodized oil should be put on each side. For therapeutic purposes, from 5 to 10 cc should be given at weekly, biweekly or monthly intervals. Of the fifty cases of intractable asthma in which the authors obtained poor results by allergic management, they obtained good results in 70 per cent by combining the use of iodized oil intratracheally with allergic management. The therapeutic value of iodized oil given intratracheally to the intractable asthmatic patient appears to be due primarily to the mechanical effect of the oil. The intratracheal use of iodized oil cannot in itself cure a patient suffering from allergic asthma, but it is of inestimable value as a means of forcing up bronchial plugs and replacing pockets of pus with a nonirritating, nontoxic substance. In the treatment of intractable asthma, eliminative measures and desensitization against the substances to which the patient is specifically sensitive are of first importance, and the intratracheal use of iodized oil in the bronchial tubes is next in importance. A combination of the specific and the mechanical is ideal treatment in cases of intractable asthma. The authors feel that iodized oil is an indispensable measure in the treatment of cases of intractable asthma.

### Southern Medical Journal, Birmingham, Ala

28 197-288 (March) 1935

- Transurethral Prostatic Resection. Report of Five Hundred and Fifty One Resections. H. L. Kretschmer, Chicago—p. 197.  
Treatment of Mikulicz's Disease. F. M. Hodges, Richmond, Va.—p. 205.  
Malignancy of Upper Maxilla. H. Dupuy, New Orleans—p. 209.  
Bone Tumors. R. D. Schrock, Omaha—p. 213.  
Surgical Management of Destruction of Common Bile Duct Without Biliary Fistula. F. P. Herff, San Antonio, Tex.—p. 216.  
Empyema in Children with Analysis of One Hundred and Three Cases. J. M. Mason, Birmingham, Ala.—p. 219.  
Empyema Rib Resection with Open Drainage versus Nonopen Method. D. C. Donald, Birmingham, Ala.—p. 224.  
Obstetrics as Community Problem. G. W. Kosmak, New York—p. 231.  
Progress and Problems in Gynecology. J. W. Turner, Atlanta, Ga.—p. 237.  
Relation of Trauma to Abortion, Premature Delivery and Uterine Bleeding. L. E. Burch, Nashville, Tenn.—p. 242.  
Lid Control Sutures in Intracapsular Operation for Senile Cataract. J. L. McCool, San Francisco—p. 245.  
Vitamin Therapy. J. A. Ward, Birmingham, Ala.—p. 249.  
Sugar Metabolism. Its Symptomatic Relation to Neurologic and Psychiatric Disorders. H. R. Masters, Richmond, Va.—p. 254.  
Nutritional Failure as Clinical Problem. J. S. McLester, Birmingham, Ala.—p. 258.  
Food Allergy. Common Problem in Practice. A. H. Rowe, San Francisco—p. 261.  
Allergic Headache. W. T. Vaughan, Richmond, Va.—p. 267.  
Clinical Significance of Changes in First Heart Sound. G. L. Carlisle, Dallas, Texas—p. 269.  
Jaundice as a Symptom. O. C. Nelson, Little Rock, Ark.—p. 271.  
The Human Breast and Its Function. L. R. DeBuys, New Orleans—p. 272.  
Control of Tuberculosis in Childhood. J. W. Ames, Denver—p. 276.  
Periodic Health Examinations for Children. F. P. Gengenbach, Denver—p. 278.  
Enlarged Nursing Program in the State Board of Health and the Trend in Maternal Mortality. H. Hanson, Jacksonville, Fla.—p. 281.

### Southern Surgeon, Atlanta, Ga

1 184 (March) 1935

- Carcinoma and Sarcoma of the Esophagus. C. Jackson, Philadelphia—p. 1.  
Osteomyelitis of Jaws. J. B. Brown, St. Louis and P. C. Tung, Peiping, China—p. 12.  
Trifacial Neuralgia. E. F. Fincher, Jr., Atlanta—p. 27.  
Vascular Diseases of Extremities. Their Treatment. P. G. Flathow, Seattle—p. 36.  
The Fracture Problem. Report of Study of Ten Thousand and Eighty Two Fractures Treated at the Newell Clinic 1908 to 1934. E. T. Newell, Chattanooga, Tenn.—p. 44.  
Treatment of Deformities from Burns. O. L. Miller and W. M. Roberts, Charlotte, N. C.—p. 52.  
Postoperative Treatment. W. W. Babcock, Philadelphia—p. 63.

### Southwestern Medicine, Phoenix, Ariz

10 65-102 (March) 1935

- Treatment of Gonorrheal Infections in the Female. L. M. Miles, Albuquerque, N. M.—p. 65.  
Outbreak of Food Poisoning at the University of Arizona. W. B. West, Tucson, Ariz.—p. 71.  
Silicosis. J. A. Britton, Chicago—p. 73.  
Surgical Pathology of Peritonitis. J. W. Kennedy, Philadelphia—p. 75.  
Borderline Medical and Surgical Conditions. J. H. Musser, New Orleans—p. 78.  
Cancer. J. H. Vaughan, Amarillo, Texas—p. 83.  
Bromide Intoxication. C. W. Tidd, Topeka, Kan.—p. 87.  
Postoperative Intestinal Obstruction. J. W. Hannett, Albuquerque, N. M.—p. 89.

### Surgery, Gynecology and Obstetrics, Chicago

60 635-762 (March) 1935

- \*Precancerous and Carcinoid Lesions of Cervix Uteri with Comments on the Schiller Test. E. Henriksen, Baltimore—p. 635.  
Fulminant Sinus Disease. Study of Pathogenesis. F. L. Lederer, Chicago—p. 645.  
Normal Human Ovary in Primitive Striped Stage (Approximately Fifteen and One Half Days). H. O. Jones and J. L. Brewer, Chicago—p. 657.  
Studies on Absorption and Excretion in Segments of Colon of Man. F. S. Curry and J. A. Barger, Rochester, Minn.—p. 667.  
Some Principles of Local Anesthesia. L. Adam, Budapest, Hungary—p. 675.  
Variations of Female Pelvis in Relation to Labor. H. Thoms, New Haven, Conn.—p. 680.  
Cystectomy. Method of Retroprostatoseminal Vesiculocystectomy. F. Hunnan, San Francisco—p. 685.  
\*Transperitoneal Nephrectomy for Malignant Tumors of Kidney. L. R. Wharton, Baltimore—p. 689.  
Lymphangiomas of the Great Omentum. A. H. Montgomery and I. J. Wolman, Chicago—p. 695.  
\*Branchial Carcinoma. Lateral Cervical Neoplasm. G. Crile and J. E. Kearns, Jr., Cleveland—p. 703.  
Rupture of Kidney Pelvis. Review of Literature. B. S. Abeshouse, Baltimore—p. 710.  
Fractures of Humerus. End Results from Treatment. R. K. Ghorzky, Rochester, Minn., and R. I. Mroz, Rockford, Ill.—p. 730.  
Acute Mechanical Intestinal Obstruction. Mortality With and Without Enterostomies. Based on Review of Two Hundred and Forty One Cases from Records of the Cook County Hospital. A. Fey, Galeburg, Ill., and W. R. Cubbins, Chicago—p. 738.  
Spontaneous Rupture of Common Bile Duct. Sequel of Cholelithiasis. W. L. Wolfson and D. R. Levine, Brooklyn—p. 746.

**Precancerous and Carcinoid Lesions of Cervix Uteri**—Henriksen is of the opinion that the microscopic diagnosis of cervical cancer will not be improved until both the clinician and the pathologist learn more about pseudomalignant and possible promalignant lesions of the cervix. Mitotic figures are occasionally seen in the basal layer of the normal cervical epithelium and are to be looked on as evidence of the normal growth and repair of the cervix. Cervical lesions may be spoken of as "precancerous" when it is understood that the term implies that they might, though not necessarily, become cancerous. The microscopic picture of these lesions is less perplexing if the mechanism of development is understood. That cancer does originate in the so called metaplasias is illustrated by one case. Leukoplakia of the cervix is a pathological entity that may show cellular changes suggestive of cancer, though invasion is always lacking. Two cases showing microscopic changes similar to both Bowen's disease and extramammary Paget's disease are described, and also a case of intracervical carcinoma diagnosed with the aid of the Schiller test, in which the malignant growth extended over the entire endometrial surface of the uterus. The importance of biopsy is indisputable, but its value is increased if the specimen is immediately fixed and serial sections are made. Serial sections are of especial importance in cases of suspected early cancer.

The application of compound solution of iodine with the atomizer simplifies the test. The Schiller test is undoubtedly of some value in the diagnosis of early cancer, whether it is a specific for the absence of the cancer is questionable.

**Transperitoneal Nephrectomy for Malignant Tumors of Kidney**—Wharton believes that transperitoneal nephrectomy is safer than lumbar nephrectomy for the removal of renal tumors. He presents the following technic. A long rectus incision is used. Since the size of renal tumors can be reduced by preoperative irradiation, it is unnecessary to make a right angle extension of this incision into the flank. Exposure is improved by hyperextending the back as in an operation on the gallbladder. The anesthesia must be fairly deep. The operator works directly across the peritoneal cavity. The hyperextension of the back brings the lumbar wall nearer to the surface and the big incision makes it entirely unnecessary to work in a hole. The intestine is pushed into the opposite half of the abdomen and the layer of posterior peritoneum is incised at least 2.5 cm. from the lateral margin of the large intestine and mobilized before it is cut well above the flexure of the large intestine, which is then pushed medially and held back by gauze and retractors. The peritoneum is also pushed away from the region of the renal pedicle and the kidney. The duodenum goes with the peritoneum and ascending colon. If the kidney tumor and the peritoneum are intimately adherent, a wide patch of peritoneum may be left on the kidney and removed with the tumor. The elevation of the posterior peritoneum uncovers the retroperitoneal mass. The renal pedicle and pelvis are hidden under a layer of loose fat. In ligating the renal pedicle, it may often be advantageous to mobilize the lower pole of the kidney. It is always necessary to push the peritoneum and all other structures away from the region of the renal pedicle before attempting to isolate it. Before the renal artery and veins are clamped and controlled, it is always wise to expose them thoroughly and remove the fat and areolar tissue by which they are concealed. They should be elevated from the bed in which they lie so that a ligature may be passed around them. It is essential that there should be no back bleeding from the tumor or kidney at any time, as this blood will probably contain cells of the tumor. After the blood vessels have been ligated and cut, the removal of the tumor is usually fairly simple. All the perirenal tissue possible should be removed, including the perirenal fat, Gerota's capsule (the perirenal fascia), a long strip of the ureter and all the areolar tissue that can be removed safely. The posterior layer of peritoneum is closed tight by a continuous suture of plain catgut. If drainage is necessary, it can be provided through a stab wound, extraperitoneally, in the flank.

**Branchial Carcinoma.**—Crile and Kearns discuss twenty-eight cases of branchial carcinoma, all of which were definitely diagnosed. The only available methods of treatment are irradiation with radium or the x-rays and radical removal. Roentgen treatment is purely palliative. The method of treatment that they employed in most of their cases has been a combination of surgery and x-rays. Nitrous oxide anesthesia should be employed. Of the twenty-eight patients, eleven were treated by surgery alone. Two died from postoperative bronchopneumonia. Five left the hospital, four in good condition on discharge, but the fifth patient was unable to swallow owing to paralysis of the glossopharyngeal nerve. Two of the four remaining patients died, nine and ten months after operation. Six patients were treated by surgery and postoperative high voltage roentgen radiation. One died following a laryngectomy, which was performed because of the extension of the tumor into the pyriform sinus. Two others died one at the end of three months after operation after only one course of roentgen irradiation, the other at the end of eleven months after operation following three courses of irradiation over the entire side of the neck and head. One patient, who was treated with one course of radiation preceding operation, and postoperative radiation with x-rays and 2,080 mg. hours of radium, died twelve months after operation. Of five patients treated only with roentgen radiation distributed over the head and neck, two died within three months and one lived seven months. One patient was treated with radium alone, receiving 2,340 mg. hours at the first treatment and 2,600 mg. hours two months later and died six months after the first treatment. The four

patients treated with both roentgen and radium radiation died within a period of nine months after the first treatment. Only palliative results can be expected from any treatment, as the disease is usually rapidly fatal. It seems probable that radical excision followed by irradiation offers the best chance of relief to the patient having a branchiogenic carcinoma.

### Tennessee State Medical Assn Journal, Nashville

28:93 136 (March) 1935

- The Relation of Allergy to Ophthalmology Kate Savage Zerfoss Nashville—p. 93
- Hypertensive Heart the Most Common Form of So-Called Chronic Myocarditis E. A. Guynes Knoxville—p. 100
- Analysis of Abdominal Pain. A. L. Rule Knoxville—p. 105
- The Nervous Patient J. C. Hill Knoxville—p. 107
- General Consideration of Diseases of Thyroid Gland. N. S. Shofner Nashville—p. 110

### Texas State Journal of Medicine, Fort Worth

30 681 740 (March) 1935

- Choice of Therapeutic Agents in Treatment of Cancer E. Fischel, St. Louis—p. 688
- What Is the Place of Radium in Uterine Body Cancer? J. T. Moore Houston—p. 692
- Prevention, Diagnosis and Treatment of Cancer S. J. Wilson Fort Worth—p. 696
- Nodular or Adenomatous Goiter J. W. Hendrick Amarillo—p. 698
- The Radiologist and the Goiter Problem. J. W. Cathcart El Paso—p. 703
- Adequate Prenatal Care M. A. Davison Marlin—p. 706
- Some Good and Bad Procedures in Obstetrics H. H. Cartwright Breckenridge—p. 711
- Ectopic Pregnancy Analysis of Fifty-Seven Cases J. T. Krueger Lubbock—p. 715
- Vertigo S. C. Applewhite San Antonio—p. 719
- Closer Cooperation of the Diagnostic Laboratory and the Physician G. Turner, El Paso—p. 721

### Western J. Surg., Obst. & Gynecology, Portland, Ore

43:119 176 (March) 1935

- Malignant Exophthalmos and Operative Approach G. W. Swift Seattle—p. 119
- \*Pituitary Basophilism Report of Case. F. R. Teachenor Kansas City Mo—p. 127
- Ununited Fractures of Neck of Femur M. S. Henderson Rochester Minn—p. 134
- Treatment of Fractures of Femur P. A. Bendixen Davenport Iowa—p. 143
- Skull Fractures and Cranial Injuries Their Treatment and Sequels O. J. Fay Des Moines Iowa—p. 150
- Fractures of Metacarpals and Phalanges R. W. McNealy and M. E. Lichtenstein Chicago—p. 156
- Ruptured Membranes at Onset of Labor E. J. Krahulik Los Angeles—p. 162

**Pituitary Basophilism**—Teachenor submits the clinical and postmortem observations of a case of pituitary basophilism in which fatal erysipelas intervened so promptly after the recognition of the basophilism as to preclude further examinations. The unusual feature of the case is the infiltration of the adrenals, the kidneys and bone with cells which are identical with those of the pituitary neoplasm. The presence of these neoplastic cells in the kidneys and bone tends to disprove that basophil adenoma stimulates the growth of basophil cells in other organs of the endocrine system. Other features of the case are the high basal metabolic rate without loss of body weight and without evidence of thyroid hyperactivity and the marked uterine hyperplasia in the presence of marked involutional changes in the ovaries. It is not clear why an adenoma of the basophil cell, which is thought to secrete a gonad stimulating or sex maturing hormone, produces a precocity of sexual characteristics in children and eventually underactivity of sex function rather than stimulation.

### Yale Journal of Biology and Medicine, New Haven

7 275 382 (March) 1935

- The Dissection Riot of 1824 and the Connecticut Anatomic Law H. Hamlin New Haven Conn—p. 275
- Present View of Collapse Therapy in Pulmonary Tuberculosis W. B. Soper New Haven Conn—p. 291
- Specificity of Tobacco Antigen J. B. Lounsbury and A. W. Oughterson New Haven Conn—p. 305
- Unusual Variation of the Aortic Arch E. V. Carvey S. R. Gaston and H. B. Ferris New Haven Conn—p. 317
- Oliver Wendell Holmes Visits Yale C. Barker New Haven Conn—p. 319
- Pituitary Basophilism and Hypertension Leona Baumgartner, New York—p. 327

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Physical Medicine, London

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- A Year of Short Wave Therapy Justina Wilson—p 203  
Use of Diathermy in Surgery J C Ainsworth Davis and T H Sellors—p 205  
Clinical Observations on Chronic Pharyngitis and Its Treatment by Cold Quartz Lamp J D Hindley Smith—p 210  
Physical Treatment of Pulmonary Diseases with Especial Reference to Pulmonary Tuberculosis P Ellman—p 213  
Chronic Rheumatic Disorders Investigation of After Effects of Spa Treatment G R P Aldred Brown—p 215  
Treatment of Pulmonary and Surgical Tuberculosis by Ultraviolet Radiation Review and Summary of Conclusions A. Furniss—p 216

## British Medical Journal, London

1: 457 514 (March 9) 1935

- Some Points in Operation of Gastrectomy W H Ogilvie—p 457  
Clinical Observations on Use of Prostigmine in Treatment of Myasthenia Gravis L P E Laurent—p 463  
Treatment of Cellulitis Suppuration and Burns J J Robb—p 466  
Modification of Lotheissen's Operation Utilization of Sac in Radical Cure of Femoral Hernia R S Melville—p 467  
The Kline Test in Syphilis W V MacFarlane and J Gorman—p 469  
Abdominal Hydrocele Record of Two Cases A D Charters—p 470  
1: 515 570 (March 16) 1935  
Differentiation and Aberrations of Sex Characteristics W Blair Bell—p 515  
Substance Responsible for Traditional Clinical Effect of Ergot H W Dudley and C Moir—p 520  
\*Encephalomyelitis Simulating Diphtheritic Paralysis S Wyard and N Hobhouse—p 523  
The Nature of Acidosis O C M Davis and F W Rixon—p 525  
Monilethrix Second Group of Familial Cases J G Tomkinson—p 526  
Treatment of Hammer Toe. W S Creer—p 527

**Encephalomyelitis Simulating Diphtheritic Paralysis**—Wyard and Hobhouse present four cases of encephalomyelitis that suggested diphtheritic paralysis and believe that a new significance should be attached to some of the most typical symptoms of diphtheritic paralysis. The feature common to all four cases was absence of deep reflexes in the legs, without gross paralysis or muscular wasting—a breach of the reflex arc which was probably mainly on the afferent side. Palatal paralysis was observed in three, and three gave a history of disorders of the throat. In one case the only history of sore throat was immediately preceding the onset of the paralysis. In one case there had been a history of diphtheria in the same house after the onset of the child's symptoms. Three cases were clinically compatible with diphtheritic neuritis, though none of them showed a defect of ocular movements. The other case combined the usual signs of diphtheritic neuritis with others which were incompatible with it—that is, multiple lesions of the upper motor neuron, which were slight and transitory. With the exception of one child who died of bronchopneumonia, all made good progress while in the hospital, and their physical signs cleared up partially or completely. The last case bore a strong clinical resemblance to many cases of mild spontaneous encephalomyelitis observed recently, except in that heretofore palatal paralysis has not been observed in this disorder. The few postmortem changes observed in the fatal case were quite compatible with it and to some extent suggestive of it. The authors believe that most probably all four patients suffered from this condition and they suggest that further experience may show that palatal paralysis is a symptom of a type of encephalomyelitis prevalent at the moment. None of the children were seen in an early stage of illness when confirmatory evidence might have been obtained from a cellular reaction in the cerebrospinal fluid.

## East African Medical Journal, Nairobi

1: 337 374 (Feb) 1935

- The Medical Training of Africans H C Trowell—p 338  
The State and Lepers in Malaya T B Welch—p 353  
Leprosy Treated by Intravenous Injections of Methylene Blue Case R. W. Burkitt—p 356  
Gillan's Edema D V Latham—p 358  
Notes on Three Cases of Obstetric and Gynecologic Interest J H H Chataway and J A Carman—p 360

## Glasgow Medical Journal

5: 113 184 (March) 1935

- Prognosis in Intracranial Tumors J E Paterson—p 113  
Some Pages from History of Prevention of Malaria M Watson—p 130  
Asthma and Angioneurotic Edema H E. Jones—p 154

## Journal of Physiology, London

83 383 502 (March 15) 1935

- Effect of Frequency of Excitation on Thermal Response of Medullated Nerve L Bugnard and A V Hill—p 383  
Effect of Frequency of Excitation on Total Electric Response of Medullated Nerve L Bugnard and A V Hill—p 394  
Inhibitory Effect of High Frequency Stimulation and Excitation State of Nerve M Cattell and R W Gerard—p 407  
Further Analysis of Effects of High Frequency Excitation of Nerve L Bugnard and A V Hill—p 416  
Electric Excitation of Fin Nerve of Sepia L Bugnard and A V Hill—p 425  
Action Potentials in Maia Nerve Before and After Poisoning with Veratrine and Yohimbine Hydrochlorides L E. Bayliss S L Cowan and D Scott Jr—p 439  
\*Effects of Acetyl- $\beta$ -Methyl Choline on Gastric Acidity of Monkeys J H Ferguson and Elizabeth R B Smith—p 455  
Afferent Impulses in Carotid Sinus Nerve (Nerve of Hering) Dumas Asphyxia and Anoxemia J Y Bogue and G Stella—p 459  
Intensity Discrimination and Its Relation to Adaptation of Eye W D Wright—p 466  
\*Adrenalin Content of Suprarenal Glands in Scurvy and in Inanition W Deutsch and W Schlapp—p 478  
Sympathetic Dilator Fibers in Muscles of Cat and Dog Edith Bulbring and J H Burn—p 483

**Gastric Acidity of Monkeys**—Ferguson and Smith found that acetyl-beta methylcholine, in sufficient dosage, e. g., 3.5 mg per kilogram of body weight by lateral cerebral ventricle, 7 mg intravenously, and 10 mg subcutaneously, temporarily abolished the free acidity in the test meal gastric contents of the green monkey. The total chlorides were not affected. As with pilocarpine, but much less strikingly, the intraventricular route had the lowest threshold. Vagotomy in one case slightly raised the intraventricular threshold, but to a degree that can hardly be considered significant. Atropine antagonized the anacidity effect of acetyl-beta-methylcholine chloride as with the other parasympathomimetic drug, pilocarpine. There was even less evidence than with pilocarpine that simple neutralization played any significant part in the production of the gastric anacidity. Preliminary experiments with posterior pituitary extracts have failed to demonstrate any anacidity response to the intraventricular injections tried.

**Epinephrine Content of Adrenals in Scurvy**—Deutsch and Schlapp observed that there is an absolute reduction in the epinephrine content of the adrenals of guinea pigs in scurvy. There is a reduction in the epinephrine content of the adrenals of guinea-pigs in inanition, and this must be an important factor in the reduction found in scorbutic animals. There is no significant change in the cevitamic acid content of the adrenals in inanition when sufficient green food is given in the diet. There does not appear to be any close physiologic relationship between cevitamic acid and epinephrine.

## Journal of Tropical Medicine and Hygiene, London

38 65-80 (March 15) 1935

- Further Laboratory Observations on a Large Number of Pensioners Who Contracted Malaria and Enteric Fevers During the Great War and Returned to Residence in England W Broughton Atcock—p 65  
Observations on Some Interesting Cases Occurring During Malaria Epidemic in Ceylon S de Silva—p 66

## Lancet, London

1 531 594 (March 9) 1935

- Respiratory Failure Including So-Called Asphyxia Neonatorum A Moncrieff—p 531  
\*Chorea and Psychosis A Lewis and L. Minski—p 536  
Mental Deficiency Analysis of Group of Cases L Findlay—p 539  
Rapid Diagnosis of Cerebrospinal Fever B G Macgrath—p 545

**Chorea and Psychosis**—Lewis and Minski discuss three cases of chorea with psychosis in young adults and one of dubious choreic movements in a fatal case of schizophrenia. The etiology is always assumed to be toxic, but it is recognized as possible that here, as in Sydenham's chorea of children, not only may a rheumatic infection and other environmental factors be held responsible but also a constitutional predisposition and

an intoxication of some sort responsible for provoking the present attack. In a majority of those who have chorea during adult life, a history of chorea minor during childhood can be elicited. The analysis of the clinical observations and the anatomic changes in fatal cases suggests an interference with a complicated system covering cerebellomesencephalothalamocortical connections. A system rather than a "center" or a limited anatomic site is affected. Pregnancy appears peculiarly able through endocrine or toxic influence to revive or possibly to elicit the first instance. The occasional occurrence of choreic symptoms in epidemic (lethargic) encephalitis or, in later life, in focal disease of the brain suggests that it is not only rheumatism that may affect this "system" in so special a way. The anatomic observations are not yet relevant to clinical issues. In children with the familiar St. Vitus's dance, the usual changes are lability of affect and irritability, these are seen as naughtiness, outbursts of anger or crying and resentment at sensory stimuli, in others there is lessened spontaneity, often masked by the choreic movements. In more severe cases, usually in older children, the same changes are accentuated, and in the fleeting phases of anger or terror there may be slight delusional trends. Still more severe forms with delirium, hallucinations, delusions of persecution and much excitement are seen in adults. The relation of psychic changes to the other features of the disorder is not easy. At first one would assume that they belong to the symptomatic psychoses and exhibit the familiar features of an acute and more or less severe exogenous disorder. But it is unwise to ignore the presumptive localized changes in the connections between cortex, cerebellum and basal ganglia.

### Medical Journal of Australia, Sydney

1 295 322 (March 9) 1935

- Sterilization of the Unfit The Legal Aspect. F R Beasley—p 295  
Id The Medical Aspect. D M McWhae—p 298  
Id The Psychiatric Point of View. E J T Thompson—p 301  
Some Aspects of Sterilization of the Unfit. R H Crisp—p 303  
Medical Education of Papuan Natives. W M. Strong—p 305  
Homogeneous  $\lambda$  Radiation in Biologic Experiments. W H Love—p 309

### South African Medical Journal, Cape Town

9 97 138 (Feb 23) 1935

- The Education of Medical Men. P M Latham—p 97  
Medicine at the Crossroads. M R Drennan—p 105  
The Content of the First Year of Study in Medicine. R A Dart—p 108

9: 139 178 (March 9) 1935

- Medical Politics. A G H Hay Michel—p 141  
Staining of Cornea by Blood Pigment. D J Wood—p 142  
Sterility. L J te Groen—p 145  
Fatal Case of Plasmochin Poisoning. W K. Blackie—p 147  
Pain in the Right Iliac Fossa. A. L. McGregor—p 148

### Tubercle, London

16 289-336 (April) 1935

- Experiences of the Mantoux Test in Dispensary Work. N Tattersall—p 289  
Intrathoracic Tuberculosis Among the Chinese with Especial Reference to the Province of Szechuan. H G Anderson—p 294  
Standardized Tuberculin (Purified Protein Derivative) for Uniformity in Diagnosis and Epidemiology. E R. Long Florence B Seibert and J D Aronson—p 304

**Standardized Tuberculin**—Long and his co-workers point out that the active principle of old tuberculin can be isolated by a method that they outline and put up in dry form such that the essential requirements of a standard, viz., specificity, high potency, constancy in strength and stability, are ensured. The active principle as it exists in old tuberculin is a protein derivative. In its present refined form it has been designated purified protein derivative from tuberculin. Optimal dosages of this substance for epidemiologic work and testing of child and adult tuberculous patients have been established on the basis of several thousand tests. The doses selected are 0.00002 mg by weight of the purified protein derivative for the initial test and 0.005 mg for injection of those failing to react to the first dose. Experience has shown that the small first dose detects all the highly sensitive cases, without danger of excessively severe reactions, while the second dose detects the remainder of positive cases, that is, those whose sensitiveness is such that they would respond to the conventional doses of

preparations of tuberculin of strength equal or superior to that of the international standard. Several series of tests in the United States, England and Wales are reported, in some of which comparison with old tuberculin and roentgen observations is recorded. The roentgen examinations indicate that the purified protein derivative, like other tuberculins, may fail to detect an occasional case of healed primary tuberculosis with calcified foci, but that cases of clinical significance are not missed. The incidence of positive tuberculin reactions to the purified protein derivative in surveys in England and Wales varied from 38 per cent in children, 16 years of age or less in an orphan asylum, to 100 per cent in a tuberculosis sanatorium for adults. Almost all adult patients with tuberculosis reacted to the first dose. In the United States during the fall of 1934 the purified protein derivative was used in testing about 8,000 college students in various parts of the country. In the east about 50 per cent of the students reacted positively, in the middle west from 25 to 30 per cent and on the west coast about 50 per cent.

### Chinese Medical Journal, Peiping

49 101 200 (Feb) 1935

- Ankylosis of the Mandible. P C Tung and H I Chen—p 101  
Treatment of Open Fractures of Shaft of Femur. New Femoral Screw Traction Cradle. C Chang—p 111  
Aseptic Meningitis. Another Hazard in Spinal Anesthesia. H E Campbell—p 119  
Studies on Chronic Arsenic Poisoning. II. Pulmonary Tissue Changes in Guinea Pigs Exposed to "Mosquito Incense Fumes." C S Yang and P L Li—p 132  
Tuberculous Affections Under Mask of Rheumatic Conditions. Y D Tan—p 139  
Atriplicism. Report of Two Cases. K Y Yu—p 148

**Tuberculous Disturbances Under Mask of Rheumatic Conditions**—Tan states that the assertion of Loewenstein and his co-workers that tuberculous bacillema is responsible for rheumatic arthritis and other rheumatic manifestations cannot be accepted at present and needs further confirmation. Whether rheumatic conditions are the result of releasing the responsible noxa sensitized by tubercle bacilli or whether they are variants of tuberculous infection in a soil of altered immunity is a field for further study. Arthritis or polyarthritis caused by tubercle bacilli may be in the form of Poncet's rheumatism or of the usual chronic tuberculous arthritis. In muscular pain of the chest, pulmonary tuberculosis should be considered in the differential diagnosis. Lumbago and sciatica are only symptoms and frequently carries of the vertebrae may be the underlying cause, though it should be differentiated from spondylosis deformans and ankylopoietic spondylarthrosis. Tuberculosis of the tonsils is not infrequent and may be accompanied by rheumatic pains of the joints and elsewhere. The tuberculous origin may be revealed months or years after the onset of rheumatic manifestations and its possibility should be kept in mind when these manifestations are preceded or accompanied by pleurisy or tuberculosis of other organs. Rheumatic conditions are merely symptoms. These may be caused by other micro-organisms, of which the tubercle bacillus is one of the most common.

### Journal of Oriental Medicine, South Manchuria

22 21 36 (Feb) 1935

- Vital Staining of Trypanosoma Lewisii. Part I. Experiments with One Hundred and Fifty Dyestuffs. S Hatano and H Ryo—p 21  
Id. Part II. Experiments with Giemsa's and Funabashi's Solutions. S Hatano and H Ryo—p 22  
Appearance of Basophilic Granules in Erythrocytes in Healthy Infants in Mukden. T Kuwano and H Kondo—p 23  
Nutritive Value of Maize Mixed with Soy Bean. A Abe kaj F Etou—p 24  
Scarlet Fever Anatoxin. S Nagata—p 25  
Epidemiologic Observation on So-Called Manchuria Fever in City of Hsinking Manchoukuo in 1933. Y Ozaki and I Ohtsuka—p 26  
Purification of Diphtheria Anatoxin. Studies on Diphtheria Toxin III. T Komiya—p 27  
Arteries of Basis of Brain in the Chinese. K Miyashita—p 28  
Parasitic Diseases Among Immigrants in Aikawa Village Kinshu and in Denshodai Farm. Eiko Manchoukuo. E. Kitabatake—p 32  
Influence of Component Parts of Allium Scorodoprasum on Blood Picture. T Miyamoto—p 33  
Fungal Diseases of Skin and Mycologic Studies Among Inhabitants of Manchoukuo. V. Tinea Imbricata. T Terai—p 34  
Distribution of Kala Azar in Southern District of Manchoukuo. Part II. Conclusion. M T Sei—p 35

## Paris Medical

1 221 244 (March 16) 1935

- \*Treatment of Malignant Tumors by Cobra Venom J Lavedan—p 221  
 Growth of Tissues Regeneration and Cancer C Champy—p 227  
 Cancer of Hormone Origin Mammary Adenocarcinoma of Mouse A Lacassagne—p 233  
 Surgical Therapeutics of Skin Cancers A Tailhefer—p 240

**Treatment of Tumors by Cobra Venom**—Lavedan has treated fifty-one cases of histologically confirmed cancer by injections of cobra venom. The venom was prepared in Professor Calmette's laboratory and contained 10 mouse units per cubic centimeter. The initial dose was 0.5 cc., 1 cc., 5 mouse units. Three injections were given at two day intervals. The dose was regularly increased by 5 units every three injections until 50 units was given at one injection. At this dosage the injections were given twice a week or every five days. In some instances the injections were made directly in the tumor. The author concludes that the venom has no action on human cancers. A few cases of improvement were noted, but these may be explained on the basis of the occasional spontaneous stabilizations or regressions known to occur. The action on cancerous pain is undeniable, but it is inconstant, irregular, often slow, and habituation may occur. In dealing with incurable cancer, therefore, the author feels that venom may be reserved for the rare case in which morphine cannot be used.

## Presse Medicale, Paris

43: 401-424 (March 13) 1935

- Roger's Disease in Children Cardiac Malformations Without Cyanosis P Giraud and Astésiano—p 401  
 Importance of Water in Renal Secretion J Cottet—p 402  
 Periodic Epileptic Attacks in Oxyuriasis of Chimpanzee—R Deschiens—p 404  
 \*Role of Diencephalic Nuclei in Mechanism of Epileptic Attacks A Salmon—p 405

**Diencephalic Nuclei in Epilepsy**—Salmon reviews the evidence concerning the epileptogenic properties of the diencephalic nuclei, which he feels is adequate in demonstrating that experimental and pathologic lesions of these nuclei are translated into convulsive phenomena. This conception accords with the vegetative and hormone properties of the tuberian nuclei and clarifies the pathogenesis of numerous cases of diencephalic epilepsy recently reported. The idea of an epileptogenic center in the infundibular region, however, does not signify that epilepsy is always due to diencephalic changes. Epilepsy of cortical origin is more frequent than that of subcortical origin. This may perhaps be explained by the suppression of cortical inhibiting action on the subcortical centers. In any case the temporary improvement of epilepsy under the influence of barbiturates favors a close diencephalic connection between this manifestation and other functions, such as sleep, temperature and sugar regulation.

## Schweizerische medizinische Wochenschrift, Basel

65 289 312 (March 30) 1935 Partial Index

- Causal and Formal Genesis of Acute Necrosis of Pancreas A. Ghon—p 291  
 \*Osteosclerotic Anemia (Case of Marble Bones) H Assmann—p 293  
 Isolated Tuberculous and Septic Secondary Infections of Spleen H U Gloor—p 298  
 Differentiation of Bacteria (Species Type and Phase) A. Grumbach—p 303

**Osteosclerotic Anemia (Case of Marble Bones)**—Assmann reports a case of generalized osteosclerosis and anemia in a man, aged 25. The bodily structure of the patient was infantile. Roentgenoscopy disclosed that the greater density of the bones was most pronounced in the metaphyses and in the epiphyses, while the diaphyses of the long bones were only slightly involved. Histologic examination revealed that the bone marrow had become largely displaced by trabeculae or by fibrillar and infiltrated connective tissue. Between these there were a few medullary foci with signs of active erythromyelopoiesis. In the greatly enlarged lymph glands and in the enlarged spleen and liver, hyperplastic changes were evident. The histologic examination revealed in these organs active blood formation. The entire reticulo endothelial tissue was in a state of chronic

proliferation. It showed chronic inflammatory and fibrous changes but was also in a stage of regenerative, almost embryonal blood formation. The author thinks that the myeloid metaplasia in the spleen, the liver and the lymph nodes was a process of compensation for the deficient hematopoiesis of the bone marrow. The cause of the bone disease was unknown in this case whether osteomyelitic processes were involved cannot be definitely decided, but a tuberculous cause could be excluded. The maxillary suppuration, which developed shortly before death and which has been observed in other cases of marble bone disease, probably originated in the teeth and progressed because of lowered resistance. The author thinks that the infantilism, which, among other factors, was manifested by the persistence of the epiphyseal lines and the hypoplasia of the genitalia, is probably caused by a functional disturbance of the hypophysis. Necropsy revealed that the hypophysis was small and that its cortical portions were atrophied. It is probable that the thickened bony structure of the sella turcica was responsible for these hypophyseal changes. Other secretory disturbances, particularly those of the parathyroids, were absent and there were no indications of a primary leukemic blood disease. Investigation revealed nothing that would indicate a familial occurrence.

## Policlínico, Rome

42 197 260 (April 1) 1935 Medical Section

- \*Coin Test in Pneumoperitoneum. A Pozzi—p 197  
 Studies on Biology of Megacaryocytes Surviving in Vitro Action of Extracts of Spleen in Graduated Concentrations M. Torrioli and D. Belleli—p 214  
 Proteosynthetic Function of Liver A. Milella—p 220  
 Gumprecht's Shadows in Lymphatic Leukemia A. Fabris—p 239  
 Chronic and Subacute Hepatitis of Infancy, with Particular Attention to Infective Forms. L. Paterni—p 245

**Coin Test in Pneumoperitoneum.**—Pozzi studied the coin test in ten subjects with experimental pneumoperitoneum and found that, applied to the abdomen, it is always positive when there is a sufficient quantity of free air in the peritoneal cavity. By introducing 50 cc. of oxygen at one time, the author observed that after 200 cc. there is a distinct change from the dullness on auscultation to a certain degree of sonority. Changes in liver dullness are slight. Both the liver and the spleen appear to be detached from the diaphragm at the esophageal hiatus and the foramina for the passage of the large veins. In the recumbent position on laterolateral projection, with the quantity of gas introduced the detachment of the anterior aspect of the liver from the abdominal wall may be seen as a transparent band, larger than a fingerbreadth. The percussion sound becomes clearer on introduction of more oxygen, acquiring a metallic quality when from 900 to 1,000 cc. of oxygen is introduced. At this point the roentgen presentation of the pneumoperitoneum is naturally much clearer. In the erect position the dome of the diaphragm is raised notably, often to the right, where the area of transparency has a height of almost five fingerbreadths. The detachment of the diaphragm from the abdominal organs appears complete. The pneumoperitoneum appearance in the recumbent position in laterolateral exposure is notably more accentuated than that observed in the preceding position. The author believes that, when the quantity of gas in the peritoneum is much less than may be evinced by roentgenography alone, the coin test may be useful, even though the sign may not be completely positive, the changes in the resonance are such as to justify a suspicion of pneumoperitoneum. The coin test applied to the abdomen may offer an important symptomatic indication of the presence of free gas in the peritoneum. The author sought to determine whether the test is useful in detecting an extensive abdominal meteorism and in differentiating between simple meteorism and pneumoperitoneum. For this purpose he gave insufflations of air in the colon to some subjects and administered by mouth the powders of Frerich to other subjects, thus obtaining distention of the colon, of the stomach and, to some extent, of the small intestine. For the stomach the results were completely negative. The test was also negative in distention of the small intestine. In all cases of insufflation of the colon, the coin test was positive in the erect and the recumbent positions.



**Riforma Medica, Naples**

61 277 316 (Feb 23) 1935

- Experience with Neoplastic Ascites of Mouse N Waterman—p 279  
Hypoketonemic Action of Sulfur G Cavalli—p 281  
\*Diathermy of Carotid Sinus in Hypertension M Sorrentino—p 284

**Diathermy of Carotid Sinus in Hypertension**—Sorrentino stimulated by means of diathermy the carotid sinus of sixteen patients, aged 50 and more, presenting various degrees of hypertension. Seven of the patients were women and nine were men. Four had vascular lesions and were hemiplegic. Ten showed signs of renal sclerosis. Frequent urinalyses and systematic determinations of the blood pressure were made and during treatment all medicaments were withheld. When a patient, after from four to five determinations of blood pressure taken in the recumbent position on different days and on the same arm, presented a constant figure, pulse and respiration diathermy was administered on alternate days. After ten minutes and while treatment continued, another determination was made without removing the armband, and a final determination after the regular fifteen minutes of treatment. Applications were occasionally extended to from twenty to twenty-five minutes. The electrodes used were 10 by 15 cm in size. The intensity varied with the individual tolerance from 350 to 400 milliamperes to from 1000 to 1,100 milliamperes. Treatment was well tolerated. Arterial pressure was lowered in almost all the patients. Several felt markedly better. After ten minutes of treatment, the maximal pressure was lowered by 0.5 l or 1.5 cm of mercury and at the end of the treatment was 1, 1.5 or 2 cm of mercury lower. After fifteen treatments the pressure was reduced from 1 to 5 cm of mercury. The minimal pressure was lowered from 1 to 2 cm of mercury. The pulse was increased in frequency (from eight to ten beats) after each treatment. The marked lowering was observed in cases of strong hypertension while in cases of mild hypertension the change did not take place to the same extent. In the female patients the lowering effect was quicker, clearer and more marked. The duration of this lowering of pressure varied. After a month or a month and a half the pressure generally rises again especially in cases of slight hypertension. In patients with a maximal pressure exceeding 20 cm of mercury, the pressure rises six months after treatment but does not attain the original height remaining from 1 to 2 cm of mercury lower. When treatment is protracted more than from twenty-five to thirty minutes the patient has a feeling of warmth in the head and shows redness in the face but no serious symptoms. It is significant that after from one to three months many patients return for treatment saying that during and often after the period of treatment, they experienced a sense of euphoria in all their vegetative functions and that the buzzing in the head and other cephalic disturbances had disappeared.

**Prensa Medica Argentina, Buenos Aires**

22 457 508 (March 6) 1935 Partial Index

- Formulas of Ventricular Predominance in Arterial Hypertension M R Castex, R L Ramirez and A Nanciaras—p 457  
Bismuth Angina Marinho's Classification Cases P L Errecart—p 464  
Coagulants Control of Their Action as Applied to Clinical Medicine J J Bereterevide R A Neyra and O A Fitté—p 467  
\*Disturbances of Dynamism of Uterus in Edemonephrotic and Eclamptic Syndrome J Leon—p 484  
Peritoneal Tuberculosis in Infants Case R Monteverde and I Diaz Bobillo—p 497

**Disturbances of Dynamism of Uterus**—Leon found that the disturbances of the uterine dynamism especially general spasmodic contractures and local contractures in certain segments of the uterus in the course of labor are frequent in women suffering with gravidic nephropathy (43 per cent in his group of 111 nephropathic pregnant women). Having in mind different degrees of intensity of gravidic toxicosis in the edemonephrotic and eclamptic syndrome he observed that dystocic labor due to disturbances of the uterine dynamism is frequent in women with attenuated forms of gravidic toxicosis (45 per cent) rare in women with grave forms (36 per cent) and nil in eclamptic women who in his group had a normal delivery. The frequent functional disturbances in gravidic nephropathy are explained by interpreting the condition as a general disease in which there are considerable changes in the blood and alterations of the sympathetic endocrine system. It

the results of further statistical studies, planned by the author prove that labor follows a rapid evolution in women who immediately after delivery or a few hours later suffer from eclamptic attacks, the rapid evolution of labor, in these cases, could be related to an overproduction of hormones of the posterior lobe of the hypophysis, which have been considered important pathogenic agents in the production of convulsions.

**Semana Medica, Buenos Aires**

42: 853 912 (March 21) 1935 Partial Index

- Clinical Aspects of Infantile Medical Tuberculosis J C Navarro—p 853  
Papilloma of Cerebellopontile Angle Case J C Montanaro and J L Hanon—p 873  
Contralateral Spontaneous Pneumothorax in Pulmonary Tuberculosis Case A A Cetrángolo—p 884  
\*Anterohypophyseal Functional Insufficiency as Cause of Habitual Abortion A C Kunz—p 894

**Habitual Abortion**—Kunz says that cryptogenic habitual abortion is due to a functional insufficiency of the anterior lobe of the hypophysis. This insufficiency produces a functional insufficiency of the corpus luteum, the placenta, the adrenals and the interstitial gland. The author succeeded in preventing abortion, after appearance of the bloody discharge, in five women suffering from habitual abortion, by the following treatment. The patient is kept in bed as long as the bloody discharge persists. At the same time she is given two daily injections of 1 Gm each of a preparation of extract of corpus luteum. Although the discharge regularly stops in two or three days, the treatment is continued for three days more. By this time the patient may leave the bed. The total quantity of extract of corpus luteum given to the patient during the treatment varies between 6 and 10 Gm. Immediately after discontinuation of the treatment, the patient is given 200 rat units of anterior pituitary-like principle daily until she has passed the fourth month of pregnancy. In the author's cases the time varied between forty and sixty days and the amount given each patient was about 12,000 rat units. The five patients who received the treatment each delivered a normal living child at term.

**Archiv für Gynäkologie, Berlin**

159 1100 (Feb 22) 1935 Partial Index

- Medullary Strands Medullary Crystals and Ovarian Papillomas R Joachimowitz—p 1  
\*Behavior of Porphyrin Elimination in Hyperemesis Gravidarum and Its Relation to Function of Liver L Herold—p 35  
Management of Delivery of Twins C Holtermann—p 41  
Continuous Estrus and Persistence of Follicle (Experimental Studies on Rabbits) W Buttner and K Wiener—p 64  
\*Reduction Substances in Blood of Eclamptic Patients H Dietel—p 94

**Porphyrin Elimination in Hyperemesis of Pregnancy**—Herold determined by means of the spectrophotometric method, the porphyrin content of the urine of twenty-one women with hyperemesis of pregnancy. He found that in fifteen the porphyrin elimination was increased in comparison to that of normal pregnancies. After an increased disintegration of erythrocytes had been excluded as the cause of the increase in the porphyrin content, an impairment of the hepatic function was considered the cause. This etiology was further corroborated by the outcome of the simultaneously conducted liver tests (galactose test, xanthoprotein test, determination of the bilirubin content of the serum and determination of the urea). Repeated tests on the porphyrin content in the course of the disturbance disclosed that an exacerbation of the condition was generally accompanied by an increase in the porphyrin elimination and an improvement by reduction in the elimination.

**Reduction Substances in Blood of Eclamptic Patients**—Dietel stresses the significance of glutathione in the metabolism of the organism. In studies on patients with preeclampsia and with eclampsia he found that the glutathione values are reduced proportionately to the severity of the eclampsia. Studies with different analytic methods revealed the lack of substances that have been designated as x-substances but have been found to be identical with ascorbic acid (vitamin C). The latter is a reducing substance; it plays a part in the process and regulation of the cell oxidations. The decrease of the ascorbic acid in the blood of patients with eclampsia permits the conclusion that the oxidation and reduction processes of the cells are diminished in this disease.



**Deutsche medizinische Wochenschrift, Leipzig**

61: 445-488 (March 22) 1935 Partial Index

- Clinical Experiences with Serologic Methods in Infectious Diseases\* C Hegler—p 447  
 Pathogenesis of Lymphogranulomatosis S Graff—p 450  
 New Therapy of Juxtapyloric Ulcer A Henning and J Norpeth—p 452  
 Early Diagnosis of Blood Diseases H U Gloor—p 455  
 Cooperation of Various Types of Leukocytes and Its Disturbances W Ehrlich—p 458

**Therapy of Juxtapyloric Ulcer**—Henning and Norpeth point out that the juxtapyloric ulcer particularly its most frequent manifestation, the duodenal ulcer, is characterized by the nocturnal and hunger pains and by the superacidity and supersecretion. Tests have revealed that whereas in normal persons the secretion ceases some hours after the onset of sleep it continues in patients with duodenal ulcer. After calling attention to the acid factor in the pathogenesis of ulcer which, they admit, is not completely clarified as yet the authors point out that in view of the constant nocturnal secretion in patients with duodenal ulcer, nocturnal therapy is really more important than diurnal treatment. In their search for substances that would counteract the secretion of hydrochloric acid, their guiding thought was to realize this aim by osmotic impairment of the cells of the mucous membrane. They experimented with hypertonic solutions of dextrose and found that in cases of superacidity the acid secretion ceased for the duration of the dextrose action. The treatment that they evolved from this observation consists in the administration of small quantities of dextrose at short intervals. The technique is as follows. During the first days of the treatment the patient is given at hourly intervals 50 cc of a 60 per cent solution of dextrose. A thin stomach tube is introduced every evening through the nose and through it the same quantities of dextrose solution are introduced hourly during the night. Depending on the severity of the disorder, this strict form of treatment is continued for a shorter or longer period of days, but it is usually possible to add some zwieback with butter on the third or fourth day. The diet is gradually extended. The dextrose treatment is continued unchanged. Under the influence of this treatment the acidity was reduced and the symptoms disappeared promptly. There was no loss of weight, even during the days when only dextrose was given. In the later course, the weight increased as a rule. Some of the patients complained of heartburn during the first few days but aside from that there were no undesirable secondary effects. The blood sugar showed a normal behavior. The experiences with this treatment cover two years.

**Jahrbuch für Kinderheilkunde, Berlin**

144: 127-190 (March) 1935

- Torsion Dystonia During Childhood E Ascher—p 127  
 Relationship of Motility and Irritability of Smooth Musculature of Intestinal Tract to Dogiel's Intramural Ganglion Cell Types B Braune—p 164  
 Suggestion for Reform of Outpatients Department in Children's Clinic H Zischinsky—p 172  
 Kauffmann's Water Test as Functional Test of Heart During Childhood S Symon—p 175

**Functional Test of Heart During Childhood**—Svntan investigated whether Kauffmann's water test is suitable for the determination of the heart action of children. His tests were made on thirty patients. Of eighteen children without heart disease sixteen gave a negative reaction. In one of the two remaining children a more thorough examination made the existence of cardiac impairment seem probable. The other child was not examined again. Five children with heart disease, who were in the stage of latent decompensation, had a positive test, while one child in the stage of manifest decompensation had a negative one. Of four children with suspected cardiac impairment, two had a positive test which corroborated the existence of a cardiac defect. In the two other children the outcome was negative. Two children with an increased lability of the circulation had a negative test. Kauffmann's assertion that in patients with heart disease, during the stage of latent decompensation, elevation of the feet increases the diuresis was thus corroborated in the author's studies on children. He was unable to corroborate the statements of several other examiners who assert that patients without heart disease react in the same manner. He concludes that Kauffmann's water test can be used as a test for the cardiac function of children. However,

he thinks that studies on a larger clinical material will be necessary in order to determine to what extent the outcome of the test can serve as a basis for therapeutic and prognostic decisions. At any rate, together with the results of other clinical examinations, Kauffmann's test is helpful in the estimation of the cardiac condition.

**Munchener medizinische Wochenschrift, Munich**

82: 445-484 (March 21) 1935 Partial Index

- Actions of High Altitude Climate A Durrig—p 445  
 Cardiac Dilatation F Moritz—p 450  
 Are There Connections Between Influenza in Human Subjects and Distemper in Dogs? J Norr—p 455  
 Caisson Disease of Hip Joints H Frank—p 457  
 Agranulocytosis Problems K Rohr—p 460  
 Characteristics of Lymphatic Angina (Monocytic Angina) E. Otto—p 463

**Influenza in Man and Distemper in Dogs**—Nörr calls attention to influenza-like disorders in domestic animals, particularly horses and dogs, and points out that Bemelmans in a report published in 1932 directed attention to similarities between the influenza-like disturbances in horses and dogs and human influenza. He further discusses the possibility of a transmission of the disturbance from animals to man or vice versa. In considering this problem he gives his attention primarily to distemper in dogs. He observed that since the winter of 1933-1934 a nervous form of distemper with convulsions, paralysis and compulsion movements became more frequent among dogs and that this form reached its maximum during the winter of 1934-1935. He thinks that this severe form of distemper is the result of an increased virulence in the causal organism and although the greater incidence of this form of distemper shortly before the outbreak of the influenza epidemic does not necessarily imply a relation between the two disorders, this factor does deserve consideration. In this connection it is pointed out that human influenza as well as distemper is transmissible to ferrets and that distemper also occurs in monkeys. According to Nicolle human beings are susceptible to the virus of distemper and may be virus carriers. Moreover, another French bacteriologist Remlinger suggested treating dogs that have distemper with human convalescent serum, and the author, in turn suggests that serum from dogs that have had distemper may eventually be of therapeutic value in severe cases of human influenza the more so since serums of animal origin are used effectively in other infectious diseases.

**"Caisson Disease" of Hip Joints**—Frank reports a case in which a man aged 41 when employed at bridge construction, developed severe formication in the left hip joint. It appeared suddenly when one day decompression had been done somewhat too rapidly. He felt comfortable only as long as he was in the chamber. Later severe pains developed in the hip joint and the severity of the pains fluctuated. During the third year the symptoms increased considerably and he came under the author's observation. The left hip joint was sensitive to pressure and the movements were somewhat restricted. Roentgenoscopy disclosed areas of lesser density in the head of the femur. Moreover on the rim of the head there were excrescences so that the entire lateral surface had an irregular outline. The articular space was diminished. The region between the upper rim of the head of the femur and the neck of the femur appeared as if gnawed on. The right hip joint was free from these changes, but here too honeycomb like areas of lesser density appeared. The seroreactions for syphilis were positive but the roentgenologic aspects of the articular disorder did not resemble syphilitic changes. The possibility of caisson disease was taken into consideration but no definite diagnosis was made. The patient died two years later as the result of pneumonia and pulmonary embolism. The postmortem examination of the hip joint corroborated the roentgenologic aspects, but a histologic examination of the hip joint was neglected. A recent report in the literature which described the impairment of the hip joints in four caisson workers in whom the anamnesis and the roentgenologic aspects were similar to that of the author's case, convinced him that the patient observed by him must have had caisson disease of the hip joint. The bone lesions resemble greatly those that are observed in caisson disease of the skin (marmorations and aeremia), of the internal ear or of the spinal cord and the brain.

**Lymphatic Angina (Monocytic Angina)**—Otto describes six cases of lymphatic angina (monocytic angina). During the beginning stage the diagnosis is rather difficult particularly when examination of the blood is neglected. It may prove difficult to differentiate the condition from diphtheria, beginning cervical abscess and acute lymphatic leukemia. In one of the patients observed by the author several complications developed: pneumonia, pleurisy, orchitis and hyperthyroidism. In most cases the course of the disease was similar to that of Plaut-Vincent's angina. The pharyngeal culture contained in four cases spirilla and fusiform rods, and in one case fusiform rods without spirilla. Generally the sedimentation speed of the erythrocytes was but slightly accelerated somewhat as in Plaut-Vincent's angina. The question whether the lymphatic angina is the anginal form of Pfeiffer's glandular fever has not been completely clarified. The examination of the blood, which discloses an increase in the lymphocytes and the appearance of numerous cells resembling lymphocytes is extremely important for a prompt diagnosis. A deviation to the left resulted in the case in which a complicating pneumonia developed so that the increase in the lymphatic cells was no longer so noticeable. The author points out that an agglutination reaction may eventually prove helpful in the diagnosis.

### Wiener klinische Wochenschrift, Vienna

48 321-352 (March 15) 1935 Partial Index

Progress in Roentgen Diagnosis of Vertebral Column H. R. Schinz—p. 321

Observations in Epidemics of Meat Poisoning I. Hammerschmidt—p. 325

Rare Mechanical Obstetric Obstructions S. Liebmann—p. 330

Blood Pressure and Disturbances of Blood Pressure H. Kahler—p. 337

**Epidemics of Meat Poisoning**—According to Hammerschmidt, the genesis of food poisoning is not entirely clear as yet. He points out that Gartner's theory is still accepted by many. According to that theory the symptoms of poisoning are the result of toxins that have been formed in the food by a pathogenic organism. This theory would explain that the toxins are thermostable, that is, that poisoning may result also from foods that have been cooked. On the other hand it has been observed that in the course of meat poisonings those persons became ill who have eaten raw or half raw meat, not however those who have eaten the meat after it has been cooked. The author calls attention to experiments which proved that pathogenic microorganisms were still present in artificially infected meat after ten minutes of cooking. He reports two epidemics of meat poisoning in which the persons had eaten only cooked meat from animals that had been killed because they were sick. The meat had been fresh when sold but in one case the meat as well as the intestine of the cow contained paratyphoid bacteria. In both epidemics the majority of the patients excreted the pathogenic organism in the urine and stool and in many cases the agglutination tests of the serum were positive. It is possible that the appearance of infectious microorganisms in the human body is an accidental occurrence. It is now generally assumed that the acute poisoning is usually caused by the disintegration and decomposition of the meat poisoning bacteria which had entered the body alive together with the food. However in the course of the epidemics of meat poisoning the author observed also patients who had never eaten infected meat and yet they developed the same symptoms of poisoning and the stool and urine contained the same pathogenic organism. From the latter observations he concludes that the cause of such food poisonings must be an infectious one for they cannot be explained by the intake of decomposition products generated in the food by bacterial action.

48: 353-384 (March 22) 1935 Partial Index

Causes of Increase in Cardiac and Vascular Disorders Particularly of Angina Pectoris R. Singer—p. 353

Electrosurgery in Severe Infections F. Mandl—p. 363

Rare Forms of Fungous Diseases of Skin A. Musger—p. 365

New Method of Determining Scurvy's Skin Fold Phenomenon M. Goldstein—p. 367

**Electrosurgery in Severe Infections**—Mandl employed electrosurgery in fifteen cases. Two patients had old osteomyelitic processes, one a fungous infection of the ankle joint

with fistulas and cold abscesses, six carcinoma that became serious and led to a septic condition, two severe Bacillus coli infections, one so called gangrenous erysipelas and three severe infections of the soft parts. One patient of the latter group died. In some cases amputation of an extremity seemed indicated but the use of electrosurgery made it unnecessary. The author stresses the following advantages of electrosurgery: 1. It avoids pressure on the tissues. 2. It produces hyperemia. 3. It closes the blood and lymph channels instantaneously and thus prevents the spreading of infection. 4. The coagulated tissue binds the bacteria. 5. The surgical shock is reduced because electrosurgery prevents resorption. 6. The hyperemia and exudation necessary for wound healing are accelerated and intensified. 7. It is probable that electrosurgery mobilizes the defense powers of the organism. The author concludes that electrosurgery should take the place of ordinary surgery in severe infections.

### Zeitschrift für Tuberkulose, Leipzig

72 241-320 (March) 1935

Significance of Hereditary Factors for Pathogenesis of Tuberculosis B. Lange—p. 241

Surgical Thoracoscope According to Graf H. Kalk—p. 262

\*Division of Pleural Adhesions from Single Puncture J. Abelló and F. Abelló—p. 267

Influence of Geologic Structure of Region on Incidence of Pulmonary Tuberculosis in Man and Animals E. Wilbrand—p. 273

\*Demonstration of Tubercle Bacilli in Stool in Comparison with Their Detection in Sputum and Irrigation Fluid of Stomach E. Piasecka Zeyland and W. Sznajder—p. 277

#### Division of Pleural Adhesions from Single Puncture—

The Abellos point out that an apparatus for the division of pleural adhesions from a single puncture was first introduced in 1924 by Singer and that later several other appliances were introduced. They consider such surgical thorascopes a considerable advancement in the operative technique. They employed chiefly a modification of the apparatus of Graf. Before giving a description of this instrument, they discuss the preoperative measures. Adhesions that are to be divided are prepared by the so called pneumothorax in short intervals. In this type of pneumothorax the pressure is not increased but is kept for a long time at a minimum. In some instances the authors refilled the pneumothorax every second day. They further discuss the localization of the pleural adhesions, reviewing the different methods of roentgenoscopy and roentgenography and emphasizing that the technique of Miñana and Coopestein gives the best results. Then they describe the operative technique, the advantages and disadvantages of Graf's apparatus and how they overcame the latter. The apparatus of Graf has the advantage of permitting the use of various techniques (galvanocautery, diathermic coagulation, high frequency current and so on) in a single intervention. Moreover, of all the devices that operate from a single puncture, Graf's apparatus has the largest visual field. However, it has the disadvantage that the cautery is too short. The authors lengthened the cautery, particularly its point and devised a cautery that could be used with high frequency currents and a galvanocautery. The combined use of these methods reduces the time required for the operation. The authors report a case that illustrates the advantages of the improved technique.

**Detection of Tubercle Bacilli in Feces**—Piasecka Zeyland and Sznajder examined the feces of sixty tuberculous patients for the presence of tubercle bacilli. Thirty-two of the patients were children with the various forms of tuberculosis, particularly pulmonary tuberculosis and twenty-eight were adults with so called open pulmonary tuberculosis. The authors used the culture mediums of Löwenstein, Petragnani and Hohn. Each specimen of feces was tested in ten different tubes. The culture medium of Petragnani proved to be the most satisfactory. The examination of the feces of the adults gave positive results in less than half of the cases (twelve positive results). In the children all the tests on the feces had a negative outcome, although tubercle bacilli had been detected in the gastric contents of seventeen of the children. Thus the tests demonstrate that as regards the detection of tubercle bacilli, the examination of the gastric irrigation fluid is superior to that

of the feces. The authors conclude that the examination of the feces is useless in cases in which the other excretions have been found to be free from tubercle bacilli.

### Acta Medica Scandinavica, Stockholm

85 1220 (March 30) 1935 Partial Index

- \*Bilirubin Tolerance Test as Functional Test of Liver K. Brochner Mortensen—p. 1
- Syndromes of Hypertension of Cerebrospinal Fluid I. Papadato—p. 31
- Periodic Somnolence M. S. Kaplinsky and E. D. Schulmann—p. 107
- \*Symptoms of Ileus from Retention of Iron in Cecum Following Administration of Large Doses of Iron H. Sjöberg—p. 129
- Spontaneous Diuresis F. Cerritzen—p. 154
- \*Studies on Condition of Heart in Obesity T. Ceill and K. Secher—p. 210

**Bilirubin Tolerance Test**—By means of photometric analysis developed by Heilmeyer, Brochner Mortensen determined that plasma and serum have the same bilirubin content. The normal maximum of bilirubin is 1 mg per hundred cubic centimeters of serum. The bilirubin content is not constant. In the normal person it generally increases during fasting and decreases after eating. The author discusses the theoretical basis and describes the technique of Lilbott's bilirubin tolerance test. He reviews clinical experiences formerly made with this method and then describes the results obtained with the bilirubin tolerance test in twenty-five normal persons in twenty-eight patients with hepatic disorders and in thirteen patients in whom hepatic disease was not quite certain. As an indicator of the functional condition of the liver the test proved slightly more sensitive than the galactose test, the bromsulphalein test and the determination of the guanine resistant lipases. However the method cannot be used in cases of icterus in which bilirubinuria exists.

**Ileus Caused by Retention of Iron in Cecum**—Sjöberg points out that in cases of anemia with gastric achylia and deficient function of the intestine there is danger of retention of iron when large doses of reduced iron are given. He reports a case of achylia and a tendency to constipation in which a mass of unabsorbed iron accumulated in the cecum led to the development of a concretion, which in turn produced symptoms of ileus. The concretion was visible in the roentgenogram. The patient was treated with laxatives and enemata. The examination of the feces disclosed the presence of iron. Repeated administration of laxatives and enemata finally produced evacuation of stonelike lumps, and after that the symptoms of ileus disappeared. In order to determine whether the retention of iron is a frequent occurrence in anemic patients with achylia who are given large doses of iron the author subjected a number of such patients to roentgen examination. Three patients proved to be free from shadows indicating the retention of iron, but in a fourth roentgenoscopy disclosed signs of retention.

**Condition of Heart in Obesity**—To determine the relationship between obesity and circulatory disturbances Geill and Secher made studies on ninety-two patients in whom obesity was the only disorder. They found that the heart is enlarged in older patients with obesity, but that the size of the heart decreases after a reducing and rest cure. However, the transverse diameter does not again reach completely normal values. The reduction in the transverse diameter is dependent on the loss of weight. Electrocardiography of these patients gives no indications of the existence of degenerative changes in the myocardium.

### Hospitalstidende, Copenhagen

78 281 308 (March 12) 1935

- Investigations on Resorption of Nupercaine Through Mucous Membrane of Human Bladder S. Harild—p. 281
- \*Stenosis of Aortic Isthmus Casuistic Report. C. J. Jacobson—p. 293
- Atypical Hemorrhagic Diathesis E. Gjörup—p. 299
- Report on Cases of Acute Hepatitis with Brief and Late Positive Result of Bauer's Galactose Test T. Geill—p. 305

**Stenosis of Aortic Isthmus**—In Jacobson's case, necropsy confirmed a presumably congenital stenosis of the aortic isthmus with ectasia of the arch of the aorta and the ascending aorta and hypertrophy of the heart and development of a considerable

collateral arterial circulation. There was stasis in the liver and kidneys, and the immediate cause of death was an effusion of blood within the pericardium. The patient was a woman, aged 35. He says that the following symptoms aid in the diagnosis of congenital stenosis of the isthmus during life: (1) visible and increased pulsation in the three fields where the collateral circulation may develop, (2) poor circulation in the lower part of the trunk and lower extremities, with pallor and anemia and subjective sensation of cold, and with cyanosis in the upper part of the body, (3) possibly stasis albuminuria, (4) retardation of crural pulse and increased blood pressure in the upper part of the body as compared with the blood pressure in the lower part, and (5) the results of roentgen examination.

78 309 336 (March 19) 1935

- Bronze Diabetes (Pigment Polycirrhosis) Review of Earlier Reports Together with Casuistic Report Four Cases K. F. Meldahl—p. 309
- Nevi Pigmentosi Contribution to Understanding of Their Etiology M. Björneboe—p. 329

**Bronze Diabetes**—The results of necropsy in Meldahl's cases, observed within little more than a year, showed a typical bronze diabetes. Jaundice, ascites and prominent anemia were absent, except in one case in which ascites appeared during insulin treatment as in the two cases reported by Bingel. The order of development is thought to have been cirrhosis of the liver and pancreas with iron pigmentation, later diabetes and, finally, melanoderma. There were no endocrine disturbances or neurologic complications. The author ascribes the infrequent anatomopathologic diagnosis of bronze diabetes to the omission of microchemical examination, and the more infrequent clinical diagnosis partly to the incorrect impression, from the term 'bronze diabetes' that the diagnosis depends on the presence of both pigmentation of the skin and diabetes, and partly to the lack of means of confirming the diagnosis when bronze diabetes has been suspected a means which in his opinion is afforded by microscopic examination of the skin (demonstration of iron pigmentation).

**Nevi Pigmentosi**—Björneboe reports a case of extensive nevi pigmentosi in a man, aged 37, combined with neurofibromatosis of the skin and complicated with primary melanosis of the brain. There were hairy nevi on trunk and thighs. The case is explained by the assumption that neurofibromas and melanomas, or neuroplastic sarcomas and malignant melanomas, are of the same nature which in this case seems to be supported partly by the intimate relation between the neurofibromas and the nerve cells, partly by the establishment of autochthonous melanin in a nerve with neurofibromatous changes. The author considers it probable that nevi are an organoid malformation in which both epidermis and connective tissue and presumably the nervous system play a part.

### Ugeskrift for Læger, Copenhagen

97 349 370 (March 21) 1935

- \*Continued Investigations on Presence of Antianemic Factor in Preparations of Dried Stomach from Cardia Fundus and Pylorus Portions Respectively IV. Preparations from Cardia Portion (Preliminary Report) E. Meulengracht—p. 349
- Isolated Fracture of Seventh Cervical Vertebra and First Dorsal Vertebra Due to Tearing V. Bloch—p. 358
- Pirquet's Test in Rural Population K. Wassmann—p. 360
- Spontaneous Exsufflation from Pneumothorax P. Bogason—p. 361

**Antianemic Factor in Preparations of Dried Stomach**—Meulengracht found that, in pernicious anemia in man, desiccated pulverized preparations from the cardia glands of the stomach of swine possess a certain antianemic effect, slight, however, in comparison to that from the pyloric glands. The quantitative difference in the antianemic factor of the two glandular types is explained by the smaller amount of glands per surface unit in the cardia region, roughly from three to five times less than that of the pyloric region. The conception of a fundamental identity between the two types of glands is thus supported at least with regard to production of the antianemic factor. Histologically, the points of resemblance are so marked that the glands may anatomically be regarded as identical. The so-called cardia glands in swine are presumably pylorus glands, which in a manner peculiar to swine extend upward and along the lesser curvature and over a large part of the cardia portion.

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## INTRAVENOUS INJECTIONS OF HYPO- TONIC AND HYPERTONIC SOLUTIONS

THEIR THERAPEUTIC VALUE IN THE TREATMENT  
OF SOME MENTAL DISORDERS

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Histologic studies of the central nervous system in dementia praecox have failed to reveal specific morphologic nerve changes. Such structural changes as may be present in this morbid condition are secondary. Quite constant, but by no means characteristic, are changes in the cerebral subarachnoid space. The changes may be termed chronic aseptic meningitis in which, among other lesions, there are present hyperplasia of the connective tissue and proliferation of the mesothelial cells. In addition, abnormal microchemical phenomena are demonstrable in the ganglion and glia cells, mainly in the form of lipoids. The aseptic meningitis is to be looked on as a meningeal reaction against toxic substances discharged from the depth of the brain tissues into the subarachnoid space. Though toxins are present also in normal cerebral tissues, they are probably neutralized after they have been removed by the tissue fluids of the brain into the subarachnoid space (by way of the perivascular spaces of Virchow-Robin) and from there to the blood.

Vast and rapid accumulations of toxic substances in the brain may produce profound toxic changes in both the ganglion and glia cells, their destruction with formation of clasmotodendrosis (breaking up of the glia fibers) and ameboid glia (degeneration of the glia cell bodies). However, such changes occur only in peracute toxic states, as can be demonstrated experimentally on animals. In catatonic and other forms of dementia praecox, essentially chronic morbid conditions, acute destruction of the parenchyma and glia does not occur.

One must assume that either accumulation of toxic substances is gradual in these conditions or their elimination defective, and that by increasing the discharge of the problematic toxins one may assist the brain in ridding itself of harmful substances and thus attaining its normal function. This can be accomplished by the method devised by Weed and his

co-workers<sup>1</sup> in changing at will the bulk of the brain. They demonstrated that an intravenous injection of a hypertonic salt solution causes shrinkage of the brain accompanied by lowering of the pressure of the cerebrospinal fluid and that an intravenous injection of a hypotonic salt solution causes increase in the volume of the brain with rise in the pressure of the cerebrospinal fluid. Both these forms of injections have been used in our experiments. They were combined in some instances with continuous or forced drainage, the latter used by Kubie<sup>2</sup> and others<sup>3</sup> in the treatment of various acute and chronic diseases of the central nervous system. We planned experimenting with the foregoing method and its modifications on a large number of patients, but after a careful trial in three patients we found the method in general useless and discontinued it. The reasons for abandoning the method and some observations we made during our studies are of sufficient interest to be recorded.

CASE 1.—A white man, aged 23, was admitted to the Psychiatric Institute of the Research and Educational Hospitals, Oct 28, 1932, in a catatonic state. Prior to admission the patient had been treated in a state hospital with carbon dioxide, radium chloride and many other methods. When admitted to the institute, the patient was mute and negativistic. As his general physical condition grew progressively worse, his parents readily gave permission to experiment with intravenous injections. To ascertain the difference in reactions to various solutions (isotonic, hypertonic and hypotonic) the patient was first given (from Jan 7 to Jan 24, 1933) by Dr Haines three intravenous injections of Ringer's solution (150 cc.) followed by an injection of 50 cc. of 25 per cent solution of dextrose. On two occasions there were flushing of the face, slight twitchings at the corners of the mouth and excessive perspiration. From January 31 to October 26 the patient had been given intravenous injections of 0.45 per cent solution of sodium chloride. In two instances the solution was that of 0.33 per cent and in three instances that of 0.2 per cent. The amounts of fluid injected were from 200 to 2,225 cc., the duration of each injection was from one to two hours. The hypertonic solution used was that of magnesium sulphate (25 cc. of a 10 per cent solution) or dextrose (50 per cent). The injections were given every five or eight days and during the last month (October) were combined with forced drainage of the cerebrospinal fluid, of which from 90 to 150 cc. was withdrawn. The reactions of the patient to the injections of hypotonic

1 Weed L. H. and McKibben P. S. Pressure Changes in the Cerebrospinal Fluid Following Intravenous Injection of Solutions of Various Concentrations. *Am J Physiol* 48:512 (May) 1919. Experimental Alteration of Brain Bulk, *ibid* 48:531 (May) 1919. Weed L. H. and Hughson Walter. Systemic Effects of the Intravenous Injection of Solutions of Various Concentrations with Especial Reference to the Cerebrospinal Fluid. *ibid* 58:53 (Nov.) 1921.

2 Kubie L. S. Forced Drainage of the Cerebrospinal Fluid. *Arch Neurol & Psychiat* 19:997 (June) 1928. Intracranial Pressure Changes During Forced Drainage of the Central Nervous System, *ibid* 16:319 (Sept.) 1926.

3 Retan G. M. Forced Spinal Drainage in Its Relation to Infections of the Central Nervous System. *J A M A* 99:826 (Sept. 3) 1932. Retan G. M. and Kubie L. S. Forced Drainage of the Cerebrospinal Fluid: Its Experimental Basis, the Technique of Clinical Application and the Indications and Contraindications, *ibid* 101:354 (July 29) 1933. Fellows R. M. Forced Spinal Drainage in the Treatment of Gastric Crises. *Am J Syph* 18:505 (Oct.) 1934.

solutions (1,500 cc of a 0.2 per cent solution) were excessive perspiration, occasional cyanosis of the finger nails, flushing of the face, an eruption of an urticarial rash on the face, neck and forehead, chills, a slow, thready pulse and mild hemoglobinuria.

There were no significant changes in the temperature, respiration and for the most part pulse rates. There was always an increase of the systolic blood pressure from injection of hypotonic solution (especially after the completion of the injection), which always dropped to normal within sixty minutes after the injection. The changes in the number of red cells were insignificant. On three occasions their number increased by about 180,000 to 350,000 and in two instances there was an average drop of 365,000. In contrast, injections of hypotonic solutions invariably caused an increase in the white cells. The average increase was 2,900 cells, mainly in the polymorphonuclears. A differential count showed a decrease of lymphocytes, the eosinophils disappeared altogether. The content of nonprotein nitrogen, cholesterol, carbon dioxide and creatinine was reduced, that of total protein and sugar in the cerebrospinal fluid showed no appreciable change.

A slight improvement was noticed in the mental condition of the patient after the first treatments. He came out of the catatonic state, showed some interest in the surroundings and was somewhat cooperative. Ultimately (after about two weeks) he became worse though as a rule, not to the extent of the preinjection severity.

CASE 2—A white man, aged 37, was admitted to the Psychiatric Institute of the Research and Educational Hospitals Aug 15, 1933, because of an advanced case of dementia praecox (catatonic type). The patient was negativistic and exhibited stereotypes of posture and speech, a practically absolute mutism and some other features of catatonic dementia praecox. Since 1928 there had been progressive emotional deterioration, regardless of the numerous methods of treatment used—injections of carbon dioxide, administration of physiologic solution of sodium chloride by mouth and of globulin extract, and colloidal sulphur injections. After treatment of seven months' duration at the institute, the patient was transferred to the Chicago State Hospital as unimproved. The hypotonic solutions used were those of 0.45, 0.33 and 0.2 per cent. The average amount injected was 1,500 cc. In one injection it was 2,640 cc (0.45 per cent), four injections were of 0.2 per cent and three of 0.45 per cent and one of 0.3 per cent, all without untoward effects. Only in one instance was there cyanosis of the lips and the finger nails, and the urine was blood tinged (in the seventh injection). The blood pressure rose during and immediately after the injection (the highest rise was 24 points) and came down to the preinjection level within ten minutes. The number of red cells dropped on all occasions by 380,000. Once after an injection of magnesium sulphate there was a further drop of half a million. The number of the white cells practically always showed an increase, especially the polymorphonuclears (by 23 per cent), while that of the lymphocytes dropped by 25 per cent. No particular changes were found in the carbon dioxide and calcium content of the blood.

CASE 3—A man, aged 32, was admitted to the Psychiatric Institute of the Research and Educational Hospitals, March 2, 1932, with the classification of schizophrenia (hebephrenic type). Prior to admission he had been unsuccessfully treated for six years at one of the state hospitals with various methods. The patient became untidy, destructive and uncooperative.

The treatment with intravenous injections was begun on March 31, 1933, and was continued for a period of seven months with a three months' interval. Thirteen injections were given, in amounts of from 1,000 to 1,500 cc. of 0.45, 0.33 and 0.2 per cent solutions of sodium chloride. The patient usually tolerated the injections well. In two instances, after an injection of 0.45 per cent solution, he became agitated, complained of warmth and jumped around, the face flushed. The effects of the injections were the same as observed in the two previous patients. The blood pressure rose during and after the injections, in some instances 22 points, the red cells and cholesterol exhibited a slight drop, the white blood cells (the polymorphonuclears) showed an increase and after an injection of 1,500 cc. of a 0.2 per cent solution of sodium chloride the urine appeared

wine colored. As in case 1 there was a temporary improvement in the mental condition but none was noticed from the subsequent treatments.

## COMMENT

The three patients represented advanced stages of schizophrenia and, as noted, had not improved under any treatment. For this reason they were selected for the experiments with intravenous injections of hypotonic and hypertonic salt solutions. In the additional use of hypertonic solutions and in the use in some instances of the hypotonic solution only, this method differs from that used by Kubie,<sup>2</sup> Retan and others<sup>3</sup> in organic diseases of the central nervous system. Hypotonic solutions injected into the veins cause, through osmosis, excessive accumulation of fluids in the brain, their flooding, as it were, and increase in the bulk of the brain. A subsequent intravenous injection of a hypertonic salt solution produces, also through osmosis, a reversed action—a return of the excessively accumulated fluids into the blood vessels and the adventitial spaces of Virchow-Robin with the subsequent shrinkage of the brain tissue. Returning to the blood vessels of the brain, the tissue fluids containing the vastly diluted waste products of the cerebral parenchyma are partly absorbed by the blood and partly discharged into the cerebral subarachnoid space. From here they are removed through the perineural channels to the periphery. A veritable lavage of the brain is thus effected, unaccompanied by severe reactions of the organism. The practical absence of complications following injections of 2 or more liters of greatly diluted (0.2 per cent) solutions of sodium chloride is especially noteworthy. However, no striking mental reaction was noticeable, and the therapeutic method, though based on apparently sound experimental and pathologic facts must be considered worthless. The reason for the failure lies in the fact that the problematic toxins of the brain are not removed by the method here described in sufficient quantities to effect either a cure or even a temporary improvement. According to the current teachings<sup>4</sup> the contents of the subarachnoid space are derived from the choroid plexus and in smaller amounts from the cerebral perivascular spaces of Virchow-Robin. The rapid increase in the amount of fluids in the brain after injections of hypotonic salt solutions and their equally rapid decrease after injections of hypertonic solutions would rather suggest that the entire cerebrospinal fluid is derived from the tissue fluids of the brain.<sup>5</sup> Reaching the subarachnoid space the fluids are absorbed (according to current teachings) into the vascular system, either by the arachnoid villi or by the perineural spaces of the cerebral blood vessels. The latter mode of absorption is most likely the correct one.<sup>6</sup> Whatever the theory, the ultimate discharge of the cerebrospinal fluid and the toxic substances is into the vascular system. The forced drainage removes only a small amount of fluid—from 90 cc to about 150 cc—against 2 or more liters injected intravenously, and Kubie himself stated that "the possibility that some fluid may become trapped in the system cannot be ruled out by the methods used." Even were it possible to wash out and remove the toxins entirely, one could not pre-

4 Weed, L. H. Studies on Cerebrospinal Fluid. IV. The Dual Source of Cerebrospinal Fluid, *J. M. Research* 31: 93, 1914.  
5 Hassin G. B. The Effect of Organic Brain and Spinal Cord Changes on the Subarachnoid Space, Choroid Plexus and Cerebrospinal Fluid. *Arch. Neurol. & Psychiat.* 14: 468 (Oct.) 1925. Hydrocephalus. Studies of the Pathology and Pathogenesis with Remarks on the Cerebrospinal Fluid. *ibid.* 24: 1164 (Dec.) 1930. Hydrocephalus. Report of a Case in an Infant with Vestiges of a Choroid Plexus in the Fourth Ventricle. *ibid.* 27: 406 (Feb.) 1932.  
6 Hassin G. B. So-Called Circulation of the Cerebrospinal Fluid. *J. A. M. A.* 101: 821 (Sept. 9) 1933.

vent formation of new toxic substances, for the exact mode and cause of their formation and their nature are not known. The foregoing considerations seem to present sufficient reasons for abandoning the method of intravenous injections of hypotonic or hypertonic solutions because useless. However, it may yet prove valuable if solutions used are not those of sodium chloride alone but combined with some medicinal substances possessing certain chemical affinity for the nerve elements.

#### CONCLUSIONS

1 The basis of the method of treatment of abnormal mental conditions with intravenous injections of hypotonic and hypertonic salt solutions is the dilution of the toxins contained in the tissue fluids of the brain and their removal mainly to the subarachnoid space.

2 Large amounts (about 2.5 liters of hypotonic salt solution) can be injected intravenously without harmful effects.

3 The solution of sodium chloride may be as low as 0.2 per cent.

4 The changes in the chemistry and morphology of the blood are mild and transitory.

5 Only a small part of the increased amount of the cerebrospinal fluid formed by intravenous injections of the hypotonic solutions can be removed from the nervous system by forced drainage, the larger portion remaining in the brain and becoming reabsorbed into the general blood circulation.

### AN EVALUATION OF DINITROPHENOL AS AN AID IN WEIGHT REDUCTION

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Much attention has been directed in recent years to the reduction of the weight of obese subjects. The removal of fat deposits is dependent on the creation of a deficit between the daily intake and the daily output of energy. This deficit can be obtained either by a reduction of intake or by an increase of output.

In the past year a new group of chemicals, of which the principal one is alpha-dinitrophenol (1-2-4), has been advocated as a method of securing weight reduction by increasing the energy output.<sup>1</sup> These drugs have an advantage over thyroid extract in the absence of certain side reactions such as tachycardia and palpitation. It therefore becomes desirable to discover the practical value of the use of dinitrophenol<sup>2</sup> by observation of its effect on the weight change of obese patients who have been placed on carefully established regimens and to compare these results with those obtainable by well established dietary procedures.

#### METHODS

Six patients were studied over periods varying from 54 to 115 days. These patients were all women in good

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<sup>1</sup> Cutting W. C., Mehrtens H. G., and Tainter M. L. *Actions and Uses of Dinitrophenol*, J. A. M. A. **101**: 193 (July 15), 1933.  
Tainter M. L., Stockton A. B., and Cutting W. C. *Use of Dinitrophenol in Obesity and Related Conditions* *ibid.* **101**: 1472 (Nov. 4), 1933.  
Dodds E. C., and Pope W. J. *Dinitro-o-Cresol as a Stimulator of Metabolism*, *Lancet* **2**: 352 (Aug. 12), 1933.  
Dodds E. C., and Robertson J. D. *The Clinical Applications of Dinitro-o-Cresol* *ibid.* **2**: 1137 (Nov. 18), 1933.

<sup>2</sup> The dinitrophenol used in this work was supplied to us by the Department of Pharmacology of the Stanford University School of Medicine through the courtesy of Dr. M. L. Tainter.

health apart from the obesity and certain dependent disabilities such as varicose veins and painful knees. They varied from young adult to middle age and from moderately to grossly obese and may be regarded as fairly representative of the average types of obese patients encountered in practice.

The strict technic of the metabolic pavilion governing intake and output of food and residues, which has been described elsewhere, was observed throughout.<sup>3</sup> Body weights were taken daily under our "standard" conditions.

On each patient the total periods of study were divided into two parts (A), that in which the patient received a diet of approximately maintenance caloric value, (B) that in which a reduction diet of the type that we have employed for more than seven years was used. In each major division, the patient was established on the dietary regimen for one or more weeks. When the rate of metabolism and the rate of weight change appeared to have become stabilized, dinitrophenol was given in doses up to 300 mg. daily for one or more weeks. The drug was then discontinued and, after subsequent periods of stabilization, employed again. All patients had two periods with dinitrophenol. One patient had four such periods.

Basal metabolism determinations were done as a routine twice a week. Unusual observations were repeated on the following mornings. The Tissot method was used throughout. Body surface measurements were estimated from the Sandiford tables. Most of the data are expressed in terms of total caloric exchange rather than in terms of basal metabolic rate.

The results are tabulated according to the major dietary periods and their successive subdivisions. The maintenance diet period (A) was composed of three subdivisions: (1) stabilization period of maintenance diet without drug, (2) maintenance diet plus dinitrophenol and (3) maintenance diet without drug. Only three patients were observed in the third phase. In the comparative analysis based on data recorded in table 2, the figures for the two drug-free periods taken together are contrasted with those for the dinitrophenol period. The average figures are not weighted, because the distortion resulting is relatively slight and the complete details appear in table 3. In subsequent portions of the discussion, only strictly comparable data are employed.

The reduction diet period (B) was composed of seven subdivisions: (1) reduction diet alone, (2) reduction diet plus dinitrophenol, (3) reduction diet alone, (4) reduction diet plus dinitrophenol—three patients only, (5) reduction diet alone—three patients only, (6) reduction diet plus dinitrophenol—one patient only, (7) reduction diet alone—one patient only. Again, as with the maintenance diet figures, the unweighted data for the four drug-free periods are contrasted with those of the three dinitrophenol periods in the analysis based on the data in table 2. The details of these periods are recorded in table 4. In the subsequent discussion only strictly comparable data are employed.

Each of the subdivisions of these two major periods, namely, maintenance diet and reduction diet, was further divided for purposes of more careful analysis into a first and a second half. It was felt that the heat production data of the successive first half periods were greatly influenced by the lag in the building up of the metabolism to a maximum after the drug was started.

<sup>3</sup> Strang, J. M., and Cox, A. B. *The Analysis of High Caloric Diets in Relation to Weight Change*, *Ann. Int. Med.* **7**: 152 (Aug.) 1933.



or in the drop from a maximum to a natural level after the drug was stopped. Also, large alterations in water balance which require separate consideration occurred in the first half periods. The decision as to the time of separation of the second halves was of course arbitrary. It was based in part on the demonstration of a rather uniform slope of daily weight curve but more especially on the demonstration of a maximum or a minimum plateau on the curve of basal metabolism. Accordingly, it is felt that the data of the second half periods are as free from controllable extraneous influence as is possible.

### RESULTS

The six patients on admission weighed from 77.6 to 150.5 Kg, with an average of 111.8 Kg. They were studied for a total of 437 days, with a range from 54 to 115 days. They lost a total of 99.4 Kg, or an average of 16.6 Kg each. For 190 days of the study the patients received approximately "maintenance" diets, on which they lost 24.8 Kg. For 102 days or

calories and that of less than 600 calories, were greater without the drug than when it was being taken. Attention may also be drawn to the data showing the relation between basal metabolism determinations and the rate of weight loss. As a result of the use of dinitrophenol there was an increase of oxygen consumption. This increase was of approximately the same magnitude (20 per cent) when the drug was given in addition to the maintenance or the reduction diet. The apparent paradox of diminished rate of weight loss with an increased rate of oxygen exchange is discussed later.

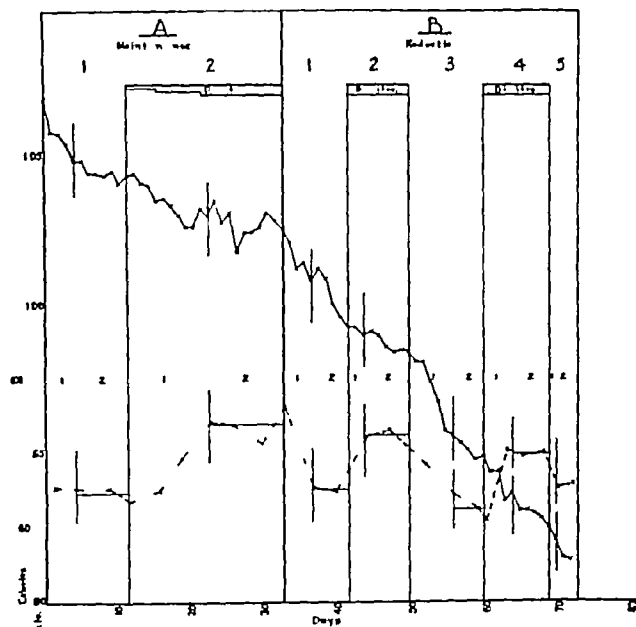
For brevity, the details of the individual subjects are arranged in tables according to diet level. Table 3 contains the data of the maintenance diet division (A), of which there were three phases: 1 and 3 without drug, and 2 with dinitrophenol. Table 4 covers the seven phases of the reduction diet periods (B), of which four phases (1, 3, 5 and 7) were drug free and three phases (2, 4 and 6) were with dinitrophenol.

The rationale for subdividing each individual phase of the major dietary periods into a first and second half period becomes more apparent from a study of the superimposed graphs of basal metabolism and daily weight. The curves for one subject, patient 2, which appear in the accompanying chart, indicate chronologically the major dietary periods and particularly the method of identifying the first and second half portions of the individual phases.

### SYMPTOMATOLOGY

At the time of admission, our patients had a variety of the usual complaints of obese persons who seek medical aid, such as varicose veins with ulceration, headache, dyspnea on exertion, and pain in the lower part of the back. One patient was recovering from pityriasis rosea. During the period of maintenance diet without drug the majority of these symptoms subsided rapidly, possibly in association with the almost complete physical rest. When dinitrophenol was added to the maintenance diet, the first symptoms noted were warmth of the skin and sweating. Sweating occurred on the first day in one patient and before the eighth day in five patients. Drenching night sweats occurred in four patients from the fourth to the tenth day. Day sweats were noted by three patients but were less frequent than the night sweats. The sweating was not continuous. After several nights of profuse sweating, intervals of several days elapsed with relatively little sweating before the return of the drenching sweats. One patient had no sweating. No itching was experienced by three patients. One patient had moderate itching for only two days. One patient had a severe dermatitis, which began on the tenth day. Three patients had headache after the seventh and tenth days. One patient had nausea and dizziness for several days, another had epigastric pain for from two to three days before the drug was stopped. After the drug was stopped the symptoms diminished rapidly. No sweating was noted after the second day. Headaches continued in two patients at intervals. One patient had itching for most of the post-drug interval. The same patient also had many nervous manifestations such as precordial distress and choking spells, which were probably quite unrelated to the use of the drug.

When the dinitrophenol was started for the second time, this time in association with the reduction diet, cutaneous manifestations promptly returned. Sweating was noted in only four patients. Three patients had one or more profuse night sweats from the fifth to the



Daily weight and basal metabolism of patient 2 by diet and by drug periods. The weight is indicated by the solid line and the basal metabolism calories per hour by the broken line.

54 per cent of this period, they received an average daily dose of 250 mg of dinitrophenol. In the remaining 247 days in which they were on "reduction" diets they lost 74.6 Kg. For ninety days, or 36 per cent of this reduction diet period, they received an average daily dose of 290 mg of the drug. The averages of the individual rates of weight loss were 130 Gm per day and 290 Gm per day, respectively, for these two periods (table 1).

In table 2 the data are divided into four periods:

- 1 Maintenance diet without the drug
- 2 Maintenance diet with the drug
- 3 Reduction diet without the drug
- 4 Reduction diet with the drug

The data in this table are further subdivided for reasons already given into first and second halves for each of these four periods. Without discussing the various details presented in this table, it is observed that, however subdivided and compared, the rates of weight loss with both diets, that of more than 2,500



ninth day One patient had a single massive sweat on the sixth night only Itching was much more serious in this period On two patients an acute dermatitis developed which required the stoppage of the drug In one case a rash appeared on the arm on the fifth day, which in two days extended over the shoulder In the other case an intense generalized rash appeared on the ninth day Three other patients had moderate to severe pruritus beginning from the first to the fifth day of the drug Patient 3 continued to have attacks of smothering at intervals of several days

The skin reactions subsided after the drug was stopped, but much less promptly than on the previous occasion No sweating was noted after the second day In the three patients with moderate itch, this symptom diminished rapidly after the first day In patient 6 the dermatitis progressed for four days after the drug was

RELATION OF ENERGY BALANCE TO RATE  
OF WEIGHT LOSS

In viewing the problem of the removal of excess weight in obesity, one should keep in mind its intrinsic nature, that is, what is to be removed The excess weight consists of small amounts of supporting tissue and considerable water, but chiefly of fat There is no evidence that this fat differs basically from other natural fats, and consequently each gram contains 9.3 calories of potential energy Weight changes can be effected by the removal of any of the component substances What is measured by the scale is the residual balance of all substances quite without regard to the type of material In other words, the scale does not discriminate between the removal of 5 pounds of water and 5 pounds of fat Rapid large weight changes are usually transient and are due chiefly to alterations in

TABLE 1—Weight Changes in Total Period of Study

Patient	Total Period					Maintenance Diet			Reduction Diet		
	Days	Weight			Weight Loss per Day Kg	Days	Weight Loss Kg	Weight Loss per Day Kg	Days	Weight Loss Kg	Weight Loss per Day Kg
		Initial Kg	Final Kg	Loss Kg							
1	115	150.5	117.0	33.5	0.29	39	6.6	0.17	76	26.9	0.35
2	71	107.0	91.4	15.6	0.22	32	4.4	0.14	39	11.2	0.30
3	72	94.7	76.3	18.4	0.25	24	3.2	0.13	43	15.2	0.35
4	60	111.0	99.3	11.7	0.20	30	3.3	0.11	30	8.4	0.28
5	65	77.6	70.7	6.9	0.11	30	0.9	0.03	30	6.0	0.20
6	54	130.3	117.0	13.3	0.25	30	6.4	0.21	24	6.9	0.29
Average					0.22			0.13			0.29

TABLE 2—Effect of Dinitrophenol on Basal Metabolism and Rate of Weight Loss Total Period of Study

Total Period																First Half				Second Half			
Period	Days	Basal Metabolism		Intake Calories	Weight Loss Kg	Rate of Weight Loss Kg per Day	Dinitro-phenol Mg per Day	Days	Basal Metabolism Calories per Hour	Weight Loss Kg	Rate of Weight Loss Kg per Day	Days	Basal Metabolism Calories per Hour	Weight Loss Kg	Rate of Weight Loss Kg per Day								
		No of Determinations	Calories per Hour																				
Maintenance Diets																							
No drug	88	28	76.9	2,510	12.2	0.15	0	44	51.6	7.8	0.20	44	76.5	4.4	0.12								
With drug	102	31	89.9	2,570	12.6	0.13	2.70	53	76.3	9.0	0.17	49	92.9	3.6	0.08								
			+13.0			-0.02			-5.3		-0.03		+16.4		-0.04								
Reduction Diets																							
No drug	157	46	74.0	535	51.6	0.33	0	76	82.5	29.9	0.37	81	71.6	21.7	0.28								
With drug	90	33	90.4	570	23.0	0.25	2.90	43	79.6	12.7	0.27	47	93.1	10.3	0.23								
			+16.4			-0.08			-2.9		-0.10		+21.5		-0.05								

stopped, covering at its maximum nearly the whole body It then subsided rapidly Patient 5 began to have attacks of acute urticaria, which subsided after the fourth day She was found to be sensitive to mushrooms, although the role played by this food in the attacks is questionable

Three patients received a third course of dinitrophenol, this time also in association with a reduction diet One patient had no sweating, and a second had drenching sweats for one day and two nights The third patient sweat profusely at intervals after the fifth day Two patients again experienced severe itching, which started on the second and fourth days and lasted throughout the remainder of the respective periods These phenomena subsided promptly after the drug was stopped

A single patient was given a fourth course of dinitrophenol It is interesting to note that whereas this patient had experienced considerable difficulty in previous courses with sweating and itching, on this occasion she had no itching and very little sweating

the water content of the body Permanent reductions of weight involve the removal of fat The only non-surgical method of removing fat from the body is by oxidation

The amount of fat that may be oxidized in any period is limited by the balance of the energy output and intake of the period—in other words, the rate of fat loss is directly proportional to the caloric deficit The total amount of fat that may be lost depends on the time through which the caloric deficit persists It is self evident that in order to secure a large weight change in a comparatively short time the maximum possible caloric deficit should be secured

The high level of energy exchange in the obese has been frequently reported In this series of patients, the average basal metabolism (twenty-three determinations) for the first seventy days of study during which the patients received a maintenance diet without drug was 77.6 calories per hour, which corresponds to an average basal metabolic rate of +2 per cent However, in comparison with the metabolism that these

patients would have if they were of normal weight, this basal metabolic level is elevated 31 per cent

Certain information regarding the total metabolism may be obtained by noting the weight changes observed in the period of maintenance diet without drug. In this seventy day period the patients lost an average of 84 Kg while sitting around a ward doing nothing but sewing and reading and at the same time eating an average of 2,510 calories per person daily. If it is objected that these figures for weight loss include the large water shifts that have often been noted in the first few days of hospitalization, only the last thirty-four days of this seventy day period may be considered, in which the patients lost 2 Kg. In this second half period of thirty-four days the patients lost an average of 50 Gm per person daily, which indicates that the total metabolism was somewhat in excess of the caloric

calories if it is assumed for practical purposes that the 2,510 caloric diet was a maintenance diet. If it is considered that this caloric deficit was supplied by fat alone, 210 Gm of fat would be required, which is equivalent to 240 Gm of fatty tissue. The average of the rates of weight loss actually observed for this thirty-two day period of reduction diet was 300 Gm per day, with surprisingly little individual variation from the average. If the average of the rates of weight loss of the thirty-four days of maintenance diet, 50 Gm per day, is subtracted, the difference is 250 Gm, which may be compared with the value estimated from the probable caloric deficit, 240 Gm per day. An agreement of this order may be considered as strong supporting evidence that the principal factor regulating the rate of fat loss from the body is the magnitude of the caloric deficit.

TABLE 3—Observations on Individual Patients Maintenance Diet Periods

Pa- tient	Days	Total Period									First Half				Second Half			
		Weight			Rate of Weight Loss Kg per Day	Basal Metabolism		Intake Calories	Dinitro phenol Mg per Day	Days	Weight Loss Kg	Rate of Weight Loss Kg per Day	Basal Metab- olism Calories per Hour	Days	Weight Loss Kg	Rate of Weight Loss Kg per Day	Basal Metab- olism Calories per Hour	
		Initial Kg	Final Kg	Loss Kg		No of Deter- mina- tions	Calories per Hour											
Period A <sub>1</sub> —No Drug																		
1	15	150.5	148.5	2.0	0.13	5	97.8	2,930	0	10	1.5	0.15	102.7	5	0.5	0.10	96.6	
2	11	107.0	104.4	2.6	0.24	4	70.4	2,500	0	4	2.1	0.52	71.6	7	0.5	0.07	70.0	
3	9	94.7	93.4	1.3	0.14	3	79.6	2,430	0	4	1.0	0.25	79.6	5	0.3	0.06	79.6	
4	12	111.0	110.9	0.1	0.01	5	70.6	2,450	0	5	+0.1	+0.02	76.8	7	0.3	0.03	68.8	
5	11	77.6	77.7	+0.1	+0.01	3	55.4	2,250	0	7	0.1	0.01	52.5	4	+0.2	+0.05	56.8	
6	12	130.3	127.8	2.5	0.21	3	91.3	2,500	0	6	1.8	0.30	104.8	6	0.7	0.11	89.8	
1-6	70			8.4	0.12		77.6	2,510		36	6.4	0.90	81.3	34	2.0	0.05	76.9	
1-3	35			5.9	0.17		82.0	2,620		18	4.6	0.31	84.6	17	1.3	0.08	82.1	
4-6	34			2.5	0.07		72.0	2,400		18	1.8	0.10	79.0	17	0.7	0.03	71.9	
Period A <sub>2</sub> —With Drug																		
1	24	148.5	143.9	4.6	0.19	9	101.3	2,900	2.50	16	3.5	0.22	98.6	8	1.1	0.14	104.5	
2	21	104.4	102.0	2.4	0.09	6	83.9	2,490	230	11	1.3	0.12	78.5	10	0.5	0.05	88.4	
3	15	93.4	91.5	1.9	0.13	4	83.2	2,500	240	11	1.8	0.16	79.1	4	0.1	0.02	87.1	
4	12	110.0	108.8	1.2	0.10	3	101.1	2,500	280	4	1.0	0.25	61.6	8	1.1	0.14	101.0	
5	18	77.7	77.0	0.7	0.04	5	70.7	2,500	290	6	0	0	53.8	12	0.1	0.01	74.5	
6	12	127.8	125.7	2.1	0.18	4	99.2	2,500	290	5	1.4	0.28	89.3	7	0.7	0.10	102.1	
1-6	102			12.0	0.17		89.9	2,570	260	53	9.0	0.17	76.3	49	3.6	0.08	92.9	
1-3	60			8.3	0.14		89.5	2,630	240	38	6.6	0.17	83.7	22	1.7	0.07	93.3	
4-6	42			4.3	0.12		90.3	2,500	290	15	2.4	0.18	69.9	27	1.9	0.09	93.5	
Period A <sub>3</sub> —No Drug																		
4	6	108.8	107.7	1.1	0.18	2	79.8	2,500	0	3	0.5	0.16	84.5	3	0.6	0.20	79.8	
5	6	77.0	76.7	0.3	0.05	2	58.8	2,500	0	2	0.3	0.15	68.7*	4	0.6	0.15	58.8	
6	6	125.7	123.9	1.8	0.30	1	83.3	2,500	0	3	0.6	0.30	94.7*	3	1.2	0.40	83.3	
4-6	18			3.8	0.21		75.6	2,500		8	1.4	0.20	82.0	10	2.4	0.25	75.6	

\* Interpolated

intake of 2,510 calories. However, the basal metabolism averaged 1,850 calories in twenty-four hours, or more than 70 per cent of this minimum estimation of total energy output. This magnitude of the energy exchange of obese persons who are so much at rest that the energy of the combined specific dynamic action, work and nonwork fractions of daily metabolism totals only 680 calories per day is not generally appreciated.

The close relation that exists between caloric deficit and rate of weight loss is indicated by a comparison of the initial seventy day period of maintenance diet without drug and the first period of sixty-three days of reduction diet without drug. In order to minimize the large water shifts at the outset of the former period due to hospitalization and at the outset of the latter period due to the sudden transition to a highly ketogenic metabolic mixture, only the second and more stable halves of these respective subdivisions may be compared. The average intakes for these half periods of thirty-four and thirty-two days respectively were 2,510 and 540 calories—an average daily deficit of 1,970

#### CALORIC DEFICIT OBTAINABLE WITH DINITROPHENOL AND CONSEQUENT PROBABLE RATE OF WEIGHT LOSS

Methods of securing large caloric deficits consist of those which reduce the intake and those which elevate the output of energy. The preceding paragraph summarizes the results obtainable by reduction of intake. Dinitrophenol is employed to elevate the output of energy. First of all it is desirable to approximate the caloric deficit theoretically obtainable by the drug and the theoretical rate of weight loss resulting. In this connection it is necessary to make two assumptions, the correctness of which we seriously question: (1) that dinitrophenol produces no qualitative alterations in the oxidation processes of the body, and therefore (2) that it causes no interference with the estimation of heat production from a measurement of oxygen consumption and carbon dioxide production in which the standard correlation tables are used. What alteration in energy exchange could be attributed to dinitrophenol? Unfortunately no data on the total metabolism

of the drug periods are available nor can they be approximated from our studies, because of the shifts in water balance. However, the basal metabolism of these patients probably constituted more than 70 per cent of the total metabolism in the period of maintenance diet without drug. It may therefore be considered that the effect of the drug on the basal metabolism will reflect its chief effect on the total metabolism. The average basal metabolism was 76.9 calories per hour in the latter thirty-four days of the first seventy

above the drug-free levels. The total effect in twenty-four hours of such a caloric increase is less than 450 calories, a caloric effect that corresponds to 48 Gm of fat or 55 Gm of fat tissue. The caloric increments due to the influence of dinitrophenol on the other fractions of total metabolism cannot be estimated but would probably be small.

In other words, the caloric deficit that can be produced by the elevation of metabolism which results from full therapeutic doses of dinitrophenol is some-

TABLE 4—Observations on Individual Patients Reduction Diet Periods

Pa- tient	Days	Total Period								First Half				Second Half			
		Weight			Rate of Weight Loss Kg per Day	Basal Metabolism		Intake, Calories	Dinitro- phenol Mg per Day	Days	Weight Loss Kg	Rate of Weight Loss Kg per Day	Basal Metab- olism Calories per Hour	Days	Weight Loss Kg	Rate of Weight Loss Kg per Day	Basal Metab- olism Calories per Hour
		Initial, Kg	Final Kg	Loss Kg		No of Deter- mina- tions	Calories per Hour										
Period B <sub>1</sub> —No Drug																	
1	15	148.9	186.9	7.0	0.47	5	91.5	560	0	8	5.2	0.65	68.8	7	1.8	0.26	87.2
2	9	102.6	99.3	3.3	0.37	2	70.8	520	0	4	1.7	0.43	92.9	5	1.6	0.32	70.8
3	12	91.5	86.4	5.1	0.43	3	68.9	550	0	8	4.0	0.50	74.5	4	1.1	0.28	66.1
4	9	107.7	104.7	3.0	0.33	2	76.7	560	0	3	1.4	0.46	75.1	6	1.6	0.27	76.7
5	9	76.7	74.1	2.6	0.29	2	57.3	540	0	3	1.1	0.36	67.0	6	1.5	0.25	57.4
6	9	123.9	120.5	3.4	0.38	3	83.1	540	0	6	1.8	0.36	90.4	4	1.6	0.40	79.0
1-6	63			24.4	0.38		74.7	560		31	15.2	0.46	81.5	32	9.2	0.30	73.0
1-3	36			15.4	0.42		77.1	540		20	10.9	0.53	88.7	16	4.5	0.29	74.7
4-6	27			9.0	0.33		72.4	550		11	4.3	0.39	74.2	16	4.7	0.31	71.2
Period B <sub>2</sub> —With Drug																	
1	12	186.9	183.4	3.5	0.29	5	116.5	610	250	6	2.1	0.35	94.5	6	1.4	0.23	122.1
2	8	90.3	86.5	3.8	0.48	2	85.9	530	300	2	0.2	0.10	78.8*	6	0.6	0.10	85.0
3	9	86.4	83.9	2.5	0.28	4	75.6	570	300	5	1.8	0.36	69.0	4	0.7	0.18	77.7
4	9	104.7	101.1	3.6	0.40	3	88.1	570	270	5	2.2	0.44	79.9	4	1.4	0.35	89.3
5	9	74.1	72.4	1.7	0.19	3	68.8	550	270	5	0.7	0.14	60.9	4	1.0	0.25	72.5
6	5	123.5	119.5	4.0	0.20	2	95.2	540	300	2	0.1	0.05	88.9*	3	0.9	0.30	95.2
1-6	52			13.1	0.24		88.0	590	280	23	7.1	0.24	78.7	27	6.0	0.24	90.0
1-3	29			6.8	0.23		92.7	570	290	13	4.1	0.27	80.7	16	2.7	0.17	95.2
4-6	23			6.3	0.26		83.4	550	280	12	3.0	0.21	78.6	11	3.3	0.30	85.6
Period B <sub>3</sub> —No Drug																	
1	15	123.4	128.0	4.6	0.36	4	87.7	670	0	6	2.2	0.37	94.9	9	3.2	0.35	83.2
2	10	88.5	84.9	3.6	0.36	4	63.4	520	0	6	2.8	0.47	77.6	4	0.8	0.20	85.4
3	9	83.9	81.2	2.7	0.30	4	68.7	620	0	3	1.1	0.36	76.0	6	1.5	0.27	66.1
4	12	101.1	96.3	4.8	0.40	3	71.9	850	0	6	0.9	0.15	77.6	6	0.9	0.15	69.1
5	12	72.4	70.7	1.7	0.14	3	54.2	620	0	6	1.4	0.23	54.9	6	0.3	0.05	82.0
6	10	119.5	117.0	2.5	0.25	2	83.9	550	0	5	1.4	0.28	95.2	5	1.1	0.22	83.8
1-6	68			17.7	0.26		71.6	610		32	9.8	0.31	79.4	36	7.9	0.21	70.4
1-3	34			11.7	0.34		73.8	610		15	6.1	0.40	82.8	19	5.6	0.27	72.2
4-6	34			6.0	0.18		70.0	610		17	3.7	0.22	75.9	17	2.3	0.14	66.6
Period B <sub>4</sub> —With Drug																	
1	11	128.0	126.2	1.8	0.16	5	119.6	640	300	5	1.6	0.32	80.1	6	0.2	0.03	127.0
2	9	94.9	92.5	2.4	0.27	3	80.2	650	300	4	1.2	0.30	80.7	5	1.2	0.24	70.0
3	9	81.2	78.7	2.5	0.28	3	73.0	540	300	4	1.1	0.28	84.2	5	1.4	0.28	77.3
1-3	29			6.7	0.24		91.0	610	300	13	3.9	0.30	78.0	16	2.8	0.18	92.9
Period B <sub>5</sub> —No Drug																	
1	10	126.2	121.3	4.9	0.49	3	90.8	680	0	6	3.2	0.53	117.9	4	1.7	0.43	77.3
2	3	92.5	91.4	1.1	0.37	2	71.2	700	0	1	0.4	0.40	75.7*	2	0.7	0.35	71.2
3	0	78.7	76.3	2.4	0.27	2	60.5	550	0	4	1.1	0.28	69.4*	5	1.3	0.26	60.4
1-3	22			8.4	0.38		74.2	640		11	4.7	0.40	87.7	11	3.7	0.35	60.6
Period B <sub>6</sub> —With Drug																	
1	9	121.3	118.1	3.2	0.35	3	102.5	570	300	5	1.7	0.34	89.8	4	1.5	0.38	108.0
Period B <sub>7</sub> —No Drug																	
1	4	118.1	117.0	1.1	0.28	2	84.1	540	0	2	0.2	0.10	92.2	2	0.0	0.45	75.9

\* Interpolated.

day period of maintenance diet without the drug, at which time the curves of basal metabolism were consistently flat at a minimum level. In contrast, in the latter 49 days of the 102 day period of maintenance diet with dinitrophenol the basal metabolism curves maintained a maximum plateau at 92.9 calories per hour. For the corresponding latter portions of the first periods of reduction diet without drug and reduction diet with drug, thirty-two and twenty-seven days respectively, the minimum level was 73.0 calories per hour and the maximum drug-effect level was 90.5 calories per hour. The difference between these minimum and maximum levels, 16.0 and 17.5 calories per hour respectively, are increases of 21 and 24 per cent

where around 500 calories per day. Such a deficit could produce a loss of only 60 Gm (2 ounces) of fat tissue per day. When it is recalled that our patients in the thirty-four day half period previously described, in which they received the so-called maintenance diets of 2,510 calories without drug, actually lost weight at the rate of 50 Gm per day, it may be appreciated that the same rate of weight loss which is possible as a result of the use of dinitrophenol can be accomplished by only very slight modifications of the diets on which these persons have been maintaining their weights. In any event, the rate of weight loss obtainable by use of the drug is only from one fifth to one sixth of the rate of loss that is readily obtainable by diet alone.

EFFECT OF DINITROPHENOL ON OXYGEN  
CONSUMPTION

With the figures dealing with the results that are theoretically possible from the use of the drug kept in mind, it is now important to discover what action dinitrophenol did have in our patients with respect to (1) basal metabolism, (2) skin changes and (3) rate of weight loss. In each patient in each dinitrophenol period there was a definite increase in the calculated basal metabolism. As aforementioned, the comparisons are made between the maximum plateaus of the curves of basal metabolism that occur in the latter halves of the dinitrophenol periods and the basic minimum levels of these basal metabolism curves in the latter portions of the preceding drug-free periods. In the majority of individual instances there was an elevation of calculated metabolism of from 7 to 18 calories per hour. The average elevation for six patients on the maintenance diet phase was 16 calories per hour. In the reduction diet phases, six patients increased the metabolism 17.5 calories per hour in the first dinitrophenol course, three patients, 20 calories per hour in the second course of the drug. Four patients obtained approximately the same increase in metabolism in successive dinitrophenol periods. However, all these calculations are based on the assumption that the increase in oxygen consumption which is actually observed bears the same relation to heat production that has been found in normal body metabolism.

This matter cannot be fully discussed at this time but there are many observations that cast suspicion on this basic assumption. The absence of alterations of pulse rate and blood pressure is noteworthy, even in the presence of basic metabolic rates that calculate from 70 to 80 per cent above the normal for the ideal weight of an individual. Very low respiratory quotients, several ranging from 0.60 to 0.52, have been noted especially in the low diet periods. These low respiratory quotients have been found in association with the highest basal metabolism calculations. In certain instances the elevation of the respiratory quotient to normal limits by the feeding of dextrose has resulted in a marked drop in the calculated heat production. Also acetone bodies have been found repeatedly in the urine under these conditions. These observations, taken in conjunction with the peculiarities of weight change that are described later, suggest that the drug may produce a qualitative alteration in the usual relationships of heat production to oxygen consumption and carbon dioxide production. If, therefore, oxygen may be consumed in some unusual manner, it is possible that the estimation of heat production by the indirect procedure of the measurement of oxygen consumption may not be permissible.

## EFFECT OF DINITROPHENOL ON SKIN

The untoward actions of dinitrophenol have been repeatedly described. The outstanding manifestations in our patients were cutaneous warmth, sweating, pruritus and dermatitis. Sweating was most profuse in the period of dinitrophenol plus maintenance diet and definitely less in the subsequent periods, being absent in the fourth dinitrophenol period of patient 1. The sweating appeared in most cases before any significant elevation of the basal metabolism occurred. It was intermittent in most cases with respect to both time of day and day of drug. At the time of an acute attack, beads of perspiration ran from the body. Often the

gowns and bed linen was changed two or three times at night. However, one patient who had a satisfactory elevation of basal metabolism in each of two periods had no sweating at all. It is open to question whether such excessive sweating is simply a manifestation of heat elimination or whether there is not a specific stimulation of the sweat glands. Pruritus was present in all subjects at some time. Although of little importance in the period of the maintenance diet with drug, it was very serious in four of the patients in the first period of the reduction diet with drug. In spite of the unusual attention that was given to the skins of these patients, in three patients extensive dermatitis developed, which necessitated stopping the experiment in two patients. It is also important to note the prompt cessation of the sweating and pruritus after the drug was discontinued. No symptoms other than cutaneous were noted that could consistently be attributed to the use of the drug.

EFFECT OF DINITROPHENOL ON RATE OF  
WEIGHT LOSS

In the evaluation of the effect of dinitrophenol on the rate of weight loss, several factors must be considered. First of all, it may be noted that at the time at which the metabolism was stable at a maximum level due to the drug there was no increase in rate of weight loss as compared with the immediately preceding drug-free period in which the metabolism was stable at a minimum level. Observations are available of sixteen individual instances in which the rate of weight change in the latter part of a drug-free period of minimum metabolism may be compared with the rate of weight change in the latter part of the dinitrophenol period of maximum metabolism immediately following it. Six instances  $A_1$  latter half with  $A_2$  latter half, six instances  $B_1$  with  $B_2$ , three instances  $B_3$  with  $B_4$ , one instance  $B_5$  with  $B_6$  (tables 3 and 4). Ten phases with the drug showed drops in rate of weight loss of from 10 to 320 Gm averaging 100 Gm daily. One period showed no change. Five periods with drug showed increases from 10 to 110 Gm, averaging 60 Gm daily. The average of all sixteen periods shows a decrease of 10 Gm daily as a result of the use of the drug. Here is an apparent paradox that with the increase in the oxygen consumption, the rate of weight loss decreases, and this in spite of terrific outpourings of sweat in some patients.

A partial explanation of this phenomenon is that the drug promotes the storage of water. Whether or not this storage results from direct toxic injury to the cells causing cloudy swelling cannot be decided as yet. The water storage phenomenon is most clearly visualized from the graphs of weight and of metabolism as illustrated in the chart. The slopes of the weight curves almost invariably flatten toward the middle of the dinitrophenol periods. The flat period is usually followed by a sharp drop in weight within one to two days after cessation of the drug. These facts are indicated less graphically by a comparison of the rate of weight change in the first half of a drug-free period with that of the second half of the preceding drug period. In twelve instances, data are available for the comparison of such successive half periods. Three instances  $A_2$  latter half with  $A_3$  first half, six instances  $B_2$  with  $B_3$ , three instances  $B_4$  with  $B_5$  (tables 3 and 4). For these twelve cases there was an average increase in rate of weight loss of 130 Gm per day after the drug was stopped. In two instances there were decreases, in

one, no change, and, in nine, increases which in one case amounted to 500 Gm per day. It should be noted that in the contrasted periods there were only slight variations in caloric intake and that in the periods of increased weight loss the metabolism was dropping rapidly to the basic level.

However, it still remains possible that the rate of fat destruction is actually increased in the dinitrophenol periods and that this phenomenon is obscured by the water storage. If that is true, the weight change in the latter part of a dinitrophenol period plus the weight change of the first part of the succeeding period in which water is poured out, divided by the total number of days, should give a rate of change greater than the rate in the basic drug-free period immediately preceding the dinitrophenol period. There are twelve individual instances in which it is possible to compare the rate of weight change of the stable latter part of a drug-free period with the rate of change of the combined phase of maximum drug effect and the phase of water release that follows immediately. Three instances  $A_1$  latter half with  $A_2$  latter half plus  $A_3$  first half, six instances  $B_1$  with  $B_2$  plus  $B_3$ , three instances  $B_4$  with  $B_5$  plus  $B_6$  (tables 3 and 4). Of the twelve instances, six showed slightly greater and six slightly lessened rates of weight change in the dinitrophenol period as compared with the drug-free period. The value of the average deviation from the mean for these twelve observations is negligible. Our figures suggest, therefore, that dinitrophenol does not cause an increase in the rate of weight loss. Rather the use of the drug decreases the preexisting rate of weight loss, owing probably to its influence on the phenomenon of water storage. However, when the excess stored water is removed, as usually occurs within a few days after the drug has been discontinued, it is found that in the majority of instances no significant change has occurred in the rate of true weight loss that was characteristic of the dietary level employed before and during the dinitrophenol phase.

The influence of dinitrophenol on the nitrogen metabolism could not be determined in this study. The level of nitrogen intake was constant throughout the entire stay of the patients. The nitrogen in the urine and stools was determined for each three day period. In general, this nitrogen output approximated the intake. However, during the periods of gross sweating considerable nitrogen must have been lost through the skin. It is interesting to note that sweating had no consistent influence on the urinary nitrogen.

#### SUMMARY

In our patients, dinitrophenol in therapeutic doses produced an increase of oxygen consumption of approximately 20 per cent. Whether this disappearance of oxygen is a reflection of increased heat production or whether there is an alteration of the normal oxygen utilization due to the toxic action of the drug is not clear. It appears that there is a tendency of the body to store water under the influence of the drug. The drug readily produces skin reactions varying from moderate warmth and sweating to a toxic dermatitis. The question of a specific action on the sweat glands has been raised. The skin actions do not parallel the amount of drug ingested or the level of increase of oxygen consumption. As a method of producing weight loss by increasing the rate of energy output, the drug leaves much to be desired theoretically. Practi-

cally, in our series of patients no consistent augmentative effect of the drug on the rate of true weight loss could be demonstrated in association with either the maintenance or the reduction diets employed in this study.

#### CONCLUSIONS

1 The rate of true weight loss in obesity is determined by the difference between the intake and the output of energy.

2 The influence of dinitrophenol on the negative energy balance is small in comparison to what can be secured by even moderate diets.

3 The practical value of dinitrophenol as an aid in weight reduction is very questionable and, in view of the well known toxicity of the drug, its widespread use for this purpose should be discontinued.

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## A QUANTITATIVE STUDY OF THE VASOCONSTRICTION INDUCED BY SMOKING

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Since Buerger<sup>1</sup> described the disease that bears his name there has been controversy concerning the significance of smoking as a factor<sup>2</sup> in the cause and progress of the symptoms in thrombo-angitis obliterans. Until recently, slight experimental attention had been given

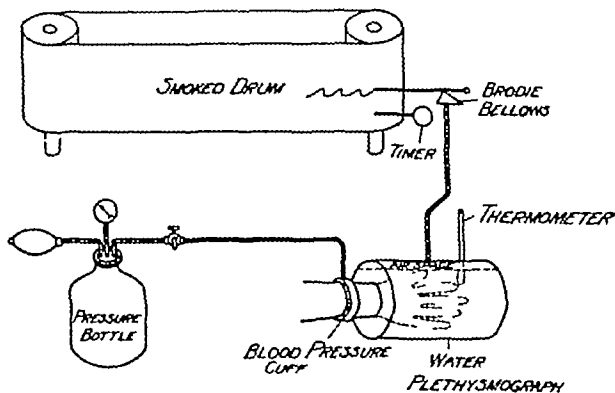


Fig 1—Diagram of apparatus

to the effect of smoking on the peripheral vascular system. The studies dealing with these reactions indicate that vasoconstriction is induced by the use of tobacco. A fall in peripheral skin temperature after smoking has been reported by Maddock and Collier,<sup>3</sup> by Barker<sup>4</sup> and by Wright and Moffat.<sup>5</sup> These reports, as well as the volumetric studies of Simici and Marcu<sup>6</sup>

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<sup>1</sup> Buerger, Leo. Thrombo-Angitis Obliterans. A Study of the Vascular Lesions Leading to Presenile Spontaneous Gangrene. *Am J M Sc* 163:567, 1908.

<sup>2</sup> Buerger, Leo. The Circulatory Disturbances of the Extremities. Philadelphia: W B Saunders Company, 1924, p. 279.

<sup>3</sup> Collier, F. A. and Maddock, W. G. Peripheral Vasoconstriction by Tobacco Demonstrated by Skin Temperature Changes. *Proc Soc Exper Biol & Med* 29:487 (Jan.) 1932. Maddock, W. G. and Collier, F. A. Peripheral Vasoconstriction of Tobacco and Its Relation to Thrombo-Angitis Obliterans. *Ann Surg* 98:70-81 (July) 1933.

<sup>4</sup> Barker, N. W. Vasoconstrictor Effects of Tobacco Smoking. *Proc Staff Meet Mayo Clinic* 8:284 (May 10) 1932.

<sup>5</sup> Wright, I. S. and Moffat, Dean. The Effects of Tobacco on the Peripheral Vascular System. *J A M A* 103:318 (Aug 4) 1934.

<sup>6</sup> Simici, D. and Marcu, I. Recherches pléthysmographiques sur l'action vasculaire de la fumée de tabac chez l'homme. *J de physiol et de path gén*, 25:28 (March) 1927.

and of Bruce, Miller and Hooker<sup>7</sup> have shown quite convincingly that there is a decrease in the peripheral circulation during smoking. The experiments here reported were undertaken in an attempt to make a quantitative estimate of the reduction in the peripheral blood flow and to observe the duration of this reaction.

#### METHOD

The determinations of the rate of peripheral blood flow in man were made by recording the changes in the hand volume. The apparatus, designed by Freeman,<sup>8</sup>

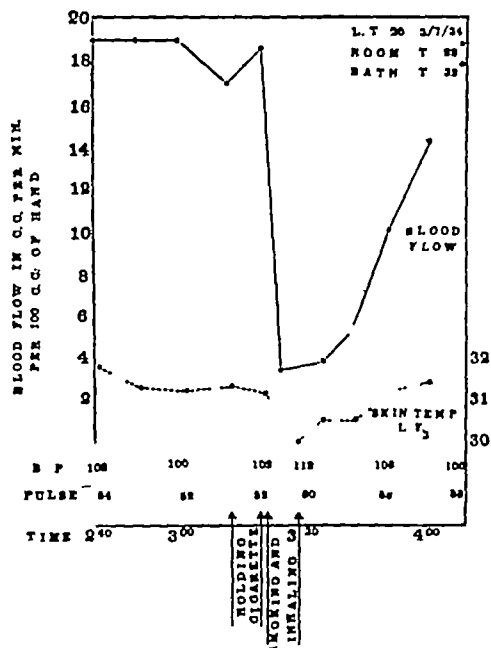


Fig. 2—Effect of inhaling one cigarette. In all the graphs the black line indicates blood flow in cubic centimeters per minute per hundred cubic centimeters of hand and the dotted line indicates the peripheral skin temperature.

was a modification of the technic described by Hewlett and Van Zwaluwenberg.<sup>9</sup> The purpose of the apparatus was to measure accurately the rate of increase in the hand volume that followed the occlusion of the venous return at the wrist. The essential parts consisted of a water plethysmograph for the hand, a Brodie<sup>10</sup> bellows, which recorded the changes in volume on a moving smoked drum, and a narrow blood pressure cuff about the wrist, which could be suddenly inflated from a pressure bottle. As the pressure in the cuff was below diastolic blood pressure the arterial inflow was unimpaired, so that the immediate increase in the hand volume was an accurate index of the rate of blood flow. The rate of the peripheral blood flow was computed from the drum and expressed as cubic centimeters of blood flow per minute per hundred cubic centimeters of hand volume.

The subject of the experiment lay on his back with his right hand in the apparatus. He was clothed and was covered with a thin woolen blanket. The room temperature was kept at about 23 C and the water bath was at hand temperature, which is usually between 30 and 33 C. Psychic stimuli were excluded as far as possible. For the first half hour of each experiment,

records were made to determine the normal blood flow. The patient then smoked, and further records were made during and after the period of smoking. The skin temperature of the fingers or toes was noted with a Tycos dermatherm.<sup>11</sup> The blood pressure and pulse were also recorded. Fifteen normal men (mostly medical students) and five patients from the peripheral circulatory clinic of the Massachusetts General Hospital served as subjects. All were habitual smokers but had not smoked for at least three hours before the experiment. Four common brands<sup>12</sup> of cigarettes and one brand of "demotized" cigarette<sup>13</sup> were used. There were eighteen experiments with cigarettes, five with a pipe and one with a cigar.

#### RESULTS

The results were uniform and, with one exception, showed a marked reduction of the peripheral circulation both in normal individuals and in patients with thrombo-angitis obliterans.

**Effect of Inhaling Cigarettes**—The first group of tests was made with normal subjects to observe the effect of inhaling one cigarette. Figure 2 illustrates a characteristic result. The subject of this experiment was a medical student, aged 20, who habitually smoked and inhaled from twenty to twenty-five cigarettes a day. The graph shows a sudden drop in the rate of the peripheral blood flow during the period of smoking, and at the end of forty minutes the flow was still partially depressed. There was a rise in blood pressure from 100/65 to 112/70 millimeters of mercury. The heart rate increased from 52 to 60 beats per minute. Four similar experiments showed a decrease in blood flow ranging from 57 to 83 per cent. In two cases the response lasted fifty-five minutes, and in two cases the experiment was concluded in forty minutes after smoking while the blood flow was still reduced. The greatest rise in systolic blood pressure was 20 mm. of mercury, and the smallest 10. The increase in heart rate ranged

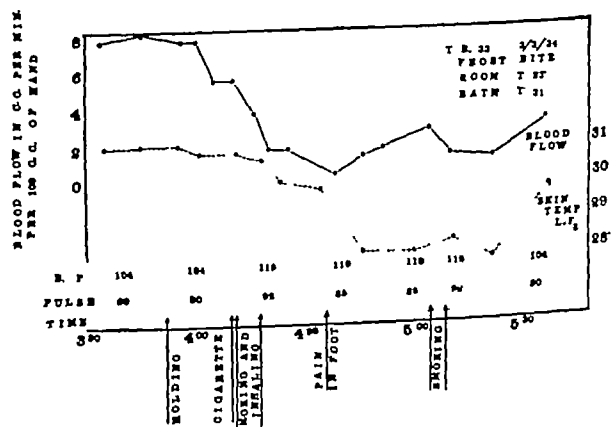


Fig. 3—Effect of inhaling two cigarettes fifty minutes apart.

from 6 to 20 beats per minute. All the subjects showed a drop in peripheral skin temperature.

In order to observe the effects of successive cigarettes, two experiments were conducted while a patient smoked and inhaled two cigarettes fifty minutes apart. Figure 3 gives the results of one of these tests. The subject of these experiments was a patient, aged 33, both of whose feet had been frost bitten fifteen months previ-

7 Bruce J. Miller J. R. and Hooker D. R. The Effect of Smoking upon the Blood Pressure and upon the Volume of the Hand. *Am. J. Physiol.* 24:105 1909.  
8 Freeman N. E. to be published.  
9 Hewlett A. W. and Van Zwaluwenberg J. G. The Rate of Blood Flow in the Arm. *Heart* 1:87 1909.  
10 Brodie T. G. The Determination of the Rate of Blood Flow through an Organ. *Seventh Internat. Physiol. Cong.* August 1907.

11 Taylor Instrument Company.  
12 Camel Chesterfield Lucky Strike and Old Gold.  
13 Sano.

ously The toes had been amputated at that time Two weeks before the present entry, pain and infection developed in the left foot Smoking produced a decrease in the peripheral circulation after each cigaret Following the first the blood pressure rose from 102/70 to 115/80 mm of mercury, and the pulse rate from 82 to 90 beats per minute, after the second the blood pressure went from 110/80 to 118/80, and the heart rate from 82 to 92 The graph also shows a slight reduction in the flow while the subject was holding the unlighted cigaret Fifteen minutes after smoking, the

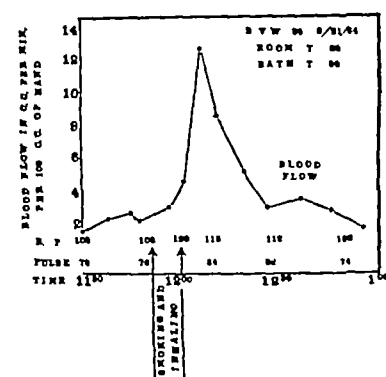


Fig 4—An atypical reaction showing an increase in the peripheral blood flow

In one subject, however, there was a fourfold increase in the peripheral blood flow, following the inhalation of one cigaret Figure 4 shows this experiment The subject was a medical student, aged 25, who never inhaled and who smoked only four or five cigarettes a week He experienced marked sensations of dizziness during the experiment The heart rate went from 76 to 84 beats per minute, and the blood pressure from 108/70 to 120/70 mm of mercury The reaction lasted twenty-eight minutes Such a response is distinctly unusual but has been observed by Simic and Marcu,<sup>6</sup> and also by Moffat<sup>14</sup> in three out of 130 cases

**Inhaling versus Noninhaling**—A group of experiments was conducted to determine the difference in reaction between inhaling and not inhaling Three medical students and one patient with thrombo-angitis obliterans, which was limited to the feet, were tested In each case the first cigaret was not inhaled and the second was inhaled to a degree customary for the subject When the cigaret was not inhaled there was a vasoconstrictor response, but the reaction lasted for only fifteen minutes The changes in heart rate and blood pressure were insignificant When the second cigaret was inhaled there was a marked blood flow reduction, which lasted over one hour The pulse went from 66 to 88 beats per minute and the blood pressure from 96/70 to 108/80 The graph (fig 5) also shows slight vasoconstriction associated with pain in the foot following the first cigaret

Three normal subjects who were tested reacted in a similar manner Figure 6 illustrates one of these experiments

**"Denicotinized" Cigaretts**—In order to determine whether the reaction to smoking could be correlated

the patient complained of pain in his foot This was accompanied by a further vasoconstriction At the end of the experiment, thirty minutes after the second cigaret had been smoked, the flow was 60 per cent below the original level

Out of the twenty individuals tested, all but one showed a clear cut vasoconstrictor response

with the amount of nicotine in the tobacco, experiments were conducted with "denicotinized" cigarettes The brand used contained 0.79 per cent nicotine as contrasted with 2.0 per cent nicotine present in the average cigaret<sup>15</sup> One ordinary cigaret weighing about 1 Gm would contain roughly 20 mg of nicotine Baumberger<sup>16</sup> has shown that nicotine occurs in the smoke to the extent of 0.57 per cent of the weight of the tobacco Of this, 88.2 per cent is absorbed on inhaling<sup>17</sup> This means that the smoker retains between 2 and 3 mg of nicotine from inhaling one cigaret Figure 7 gives the reaction of a normal subject, aged 32, while smoking a "denicotinized" cigaret without inhaling There was no vasoconstrictor response The inhalation of a second treated cigaret induced a slight reduction in the peripheral blood flow, which returned to normal in fifteen minutes The pulse rate and blood pressure remained constant When an ordinary cigaret was inhaled there was a marked reduction in the blood flow, which after twenty minutes was still greatly depressed The blood pressure rose from 100/60 to 110/75 mm of mercury, and the pulse from 54 to 60 beats per minute There were four experiments of this type, which demonstrated a shorter vasoconstrictor response with the "denicotinized" cigarettes than with the other brands

**Pipe Smoking**—Five tests were carried out while the subject smoked a pipe Three were normal individuals and two were patients with thrombo-angitis obliterans The results were not as conclusive as with cigarettes, probably because of the difference in the way each individual smokes a pipe In each case there was a moderate reduction in the blood flow during puffing on a pipe There was no change in heart rate or blood pressure One of the subjects with thrombo-angitis obliterans inhaled the smoke and demonstrated the same sudden vasoconstriction that follows inhaling a cigaret

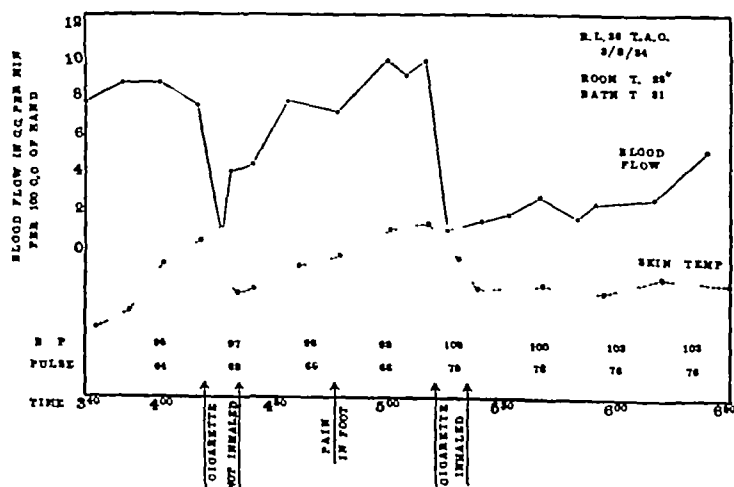


Fig 5—Inhaling versus not inhaling in a patient with thrombo-angitis obliterans

**Cigar Smoking**—One experiment done while a normal subject smoked a cigar showed a 30 per cent reduction in blood flow during puffing and a 75 per cent reduction after moderate inhalation of the smoke

15 Bull. 307, Connecticut Agriculture Experimental Station, New Haven Conn. May 1929 The Nicotine Content of Tobacco Bureau of Investigation, J A M A. 101:385 (July 29) 1933  
16 Baumberger J P The Nicotine Content of Tobacco Smoke J Pharmacol & Exper Therap 21:35 (Feb) 1923  
17 Baumberger J P The Amount of Smoke Produced from Tobacco and Its Absorption in Smoking as Determined by Electrical Precipitation J Pharmacol & Exper Therap 21:47 (Feb) 1923

14 Moffat, Dean Personal communication to the author



*Effect on Patients with Thrombo-Angutis Obliterans*  
—There were five experiments carried out on patients with thrombo-angutis obliterans, which chiefly involved the feet. All demonstrated the characteristic vasoconstrictor response (fig 5). The reaction was similar in degree and duration to that obtained in normal subjects. One patient, however, differed slightly from the rest in that there was only a 20 per cent reduction in the blood flow, which returned to its previous level in twenty minutes. In this case there was a large element of vasospasm, as indicated by the marked rise in skin temperature after paravertebral procaine hydrochloride block done by Dr J C White. It is quite possible that chronic vasospasm may modify the characteristic acute vasoconstrictor response to smoking.

COMMENT

These experiments have shown that smoking brings about a sudden marked reduction in the rate of the peripheral blood flow, an elevation of blood pressure, and an increase in heart rate. Haggard and Greenberg<sup>18</sup> have recently observed that smoking also elevates the blood sugar level. These reactions, induced by smoking appear to be manifestations of the response of the sympathetic nervous system to mild stimulation. In all the experiments, the blood flow reduction was greatest immediately after smoking. The degree and duration of the vasoconstriction could be correlated with the amount of nicotine absorbed. When a cigaret was inhaled, the rate of peripheral blood flow was at least halved and remained partially depressed for about sixty minutes. If the smoke was not inhaled, the

There is no evidence from these experiments that smoking is an etiologic factor in thrombo-angutis obliterans, but it seems clear that smoking must have a deleterious effect on patients who have already acquired the disease. If such a patient should smoke one cigaret an hour he would depress his peripheral circulation during the entire day. It is of the utmost importance that patients with thrombo-angutis obliterans should

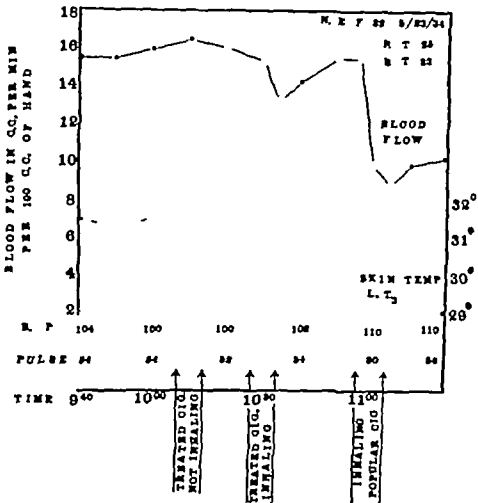


Fig 7—Denicotinized cigaret followed by an ordinary cigaret.

forego the use of tobacco, as it adds unnecessary insult to the already existing injury by further increasing the peripheral circulatory insufficiency.

CONCLUSIONS

- 1 Smoking and inhaling cigarets causes a sudden marked peripheral vasoconstriction, which lasts for about sixty minutes.
  - 2 Cigarettes when not inhaled produce vasoconstriction but the reaction lasts only fifteen minutes.
  - 3 A "denicotinized" cigaret produces less effect than an ordinary cigaret.
  - 4 Cigar and pipe smoking also induce vasoconstriction.
  - 5 Patients with thrombo-angutis obliterans respond in the same manner as normal subjects.
  - 6 Smoking is contraindicated in patients with peripheral vascular insufficiency.
- Massachusetts General Hospital

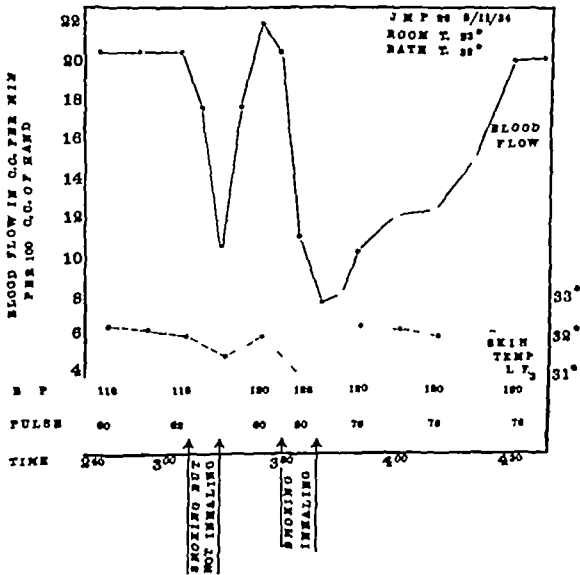


Fig 6—Inhaling versus not inhaling in a normal subject aged 26

vasoconstrictor response was almost as great but the reaction lasted only fifteen minutes. "Denicotinized" cigarettes produced a less marked and shorter response than ordinary cigarettes. Pipe smoking gave rise to moderate vasoconstriction during puffing and to a marked reaction after inhaling the smoke. One experiment with a cigar demonstrated the vasoconstrictor response. Patients with thrombo-angutis reacted to smoking in the same manner as the normal subjects.

18 Haggard H. W. and Greenberg L. A. Effects of Cigaret Smoking upon Blood Sugar. Science 79 165 (Feb 16) 1934

**Knighted for Removing a Wen.**—Sir Astley Cooper, the greatest and most active London surgeon of the first quarter of the nineteenth century, was an anatomic enthusiast. Cooper, in 1794 at the age of 16, was apprenticed to Mr Henry Cline, a surgeon and teacher of anatomy at St. Thomas's Hospital. A fellow student of these days told "Mr Cline's class now became so large as to crowd and make the dissecting room uncomfortable. Astley disliked this, since it hurried our work, and he suggested that we should remove our subjects to Mr Cline's house, with whom we also resided. The room Astley and I occupied was in the front of the house, with only one window in it. Here we carried on our dissections without interruption for the remainder of the winter. This zeal for dissection remained with Sir Astley (he was knighted because he successfully removed a wen from the scalp of George II) throughout his life, and even after he became the great surgeon of Guy's Hospital he continued daily to dissect at his home.—Guttmacher, A. F. Bootlegging Bodies. A History of Body-Snatching. Bull Soc M Hist Chicago 4 353 (Jan) 1935

EXTENSIVE DIPHTHERITIC MEMBRANES  
REMOVED AND PHOTOGRAPHEDMYRON G. TULL, MD  
Superintendent Sydenham Hospital  
BALTIMORE

The word diphtheria brings to mind a picture of an infection of the pharynx, nose or larynx. Pieces of diphtheritic membrane in the form of casts of the trachea which at times show the beginning of the bifurcation, are frequently knocked loose and expectorated during the process of intubation. To acquaint the profession with the fact that the diphtheritic infection can extend even beyond the tracheal bifurcation is my purpose in this report of two cases.

CASE 1—G. C., a white boy aged 6½ years was brought in a moribund condition, Oct. 27, 1934 to Sydenham Hospital, the communicable disease hospital of the Baltimore City Health Department. The child came from a neighboring rural area. The temperature was 98 F (rectal), the pulse was so rapid and thready that it could not be counted and respirations were uncountable. The child's face was cyanotic, the lips were blanched and he was gasping and fighting for breath. Laryngeal intubation was performed, but the O'Dwyer tube became blocked and it was necessary to remove it at once. A fresh tube was inserted giving the child only a fair degree of relief from the dyspnea, yet he was so much improved over his condition on admission to the hospital that it was decided to await further developments. Sixty thousand units of diphtheria antitoxin was given intramuscularly and 10,000 units in dextrose intravenously. Cultures from the nose and throat were taken. The patient was put to bed under the ordinary nursing care for a diphtheria patient.

Eight hours following the intravenous dextrose and antitoxin the temperature rose to 103.6 F (rectal), the pulse dropped to 140 and the respirations came down to 30 per minute.

On examination of the blocked laryngeal tube, it was found to be occluded by a piece of membrane that extended nearly the whole length of the lumen of the tube. A piece of this membrane was placed in a tube of Loeffler blood serum and incubated.

An attempt was then made to obtain a history of the onset which brought out the fact that the child apparently had been all right until the night before admission. The parents had noticed that he could not breathe properly at that time and called a physician who prescribed for the boy and told the parents to call him if the child was not better in two hours. After vomiting induced by the medicine prescribed the child was slightly better and the physician was not called until the next morning. On responding to this call the physician found the child in a moribund condition and rushed him to the hospital.

The child's father, on being questioned a little more carefully, stated that the boy had been suffering with a cold for several days. Since he did not appear feverish seemed to be playing normally and attended school as usual, little attention was paid to the fact that he had a cold. Even when his voice became hoarse his condition was not considered of serious import nor was medical aid sought until real difficulty in breathing developed. The questioning further brought out that the boy had not been immunized against diphtheria either by toxin, antitoxin or by toxoid.

The child passed the first night in the hospital breathing harshly and exhibiting a considerable degree of respiratory pull but showing evident relief because of the intubation. About 9 o'clock the next morning, October 28, more marked difficulty in breathing was present. It was noticeable that there was greater difficulty in exhaling than in inhaling. Extubation was done but his respirations were even more labored without the laryngeal tube than with it so intubation was done again. As this procedure did not help and as he was beginning to show marked cyanosis it was determined to do a tracheotomy.

A medium low tracheotomy was rapidly performed. Just about the time the trachea was opened, the respirations ceased. Spreaders held the cut in the trachea open and artificial respiration was begun. Stimulants were given intramuscularly and epinephrine hydrochloride intracardially, and suction was applied directly into the trachea. It was found impossible to force air into or out of the lungs, and the child died on the table.

After death an examination was made through the tracheotomy opening and by means of a pair of forceps a piece of membrane was delivered into the wound. By carefully and gently pulling and teasing the cast of the bronchial tree as shown in figure 1 was brought through the wound. This explains fully why it had not been possible to force air into the lungs, although there was an opening in the trachea sufficiently large to do so.

The cultures taken from the nose, the throat and the piece of membrane after incubation over night were reported from the laboratory as positive for the Klebs-Loeffler bacillus.

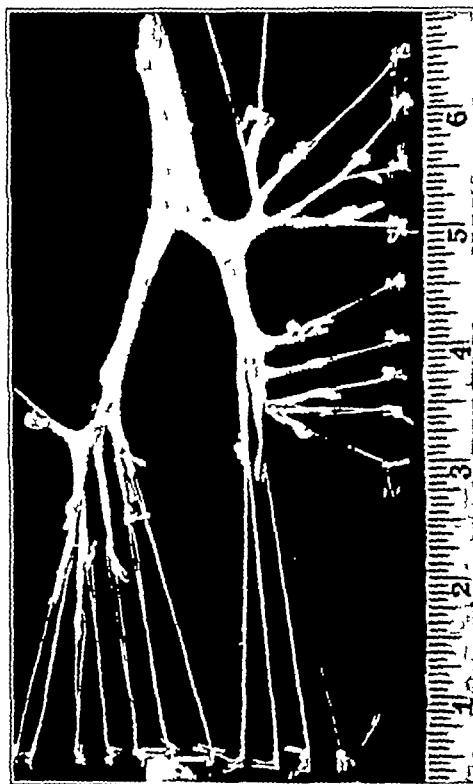


Fig. 1 (case 1)—Diphtheritic membrane removed after death.

CASE 2—H. G., a white girl aged 9 years, admitted to Sydenham Hospital Jan. 27, 1935, was in an extremely toxic condition. Like the preceding patient, she was a county child brought to the city for hospitalization. While she was breathing noisily and her color was somewhat cyanotic, no operative intervention was deemed necessary as she seemed to be getting a sufficient amount of air through the partly obstructed air passage.

She had received 20,000 units of diphtheria antitoxin prior to being sent to the hospital. On admission the temperature was 104.4 F (rectal), pulse 150 and respirations 40. A second dose of 20,000 units of diphtheria antitoxin in dextrose was given intravenously and this was followed by 40,000 units intramuscularly. Cultures of the nose and throat were taken and sent to the laboratory. The child was put to bed under constant nursing supervision. She did not respond to treatment but gradually became worse and died January 28, a little more than twenty-four hours after admission.

Questioning of the parents brought out the fact that the child had never been immunized against diphtheria and that

It was situated in the normal position of the male penis. The anatomic structure was normal except that the urethra was located below the base, that is, hypospadias. The labia were rudimentary, especially the labia minora. The vagina occurred as a horizontal slit but with normal capacity. No testes were found. An attempt was made to determine possible undescended testes but no inguinal canal could be made out.



Fig. 4 (case 2)—Appearance at operation after shaving

A virgin speculum was used and a uterine sound introduced to a distance of 3 inches (7.6 cm). The uterus, somewhat smaller than normal, was found in its correct position.

**Operative Record**—At Memorial Hospital, March 21 1934 under gas-ether anesthesia, a midline incision was made and the abdomen explored. A deviation from the normal was found in the distribution of the colon in that there was no

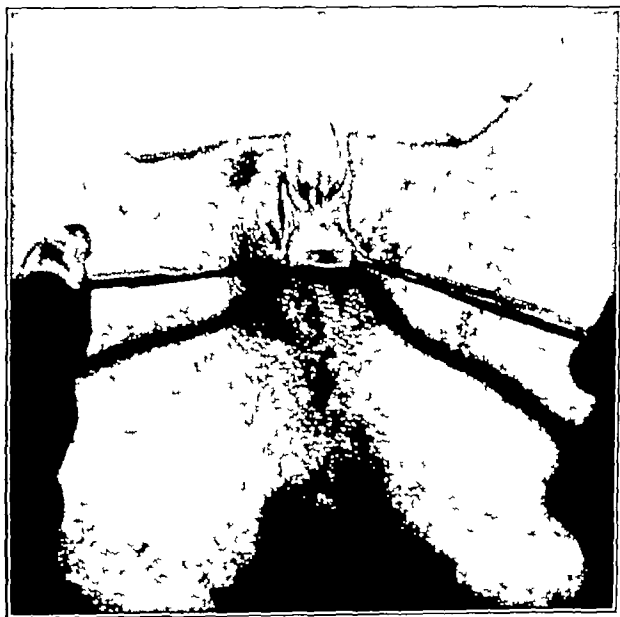


Fig. 5 (case 2)—Showing small opening at base of penis barely sufficient to accommodate urethral os

ascending portion, the ileocecal junction occurring just under the lower border of the liver. The appendix was unusually long and in a state of subacute inflammation, it was removed. The uterus was in its proper location and, while not infantile, was incompletely developed. On the left a large cystic ovary and a normal patent tube were found. There was no right tube or ovary. Attachment of the uterus on this side was by a rudimentary band apparently of the broad ligament. No

testes were present. There was no prostate. The abdomen was closed and an attempt made to improve the vaginal outlet. The penis was amputated, with enough left at the base to provide a possible substitute for the clitoris, and with the idea in mind to protect the urethral canal. The perineum was incised for correction of the horizontal opening of the vagina to the vertical. The vaginal mucous membrane was freed and sutured to the skin.

Recovery from operation was rapid and uneventful. The patient left the hospital on the eighth day, and healing was by primary union. The mons gave a normal appearance. The vagina was practically normal, the only indication of the former state being scars within the vestibule of the vulva, which however did not seem sufficiently contractile to interfere with a capacity for intercourse.

The attitude of the patient was immediately improved. She became optimistic almost overnight. At every visit to the office she had some new feature of improvement to report, and at times her enthusiasm led her to exaggeration. However her development has been little less than sensational. She no longer uses depilatories. The beard has practically disappeared,



Fig. 6 (case 2)—Present appearance, capacity of vagina sufficient for introduction of virgin speculum

and the face is much smoother. The breasts have developed to the size of small lemons and the nipples are prominent. Her voice is less masculine but not yet as satisfactory as desired. She is quite satisfied with her condition, she attends social functions and appears interested in the young men of the neighborhood.

**After-Treatment**—Within two weeks after the operation, administration of medicines calculated to promote or develop ovarian function was begun. First theelin was given in daily doses for twelve days, then anterior pituitary-like principle from the urine of pregnancy was administered three times a week for two weeks. A rest period of two weeks followed. Theelin in daily doses was again given and on June 11 she began to have cramps, headache and backache. She was nauseated and complained of vertigo. She fainted several times. The medicine was discontinued and an attempt was made to improve her general condition. July 1 treatment was resumed, theelin being given in daily doses. July 11 she had a menstrual showing. The flow was intermittent of bloody character and continued for ten days. It was not normal but definitely menstrual. She will continue to receive six or eight doses of theelin just prior to the expected menstruation for some time and will be kept under observation.

**CASE 2—History**—D E, aged 9 years of Dusietta, Texas, was given a final diagnosis of pseudohermaphroditism and subacute appendicitis.

There were no symptoms of disease, but the parents presented the patient for determination of predominant sex and for such measures as might seem indicated after exploratory operation. She had been presented to the late Dr. Thompson's

cervical os. There were no testes. The appendix was removed. The penis was amputated, care being taken to preserve urethral integrity and to assist in formation of the vestibule. A plastic operation was done for the establishment of the vulva.

**Postoperative Record**—There was nothing noteworthy in the postoperative history. Healing was rapid and satisfactory. Care was taken to preserve the vaginal outlet by packing with sterile strips of petrolatum gauze. She has been under observation at regular intervals since the operation and will continue to be until the establishment of the menses which is confidently expected within a year. Her sisters began menstruation at 10 and she gives promise to be just as early. The vagina is now of normal appearance and the caliber is about what could be expected of a girl of her age. I have introduced a virgin speculum without difficulty and see no reason to anticipate contraction. However, this feature will be looked after in the future. She is now apparently a normal girl, and I have advised that her past sexual anomalies never be discussed with her.

**CASE 3—History**—M F, aged 24 of Houston, applied for relief from increasingly frequent attacks of painful priapism, sexual upset due to psychophysical disharmony, failure to establish menstruation and apparent bisexuality. The final diagnosis in this case was pseudohermaphroditism and subacute appendicitis.

The patient had had occasional pain in the right lower abdominal quadrant, but not sufficiently severe to cause her to seek relief. There had been the ordinary diseases of childhood. The tonsils had been removed seven years before. There had been no serious diseases or injuries. She had always considered her general health good and she felt strong. She had never menstruated nor had she ever had any of the usual premonitory symptoms of menstrual attempt. During the attacks of priapism the penis became very erect and the condition persisted for several hours. At these times she was tor-



Fig. 7 (case 3)—Appearance of external genitals

mented at the Medical Department of the Texas State University when she was 9 months old and it was his announced opinion that she had no vagina. He did some sort of exploration of the external genitalia of the nature of which there is no record and of which the family is uninformed. She was apparently normal in other respects and except for an attack of diphtheria in earlier life had no history of consequence. She was mentally alert, learned easily and was in the fourth grade at school.

The family consisted of the father living and well, the mother living and well, three sisters living and well, and one dead. This child was a hermaphrodite apparently predominantly female, and died at 3 years of age. She had three cousins who were hermaphrodites, one of them is dead.

**Physical Examination**—The patient was healthy appearing and of advanced development in most respects she showed the maturity of one at least two years older. She looked decidedly feminine, with well developed mammary glands, rounded hips and legs of good feminine contour. The general physical condition including the lungs, cardiovascular system, kidneys and blood denoted no pathologic condition. The facial expression was that of a girl. There was a penis much larger than is ordinarily found in a boy prior to the age of puberty. It was well formed and apparently of normal anatomic structure except for the urethra which appeared in hypospadias in a very small opening at the base. This opening was barely sufficient to accommodate the urethral os. There was no frank vaginal canal. The pubic hairs showed the usual male distribution and were very profuse. The voice was feminine but showed an inclination to be squeaky and to break, a characteristic often noted in boys just reaching puberty.

**Operative Record**—At the Methodist Hospital June 13, 1934, under gas-ether anesthesia a midline incision was made and the abdomen explored. The tubes and ovaries were normal. The uterus was imperfectly developed, especially in view of the physical prematurity otherwise. The appendix was elongated and in a state of chronic inflammation. The penis was of apparently normal male formation except for the urethra which was situated at the base (hypospadias). There was no evidence of a pre-existent vaginal outlet that had become occluded, nor was there any scar tissue in the perineal area. After deep perineal incision a vagina was found leading to the



Fig. 8 (case 3)—Showing prepuce and glans

tured with extreme sexual desire, without the ability to determine the preferred sex. She had been tempted to seek relief by means of self abuse but stated that she had never yielded. Until her sister, of like abnormality, was operated on, she, according to her statement, had determined to accept her strange lot and make the best of it. She was working as a domestic and endeavoring to occupy her mind with educational reading. She expressed her situation as that of a 'mule' without hope or promise beyond the day's labor. It was her

belief that the male characteristics predominated, especially since the penis appeared to be making increasingly insistent demands for sexual satisfaction. Her hermaphroditic sister and a cousin with a similar affliction had both been recently operated on by me for sex determination and for such changes in sex organs as appeared advisable. She was quite intelligent and there appeared to be no suspicion of perversion.



Fig. 9 (case 3)—Vaginal vestibule five weeks after operation

**Physical Examination**—The patient was well developed, with facial appearance decidedly masculine, but the body formation with some exceptions, was that of a female. The mammary glands were not developed, but the nipples were practically normal in appearance. She had a heavy beard, which she had been accustomed to remove by shaving and the use of tweezers. The distribution of hair was masculine throughout. There was a well formed penis of ordinary adult size, a normal prepuce and glans. There was no urethral portion, the urethra being in the position of hypospadias, that is at the base. The vagina was of normal proportion, but the labia were rudimentary. A hymen stretched across the posterior vaginal outlet. The uterus in normal position, was not of full adult development. The legs, waist, hips and body generally with the exception of the chest, which had the flat masculine formation, were female in contour. The legs and ankles were especially shapely. The physical condition was found good.

**Operative Record**—The patient was operated on at the Memorial Hospital July 5, 1934. Under gas-ether anesthesia a midline incision was made and thorough exploration done. The appendix was in a state of chronic inflammation, elongated and greatly enlarged and was removed. There were two normal ovaries and two tubes which were patent. The uterus was in proper position but not fully developed. There were no testes and no prostate. The abdomen was closed and the penis was amputated.

**Postoperative History**—There was a rapid and satisfactory recovery, without unusual incident. She left the hospital by ambulance on the fifth day. Healing was by primary union. No treatment was given for induction of the menses since a normal flow was initiated on July 30, just twenty-five days from the time of the operation. It lasted six days and was of good character, free and without pain. There was some

head fulness and backache. The breasts showed considerable development and the facial hairs were fewer. In the belief that the medicines given her sister for promoting menstrual flow had caused the facial hair to leave, she insisted on receiving similar treatment and is now being given amniotin every other day during the two weeks prior to each anticipated menstrual period.

The only incentive for the menstrual function commencing in this case, so far as I know, was amputation of the offending penis and its prompt beginning is something difficult to account for. Whether the normal cycle, with usual periodicity, will be established belongs to the future. It is quite likely that there will be considerable irregularity of appearance, even though the final goal of approximate normality is reached. She is quite a different individual and shows distinct relief from her former repressed embarrassment arising out of psychophysical imbalance.

The patient has recently secured a contract as a teacher in the schools and appears quite contented.

#### SUMMARY

1 Three cases of hermaphroditism occurred in the same family stem. Two other children, both dead, are supposed to have been endowed with the same or similar sex anomalies; their cases are not reported for lack of authentication by personal examination.

2 All these patients were of a single generation, no others, so far as ascertainable, were in the least degree hermaphroditic in the preceding or succeeding generations. Thirty-six offspring of the brothers and sisters of these hermaphrodites have been checked over and found normal in all respects.



Fig. 10 (case 3)—Appearance of vulva five weeks after operation

3 In all the patients of the series, abdominal exploration was done for determination of the dominant sex and this was followed by such plastic operations as appeared advisable in the interest of conformatory relief.

4 In some way, natural forces within an individual seem to be able to correct an embryonic error, once the offense of this error is removed.

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## EMBOLISM

FOLLOWING INSTRUMENTATION AND INJECTION OF  
OIL INTO THE URINARY BLADDERJESSE L. CARR, M.D.  
AND  
CLARK M. JOHNSON, M.D.  
SAN FRANCISCO

It is more than a hundred years since Magendie (1827) found that fluid fat circulating in the blood stream might obstruct a vessel. Perhaps because of the apparent simplicity of this mechanical obstruction he did little experimental work with circulating fat and no large recognition was given to his discovery. In 1865 Virchow injected oil into the neck vein of a dog and produced a fatal fat embolism, which was accompanied by acute pulmonary edema. A few years later Riedel<sup>1</sup> produced extensive fat embolism in the lungs by oil, which had been injected into an artery and which had in the meantime passed through other organs. Scriba<sup>2</sup> demonstrated that droplets of fat could pass through other organs and the lungs as well, without difficulty in certain instances, previously a patent foramen ovale had been considered essential to the passage of embolic fat from the lesser to the greater circulation. Scriba also noted, in continuing his experiment, that a large amount of oil could be injected into the circulation without fatal effect, and he computed that as high as one third of the body fat mass could be injected at one sitting without fatal results. Ribbert<sup>3</sup> estimated in 1894 that the fatal human oil dosage was between 30 and 40 cc when injected intravenously, but Landois,<sup>4</sup> basing his computation on Scriba's ratio, put the figure at 210 cc. In an actual proof, Fibiger<sup>5</sup> reported the death of a young adult male after the accidental injection of oil into the vein. Fuchsig<sup>6</sup> reported the fatal intravenous oil dosage at 2 Gm per kilogram, and Wegelin,<sup>7</sup> after reference to the contention of Merckel that intravenous oil injection in dogs testified to no conclusion as to human embolism, reported the work of Kojo on the relative effects of various oils. In quoting Kojo, he stated that in rabbits an injection of from 0.6 to 0.7 cc of olive oil per kilogram was well borne, whereas from 1 to 1.5 cc per kilogram caused death. In any event, and in spite of the apparent disagreement as to the amount of oil necessary to cause death, it is apparent that oil in somewhat varying amounts injected into the venous circulation will cause death by fat embolism. Lehman and Moore,<sup>8</sup> attempting to settle this controversy, injected varying doses of cottonseed oil into twelve dogs. Three dogs had received 2 cc of oil per kilogram and died spontaneously within a few hours. Two other animals receiving 1.7 and 1.66 cc per kilogram, respectively, died within a few days. Six dogs, which were injected with 1.5 cc per kilogram or less, survived. Killed later for autopsy, they showed

no typical pathologic changes. Lehman and Moore draw the amazing comparison that, if the human being can be compared with the dog, the average sized human being can tolerate an injection of 120 cc. On the other hand, fat embolism may occur with but little or no introduction of fat into the venous system. Carrara<sup>9</sup> reported fat embolism present at necropsy in 22 per cent of deaths from cardiovascular-renal disease and in 44 per cent of burns. Catsaras<sup>10</sup> found fat emboli in the lungs in eighteen of sixty-seven cases of postinfluenza pneumonia. Fat embolism has been reported in acidosis,<sup>11</sup> potassium chlorate poisoning,<sup>12</sup> carbon monoxide poisoning,<sup>9</sup> profound sepsis,<sup>13</sup> chronic alcoholism,<sup>13</sup> chloroform narcosis,<sup>11</sup> diabetic retinitis,<sup>14</sup> phlegmonous gastritis,<sup>13</sup> acute pancreatitis,<sup>9</sup> chronic tuberculosis,<sup>9</sup> hepatitis, suppression of the menses, splenitis, carcinomatosis and sarcomatosis (the last five from the literature by Warthin<sup>15</sup>), while Lehman and



Fig 1—Basilar artery with thrombosis

Moore have produced fat embolism without trauma in dogs by ether administration, either by vein or by inhalation.

It becomes apparent then that, while large amounts of fat injected intravenously may cause fat embolism, the same condition may ensue following the intravenous injection of small amounts of fat or from physiopathologic changes in the plasma, entirely independent of any outside fat source.

The injection of oil into the urethra has been found to facilitate the passage of sounds or catheters into the bladder, especially in patients with urethral stricture. Thompson<sup>16</sup> pioneered with such a method nearly seventy years ago, while Cabot, Crane and many other urologists have recently adopted this procedure. Thompson, after many years of observation, remarked

From the Departments of Pathology and Urology of the University of California Medical School, the San Francisco City and County Hospital and the San Francisco Coroner's Office.  
1 Riedel Deutsche Ztschr f Chir 12 118 1879  
2 Scriba Deutsche Ztschr f Chir 8:571 1877  
3 Ribbert Cor Bl f Schweiz Aerzte 24 457 1894 Deutsche med Wchnschr 20 419 1900  
4 Landois Ergebn d Chir u Orthop 16 99 1923  
5 Fibiger cited by Grondahl Deutsche Ztschr f Chir 111:56 1911  
6 Fuchsig cited by Warthin Internat Clin 4 171 1913  
7 Wegelin C Schweiz med Wchnschr 53:133 (Feb 8) 1923  
8 Lehman E P and Moore R M Fat Embolism Arch Surg 14 621 (March) 1927

9 Carrara Friedrichs Bl f gerichtl Med 49 1898 cited by Warthin Internat Clin 4:171, 1913  
10 Catsaras J Presse med 28 618 (Sept 4) 1920  
11 Winkler Ztschr f orthop Chir 45 616 1924  
12 Winogradow Virchows Arch f path Anat 190 92 1907  
13 Grondahl Deutsche Ztschr f Chir 111 56 1911  
14 Bantlin C F Diabetic Lipemia Retinalis and Fat Embolism J A M A 86 546 (Feb 20) 1926  
15 Warthin Internat Clin 4 171, 1913  
16 Thompson Henry Diseases of the Urinary Organs London J & A Churchill 1888

on the ease with which bacteria, various drugs, air and semisolids, such as oil, might pass from the urethra into the circulation, and he indicated that this danger was greatly accentuated after the urethral mucosa had been traumatized. Schönfeld and Muller,<sup>17</sup> Scott<sup>18</sup> and others, both clinically and experimentally, have substantiated this opinion, while Jeck<sup>19</sup> and Mathe<sup>20</sup> are among those who have reported fatal cases of air embolism following pneumatic dilation of the bladder. The passage of bacteria into the blood stream by way of the urethral mucosa is commonly manifest by the so-called urethral chill, and Patterson<sup>21</sup> has recently reported two fatal cases of oil embolism following urethral instrumentation facilitated by the use of oil.

#### REPORT OF CASE

The following is the report of still another case of fatal oil embolism, which was treated at the San Francisco City and County Hospital, with autopsy at the San Francisco coroner's office.

**History**—A man, aged 34 who entered the hospital, had had previous gonorrheal infection followed by stricture of the urethra and for some time the urinary stream had been slow and small. One week previous to entry there had been a complete retention relieved by catheterization, which was difficult. On entry he had not voided at all for at least eight hours. The bladder could be felt extending up to the umbilicus. Attempts were made by one of the house staff to pass soft rubber catheters of various sizes without success. A metal stilet was then used to guide the catheter also without success. There was some bleeding from the urethra. About 50 cc of sterile cottonseed oil was then gently injected into the urethra, some of which passed on into the bladder. The patient then voided several hundred cubic centimeters of urine and complained of



Fig 2—Cerebral vessels showing thrombosis and peripheral oil droplets

feeling dizzy. The bladder was still palpable but the patient was put to bed as he felt relieved. One hour later he became pale and then cyanotic, his respirations became deep and stertorous, and he could not be roused. There were no chills or convulsions. He died four hours later.

**Pathologic Report**—A survey of the body grossly showed a young white man of normal external appearance, the body without distinguishing marks or deformities. The usual incision was made. The abdominal tissues were in their normal relationships and were normal in every respect on gross examination. When the thoracic cage was lifted off, the heart was in diastole and filled with clotted blood but was normal in size, shape and position and the pericardial cavity was empty.

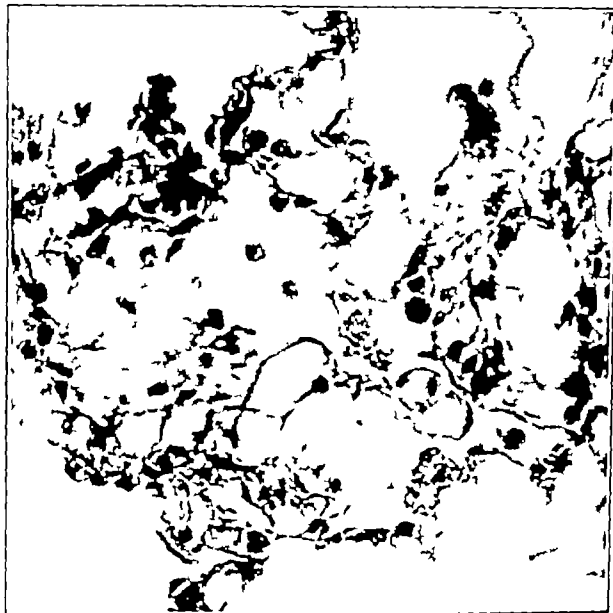


Fig 3—Oil droplets in pulmonary capillaries

The lungs were aerated and showed no areas of infarction, infection, fibrosis or other pathologic change. Examination of the bladder showed a moderate injection of the mucosa and a few tears in the mucosa of the posterior urethra. These were not large, however, and there was no active bleeding from them. The stricture that was the cause of the patient's entry into the hospital had been broken and dilated by instrumentation. There were about 400 cc of clear yellow urine and 20 cc of oil in the bladder. When the cranial cap was lifted off, a rather wet brain was seen which weighed 1550 Gm. The convolutions and sulci were normal and the leptomeninges showed no pathologic changes. In the basilar artery there was a blood clot occluding the lumen which apparently had formed there before death (fig 1). It was felt that this clot might have been associated with the sudden death of the patient and it was somewhat discolored being browner and of a darker color than a normal blood clot. No other pathologic changes were seen. Sections were taken of all the organs.

Microscopic sections of the brain showed no cortical changes and no areas of degeneration, infection or infarction. Sections of the vessels of the base, however, showed a general occlusion with premortem clots, and about the borders of the clots occluding the lumens were small vacuoles which stained a deep pink with sudan III (fig 2). They also reduced osmium peroxide, giving a deep black with this stain. Many of the vessels throughout the cortex were occluded by such a mechanism, and when small sections of the brain were immersed in sudan III, small punctate red dots developed diffusely throughout the cortical structure.

The heart muscle was normal, the myofibrils being well preserved. The endocardium and pericardium were normal and the coronary vessels were free from clots and foreign material. Sections of the lung showed a normal aeration with the alveolar spaces distended. In some places, however, the bronchioles were filled with pus, and in the alveolar spaces adjacent to these there was a purulent exudate filling them as well. Throughout the capillaries in the alveolar walls more vacuoles could be seen and these gave a vivid reaction when stained for fat (fig 3). The liver showed a normal structure with well preserved cells, normal portal arrangements, and sinusoids.

17 Schönfeld W and Muller W G. *München med Wchnschr* 72: 291 (Feb. 20) 1925. abstr. *J A M A* 84: 1312 (April 25) 1925.  
18 Scott W W. *J Urol* 21: 527 (May) 1929.  
19 Jeck H S. *Tr Am A Genito-Urin Surgeons* 25: 289 1932.  
20 Mathe C P. *Surg Gynec & Obst* 48: 429 436 (March) 1929.  
21 Patterson E A. *The Danger of Dilating Urethral Strictures with Oil*. *J A M A* 97: 1147 (Oct. 19) 1931.



free of oil or abnormal content. The spleen had a normal capsule, trabeculations and pulp. The sinusoids were somewhat distended by erythrocytes, but there was no increase in fibrosis in the splenic structure. No oil or other foreign material could be found. The pancreas showed normal acinous cords, patent ducts, lined with intact epithelium, a normal vascular system and normal islets. The adrenals showed the normal cortical zones with ample lipid in the fascicular layer and a normal medullary region on either side. There was no oil in the adrenal circulation. In the kidneys however the glomerular tufts were distended and engorged with blood, and throughout droplets giving a positive stain for fat were found in the capillary channels of the glomerular tufts (figs 4 and 5). They were not seen in the renal circulation elsewhere, however, and the glomerular capsules, renal tubules and pelvic membranes were essentially normal. The ureters were normal. There was a moderate injection of the mucosa of the bladder but no infection was evident and there was no exudate on the mucosa or beneath it. Sections taken down in the area of traumatization showed destruction of the continuity of the mucosa with a few leukocytes scattered about and some increase in fibrous tissue directly beneath the mucosa. No oil, however, was found in the vascular channels here. Sections of the prostate showed a normal gland and the testicles were in active spermatogenesis and demonstrated the usual interstitial cells. Sections of the gastro-intestinal tract were normal throughout.

As bodies staining with sudan III and osmic acid were found occluding capillaries in the kidneys, lungs and brain, a diagnosis of oil embolism with death was made and it was presumed that the oil so entering the circulation was from the posterior urethra.

#### COMMENT

In spite of the fact that here is a direct chain of circumstance proceeding from the instrumentation and

abnormal circumstances may not be the fat which causes the embolism. They suggest rather that such fat introduced artificially must in some way associate pathologically with the free neutral fat in the blood stream, which is there physiologically. In this case there is no indication that the fat metabolism was upset or that the emboli seen in the various organs described are



Fig 5—Oil droplets in a glomerular tuft

composed of other fat than that which was accidentally injected, although, of course, it was not possible to analyze these droplets for determination of their specific formulas.

#### CONCLUSIONS

1. Widely varying amounts of oil or fat may cause death by fat embolism.
2. The posterior urethra is an active absorptive bed and can be the portal of entry of sufficient fat or oil to cause fatal embolism.
3. The danger of oil absorption with embolism is greatly increased by previous urethral instrumentation.
4. Nothing should be injected into the traumatized posterior urethra that cannot be safely injected intravenously.

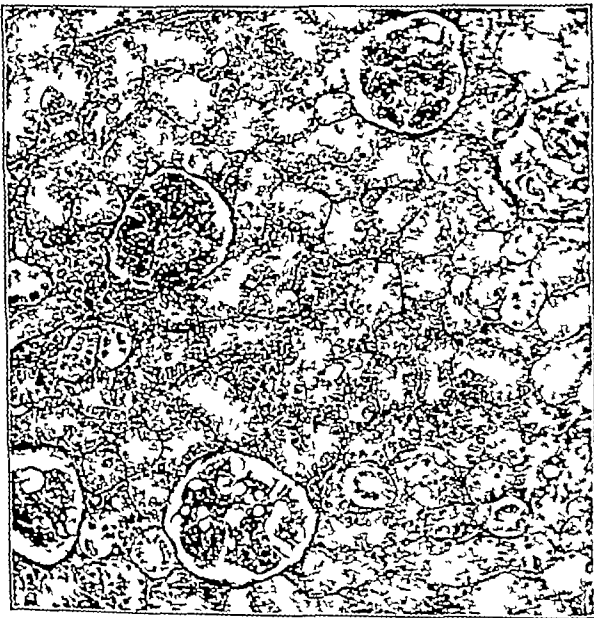


Fig 4—Oil droplets in glomerular capillaries.

oil injection through rather suggestive symptoms to the death of an individual, we are still at a loss to explain why a small amount of oil entering the blood stream in this way should cause death when it is known that larger amounts can be injected intravenously without causing definite symptoms. As Lehman and Moore<sup>8</sup> suggest, the entrance of fat into the blood stream cannot be definitely regarded as disease producing in a direct way, and they indicate that this fat entering in

**The Aqueduct of Sylvius**—The aqueduct of Sylvius is a narrow midline canal connecting the third and fourth ventricles. It is about 15 Gm. in length and varies in width from 1 to 2 mm. The diameter is not quite uniform, being slightly narrower at the rostral end due to the ventral projection of the posterior commissure, and wider in the midportion (ventriculus mesencephali of Retzius). In its rostral half the aqueduct courses almost horizontally but at about its midportion it curves sharply, becoming almost vertical. The aqueduct has an arched roof consisting of the quadrigeminal plate and posterior commissure, and a floor formed by the tegmentum of the midbrain and the subependymal gray matter peripheral to which the cerebral peduncles lie—Davidoff, L. M., and Dyke, C. G. The Demonstration of Normal Cerebral Structures by Means of Encephalography. V. The Ventricles, Interventricular Foramina, and Aqueduct of Sylvius, *Bull. Neurol. Inst. New York* 4:91 (March) 1935.

SWEAT REDUCING SUBSTANCES IN  
YEAST DERMATOSESTHEODORE CORNBLEET, M.D.  
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For a long time it has been suspected that yeast infections of the skin are associated with some error in carbohydrate metabolism. The condition is most prevalent among Jews, a people who are prone to difficulties in sugar metabolism. Moreover, yeasts require a ready supply of sugar to thrive. In addition, yeast infections are fairly common in diabetic patients and in the genital tract of diabetic women. In spite of this evidence, no carbohydrate metabolic error has been definitely linked with the majority of cases of moniliasis. Examination of the blood of most of the affected subjects has not

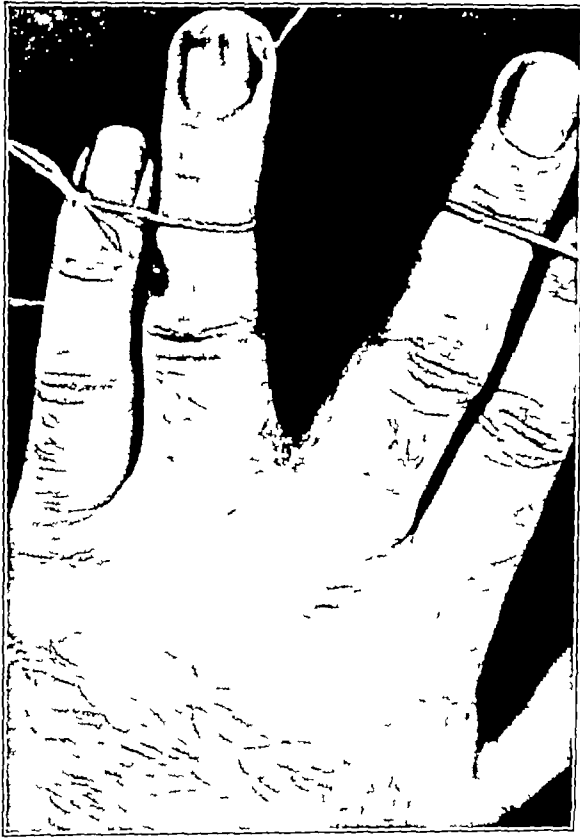


Fig. 1—Erosio interdigitalis saccharomycosis and yeast paronychia in the same individual

shown it to have any deviations from the normal. Since it would indeed be surprising if any carbohydrate metabolic change should be present without showing itself in the blood, and none has been regularly found there, investigators have been discouraged from looking elsewhere.

There are several reasons, however, for suspecting that the sweat may be the seat of a carbohydrate metabolic error. First, yeast infections are surface manifestations and generally remain such. Second, they are mostly confined to folds in which sweat stagnates. Third, it is possible to have a concentration of a sweat ingredient (reducing substance) out of all proportion to that found in the blood. Thus, I have recently found potassium relatively more concentrated in the sweat than in the blood.

I have been making a general survey of the constituent properties of sweat and in this I have included observations on its reducing powers, which I shall hereafter refer to in equivalents of dextrose. Twelve persons without any yeast infections were selected at random and sweated in a heat chamber. They served as controls to patients with yeast infections. Six persons with yeast paronychia, four adults with perleche, eight with erosio interdigitalis saccharomycetica and three with yeast infections under the breasts, in the groins and around the umbilicus constituted the pathologic group. The sweat was collected by placing the patient in a rubber sack, closely drawn up around him as far as the neck, and sweated in a heat chamber that uses electric light bulbs as the source of heat. The temperature varied from 110 to 130 F. He remained in the heat chamber for thirty minutes. Blood was withdrawn for sugar determination just before and after sweating.

In all cases, pathologic as well as normal, the blood sugar rose during sweating. This rise ranged from 5 to 30 mg per hundred cubic centimeters. The extreme rises occurred in one of the two diabetic patients in the series. In general, those in the pathologic group tended to have the greater rise in blood sugar levels during the sweating as compared to the control group. Sweat reducing substance of the control group varied between equivalents of 20 and 40 mg of dextrose per hundred cubic centimeters. This agrees fairly well with the values found by Silvers, Forster and Talbert,<sup>1</sup> who found from 28 to 40 mg per hundred cubic centimeters. Usher and Rabinowitch<sup>2</sup> obtained somewhat lower concentrations, but their figures cannot be directly compared with mine since their procedure was somewhat different. Whereas I gave no fluids, they gave 250 cc of water one-half hour before and a like amount one-half hour after the sweating experiment was started which lasted an hour. Moreover, they used pilocarpine, whereas I did not.

The sweat from the pathologic group contained from 55 to 90 mg per hundred cubic centimeters. Even the lowest values in the group were distinctly higher than the highest ones for the controls. All the values for these normal and pathologic groups were obtained while the subjects were fasting. The Folin-Wu method for sugar estimation was used throughout.

The normal group secreted from 25 to 300 cc in a half hour by my method, whereas the pathologic group secreted from 5 to 60 cc under the same conditions. It might appear that the reason for the higher concentration of reducing substance in the sweat of the pathologic group is that it sweated so much less than the controls. It is plausible that the larger amount of fluid secreted would dilute the reducing substance present. This, however, is not true. I found that by collecting sweat in a series of batches from a person during one sitting that successive samples did not vary much in their reducing substance concentrations. In fact, in some persons I found an actual increase to take place, at least for the time of the experiment, one-half hour. Thus, one man secreted 10 cc of sweat in the first ten minutes and the reducing substance of this was 26 mg per hundred cubic centimeters. In the next twenty minutes he secreted 156 cc, the reducing substance con-

<sup>1</sup> Silvers, S., Forster, W. and Talbert, G. A. Simultaneous Study of the Constituents of the Sweat, Urine and Blood. VI. Sugar. *Am. J. Physiol.* 84: 577 (April) 1928.

<sup>2</sup> Usher, Barney, and Rabinowitch, I. M. Excretion of Sugar in Sweat. Its Relationship to Eczema, Arch. Dermat. & Syph. 10: 706 (Dec.) 1927.

centration of which was 32 mg. In general, however successive samples did not decrease much in reducing substance concentration as more sweat was secreted.

The question now comes up as to whether the reducing substance of the sweat is actually sugar. Usher and Rabinowitch<sup>2</sup> by fermentation experiments came to the conclusion that all of the reducing substance was fermentable and consequently probably sugar. Using their technic, I can corroborate their results. Moreover, lactic acid, which is an intermediary metabolite of sugar, is found in great abundance in sweat.

In phenylhydrazine tests<sup>3</sup> on sweat I have been unsuccessful in demonstrating osazones. None of the normal control subjects yielded osazones. The Molisch test on these specimens was negative. From the standpoint of the phenylhydrazine test, I consider it as yet indeterminate whether all the reducing substance, or part of it, is actually sugar.

If these reducing substances in sweat are indeed sugar, does that help to explain the yeast infections in these patients? A simple increase in sweat content will allow a heavier growth of yeast, and thus could determine the successful invasion of the skin. It has been definitely shown that the size of an inoculum of microorganisms is a decisive factor for success of a transplant of a culture. An increase in the number of yeasts might not, however, be the only factor. The increased sugar could conceivably change the epithelium physically. I therefore immersed horn cells in watery mediums that contained graduated quantities of sugar but could detect no difference in the softening or clearing powers of the different concentrations of sugar.

In most of the persons in the pathologic group there was decreased sweating, so that the idea of maceration from excessive sweat with them may be dismissed. Nor for any other reason by itself does the amount of sweat explain the infections. Those of my tested subjects who sweated little and had normal concentrations of reducing substances did not have yeast infections.

The difference between the normal and pathologic groups in the concentration of their sweat is not adequately reflected in the figures for freshly secreted sweat. The difference in concentration between the two groups becomes increasingly exaggerated as the sweat is evaporated. Since it is the evaporated residue that is present for yeast consumption on the skin, it is the exaggerated difference that really comes to be the significant one. It becomes evident then that, the greater the concentration of the reducing substance in freshly secreted sweat, the more this piles up in the evaporated end product. A small difference in concentration to begin with becomes a much larger one when the sweat is partially evaporated and presented for consumption to the yeast. Thus to take two examples, one from a normal control, the other from a patient with moniliasis. Ten cubic centimeters of sweat collected from each was evaporated to 3 cc in a large flat plate at a temperature that varied between 36 and 40 C. The dishes were placed on hot plates with enough layers of asbestos between to regulate the temperature within these limits. The reducing substance in the normal sweat was equivalent to 20 mg of dextrose per hundred cubic centimeters and in that of the pathologic 73 mg. The difference between the two was 53 mg. After partial evaporation, the normal sample contained reducing substances equivalent to 42.1 mg of dextrose, while the

pathologic one contained 128 mg. The difference after evaporation was about 86 mg or an increased difference of 33 mg as compared to that before evaporation.

Usher and Rabinowitch<sup>2</sup> reduce the sweat sugar excretions to values for the amount of sugar per hour or unit of time. This gives useful and instructive data. It is doubtful, however, as to whether such figures carry any final significance for present considerations. During a given period most of the patients with yeast infections excreted less total reducing substance than did the normals. Their sweat, however, was much more concentrated in respect to reducing substance. The increase per unit of volume did not make up for the meager amounts of total fluid they secreted. Since it was they who had the yeast infections, it would seem that not the total amount of reducing substance



Fig. 2—Erosio interdigitalis saccharomycosis and perleche in the same individual. This woman also had a submammary dermatitis.

excreted but rather its concentration in the sweat was decisive for yeast infection.

That a reducing substance residue does definitely remain on the surface of the skin all the time seems to be shown by the fact that a sample collected from a person after bathing contains less reducing substance than one collected without previous bathing. In a man whose sweat contained from 40 to 44 mg per hundred cubic centimeters on three occasions in eight days, a shower bath before the collection of the sweat reduced the concentration to 25 mg per hundred cubic centimeters. Thus apparently some of the reducing substance clinging to the surface of the skin, which would have given his sweat a concentration of from 40 to 44 mg per hundred cubic centimeters, was washed off in bathing. This result is representative of three other persons examined. Since the reducing substance

3 With the technical assistance of Dr. Morris A. Kaplan.

concentrations that I reported for the normal and pathologic groups were obtained by sweating without previous bathing, it would mean that these figures would have to be scaled down 40 per cent in order to obtain the true concentration of reducing substance of freshly secreted sweat

Could volatile substances account for any of the reducing substances found in sweat? To answer this, 100 cc of sweat was distilled slowly in such a way that the distillate was collected under a small amount of water. This water was tested for reducing substances and was found to contain none. The original 100 cc contained 47 mg, and when the 100 cc was distilled to a residue of 22.5 cc this contained 109 mg per hundred cubic centimeters. This experiment seems to show that none of the reducing power of sweat can be accounted for by volatile substances.

If the high reducing substance content of the sweat is the fundamental cause of yeast infections it would appear that one rational method of combating them is to reduce the sugar concentration. In attempts at this I made observations on the effect of the sweat reducing substance concentration from the administration of several drugs and biologic substances. These included insulin, pilocarpine, atropine, solution of pituitary, amniotin, epinephrine, and dextrose itself. The results of these procedures showed that, in general, quantitative deviation in blood sugar content will reflect itself in the same direction in the sweat reducing substance but that the changes in the latter were much smaller. Thus with 10 units of insulin, given after the first sample of blood was taken one diabetic patient had her blood sugar reduced from 170 to 158 mg per hundred cubic centimeters while sweating, and the sweat contained 57 mg equivalents. Without insulin, the blood went from 167 to 182 mg during sweating, while the sweat was 65 mg. Epinephrine produced increases in the sweat reducing substance but also with more substantial ones in the blood. It induced greater changes in those with much sweat reducing substance. Between these extremes there were values found from the use of pilocarpine, solution of pituitary, atropine and amniotin. The administration of sugar by mouth has a definite effect on the content of sweat reducing substance. The group with yeast infections showed a somewhat greater change in the content of sweat reducing substance after the ingestion of 50 Gm of dextrose as compared with the control group. The general method in these procedures for influencing the blood sugar and sweat reducing substance was to take blood samples, administer the drug, biologic product or sugar, wait fifteen minutes and then sweat the patient. A blood sample was then again withdrawn directly after the patient sweated for half an hour.

Another mechanism must undoubtedly be at work to abet the yeast infections under wet dressings and in those in a continuous water bath. Here it is evident that any sugar on the skin surface would be quickly dissolved away and its concentration decreased. I<sup>4</sup> have already shown that moist skin areas are not as efficient as drier ones in ridding themselves of micro-organisms. Every one is familiar with the difficulty of growing a culture on otherwise suitable mediums that have dried out. The epidermis that has become soggy by the continuous presence of moisture allows the

organisms to gain a foothold by not being able to inhibit them from the start. They are further encouraged by their ease in penetrating a softened cell. The fact that the sugar concentration is reduced will not in itself prevent yeast growth. In the case of the water bath, the decrease in concentration of sugar is more than counteracted by the ease with which the yeast gains a foothold on and invades the wet epidermis.

In the case of the contact areas of the skin—the submammary folds, the interdigital spaces and the corners of the mouth—not only is moisture conducive toward gaining a foothold in the epidermis but larger amounts of reducing substance are at their disposal. I have previously found<sup>5</sup> that the nail fold, just as the skin contact areas, is also deficient in inactivating micro-organisms. It presents the same conditions for the growth of yeast as do the other areas that are more obviously moist.

In practically all forms of yeast infection of contact areas, it is *Monilia albicans* that is found. Benham and Hopkins<sup>6</sup> could not isolate this organism from normal skins and concluded that when one finds this organism in a lesion of the skin one is dealing with one of a group of dermatoses that may be referred to as moniliasis. The numbers of this group seem to be closely related, if not in fact identical. In my series of patients a goodly number had multiple manifestations at the same time.

In three of them there was perleche, paronychia, and erosio interdigitalis simultaneously. The site affected varies the morphology of the lesion, and this is known clinically under a distinctive name. It is simpler to look on such occurrences as clinical variants of the same kind of yeast or monilial infection. In that way one is better prepared for the same background for all, a similar environment for a single causal organism. This environment would seem from my experiments to be a ready supply of sugar furnished by unevaporated sweat and epithelial cells that are laden with moisture.

Since the organisms that cause eczematoid ringworm thrive best with a ready supply of sugar, and they too confine their original activities in interdigital spaces, it is to be presumed that a factor of reducing substance concentration in sweat might determine infection with them. This possibility I have recently begun to investigate.

#### SUMMARY

Persons with yeast dermatoses have higher concentrations of reducing substances in their sweat as compared to normals. This reducing agent seems to be sugar as shown by fermentation tests and observations on sweat lactic acid, an intermediary metabolite of sugar. Preliminary phenylhydrazine tests, however, have not so far positively confirmed the presence of sugar. None of the reducing substance in sweat can be accounted for by volatile substances. The reducing substance in sweat remains relatively constant if there is no evaporation. Contact areas or skin folds retard evaporation of sweat and thus make available more reducing substance and moisture for micro-organisms. It is these areas which are deficient, too, in their powers for sterilizing themselves. Organisms are then able to get a foothold, and if they are yeasts they are particu-

<sup>5</sup> Cornbleet Theodore and Montgomery B. E. Self Sterilizing Powers of the Skin. *Arch. Dermat. & Syph.* 23:908 (May) 1931.

<sup>4</sup> Cornbleet Theodore. Self Sterilizing Powers of the Skin. II. The Body Folds. *Arch. Dermat. & Syph.* 25:1058 (June) 1932.

<sup>6</sup> Benham Rhoda W. and Hopkins Ann M. Yeastlike Fungi Found on Skin and in Intestines of Normal Subjects. *Arch. Dermat. & Syph.* 28:532 (Oct) 1933.

larly able to thrive in the available stagnating sweat medium rich in reducing substance supplies. It is common to find one person with several types of yeast infection. It is convenient, and I think correct, to look on these various types of clinical entities as being merely morphologic differences produced by the accident of site affected. They are all due to *Monilia albicans* on a background of high concentration of sweat reducing substance. Eczematoid ringworm probably is produced by the same background but by different organisms. Attempts to lower the concentration of sweat reducing substance by influencing the blood sugar level were not encouraging. Sugar ingestion does make some difference, and this is greater in persons with high concentration of sweat reducing substance. It seems an advisable measure, although one of limited value, to reduce the carbohydrate intake of persons with moniliasis.

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## SUTURE OF STAB WOUND OF THE HEART

REPORT OF CASE

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AND

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Until the end of the nineteenth century, thoracic surgery lagged far behind the advances made in abdominal surgery, and any surgical procedure on the heart itself was considered an impossibility. As late as 1883 the great Billroth announced that "the surgeon who should attempt to suture a wound of the heart would lose the respect of his colleagues." It remained for the intrepid Cappelán to venture into this unknown field. The first recorded attempt to suture a stab wound of the heart was made by Cappelán in 1895. His patient died after two days. Farina made the second attempt in 1896, with fatal results. The first successful case was that of Rehn in 1897, and ten years later he was able to collect 124 cases in which suture had been performed, with a 40 per cent recovery. In 1920 the literature contained 305 cases, with 50.4 per cent recovery (Tuffier), and Smith assembled fifty-eight cases between 1912 and 1923, with 66⅔ per cent recovery. In the light of present-day knowledge, this increasing percentage of recoveries will doubtless continue. The brilliant work of Cutler and Beck<sup>1</sup> during the past decade has gone far to place cardiac surgery on a firm footing. Cutler's successful section of a stenosed mitral valve marks an epoch in this field of endeavor and is one of the great triumphs of modern surgery.

Certain factors are essential to success in cardiac suture. Among the more important may be included the element of elapsed time after the wound is received, the size and character of the wound in the heart muscle, the incidence of other extracardiac injuries, the age of the patient and the general cardiac condition. One

great danger to be avoided by the surgeon is the natural tendency to haste. A careful dissection in the early stages of the operation, with particular reference to avoiding perforation of the pleura, will obviate complications that are severe and may well prove fatal. The diagnosis is not always simple and depends on a stab wound over the cardiac area with little or no external bleeding, feeble or absent radial pulse, low blood pressure, and the important physical signs associated with "heart tamponade", i. e., engorged vessels of the neck and muffled heart sounds. With the increase of pressure within the pericardium there may be respiratory embarrassment. The general picture is that of extensive hemorrhage, which, coupled with the physical changes outlined, justifies the diagnosis. The differential diagnosis should include injury to the lung, intercostal artery, mammary artery, pericardial wall, and penetrating as opposed to perforating, wounds of the heart. However, a severed coronary artery may give rise to heart tamponade, in the absence of a perforation of the endocardium.

The choice of surgical approach to the heart lies between the midsternal incision employed by Cutler<sup>2</sup> in his operation for valvular disease and the parasternal. The latter is simpler and more rapidly performed. Median sternotomy is a formidable undertaking and probably not well tolerated by an exsanguinated patient. The parasternal incision gives an excellent exposure of the left ventricle, and by transverse section of the sternum, with forward dislocation, the right ventricle is brought into the field of operation. With the pericardium opened and the tamponade relieved, the heart rapidly regains its forceful contractions and the surgeon finds himself operating in a mass of bloody foam, which is not conducive to equanimity. In handling the

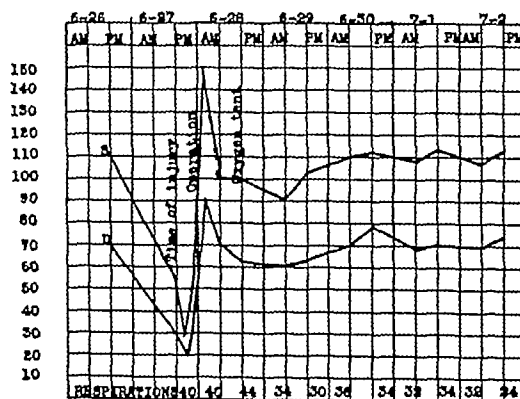


Fig 1—Blood pressure and respiration rate.

heart, strangulation of the base must be guarded against, a feat difficult to accomplish in the excitement of the moment.

The heart can be handled most gently by means of one or two deep sutures placed in the apical region of the left ventricle. By traction upon these threads one can elevate the heart from its bed rotate it and expose all portions to view. Success seems to depend upon the avoidance of obstruction to the flow of blood in the heart. This method of using traction sutures instead of grasping the organ forcibly in the hand seems to result in almost no interference with either the flow of blood in the coronary vessels or in the heart itself.<sup>1a</sup>

2 Cutler E. C. The Present Status of Cardiac Surgery. Surg. Gynec. & Obst. 54: 274-279 (Feb.) 1932. Cutler E. C. Cardiac Surgery. J. Maine M. A. 23: 156-161 (Aug.) 1932.

1 (a) Cutler E. C. and Beck C. S. Surgery of the Heart and Pericardium. Nelson's Surgery, vol. 4, pp. 233-386. (b) Cutler E. C. and Beck C. S. The Technique of Cardiography. Surg. Gynec. & Obst. 45: 74-79 (July) 1927. (c) The Present Status of the Surgical Procedures in Chronic Valvular Disease of the Heart. Arch. Surg. 18: 403-416 (Jan. pt. 1) 1929.

With the wound in the cardiac wall localized, the hemorrhage can be controlled by a finger tip, and suture performed. A double suture has been advocated as a means of plugging the needle hole and avoiding troublesome oozing. It is well to remember that, in closing the pericardium, the lower extremity of the wound should be left open for a distance of at least 3 cm. to permit drainage. It is generally agreed that a drain should not be placed within the pericardial sac. In this connection, the experimental work of Beck<sup>3</sup> is illuminat-

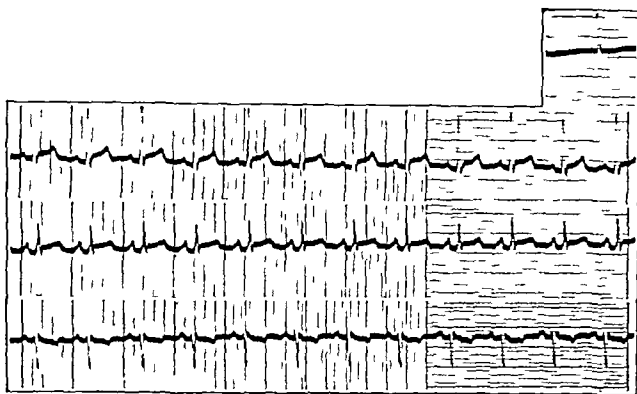


Fig. 2—Electrocardiographic record made twelve hours following operation showing a rate of 111 regular and PR 0.16 second. No abnormality was noted other than tachycardia and evidence of left axis deviation.

ing. He found that adhesions between the heart and the pericardium were readily produced by merely rubbing the pericardial surface with surgical gauze. Should the pleura be opened by accident, and collapse of the lung ensue, aspiration of air from the thoracic cavity should be carried out immediately after closing the chest wall. It has been suggested that gas-oxygen-ether be administered as an anesthetic in these cases, with a pressure only slightly greater than atmospheric, to guard against collapse of the lung in the event that the pleura is opened.

The postoperative care of these cases is all important, and especially so if a pneumothorax exists. Should the patient survive forty-eight hours in the presence of a pneumothorax, it rapidly resolves itself into a pulmonary rather than a cardiac condition. Pleural effusion is almost inevitable and requires repeated aspiration and, eventually, rib resection if suppuration develops. In this pulmonary complication the use of an oxygen tent will prove of great value in reducing the high respiratory rate and preventing exhaustion. A serious complication following cardiac suture is cerebral delirium, which may take a violent form. This is doubtless due to the prolonged cerebral anemia induced by extensive hemorrhage and low blood pressure. This can be combated only by large doses of morphine, continued for days. This drug is an essential aid in the after-care of cardiac suture when there has been extensive loss of blood. Probably the most serious complication of this condition is suppurative pericarditis, and its incidence is not to be wondered at when one considers the passage of a dirty knife through the pericardium. However, this is not the only possible infective agent. Several cases have been reported in the literature in which this complication existed when the operation was hastily performed, with improper sterili-

zation of instruments. Certainly, this is another argument against haste, and it should be needless to remark that the most rigid aseptic technic is imperative.

#### REPORT OF CASE

*History*—C. T., a Negro youth, aged 16, an inmate of the South Carolina State Reformatory for Negro Boys, was stabbed by a fellow prisoner, June 27, 1934, at 8:30 p. m. The knife entered the anterior chest wall. He was immediately taken to the Columbia Hospital by Dr. C. G. Spivey, the reformatory physician.

He was conscious but in profound shock. There was no external bleeding from the chest wound. This wound, approximately 3 cm. in length, was in the right fourth intercostal space, at the sternal margin. The temperature was 96 F. The radial pulse was absent and the blood pressure was too low to record. The breath sounds in both lungs were clear and distinct, and no dullness was demonstrable in either base. The heart sounds were audible, but muffled and indistinct throughout the precordia, the rate was 90 to the minute. Red blood cells numbered 3,120,000, leukocytes, 10,000, hemoglobin was 55 per cent. The urine was normal. (From the reformatory records it was learned that his normal blood pressure was 110 systolic, 70 diastolic. The Wassermann reaction was negative.) He was given two one-fourth grain doses of morphine, half an hour apart, and treated for shock. An hour and a half following the injury the radial pulse was fairly palpable and the skin seemed less cold. The blood pressure was 28 systolic, 20 diastolic. A diagnosis of stab wound of the heart was made, but operation was further delayed owing to the slight degree of improvement and the hope that he would further improve. At 11 o'clock, or two hours and a half after the wound was received the general condition had definitely improved, with a fairly good pulse at the wrist, and a blood pressure of 48 systolic, 28 diastolic. It was decided that operation could be attempted. He was given no fluids.

*Operation*—Under a light ether anesthesia with open mask a left parasternal incision was made, exposing the fifth, sixth and seventh ribs. The cartilages of these ribs were cut close



Fig. 3—Condition on the thirteenth day following operation showing left pleural effusion and displacement of the heart.

to the sternum and the bony portions of the ribs partially divided with a costotome, just beyond the cartilaginous attachments. In lifting this hinged rib flap, the pleura was accidentally torn beyond repair, resulting in an immediate massive collapse of the left lung. There was marked respiratory embarrassment, and for a few moments it was believed that this would terminate fatally. However this unfortunate accident gave an excellent exposure of the pericardium which was seen as a distended round bluish mass. The peri-

cardial wall was opened, and several handfuls of blood clot were actually forced out of the sac by the contractions of the heart. With this relief of the tamponade the contractions of the heart rapidly increased in force and filled the pericardium with a swirling mass of blood and foam which added little to our exposure. It was soon apparent that the wound was not in the left ventricle, as the rush of blood appeared from between the sternum and the violently beating heart. With a costotome, the sternum was divided transversely and dislocated forward. This gave a fairly good view of the right ventricle and for the

<sup>3</sup> Beck, C. S. The Surgical Treatment of Pericardial Scar. J. A. M. A. 87: 824-830 (Sept. 19) 1931. Beck, C. S. and Isaac, L. Pericardiac Tamponade. J. Thoracic Surg. 1: 124 (Dec.) 1931. Beck, C. S. Wounds of the Heart. Arch. Surg. 13: 205 (Aug.) 1926.

first time a column of blood was seen about the size of a match stick squirting from the anterior wall of the right ventricle. This was controlled by a finger tip. There was apparently no injury to the coronary artery or to its interventricular branch. With some difficulty, owing to the rapid movements of the organ, a single strand of chromic catgut suture was introduced beneath the finger placed on the wound and tied. This sufficed to control the hemorrhage. Whether or not the needle passed into the endocardium, we are unable to say. At this time the heart was beating regularly and forcefully although it had reacted

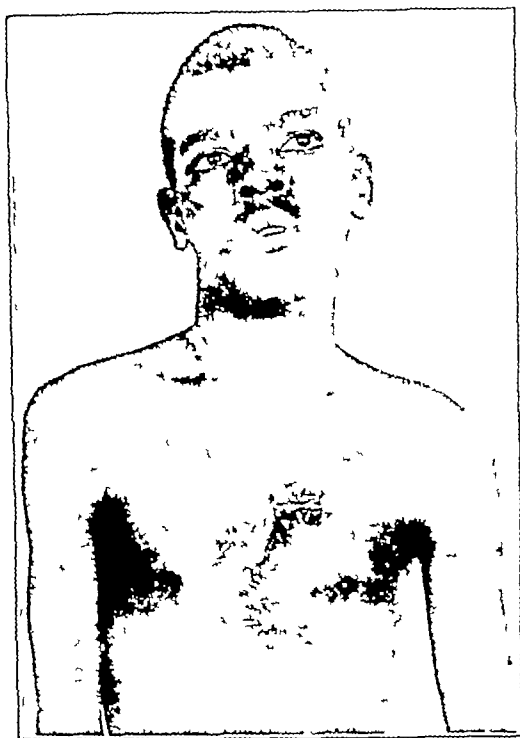


Fig 4—Patient six weeks following operation, showing original stab wound and beginning keloid in operative scar

immediately to any strangulation of the base in handling. The respirations were rapid but the general condition was surprisingly good. The incision in the pericardium was closed with a loose continuous catgut suture. The pericardial sac was not drained, and an opening was not left at the lower extremity of the wound. The wound in the chest wall was closed by replacing the hinged rib flap.

At the end of the operation the pulse was 120 forceful and regular. The blood pressure was 145 systolic, 90 diastolic. Respirations were 40. Five hundred cubic centimeters of 5 per cent dextrose was slowly introduced intravenously with a small needle. Within six hours the blood pressure dropped to 98/68 and within a week stabilized at 110/70. During the following week the convalescence was stormy with violent cerebral delirium which was controlled only by massive doses of morphine.

An oxygen tent was employed during this period, with a marked reduction in the respiratory rate. During the second week a pleural effusion developed on the affected side and was aspirated daily until suppuration required a rib resection during the fourth week. From the time of the second operation the convalescence was uneventful. Before the patient's discharge from the hospital in the seventh week he was examined by Dr O Benedict Mayer who reported no cardiac embarrassment and no clinical signs suggesting the presence of pericardial adhesions. Normal mobility of the heart was noted on fluoroscopic examination.

Since discharge from the hospital the boy has returned to his work in the reformatory infirmary.

Medical Building

## BURNS, PRODUCED BY RADIO SHORT WAVE AND ULTRA-SHORT WAVE THERAPY

AND THEIR PREVENTION

DAVID H KLING MD

WITH A CASE REPORT OF A SEVERE BURN BY  
GEORGE O BERG, MD

LOS ANGELES

Radio short wave and ultra-short wave apparatus is now extensively advertised and has begun to replace diathermy. At the high frequencies generated by these machines, ranging from ten to a hundred million oscillations per second (equal to wavelengths of from 3 to 30 meters), it is not necessary to apply the current directly to the body through metal electrodes as in diathermy. It is sufficient to place the part to be treated in the electrical field between insulated plates. Heat is generated chiefly by displacement currents within the tissues, which act as a dielectric.

This mode of application conveys the impression that the danger of burns is eliminated. The simplicity and safety of short wave therapy is played up in the sales campaign. Nothing is more erroneous. Burns have been observed clinically and they have been produced experimentally.

This report warns of the great danger ahead and, it is hoped, will bring about the prevention of serious damage.

### REPORT OF CASES

Abstracts of the histories of six cases in which burns developed in the course of radio short wave and ultra-short wave therapy are given. The first two cases are from my own material. The third case I was called in to see, this patient received treatment by a salesman



Fig 1 (case 2)—Second degree burn. Blister over the metacarpophalangeal joint of the thumb after twenty four hours

of short wave apparatus. These three cases were second degree burns, of small area, which healed within a few weeks. Cases 4 and 5 were reported to me. Case 6 was observed and is reported by Dr G O Berg. These three cases were third degree burns, with extensive destruction eventually necessitating skin grafts.

CASE 1—A girl, aged 11 years, was treated for fungous infection of the nail bed of the fourth right finger with a 6 meter, ultra-short wave machine of 225 watt output. The electrodes

From the Arthritis Department Cedars of Lebanon Hospital



were covered with hard rubber one-eighth inch thick. The electrode under the palm was  $1\frac{1}{2}$  inches by three-sixteenths inch, over the affected nail an electrode nine-sixteenths by three-eighths inch was applied. Between the electrodes and the hand, towels about one-half inch thick were applied. The current was too small to register on the ammeter, which indicates tuning of the patient's circuit in resonance with the primary circuit. During the second treatment, however, the ammeter indicated 200 milliamperes. The child complained of a burning sensation. Treatment was interrupted immediately.



Fig. 2 (case 6)—Third degree burn of the calf of the left leg. Necrosis of the skin fourteen days after treatment.

The skin inside and below the nail was white. The finger was throbbing. Within twenty-four hours a blister the size of a five-cent piece (21 mm) had developed and burst, the red dermis was exposed. Healing was slow.

**CASE 2**—A woman aged 32, was treated with the 6 meter, 225 watt output ultra-short wave machine for stiffness of the phalangeal joint of the right thumb. Hard rubber electrodes 3 by 2 inches and a 1-inch padding of felt and towels were applied to the palmar and dorsal aspect of the right hand. During the third application, the patient complained of pain. The treatment was interrupted and two white spots were noticed.

Within four hours a blister formed (fig 1) over the protuberance of the base of the first phalanx of the thumb. The blister was punctured the next day, the dermis was very red. In the course of the next few days a grayish scab formed under which healing proceeded and was complete within two weeks.

**CASE 3**—A woman, aged 55, was treated for rheumatic pain over the lumbar spine with a 9 meter ultra-short wave apparatus of 150 watt output. Hard rubber electrodes approximately 5 by 3 inches were used over the lumbar spine and abdomen. Padding of towels was used. When I saw her there was an excoriation of the skin over the second lumbar vertebra about  $1\frac{1}{2}$  by 1 inch. The base was formed of the corium. The burn had occurred two days before.

**CASE 4**—A middle aged man was treated over the chest for fulminant pneumonia with short wave apparatus of unknown wavelength. An extensive burn with destruction of the skin was produced. The man died of pneumonia.

**CASE 5**—A man was treated for sinus infection with a short wave apparatus. One rubber electrode was applied to the neck and the other over the face and nose. Severe burn and destruction of the tip of the nose was produced.

**CASE 6** (reported by Dr. Berg)—A college student received short wave therapy consisting of approximately 3,000 milliamperes through the calf of the left leg. A representative of the company selling the machine was present while these treatments were being given. The electrodes were placed anteriorly and posteriorly with towel padding between. The duration of the treatment was about twenty minutes. No sensation of heat, burning or any discomfort whatever was noticed by the patient.

The electrodes were then placed one below the foot and the other over the knee. While 3,000 milliamperes was given with this placement the entire leg felt uncomfortably warm. Treatment was discontinued. Three small blisters on the dorsum of the calf were noticed on cessation of treatment. In two days it was apparent that an extensive burn had been produced.

Figure 2 shows the condition of the burn fourteen days later. The area measured 3 by  $1\frac{1}{4}$  inches. There is now considerable sloughing of the superficial tissues and beginning granulation. This area will need a skin graft.

Figure 2 seems to show by the marking of the towels on the skin that the burn was produced while the electrodes were in the anterior-posterior position, during which time the patient experienced no discomfort of any sort.

#### EXPERIMENTAL BURNS<sup>1</sup>

Fully developed rats were exposed under ether anesthesia, to the electrical field of the 6 meter ultra-short wave apparatus of 250 watt output. Hard rubber electrodes measuring  $1\frac{1}{4}$  by  $1\frac{1}{16}$  inches were used. They were applied for the treatment of the lower parts over the abdomen and back and for the treatment of the brain to both sides of the head. The rectal temperature was controlled during and after treatment by a mercury thermometer and was raised in only one case. Whenever the energy in the treatment circuit was small



Fig. 3—Experimental burn in a rat. Right hind leg has fallen off. Slough at the base of the tail. This is about twelve days after treatment.

no untoward general or local effects were noticed immediately or later. As soon as the energy was increased to register over 100 milliamperes on the tuning ammeter, however, burns developed in typical locations. When the electrodes were applied to the head, the burns involved the ears and fore legs, with the electrodes over the back and abdomen, the hind legs, base of the tail, testicles, penis and anus were

<sup>1</sup> Assistance in the animal experimentation was given by Mr. H. M. Rubin and Mr. H. J. Rubin.

involved. Sometimes, however, milder burns developed on the ears and forelegs, even when only the lower parts were treated. The burned skin immediately appeared grayish, singed or brownish red. Thin parts, such as the ears and limbs, shriveled, turned black, and fell off without perceptible bleeding or suppuration. The ears fell off in toto or in part within three to twenty days. The legs became contracted, the hip joint, above the burn was indurated, the legs fell off within two to nine days, exposing a black stump of the femur. These severe burns therefore offered a clinical symptomatology of dry gangrene (fig 3).

The thicker parts, the base of the tail, testicle and anal region, developed first sloughing of the skin and soft tissues, so that tendons and bone were laid bare, pus pockets formed and finally the tail separated, usually between nine and twenty-five days. One very small tail, which was directly treated, fell off in three days.

Over the abdomen, especially around the anus and penis, hard infiltrations developed, twice anal fistulas developed. The skin of the scrotum sometimes sloughed off in places. A very interesting edema of the fore leg developed in a rat treated over the abdomen (fig 3). The skin was bluish but intact. The edema which first was noticed over the wrist, seven hours after treatment, spread in the next days over the entire leg and persisted for two weeks. On the sixteenth day a small

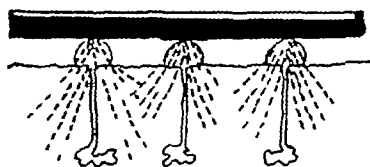


Fig 4—Schematic drawing of skin with three sweat glands and sweat drops on the surface showing the concentration of the field produced by perspiration.

but deep slough developed and demarcation and suppuration were observed to precede healing. This slow healing, even of milder burns parallels the observation in patients.

#### THE MECHANISM AND THE PREVENTION OF BURNS

On the basis of observation and experimentation, the following factors seem to be responsible for the production of burns in the short wave electrical field.

1 *The Surface Effect*—It was found on cadavers that, for every rise of 1 degree centigrade in the femur, the temperature of the skin of the thigh rose 64 degrees. The accumulation of heat in the tissues adjoining the electrodes is augmented by unsuitable insulating material of the electrodes and padding, such as soft rubber and felt which heat up during the treatment. This surface heating is well illustrated by the following experiment.

A board 1 inch thick was placed between two round adjustable hard rubber electrodes (Schliephake electrodes). The maximum output of a 6 meter 225 watt machine was turned on. The temperature rise read on a mercury thermometer inserted in a hole in the middle of the board was 73 degrees C in a two minute period. When an air gap of one-half inch was formed between the board and the electrodes, the rise of temperature in the same period was only 7 degrees C or 10 per cent of the value without the air gap.

The interposition of air between electrodes and skin, producing an enormous loss of energy, forces the employment of powerful apparatus in order to treat efficiently, on the other hand, it is the surest means to eliminate the danger of surface accumulation of heat. Compared with the high resistance of the air, the differences between the tissues become very small, this makes the heating of the skin conform to the heating of the deep structures. None of the burns occurred with air gaps. For the prevention of accumulation of heat on

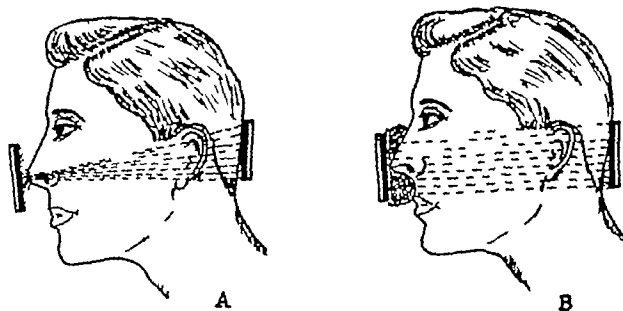


Fig 5—A acro-effect. Concentration of the field at the tip of the nose with danger of burn. Too close application and no leveling of the nose with the surface of the face. B correct application and padding of the nose and distance from the electrodes spread the field homogeneously.

the surface, the necessity of suitable distance of the electrodes from the skin is evident. This gap should be filled out by a good insulator that does not heat up under treatment. Adjustable air gap electrodes of a special glass were found most satisfactory, next came adjustable hard rubber electrodes. Soft rubber is the least desirable, it heats up readily, which decreases its dielectric properties and may also develop small defects through which direct current flow and sparking occur. Most machines in this country, however, are not equipped yet with air gap electrodes and therefore padding must be used between the electrodes and the skin. An absorbent material, such as cotton, rubber sponges or tissue paper, which does not heat so much, is to be preferred to the commonly recommended felt.

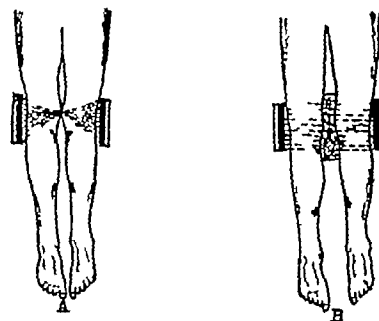


Fig 6—A acro-effect of the protuberance of the tibias between the knees. B correct application padding between the knees spreads the field homogeneously.

2 *Size of Electrodes*—The smaller the electrodes, the greater is the density of the electric field and the greater therefore the heating effect. With the apparatus previously mentioned but with electrodes about three times as large applied directly to the 1 inch thick board, the increase in temperature in two minutes amounted to only 5 degrees C. It is therefore necessary to decrease the energy of the apparatus or, better yet, to increase the distance of the electrodes from the skin in treating small areas such as the fingers or the

teeth Too little distance, with a very small electrode, was responsible for the burn over the nail in case 1

In thin areas, such as the fingers, it is possible that the surface heat of both electrodes creates a higher temperature in the deeper tissues than the skin. A burn could develop in the deeper structures over intact skin. This perhaps explains the peculiar edema of the foreleg of the rat shown in figure 3

3 *Perspiration*—Sweat contains electrolytes which transform the surface of the skin into a good conductor and decrease its resistance. The density of the field is therefore greater in the moist surface. This causes overheating and eventual burns (fig 4)

Sudden formation of sweat drops explains the rapidity with which burns were observed to occur under the treatment (fig 1, case 2). Control of sweating, by absorbent material or interruption of treatment is therefore necessary to prevent burns. Treatment over clothes, advertised as a great advantage over diathermy, should be rejected. It is not only unhygienic but dangerous. It promotes and at the time hides perspiration

4 *The Acro-Effect*—This term, from the Greek *ἄκροι*, extremity, designates the action of a short wave electrical field on pointed parts such as the nose, ear lobes, finger tips, bony protuberances such as the olecranon tubercle of the tibia, spinous process of the vertebrae and base of phalanges. Here the areas are reduced to a minimum the concentration of energy therefore is at a maximum, the pointed parts act like antennae. They were the common locations of the clinical as well as the experimental burns (cases 1, 2, 3 and 5). This concentration of current in pointed parts occurs even when they are in the middle of the field at the greatest possible distance from the electrodes. It is often noticed in treating both knees, by application of the electrodes at the outside of each knee, that the patient feels overheating first at the inside of the knees owing to this concentration of the field in the pointed protuberances of the medial condyles of the tibias (fig 5). The greatest care must be taken to protect protuberances in every part of the field. By proper distance and padding (fig 6) the density of the field is made to spread homogeneously over the whole treated area. The nose is made level with the surrounding, the ears are strapped to the skull and the gaps between the tibias are filled out

#### SUMMARY

The widely circulated assumption that the use of condensor electrodes in short and ultra-short wave therapy excludes burns and simplifies the technic is a dangerous fallacy

In six cases, three each of second and third degree burns, the first group produced slow healing blisters, the second total necrosis of skin

Burns were produced in rats, ranging from edema to gangrene and loss of ears, limbs and tails

Sufficient energy, proper electrodes and distance from skin absorption of perspiration, and constant control of patient and apparatus are imperative in order to prevent damage and derive the benefits of short and ultra-short wave therapy

1930 Wilshire Boulevard

**Soda and the Cooking of Vegetables**—The addition of soda greatly increases the rate of destruction of vitamin B, and should be avoided in so far as is practicable in the cooking of fruits and vegetables—Sherman, H. C. Food and Health New York Macmillan Company 1934

## AN ANEMIA ASSOCIATED WITH A FISH TAPEWORM (DIPHYLLOBOTHRIUM LATUM) INFESTATION

THOMAS N. HUNNICUTT JR., M.D.  
NEWPORT NEWS, VA

Many cases of infestation by the fish tapeworm have been reported in this country, principally in localities settled by emigrants from the Scandinavian countries. Magath,<sup>1</sup> in a recent paper on the Relation of *Diphyllobothrium latum* infestation to the public health, reviewed the literature exhaustively from the point of view of the mode of spread and the incidence of the foreign as well as of the native, cases. He showed that the prediction of Stiles,<sup>2</sup> made more than a quarter of a century ago, that the infestation would soon become endemic in this country was now fully realized.

Magath asserts that the anemia of the fish tapeworm host when it occurs, is always of the primary type. He points out, however, that this is a very rare condition unless the literature of Finland is examined. Even then the incidence there, as reported by Ehrström,<sup>3</sup> ranges from 1 in 5,000 to 1 in 10,000, but some have reported an incidence as high as 1 in 700. Magath thinks that other factors are at work when anemia occurs in the presence of infestation by this parasite, and, at best, the presence of *Diphyllobothrium* is considered only as a "trigger" that sets off the illness (anemia).

Schauman,<sup>4</sup> who has been the foremost European investigator of this problem, maintains that *Diphyllobothrium* is capable of causing an anemia which is not distinguishable from true primary pernicious anemia and that the reason the incidence of the disease is so small is that the "ordinary host is refractory toward the anemia causing agent of the tapeworm."

Piney<sup>5</sup> calls attention to the close resemblance between this anemia and true primary pernicious anemia. He also feels that this condition may be elicited in some by the toxins of the fish tapeworm but thinks there probably exists a constitutional predisposition in these patients. Clough<sup>6</sup> classifies this anemia under the differential diagnosis of pernicious anemia, but he feels as Piney did that there are probably other factors than the mere presence of the worm.

Birkeland<sup>7</sup> in a recent work, reviewed all the foreign as well as the American literature on bothriocephalus anemia, and, after presenting the observations and opinions of apparently all who have written on this subject, in an unbiased but critical manner, concluded that the anemia occurring in symbiosis with an infestation by *Diphyllobothrium* is probably not due to any specific substance elaborated by this parasite but to a constitutional factor which would probably cause this

From the Tuxedo Memorial Hospital Tuxedo Park New York

1 Magath T B The Relation of *Diphyllobothrium Latum* Infestation to the Public Health J. A. M. A. 101:337-341 (July 29) 1933

2 Stiles C W Tacuinus Cestode Infection in Osler William and McCrae Thomas Modern Medicine ed 1 Philadelphia Lea Brothers & Co 1907 pp 567-568

3 Ehrström R Zur Frage des gastrointestinalen Ursprungs der perniziösen Anämie Ztschr f klin Med 105:106-117 1927 Zur Kenntnis der Damparasiten in Finnland Acta med. Scandinav 64:29-68 1926

4 Schauman O Die perniziöse Anämie im Lichte der modernen Giftpothesen Samml klin Vortr 1900 pp 231-282 Schauman O, and Saltzman F Die perniziöse Anämie in Schittenhelm A Handbuch der Krankheiten des Blutes und der blutbildenden Organe Berlin Julius Springer 2:100-258 1925

5 Piney A Recent Advances in Hematology Philadelphia P Blakiston's Son & Co 1927 p 71

6 Clough P W Diseases of the Blood New York Harper & Bros 1929 p 141

7 Birkeland I W Bothriocephalus Anemia Medicine 11:1139 (Feb) 1932

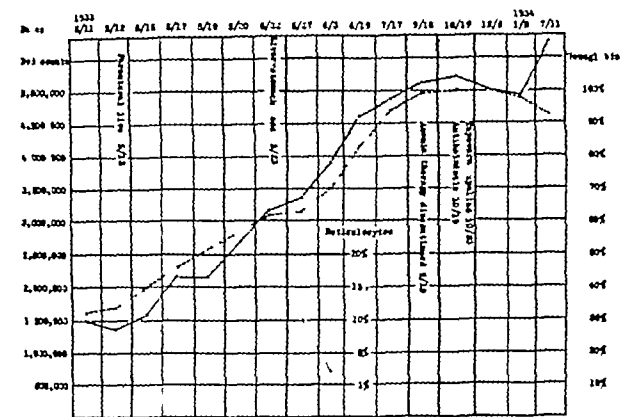
type of patient to have a pernicious anemia without the presence of the parasite granting that there occurs some unknown precipitating factor in this disease. He considers patients who suffer and survive bothrioccephalus anemia as having had an abortive form of true primary pernicious anemia. He found no proof in his study that tapeworm anemia is a clinical entity.

Isaacs, Sturgis and Smith<sup>8</sup> studied a patient with a fish tapeworm infestation who had a typical blood and

patient did state later that he had had worms as a child, was treated for them and had passed no segments since then. There was no history of any injuries or operations.

When first seen the patient's chief complaint was general weakness, right-sided headache, vertigo, nausea and vomiting. The present illness began a year before admission, when he noted a feeling of being below par most of the time and an insidious progressive general weakness until two months before, when it became very noticeable, interfering with his work. Accompanying this had been a dull right-sided headache and recently attacks of vertigo. For the past two weeks he had been frequently nauseated with the vertigo attacks and had vomited small amounts of undigested food. The vomitus had not been bile tinged, nor did it contain fresh blood nor had it been of a coffee grounds character. Several days previously friends had commented on the appearance of his skin, which was of a lemon yellow hue.

**Physical Examination**—He was well developed and fairly well nourished but appeared ill. The temperature was 99.4 F, the pulse 78 and regular, the respiration rate 22, and the blood pressure 110 systolic, 70 diastolic. The skin was lemon colored. There were no scars or eruptions. The head was normal in size and shape, the pupils were equal, reacting to light, and the sclerae were clear. There was no evidence of nasal disease. The lips were pale and all mucous membranes appeared anemic. The tongue was smooth but did not have the appearance of a typical glossitis, the teeth were sound. The pharynx and nasopharynx were not inflamed. The tonsils were atrophic. There was no stiffness or adenopathy of the neck. The thorax was symmetrical, with a free and equal expansion. The heart was not enlarged on percussion. The sounds were of good quality and there were no murmurs. The lungs were resonant throughout, with no rales. The abdomen was flat, there was no subcostal tenderness or muscle spasm. The liver edge was felt two fingerbreadths below the costal margin in the mid-clavicular line. It was smooth firm and not tender. There were no abnormalities of the genitalia or extremities. The



Red cell count (solid line) hemoglobin (broken line) percentage of reticulocytes (dotted line) and course of the color index.

a clinical picture of primary pernicious anemia which was amenable to liver therapy before removal of the tapeworm and who had no relapse of the anemia following the eradication of the parasite, even when liver therapy was stopped. The patient's mother in this case had died of pernicious anemia. In their study, they seemed to think that the case was one of a tapeworm anemia, but they could not demonstrate the presence of soluble toxins by intradermal tests with saline suspensions of the tapeworm and they conceded that this might have been an incidental infestation in a true primary pernicious anemia.

Seyderhelm<sup>9</sup> has demonstrated that the ground-up body of the fish tapeworm has a hemolytic action both *in vitro* and *in vivo*.

The present report is concerned chiefly with the question of anemia caused by or at least accompanying a case of fish tapeworm infestation and its response to liver therapy as well as the continued convalescence of the patient after removal of the parasite and the discontinuing of specific therapy for the anemia.

#### REPORT OF CASE

**History**—J. K., a man aged 24 born in a small fishing village in Finland, came to this country in 1921 at the age of 11 years and has lived in and around New York City since then working at odd jobs. For some time he has been employed as a houseman just outside the city. He has spent several winters in Florida in the last few years traveling with his employer.

The patient's father died at the age of 45 of 'rheumatism' but his mother is living and well (aged 70) and two sisters are living and well (aged 30 and 35). Two brothers are dead, they died in childhood of an unknown cause. There was no family history of anemia.

There was no history of previous illness until one year after the patient came to this country and then he had a mild attack of scarlet fever with no sequelae. The cardiorespiratory, gastro-intestinal and genito-urinary histories were negative. The

#### Blood Examinations

Date	Red Cell Count	Hemoglobin (Sahl) per Cent	Color Index	Reticulo cytes per Cent	White Cell Count
5/11/33	1,500,000	32	1.06	6.0	
5/12/33	1,370,000	34	1.24	6.0	4,600
5/13/33	Intramuscular liver begun				
5/15/33	1,600,000	40	1.23	4.0	
5/17/33	2,000,000	46	1.04	13.5	
5/19/33	2,200,000	51	1.15	18.5	
5/20/33				15.0	
5/22/33	3,180,000	61	0.96	15.5	
5/23/33	Oral liver begun				
5/27/33	3,400,000	62	0.91	10.0	
6/3/33	3,900,000	70	0.89	2.0	10,800
6/10/33	4,600,000	83	0.90		
7/17/33	4,800,000	83	0.93		
8/18/33	5,200,000	99	0.93		
9/19/33	High vitamin diet begun				
10/19/33	5,440,000	100	0.92		12,700
10/19/33	Anthelmintic (oleoresin of aspidium)				
10/20/33	Tapeworm expelled				
11/9/33		97			
12/8/33	5,000,000	100	1.00		
1/8/34	4,900,000	98	1.00		
7/11/34	5,000,000	92	0.78		

patellar reflexes were hypo-active but equal. There were no sensory changes of the body or extremities.

On admission to the hospital the red blood cell count was 1,370,000, white blood cell count 4,600, hemoglobin, 34 per cent (Sahl), color index, 1.24, differential count: polymorphonuclear leukocytes 64 per cent (filament 59 per cent, nonfilament 5 per cent), lymphocytes 30 per cent, monocytes 3 per cent, eosinophils 15 per cent, basophils 0.5 per cent (3 normoblasts and 1 megaloblast were seen, with marked anisocytosis, poikilocytosis and moderate polychromatophilia with about 30 per cent macrocytes and true microcytes), reticulocytes 0.6 per cent. The specific gravity of the urine was 1.012, it was acid, and there was the slightest possible trace of albumin but no

<sup>8</sup> Isaacs, Raphael, Sturgis, C. C. and Smith, Millard. Tapeworm Anemia. Arch. Int. Med. 42: 313-321 (Sept.) 1928.  
<sup>9</sup> Seyderhelm, R. Zur Pathogenese der perniciosen Anemien. Deutsches Arch. f. klin. Med. 126: 95-147 1918.

sugar or acetone, the sediment contained a very occasional white blood cell. A specimen of stool was negative for occult blood.

The gastric analysis following an Ewald test meal showed no free hydrochloric acid and a total acidity of 4. The gastric contents contained 50 per cent of mucus. There was no lactic acid or occult blood. Five months later the laboratory examination was as follows: red blood cell count, 5,440,000, white blood cell count, 12,700, hemoglobin, 100 per cent (Sahli), color index, 0.92, differential count polymorphonuclear leukocytes 70 per cent (filament 51 per cent, nonfilament 19 per cent), lymphocytes 13.5 per cent, monocytes 10 per cent, eosinophils 0.5 per cent, basophils 1 per cent. The blood counts are given in the accompanying table.

**Course and Treatment**—Because of the nausea and vomiting, parenteral liver extract was given in the gluteal muscles, and after the first forty-eight hours the patient began to improve symptomatically and in seventy-two hours clinically. The red cell count rose and continued to increase steadily. There was a normal response of the reticulocytes. A graph of the blood examinations shows the hematopoietic response.

Approximately eight weeks after treatment was begun, the patient's blood was normal and he was carrying on his usual duties. Following the parenteral liver, which was given in maximum doses for ten days, he was given capsules of liver-stomach concentrate. This therapy was discontinued four months later, when the red cell count and the hemoglobin continued to be normal. He was then put on a liberal high vitamin diet.

The patient continued to be well but came in one month later complaining of the passage of an intestinal worm. A stool examination revealed ova of the fish tapeworm (*Diphyllobothrium latum*). Five months after the patient was first seen he was again admitted to the hospital and, after suitable preparation, oleoresin of aspidium was given (four 15 minims capsules). The next day, four apparently complete tapeworms were expelled, as well as many segments of varying lengths. Two weeks following this the stools still contained ova and it was thought advisable to give another anthelmintic. However, after a delay of a month before the second treatment was started, the stools became negative and remained so on several examinations. A gastric analysis done at this time showed a continued absence of free hydrochloric acid. On discharge, after eight months' continuous observation, the patient had no complaints and he appeared well, the red blood cell count was 4,988,000 with a hemoglobin of 98 per cent. Seven months later he came in for a check over. At this time he had no complaints except a mild constipation, which was controlled by the taking of liquid petrolatum. He had passed no segments of worms, and a blood examination showed a red cell count of 5,940,000 with a hemoglobin of 92 per cent.

#### SUMMARY

1 While it is granted that the anemia occasionally occurring in persons who harbor the fish tapeworm is always primary or pernicious in type, the evidence is not clear as to what factors cause this anemia. Some investigators doubt the probability that the presence of this parasite is one of them. They hold that these cases are true primary pernicious anemia occurring in certain people who happen to harbor the fish tapeworm. Many are of the opinion that these patients have a certain constitutional predisposition to anemia. Others have reported recovery from tapeworm anemia by removal of the parasite and feel that *Diphyllobothrium* is capable not only of precipitating an anemia but of directly causing one.

2 This patient apparently had been infected with the fish tapeworm since childhood, but symptoms of anemia did not develop until the age of 24. The pernicious anemia-like blood picture responded to liver therapy while the patient still harbored the parasite, and he continued to be well, except for an asymptomatic achylia,

after the discontinuance of the liver and the subsequent removal of the worm. The case was followed continuously for eight months and was seen again at the end of fourteen months.

3 In view of the time already elapsed (twelve months) without a return of the anemia and with no specific therapy during this period, it would seem that this is probably a case of a true tapeworm anemia.

303 Medical Arts Building

## BREAST AND ARTIFICIALLY FED INFANTS

### A STUDY OF THE AGE INCIDENCE IN THE MORBIDITY AND MORTALITY IN TWENTY THOUSAND CASES

CLIFFORD G. GRULEE, M.D.

HEYWORTH N. SANFORD, M.D.

CHICAGO

AND

HARRY SCHWARTZ, M.D.

KENOSHA, WIS.

In a previous communication we<sup>1</sup> reported on the incidence of morbidity and mortality among 20,000 artificially and breast fed infants and the conditions under which these statistics were obtained. A com-

TABLE 1—Monthly Morbidity

Month of Life	Respiratory		Gastro-Intestinal		Unclassified	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
Breast Fed						
1	14	0.14	6	0.06	0	
2	103	1.06	49	0.49	21	0.22
3	282	2.71	51	0.52	20	0.22
4	358	3.71	68	0.70	29	0.29
5	386	3.05	69	0.71	38	0.39
6	409	4.02	71	0.72	56	0.59
7	462	4.75	77	0.79	59	0.61
8	387	3.92	72	0.73	53	0.55
9	348	3.57	42	0.47	46	0.47
Partially Breast Fed						
1	20	0.23	12	0.14	0	
2	106	1.20	130	1.50	7	0.08
3	294	3.40	167	1.90	31	0.30
4	412	4.70	153	1.80	57	0.60
5	442	5.10	193	2.20	79	0.90
6	461	5.40	149	1.70	103	1.10
7	466	5.60	119	1.30	83	0.90
8	408	4.60	110	1.20	71	0.80
9	316	3.70	65	0.70	63	0.60
Artificially Fed						
1	1	0	1	0	0	0
2	4	0.03	2	0.01	1	0
3	23	1.30	17	0.90	6	0.39
4	32	1.90	24	1.40	12	0.70
5	81	4.70	41	2.40	18	1.00
6	102	5.90	47	2.70	20	1.20
7	139	7.60	48	2.60	28	1.80
8	142	8.20	46	2.70	31	1.60
9	160	9.00	45	2.60	25	1.40

ment on that paper has led us to insist on certain points. In the first place, these children were in an environment in which they were peculiarly subjected to the chance of infection, secondly, the group of partially breast fed includes two classes of children: (1) those who were entirely breast fed for a time and then had

<sup>1</sup> Grulee, C. G., Sanford, H. N., and Herron, P. H. Breast and Artificial Feeding. J. A. M. A. 102: 735-738 (Sept. 8) 1934.

to be weaned and (2) those whose breast feeding had been complemented. The artificially fed group consisted only of those children who had been artificially fed from the first. We took only those cases which had been under our care for nine months with the exception of those children who were under our care continuously until the time of death.

This study comprises the same group of infants mentioned in the former paper.<sup>1</sup>

artificially fed the rise is steady through the ninth month. In the breast and artificially fed groups there is a fall after the seventh month.

The gradual rise in morbidity from all groups for the first six months might be explained in two ways. First, the infants are exposed to repeated infection. Second, some immunity may be inherited from the mother, which gradually lessens with age. In the breast fed and partially breast fed after the seventh month

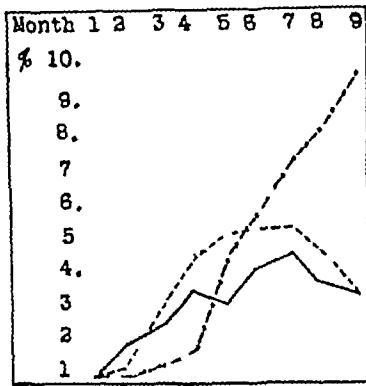


Chart 1—Monthly morbidity respiratory infections. In the charts the solid line denotes breast feeding the broken line partial breast feeding and the dot dash line artificial feeding.

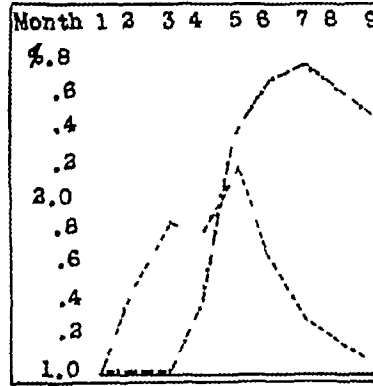


Chart 2—Monthly morbidity gastro-intestinal disturbances.

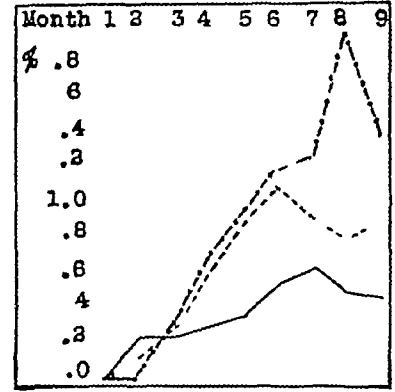


Chart 3—Monthly morbidity unclassified infections.

according to age is given in months, with the exact number of cases recorded for each month. With this information is given the percentage of these cases to the total number of infants in that group. These percentages are also expressed graphically. Table 2 gives the mortality with the age in months and the percentage of the total as in

there is a gradual decrease in morbidity. Since at this time there is a marked rise in the curve for the artificially fed, it would seem likely that breast milk continued the immunity longer than the sixth month, while this function was removed in the artificially fed. The drop in the curves after the seventh month in both the breast fed and the partially breast fed groups may be the result of the protection that the increased period of life has given.

In the gastro-intestinal morbidity, there were not enough breast-fed infants with these disorders to calculate the percentage. Breast milk evidently guards the baby against gastro-intestinal disturbances. The peak of the par-

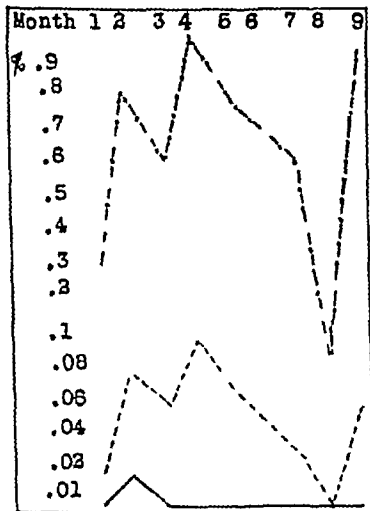


Chart 4—Monthly mortality respiratory infections.

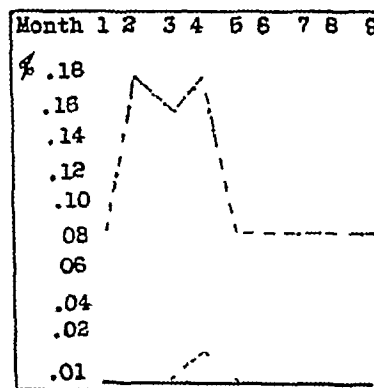


Chart 5—Monthly mortality gastro-intestinal disturbances. This graph is somewhat deceptive in that the highest mortality occurred from September 29 to October 4. Really the peak comes the last of September or the first of October.

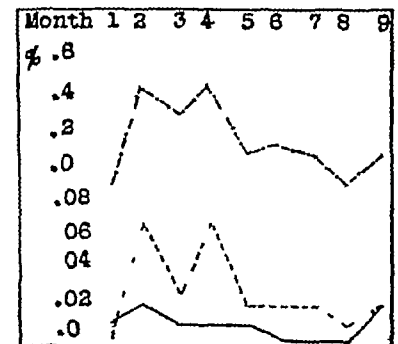


Chart 6—Monthly mortality unclassified infections.

the morbidity. These percentages are also expressed graphically in the charts.

#### RESULTS

In the respiratory infections, it will be noted that for the first five months of life, while there is not a great deal of difference in the total incidence, there is a rise in all groups to the fifth month. The morbidity decreases after the sixth and seventh months in the breast and partially breast fed groups, while in the

Both decrease rapidly as the child becomes older and evidently more tolerant to food.

The miscellaneous morbidity is somewhat similar to that of the respiratory disturbances. All types show a rapid rise to a peak at 5 months. The artificially fed curve, however, continues to rise to the eighth month and then falls.

tially breast fed infant is at 5 months, while that of the artificially fed infant is at 7 months.

We might say, therefore in general that in all types of feeding the morbidity from infection increases each month until the fifth month. In the breast fed and partially breast fed it then decreases through the ninth month. In the artificially fed baby it continues to increase through the ninth month. From the gastro-intestinal disorders the breast fed baby is practically free, while the incidence for the partially breast fed baby increases to the fifth month and then decreases to the ninth month, and for the artificially fed baby increases to the seventh month and then decreases to the ninth month.

From the mortality curves the breast fed baby appears to be in danger only in the first month of life. The greatly increased mortality of the artificially fed baby in all months is very evident. In the respiratory infections for the first four months it is high, then decreases and rises again at the ninth month. The curves for the first four months are high for the artificially fed baby both in the gastro-intestinal disturbances and in the unclassified infections. In both instances there is a drop at the fourth month and almost a leveling of the curve through the ninth month.

CONCLUSION

In the survey, according to age by months, of the morbidity and mortality for 20,000 infants, two things are most significant. First, there is a definite rise in the

TABLE 2—Monthly Mortality

Month of Life	Respiratory		Gastro Intestinal		Unclassified	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
Breast Fed						
1	0	0	0	0	1	0.01
2	2	0.02	1	0.01	2	0.02
3	0	0	0	0	1	0.01
4	1	0.01	0	0	1	0.01
5	0	0	0	0	1	0.01
6	0	0	0	0	0	0
7	0	0	1	0.01	0	0
8	0	0	0	0	0	0
9	1	0.01	0	0	1	0.01
Partially Breast Fed						
1	2	0.02	0	0	0	0
2	7	0.08	1	0.01	6	0.07
3	5	0.06	1	0.01	3	0.03
4	9	0.10	2	0.02	7	0.07
5	7	0.07	0	0	2	0.02
6	2	0.02	0	0	2	0.02
7	4	0.03	0	0	2	0.02
8	1	0.01	1	0.01	1	0.01
9	7	0.06	1	0.01	2	0.02
Artificially Fed						
1	5	0.33	1	0.09	1	0.09
2	14	0.82	3	0.18	8	0.47
3	10	0.64	2	0.16	6	0.33
4	18	1.02	3	0.18	8	0.47
5	14	0.82	1	0.09	2	0.14
6	6	0.33	1	0.09	3	0.18
7	10	0.64	1	0.09	2	0.14
8	1	0.06	1	0.09	1	0.09
9	15	0.94	1	0.09	3	0.18

morbidity after the sixth month in all three groups of disturbances in the artificially fed, a rise that is not shared in by either the breast fed or the partially breast fed group. Second, the mortality for the breast fed infants is almost entirely in the first two months of life.

310 South Michigan Avenue—952 North Michigan Avenue

**The Tougher Meat Is Nutritive**—Aside from the effect of market conditions, the price varies with the cut of meat purchased. There is a general preference for the tender cuts, which makes them more expensive. However, all parts of the carcass containing a large proportion of muscle are equal in nutritive value and with skilful preparation the tougher, cheaper cuts may be made very palatable—Newburgh, L. H., and Mackinnon Frances. *The Practice of Dietetics*, New York, Macmillan Company, 1934.

Clinical Notes, Suggestions and  
New Instruments

GYNECOMASTIA DURING HYPERTHYROIDISM

REPORT OF TWO CASES

PAUL STARR M.D. CHICAGO

Gynecomastia is not an exceptionally rare condition. Various associated pathologic processes have been reported. Three reviews<sup>1</sup> have recently appeared. An excellent discussion by Hammett<sup>2</sup> appeared in 1920. Freeman's case of hyperthyroidism is mentioned. These reviewers do not include hyperthyroidism as a possible immediate cause of gynecomastia, their attention being centered on the influence of gonadal hormones. The cases to be described are significant because of the appearance of the anomaly during hyperthyroidism and its disappearance with the surgical interruption of the disease.

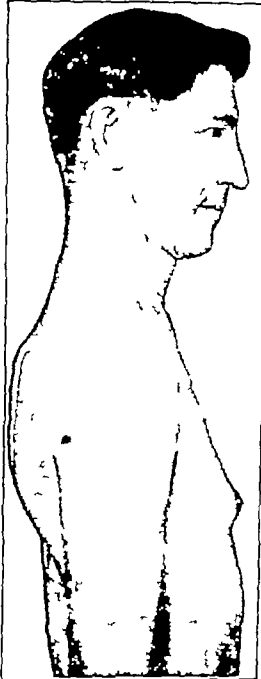


Fig. 1 (case 1) — Breast hypertrophy during hyperthyroidism

Such an association must be unusual or have gone unnoticed as it has rarely been reported, although von Basedow<sup>3</sup> in 1848, while commenting on the suppression of sexual functions and the atrophy of the breasts in women due to this disease, stated that he had observed a man with hyperthyroidism who had swollen breasts which secreted colostrum. In Menzies<sup>4</sup> review two specimens are from patients with associated hyperthyroidism. Freeman<sup>5</sup> in 1916 briefly described a case in which a man, aged 37, the father of four children, developed bilateral gynecomastia three months after the symptoms of hyperthyroidism began. The effect of the further course of the disease was not mentioned. Besley<sup>6</sup> mentions a boy with gynecomastia who had goiter, exophthalmos, tremor and tachycardia. Sterling<sup>7</sup> in 1932 briefly reported three cases. In one of these the onset of the hyperthyroidism and gynecomastia was simultaneous. In a fourth extraordinary case, a boy aged 16 years, had had

progressive enlargement of the breasts since he was 9 years of age, operative removal of the breasts was followed by post-operative myxedema similar to that after thyroidectomy.

REPORT OF CASES

**CASE 1**—H. R., a white man, aged 45, married, a painter, was born in the goiter belt. He had had mumps orchitis, and testicular atrophy when he was 8 years old. A goiter was noted at 18 years and persisted to the time of admission. By a first marriage at 26 years he had a normal child. A second marriage at 41 had resulted in no issue. During the past two years sexual continence had been enforced by the ill health of his wife. Localized epigastric hunger distress, relieved by eating, began a year before admission to the clinic. Tremor, loss of weight, palpitation, dyspnea and finally exophthalmos began six months before observation. He states that enlargement of the breasts was noted during this time.

From the Thyroid Clinic, Northwestern University Medical School.  
1. Schmidt O., Zur Kenntnis der Gynecomastia. Ztschr. f. Konstitutionslehre 14: 588-609 (May) 1929. Bredt H. Ueber Wesen und Formen der Gynecomastia. ibid. 17: 29-54 1932. Menzies J. G. Gynecomastia. Arch. Surg. 26: 1054 (June) 1933.  
2. Hammett F. S. Gynecomastia. Endocrinology 4: 205-220 (April) 1920.  
3. von Basedow K. A. Die Glotzangen. Wehnschr. f. d. ges. Heilk. number 49 1848 p. 769.  
4. Freeman J. K. Hyperthyroidism Associated with Gynecomastia. Therap. Gaz. 40: 8-14 (Jan) 1916.  
5. Besley F. A. Clinic of Surgical Clinics. Chicago June 1917 p. 659.  
6. Sterling W. Les correlations endocrines des mamelles. Rev. neurol. 1: 141-142 (Jan) 1932.



The patient was 5 feet, 8 $\frac{3}{4}$  inches (175 cm) tall and weighed 137 pounds (62 Kg), the upper body measurement was equal to the lower. The pulse was 94 and regular, the temperature 98.2 F, and the blood pressure 114 systolic, 80 diastolic. Beard growth was normal, the voice was masculine. A lag of the lid and staring indicated exophthalmos. Tremor was marked. The tonsils were large. Many of the teeth were decayed. The thyroid was enlarged and nodular. The chest and heart were clear. The breasts were conical, resembling the adolescent female development. No colostrum was present (fig 1). The penis was normal, both testicles were atrophic. There was female distribution of pubic hair. The basal metabolic rate (preoperative) was +31 and +24, after compound solution of iodine it was +20 and +14.

Because of hemorrhage during the operation only right hemithyroidectomy was done, but under continued compound solution of iodine postoperatively the basal metabolic rate dropped to +4. The left thyroid remained palpable and nodular. The conical hypertrophy of the breasts rapidly receded during the postoperative remission of hyperthyroidism. Six weeks after operation compound solution of iodine was discontinued. Two weeks later the metabolic rate had risen to +13, one month later to +28 with a loss of 8 pounds (3.6 Kg) from the

morphonuclear leukocytes 44 per cent, lymphocytes 54 per cent, eosinophils 5 per cent. A roentgenogram of the chest was negative. The urine was normal. Roentgen examination of the sella turcica was negative. The basal metabolic rate before compound solution of iodine was +49 and +54, after compound solution of iodine, +19 and +16. One month after operation without compound solution of iodine it was -3 per cent.



Fig 2 (case 2)—Diffuse goiter and hypertrophy of right breast during hyperthyroidism. note emaciation

highest postoperative weight, and tachycardia recurred. It was evident that a return of the hyperthyroid state had occurred. During this recurrence the left breast (on the unoperated side) enlarged. Further management was prevented by failure of cooperation by the patient.

**CASE 2**—A single man, aged 28, a carpenter born in Canada whose family history showed no goiter in the parents or nine siblings, had had no significant previous illnesses. There had been a loss of 30 pounds (13.6 Kg) with nervousness, palpitation, tachycardia, sweating, tremor, weakness and the appearance of a goiter during the past year. narcolepsy had also been definitely associated with these symptoms. Enlargement of the right breast was noted two months previous to admission.

The patient was 5 feet, 7 inches (170 cm) tall and weighed 144 pounds (65.3 Kg). The pulse was 104, the temperature 98.2 F, and the blood pressure 135 systolic, 55 diastolic. The skin was sweaty. There were a slight lid lag and staring. Tremor was present. There was diffuse lobulated goiter with bruit. The lungs and heart were not abnormal. The right breast was conical, with a base of glandular tissue 2 cm in diameter (fig 2). The left breast was questionably hypertrophied. The external genitalia were normal.

The blood Wassermann reaction was negative. Red blood cells numbered 4,780,000, white blood cells 7,950 with hemoglobin (Sahli) 75 per cent. The differential count was poly-

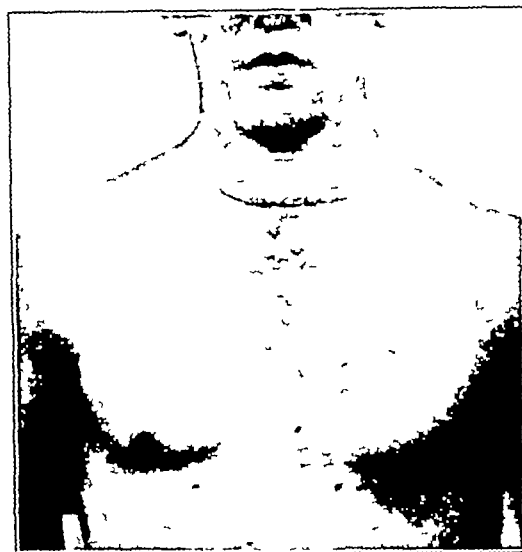


Fig 3 (case 2)—Appearance after operation. Thyroidectomy scar and atrophy of breasts. note increased subcutaneous fat

During examination, before treatment, sudden deep sleep would occur during any time that the patient's attention was not required. One month after thyroidectomy, although a gain of 16 pounds (7.3 Kg) had occurred, the metabolic rate was normal and the pulse rate subnormal, there was no suggestion of narcolepsy and the right breast had atrophied to the normal male condition (figs 3 and 4).

In the first case it is surprising that the gynecomastia did not occur in earlier years as a result of atrophy of the testicles,

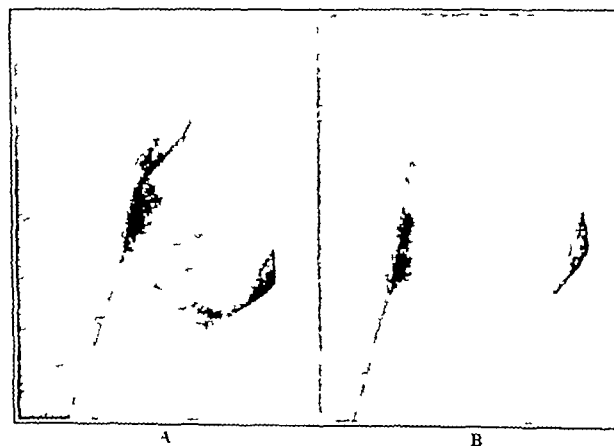


Fig 4 (case 2)—A appearance during hyperthyroidism. B after operation with normal metabolic rate

as in Tellmann's<sup>7</sup> case of unilateral hypertrophy after accidental destruction of one testis. It was necessary for hyperthyroidism to occur to establish the condition requisite for the production of breast hypertrophy.

The unilateral recurrence of gynecomastia on the side of the unoperated remaining thyroid lobe is also of great interest. Tellmann suggests that the one-sidedness indicates a nervous

<sup>7</sup> Tellmann. Unilateral Gynecomastia After Loss of Testis. *Deutsche med Wchnschr* 52:2137 (Dec 10) 1926

cause, whereas the coincidence with recurrent hyperthyroidism demonstrates that a hormone factor is present

In the second case the unilateralness was also evident. The additional feature of narcolepsy is unusual. Its coincidence with the hyperthyroidism and disappearance with its removal, exactly as was true of the gynecomastia, suggests that the same immediate exciting force (thyroid hormone) produced both abnormalities.

A physiologic study by Weichert and Boyd<sup>8</sup> may indicate the mechanism involved in these cases. They found that feeding thyroid to pregnant rats produced earlier and much greater hypertrophy of the breasts than occurred in control pregnant animals. Their explanation rests on their previous finding<sup>9</sup> of the production of pseudopregnancy by thyroid feeding. Their general theory is that hyperthyroidism interferes with theelin effects either by raising the tissue resistance to theelin, by destroying theelin, or by causing its excretion. The breast tissue then is under the unopposed influence of the pituitary.

It seems to be a tenable theory that in these cases hyperthyroidism enhances certain pituitary hormone action on the gonads and mammary glands. Primary pituitary action seems unlikely because of the abrupt cessation of the associated conditions with the interruption of the hyperthyroidism.

#### SUMMARY

In two cases of hyperthyroidism gynecomastia appeared and disappeared with the onset and interruption of the primary disease.

8 South Michigan Avenue

#### A WATERPROOF LAPAROTOMY PAD OF GAUZE AND CELLOPHANE

FRANK H. LAHEY, M.D., BOSTON

A cellophane pad that I devised has now been employed for more than two years. A description of it together with the illustration is presumed with the possibility that it may prove useful to others.

It consists of a pad measuring 14 by 16 inches in the center of which is a layer of cellophane on each side of which are two three or four thicknesses of gauze either with selva edges or with the edges turned in. A layer of stitching an inch or two from the edge of the gauze is carried around the entire pad, thus fixing the cellophane in place.

The advantages of this pad are particularly that it is waterproof so that it can be used to drape over wound edges during gastric and colon resections, thus protecting them from contamination. It can be sterilized in the autoclave with no ill effects and has the advantage when wet of being as soft and flexible as though no cellophane were included between the layers.

A diagrammatic illustration is included to show the pad itself.

Illustration *a* shows a face view of the pad, *b*, an edge on view to show the cellophane center.

605 Commonwealth Avenue

<sup>8</sup> Weichert C. K. and Boyd R. W. Stimulation of Mammary Gland Development in Pregnant Rats Under Conditions of Experimental Hyperthyroidism. *Anat. Rec.* 59: 157 (May) 1934.  
<sup>9</sup> Weichert C. K. and Boyd R. W. Induction of Typical Pseudopregnancy in the Albino Rat by Means of Experimental Hyperthyroidism. *Anat. Rec.* 58: 55-70 (Dec) 1933.

#### FOREIGN BODY ABSCESS OF THE PANCREAS

ROBERT S. BALDWIN, MARSHFIELD, WTS.

Although diffuse pancreatitis occurs with sufficient frequency to warrant its being included in the differential diagnosis of most abdominal disorders, a localized suppurative process in the pancreas is rarely seen.

I report here the observations made on a patient with an abscess of the head of the pancreas which surrounded a foreign body resembling a toothpick. So far as I could determine, no similar case has been observed heretofore.

#### REPORT OF CASE

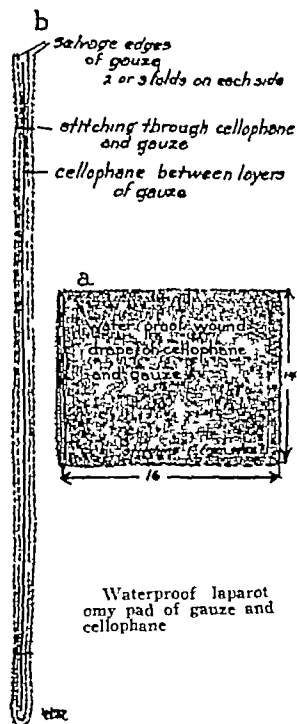
J. M., a man, aged 40, a farmer, was admitted to the hospital, July 18, 1934, after a tentative diagnosis of typhoid had been made. He said that his illness had begun three weeks previously with an infection of the upper respiratory tract. Chills and fever, epigastric pain, vomiting and diarrhea occurred soon afterward, and he had been in bed for two and one-half weeks. In addition, he noticed loss of appetite, headaches and dark colored urine. Ten years before admission, the appendix had been removed.

On physical examination he had a temperature of 104 F., a pulse of 140, and a respiratory rate of 28. He was well developed and well nourished and looked acutely ill. His skin was deeply icteric and dry. The liver was tender and extended three fingerbreadths below the costal arch. The diagnosis was liver abscess, also empyema of the gallbladder, tularemia, typhoid and malaria were considered.

Several specimens of urine contained large quantities of albumin, many erythrocytes and leukocytes. The erythrocyte count was 4,220,000 and the hemoglobin was 70 per cent. Leukocytes numbered 19,450 with 93 per cent polymorphonuclear neutrophils. The icteric index was 25. Three blood cultures were negative. The blood Wassermann reaction was negative, there were no agglutinins for typhoid, paratyphoid, *Brucella abortus* and *Bacterium tularensis*. Malaria parasites were looked for several times but were not found. On one occasion the bleeding time and clotting time were one minute and three minutes respectively. The resistance of the erythrocytes to hemolysis was increased. No urobilin or urobilinogen was found in the blood. Bile was demonstrated in the stools. No typhoid organisms were demonstrated in the stool and urine. An elevation of the right diaphragm was seen on a roentgenogram of the chest.

The chills continued, as many as six or seven in twenty-four hours were observed, with rises of temperature to over 107 F. Six days after admission, because of the possibility of an empyema of the gallbladder, the right upper quadrant was explored. The liver was enlarged and mottled. The spleen was small. The gallbladder contained no stones and appeared normal. It was drained. In the sections made from a biopsy of the liver, only swelling of the liver cells was noted. Following the operation, slightly bile-stained material drained from the wound. The chills and fever persisted, the jaundice deepened, the icteric index rose to 80, and the hemoglobin dropped steadily in spite of two blood transfusions. After six weeks in the hospital the patient became irrational, his strength and state of nutrition failed rapidly and he died forty-eight days after admission, during the eleventh week of his illness.

The postmortem examination was made eight hours after death. The essential changes were as follows. The lungs were studded with multiple abscess cavities up to 1 cm. in diameter, containing thick greenish gray purulent material surrounded by zones of confluent bronchopneumonia. The liver was enlarged to 32 by 22 by 7.5 cm. and presented on the anterior surface of the right lobe a group of grayish yellow irregular slightly raised areas involving a region 5 cm. square. When the liver was cut into these areas were seen as the outer walls of abscess cavities. Other cavities up to 2.5 cm. in diameter were found throughout the right lobe. They communicated with the intrahepatic bile ducts, which were distended and filled with thick grayish yellow purulent material. When the hepatic duct was followed toward the duodenum, no connection with the cystic duct was found, but it was seen to communicate with an abscess cavity 3 cm. in diameter in the head of the pancreas, in which was embedded a foreign



body of woody consistency, 4 cm long and 1 mm in diameter. The main pancreatic duct was 15 cm in diameter and was filled with purulent material. The gallbladder was small and contained a thin yellow stained fluid. It was bound to the anterior abdominal wall and its cavity communicated with a fistulous tract that led to the skin. The cystic duct and common duct formed a continuous passage to the duodenum, which had no communication with the hepatic duct. The common duct was 8 mm. in circumference. Its mucosa was thin, slightly corrugated and stained yellow. The first portion of the duodenum contained a dirty greenish yellow purulent material, its mucosa was injected and edematous.

## SUMMARY

In this patient a foreign body was found in an abscess cavity in the head of the pancreas. The abscess cavity had ruptured into the pancreatic duct and into the hepatic duct, giving rise to an ascending suppurative cholangitis and multiple liver abscesses. From here the infected material was carried to the lungs, producing multiple abscesses. The brain was not examined, but the patient presented symptoms of cerebral involvement during the last few days before death, indicating a metastatic spread to the brain with the formation of abscesses.

## Special Article

## GLANDULAR PHYSIOLOGY AND THERAPY

SEX-ENDOCRINE FACTORS IN BLOOD  
AND URINE IN HEALTH  
AND DISEASEROBERT T. FRANK, M.D.  
NEW YORK

NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—Ed

The modern concepts of endocrinology have made it necessary to revise the obsolete humoral pathology of the ancients, which predicated four essential "humors"—blood, phlegm, black bile and yellow bile. Before the presence of hormones circulating in the blood had been demonstrated, the interpretation of many phenomena could be explained only by a humoral hypothesis. Today this hypothesis has been verified.

The first direct evidence by a specific test of hormones circulating in the blood was offered simultaneously and independently by Loewe<sup>1</sup> and his collaborators and by me and my group.<sup>2</sup> Since then other hormones have likewise been demonstrated in the circulation.

This contribution aims to show, as well as present limited knowledge permits, the content, both qualitative and quantitative, of the sex endocrine factors in the blood stream and excretions, and their variation under different physiologic and pathologic conditions. Clinically this evidence is of great importance, as it aids both in diagnosis and in evolving and carrying out therapeutic measures, as well as to some extent in explaining the disheartening failures that are so often encountered.

1 Loewe S. Nachweis brunsterzeugender Stoffe im weiblichen Blute, Klin Wchnschr 4: 1407 (July 16) 1925.  
2 Frank, R. T. Frank, M. L. Gustavson, R. G. and Weyerts W. W. Demonstration of the Female Sex Hormone in the Circulating Blood. I Preliminary Report J. A. M. A. 86: 510 (Aug 15) 1925.

## HISTORICAL

The researches of many investigators extending over a century have been necessary to furnish the little information that is available today.

In 1849 Berthold,<sup>3</sup> by transplanting the testes of cocks into other castrate cocks, with restoration of the male primary and secondary sex characters, offered convincing but indirect proof of the circulation of an internal secretion of the male gonad. This basic observation attracted little attention at the time and was forgotten for half a century. In 1896 Knauer<sup>4</sup> obtained similar evidence in the female by successfully transplanting ovaries into animals of the same species. In 1905 Halban,<sup>5</sup> by means of purely clinical data showed that the placenta was an organ of internal secretion. Every one of his contentions has since been verified by experimental proof. In 1907 Leo Loeb<sup>6</sup> produced "experimental deciduomata"—maternal portions of the placenta which, as he showed, were due to the special corpus luteum hormone, now commonly called progesterin. From 1912 on, Iscovesco<sup>7</sup> and soon thereafter Aschner,<sup>8</sup> Fellner,<sup>9</sup> Herrmann,<sup>10</sup> and Rosenbloom and I,<sup>11</sup> as well as others, prepared active extracts from the ovary and placenta, which caused estrogenic reactions on the uterus of castrate or immature animals.

All research on the estrogenic substances has been speeded up since 1923, when Allen and Doisy<sup>12</sup> published their simple, rapid and specific test for the qualitative and quantitative determination of these substances. The old progesterin test of Boun and Ancel<sup>13</sup> has recently been revived, with modifications, to demonstrate both qualitatively and quantitatively the presence of the special nidatory corpus luteum hormone "progesterin."

The fundamental discovery of Smith<sup>14</sup> in 1925 and that of Zondek and Aschheim<sup>15</sup> shortly afterward that both ovary and testis remain dormant unless stimulated by the secretion of the adenohipophysis (anterior pituitary or prepituitary gland) and that this gonadotropic factor activates alike the gonads of the two sexes, changed all previous concepts. All evidence points to the thesis that the adenohipophysis is the "master" gland. It in turn may be influenced by other endocrine organs.

Knowledge of the testis hormone has been slowly but steadily increased since McGee<sup>16</sup> in 1927 succeeded in obtaining active lipid extracts of the testes. The test for the testis hormone has been less clear cut and less rapid than that for the estrogenic hormone in the female, but by means of the capon test (comb, wattles

3 Berthold Transplantation der Ovarien Arch f exper Path u Pharmacol, 1849, p 42.

4 Knauer E. Einige Versuche von Ovarientransplantation an Kaninchen Centralbl f Gynak. 20: 524 1896.

5 Halban J. Die innere Sekretion von Ovarium und Placenta in ihre Bedeutung fur die Function der Milchdruse Arch f Gynak. 75: 353 1905.

6 Loeb Leo. The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum J. A. M. A. 53: 1471 (Oct 30) 1909. Centralbl f allg Path u path Anat 18: 563 1907.

7 Iscovesco M. H. Compt. rend Soc de biol 73: 104 1912.

8 Aschner B. Arch f Gynak. 99: 534, 1913.

9 Fellner O. O. Arch f Gynak. 100: 641 1913.

10 Herrmann E. Monatschr f Geburtsh u Gynak. 41: 1, 1915.

11 Frank R. T. and Rosenbloom, J. Surg Gynec & Obst 20: 646 1915.

12 Allen, Edgar and Doisy E. A. An Ovarian Hormone J. A. M. A. 81: 819 (Sept 8) 1923.

13 Boun P. and Ancel P. Sur les homologues et la signification des glandes à secretion interne de l'ovaire, Compt rend Soc de biol 67: 464 1909.

14 Smith P. E. Hastening Development of Female Genital System by Daily Homoplastic Pituitary Transplants Proc Soc. Exper Biol & Med 24: 131 (Nov) 1926.

15 Zondek, Bernhard, and Aschheim Selmar. Das Hormon des Hypophysenvorderlappens Berl Gynak. Gesellsch Jan 22 1926. Ztschr f Geburtsh u Gynak. 90: 378 and 391 1926.

16 McGee L. C. Proc Inst Med Chicago 6: 242 1927.

and spurs) (Walker,<sup>17</sup> Pezard<sup>18</sup>) as well as the various tests based on regeneration of seminal vesicle and prostate function, elaborated simultaneously and independently by Moore<sup>19</sup> and Loewe,<sup>20</sup> considerable advance has likewise been obtained

At the present time the prepituitary gonadotropic factor or factors, estrogenic substance and progestin as well (the special corpus luteum hormone, nidatory or "pseudopregnancy" hormone) have been demonstrated in the blood stream and urine. A number of the sex-endocrine principles have been recovered from the placenta, bile, sweat, saliva and cerebrospinal fluid

#### NORMAL FEMALE

In the normal female the following hormones require consideration

1 (a) The bisexual gonadotropic hormone or hormones of the adenohypophysis (Smith,<sup>14</sup> Zondek<sup>21</sup>)

(b) The bisexual anterior pituitary-like factor found in the blood, urine and placenta (Smith,<sup>22</sup> Zondek,<sup>21</sup> Collip<sup>23</sup>), which does not give a complete reaction in hypophysectomized animals<sup>24</sup>

2 The estrogenic factor (Iscovesco,<sup>7</sup> Fellner,<sup>9</sup> Frank and Gustavson,<sup>25</sup> Allen and Doisy<sup>12</sup>)

3 The corpus luteum hormone (nidatory or pseudopregnancy factor) (Fraenkl,<sup>26</sup> Boun and Ancel<sup>13</sup> Leo Loeb,<sup>6</sup> Corner<sup>27</sup>), "progestin"

4 The testis hormone (Loewe<sup>28</sup>)

Each of these hormones can be demonstrated by specific tests. The interpretations of some investigators cannot be accepted fully because of failure to employ adequate methods. For example, titration of the prepituitary-like gonad stimulating principle or the prepituitary gonadotropic factor based on the reading of the vaginal spreads of immature rodents, without study of the sectioned ovaries, is inconclusive. Smith<sup>22</sup> has proved his contention that, to distinguish these two factors, hypophysectomized mice or rats must be employed

All my gonadotropic titrations were performed on animals not deprived of their hypophyses. Therefore they are recorded as "anterior pituitary gonadotropic

factor," which may prove to be either the one or the other (that is, either 1a or 1b) on further investigation

**Normal Prepuberal Female**—In the early years little or no gonadotropic factor or estrogenic factor can be detected in the blood or urine. Katzman and Doisy<sup>9</sup> found that the amount of gonadotropic factor excreted in the urine of prepuberal girls in twenty-four hours was less than from 24 to 37 rat units. Even before the onset of menstruation a cyclic excretion of estrogenic substance in the urine has been noted, as shown by our observations on three children

One mouse unit at 4 years in 500 cc. of urine

One mouse unit at 9 years in 250 cc. of urine

One-half adult amount at 12½ years, two and one half months before first menstruation, cyclically excreted

**Normal Adult Cyclic (Menstruating) Female**—Both gonadotropic and estrogenic principles occur cyclically in the normal, adult female in the blood and urine. There is evidence of a progestin cycle (Loewe) in the urine (to be shown later). A substance having the effects of the testis hormone is regularly found in the urine of females, as shown later (Loewe, Laqueur). Chart 1, based on more than 150 normal subjects, shows the details of these cycles in the blood and urine

**Blood**—Chart 1 shows that in the circulating blood approximately nine days after the onset of the preceding period, 25 rat units per liter of gonadotropic factor is found. Before and after this date the amount is less.<sup>30</sup> The estrogenic factor gradually increases to 25 mouse units per liter within one week of the anticipated menstruation and with the onset of the flow rapidly (within from two to six hours) disappears from the blood (i.e., less than 1 mouse unit in 40 cc.)

Estrogenic substance injected into the blood stream rapidly disappears from the circulation. As much as 2,000 mouse units injected into a rabbit had disappeared within one-half hour and could not be detected in the urine or tissues in twenty-four hours.<sup>31</sup> The mechanism of this disappearance could not be determined

On the other hand, a concentration of estrogenic substance is found in the menstrual blood. It may attain from five to six times the concentration found in blood simultaneously drawn by wet cupping from the punctured portio vaginalis of the same patient.<sup>32</sup>

The upper blood level and excretory threshold for both gonadotropic and estrogenic factors appear to be constant and extremely delicately balanced, as will be shown later

**Urine**—The cycle of the gonadotropic factor in the urine has not been fully determined. Kurzrok<sup>33</sup> finds 1 rat unit to 60 cc at the eleventh to the fourteenth day after the onset of the preceding menstruation and less at other times of the cycle

The occurrence of estrogenic substance has been thoroughly studied by Frank and Goldberger<sup>34</sup> and

17 Walker, C. E. The Influence of the Testis upon the Secondary Sexual Characters of Fowls. *Proc Roy Med Soc (London)* 1: 153 (part 3) 1908

18 Pézard A. *Compt rend Acad. d sc* 153: 1027 1911

19 Moore C. R. A Qualitative Indicator for the Testis Hormone. *Proc Soc. Exper Biol & Med* 24: 847 (June) 1927

20 Loewe S., and Voss H. E. Gewinnung Eigenschaft und Testierung eines männlichen Sexualhormons. *Akad der Wissenschaften in Wien, Akadem Anzeiger* 1929 No 20. Deposited at Academy Jan 24 1927

21 Zondek Bernhard. *Die Hormone des Ovariums und des Hypophysenvorderlappens*. Berlin Julius Springer 1931

22 Smith P. E., Engle E. T. and Tyndale, H. H. Differential Ovarian Responses After Injections of Follicle-Stimulating and Pregnancy Urine in Very Young Female Rats. *Proc Soc Exper Biol & Med* 31: 744 (March) 1934

23 Collip J. B., Selye Hans, and Thomson D. L. Gonad Stimulating Hormones in Hypophysectomized Animals. *Nature* 131: 56 (Jan 14) 1933

24 The different ovarian responses obtained by means of anterior pituitary gland extracts pregnancy urine and urine of castrates (or menopause) are confusing. Further differences are noted depending on whether the test animal has been hypophysectomized or not. For the present I consider it unwise to attempt to draw far reaching conclusions from these variations. Accordingly one can distinguish in the hypophysectomized animal between (1) a full pituitary reaction due to gland extract which induces growth of the follicle, ovulation and corpus luteum formation, (2) follicle stimulation (menopause and castration urine) (3) thecal and interstitial cell growth (pregnancy urine). The significance of these reactions is still a matter of doubt

25 Frank R. T. and Gustavson R. G. The Female Sex Hormone and the Gestational Gland. *J. A. M. A.* 84: 1715 (June 6) 1925

26 Fraenkl L. Die Funktion des Corpus Luteum. *Arch f Gynak* 68: 438 1903

27 Corner G. W. and Allen W. M. Physiology of the Corpus Luteum. Production of a Special Uterine Reaction (Pregestational Proliferation) by Extracts of the Corpus Luteum. *Am J Physiol* 88: 326 (March) 1929

28 Loewe S. and Voss H. E. Gewinnung Eigenschaft und Testierung eines männlichen Sexualhormons. *Sitz der math naturwiss Klasse Oct 24 1929 (Akad d Wissenschaft Vienna Sealed Feb 17 1927)*

29 Katzman P. A. and Doisy E. A. The Quantitative Determination of Small Amounts of Gonadotropic Material. *J Biol Chem.* 106: 125 (Aug) 1934

30 Frank R. T., Goldberger M. A. and Spielman Frank. A Method for Demonstrating Prepituitary Maturity Hormone in the Blood of Nonpregnant Women. *Proc Soc Exper Biol & Med* 28: 999 (June) 1931

31 Frank R. T., Goldberger, M. A. and Spielman Frank. Utilization and Excretion of the Female Sex Hormone. *Proc. Soc. Exper Biol & Med* 26: 1229 (June) 1932

32 Frank R. T. and Goldberger M. A. The Female Sex Hormone IV. Its Occurrence in the Circulating and Menstrual Blood of the Human Female. Preliminary Report. *J. A. M. A.* 86: 1686 (May 29) 1926

33 Kurzrok R., Kirkman I. J. and Creelman, M. Studies Relating to the Time of Ovulation. *Am J Obst. & Gynec* 28: 319 (Sept) 1934

34 Frank, R. T. and Goldberger M. A. The Female Sex Hormone. *N. J. J. A. M. A.* 84: 1197 (April 19) 1930

by others (Siebke<sup>35</sup>). The entire quantity excreted in thirty days amounts to about 1,500 mouse units. Considerable variations are encountered, but two periods of maximum excretion, the first corresponding to the theoretical time of full follicle ripening or ovulation (fourteenth day), and the second in the last week preceding the menses, are characteristic (chart 1).

The chronological correspondence of increase in the estrogenic factor in the blood and increase of excretion in the urine demonstrates the great secretory activity of the ripe follicle and the active corpus luteum.

**Physiologic Menopause**—When the climax is fully developed, no estrogenic substance is found either in the blood or in the urine. In 50 per cent of these women the content of gonadotropic factor is greatly increased in the blood (Zondek,<sup>21</sup> Fluhmann<sup>36</sup>). It may reach the high amount of 500 rat units per liter in contrast to the maximum norm in the cyclic female of 25 rat units per liter.

Estrogenic substance may be found in the blood and urine of women as long as from one to two years after onset of the menopause. It is often noted in younger amenorrheic women who, following a shorter or longer period of amenorrhea, again begin to menstruate. Before menstruation has reappeared,

**Underfunction of the Ovaries**—In amenorrhea, oligomenorrhea and purely functional sterilities, and often also in dysmenorrhea, ovarian inactivity is recognizable by reduction in the amount of gonadotropic and estrogenic factors in the blood and the urine. These changes are readily visualized in chart 2, graphs B, C and D. The variations noted may show quantitative reduction in both blood and urine (subthreshold cycle), acyclic blood with reduced but typical urinary excretion, or complete absence of both blood and urinary cycles.

As the patients belonging to these three hormonal groups usually are clinically indistinguishable, accurate prognosis will depend exclusively on the hormonal changes, unless marked obesity or determinable thyroid or pituitary disease can be recognized, in which circumstances the prognosis will depend also on the gravity of the underlying primary endocrine disease. An impending return to normal conditions manifests itself by a reestablishment of normal blood and urinary hormone changes.<sup>38</sup>

**Artificial Menopause**—An extreme degree of underfunction (absence of function) may be caused by operative or roentgen castration. Estrogenic substance is absent from blood and urine. The gonadotropic factor may be found increased as early as the tenth day after operation. More usually the increase, which is noted in at the most 50 per cent of the patients, develops after eight weeks and may persist indefinitely (Fluhmann<sup>36</sup>).

Removal of the uterus, with retention of the ovaries, does not affect the blood or urinary gonadotropic or estrogenic cycle.<sup>38</sup> The same applies to nature's experiment—absence of vagina (uterus solidus)—in which not only has a normal cycle been determined<sup>38</sup> but among these cases instances of ovarian overfunction, as shown by the hormone graph, have been observed.

Chart 1—Hormone cycle (E S and A P) of normal fertile menstruating woman. Above base line (0) record of blood specimens taken every seven days. Black dots E S estrogenic substance (solid line), small circle, A P anterior pituitary gonadotropic factor (broken line) above 2½ = positive below 2½ = negative i.e. less than 1 mouse unit in 40 cc of blood. Below base line, total excretion of estrogenic substance in urine. Figures to the left show amount in mouse units. Total excretion 1,500 mouse units of estrogenic substance. Each block represents three days. A B C to show that single blood and urine specimens are valueless and misleading.

such changes are of diagnostic significance, ruling out the premature menopause.

Smith<sup>22</sup> has shown that the gonadotropic factor excreted in the menopause differs from the anterior pituitary-like gonadotropic factor from the urine of pregnancy and resembles that from the hypophysis itself.

#### MANIFESTATIONS IN DISEASE

As early as 1914, long before the primary importance of the adenohypophysis had been discovered, I<sup>37</sup> emphasized that the response of the ovaries to stimuli, no matter what their source, could manifest itself only in one of two ways—underfunction or overfunction. This concept has been amply confirmed. The primary stimuli (or their absence) arise mainly, or perhaps exclusively, from the adenohypophysis and act on the ovaries.

35 Siebke, Harald. *Ergebnisse von Mengenbestimmungen des Sexualhormons Zentralbl. f. Gynak.* 54: 1734 (July 12) 1930.

36 Fluhmann, C. F. Anterior Pituitary Hormone in the Blood of Women with Ovarian Deficiency. *J. A. M. A.* 82: 672 (Aug. 31) 1929.

37 Frank, R. T. The Clinical Manifestations of Diseases of the Glands of Internal Secretion in Gynecological and Obstetrical Patients. *Surg. Gynec. & Obst.* 19: 618 1914.

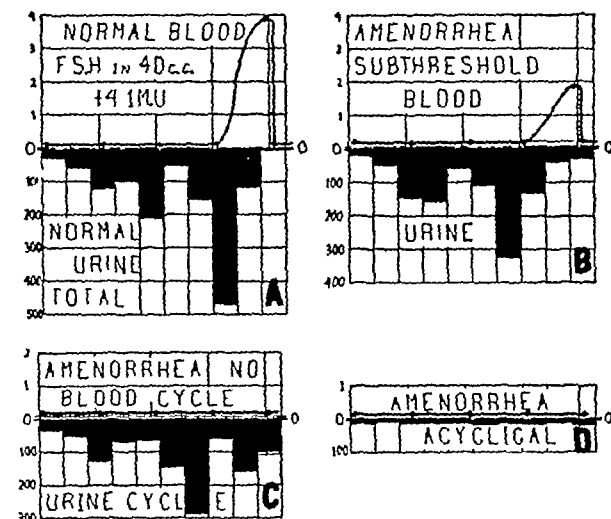


Chart 2—Occurrence of estrogenic substance (F S H) in the blood and urine of normal and amenorrheic women. A normal B subthreshold C negative blood cycle positive urine cycle D acyclic.

**Overfunction of the Ovaries**—In the overfunctional group, excessive secretion, manifested by excessive excretion of estrogenic substance, is observed. The primary preputitary cause can rarely be determined. These patients appear constitutionally normal except

38 Frank, R. T., Goldberger, M. A. and Spielman, Frank. Present Endocrine Diagnosis and Therapy. A Critical Analysis Based on Hormone Studies in the Female. *J. A. M. A.* 103: 393 (Aug. 11) 1934.

39 Fluhmann, C. F. Anterior Pituitary Hormone in the Blood of Women. *Endocrinology* 15: 177 (May/June) 1931.

for precocious puberty, puberty bleeding, menorrhagia or metrorrhagia. In this group the concentration of gonadotropic factor in the blood may be normal. The estrogenic factor in the blood is normal or reduced but is markedly increased in the urine. Instead of about 1,500 mouse units in thirty days, as much as from 4,000 to 10,000 mouse units may be excreted<sup>38</sup>. In excessive bleeding due to fibroids of the uterus or pelvic inflammatory disease there may be no increase in the amount of estrogenic substance excreted<sup>38</sup>.

In rare instances, overfunction is unaccompanied by excessive uterine bleeding. In so-called premenstrual tension, manifested by marked psychic and physical disturbances<sup>40</sup> the excretion of estrogenic substance is markedly diminished, the estrogenic factor in the blood being increased to the level otherwise observed only in pregnancy (chart 3). This is interpreted as an elevation of the urinary threshold manifested by diminished excretion.

In absence of the vagina, a congenital malformation, the ovaries may oversecrete as evidenced by an excessive excretion of estrogenic substance in the urine.

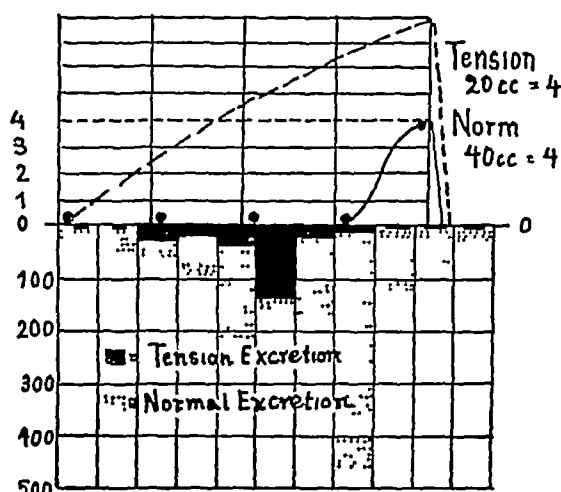


Chart 3—Contrasting premenstrual tension and normal function. Normal estrogenic substance in blood shown by solid line. Tension estrogenic substance in broken line. Tension shows increased estrogenic substance in blood. Decreased excretion totaling 300 mouse units (solid blocks) compared to that of normal female which amounts to 1500 mouse units (dotted area).

**Manifestations in Organic Diseases**—As previously mentioned, no increase in estrogenic substance is observed in fibroids of the uterus and pelvic inflammation, even when accompanied by excessive uterine bleeding. The observations on the gonadotropic factor are incomplete and as yet afford no clue.

In precocious puberty due to ovarian tumor the estrogenic factor has been recovered from the urine and has disappeared after removal of the growth<sup>41</sup>.

Varying quantities of estrogenic substance have been recovered from ovarian carcinoma, sarcoma, teratoma<sup>41</sup> and adrenal carcinoma<sup>42</sup>. Larger amounts of estrogenic principle are found in chorionepitheliomas irrespective of their source (uterine, ovarian, ectopic, testis), as will be shown later. In two cases of adrenal carcinoma with liver metastases (full autopsies including pituitary gland), the blood assays were normal but excessive

quantities of estrogenic substance were excreted in the urine (57,000 mouse units in thirty days). The pregnancy tests were negative. Clinically, this was a typical syndrome of "basophilic adenoma" (Cushing). This is even more surprising because the ovaries in both cases were in an atrophic condition without corpora lutea. No such excessive excretion has been encountered by us except during pregnancy. Similar syndromes ascribable to adrenal hyperplasia did not show these changes<sup>42</sup>.

**Mental Diseases**—The report of underfunction of the ovaries in schizophrenia<sup>43</sup> appears to have no significance, as underfunction has been observed in many unrelated diseases.

**Progesterin**—Progesterin has not been demonstrated in the blood. I cannot accept Hisaw's observations<sup>44</sup> in which the relaxation of the pelvic ligaments of the female guinea-pig was employed as a test. The experiments of Kelly and Florence<sup>45</sup> likewise appear inconclusive. Their test consisted in observing inhibition of ovulation, the serum of pregnant women being used.

Loewe<sup>46</sup> has found 1 rabbit unit of progesterin in 20 liters of the urine of cyclic women in the five day period preceding menstruation. In all the other five day periods of the cycle, none was demonstrable. He employed the Bouin and Ancel test<sup>47</sup>. Chart 4 shows the time relation of pituitary estrogenic and progesterin cycles.

#### PREGNANCY

**Normal**—Within the first week of impregnation, a marked increase of the gonadotropic factor occurs both in the blood and in the urine. On this dramatic change the pregnancy tests of Aschheim and Zondek<sup>47</sup> and of Friedman<sup>48</sup> are based (chart 5).

In the nonpregnant cyclic female, at most 25 rat units per liter of gonadotropic factor is found in the blood by means of the concentration test and then only between the eighth and the tenth day of the cycle. In the pregnant female as much as from 10,000 to 20,000 rat units per liter has been found<sup>21</sup>. By improved methods recently we have recovered as much as 40,000 rat units per liter in blood and urine (unpublished).

In the urine of the nonpregnant female, 16 rat units per liter of gonad-stimulating principle can be recorded on the fourteenth day<sup>32</sup>. In pregnancy from 5,000 rat units per liter to 20,000 rat units per liter is excreted throughout pregnancy<sup>21</sup>. These high titers persist until shortly after labor (from forty-eight to ninety-six hours), the level then drops to the nonpregnant norm unless chorionic tissue remains adherent to the uterine wall.

The blood estrogenic factor remains unchanged until the eighth week of gestation. It then rises from 25 mouse units per liter to 50 mouse units per liter and persists at this higher level until labor occurs. Zondek<sup>21</sup> gives higher values, namely, from 200 to 300

43 Georgi F. and Fels E. Follikel hormonbestimmung im Harn schwangerer Frauen. *Ztschr. f. d. ges. Neurol. u. Psychiat.* 147:746 1933.

44 Hisaw F. L. The Corpus Luteum Hormone. II. Experimental Relaxation of the Pelvic Ligaments of the Guinea Pig. *Physiol. Zool.* 2:59 (Jan.) 1929.

45 Kelly G. L. and Florence L. The Effect of Serum from Pregnant Women on the Oestral Cycle of the Guinea Pig. *Surg. Gynec. & Obst.* 60:435 (Feb.) 1930.

46 Loewe, S. and Voss H. E. Nachweis des Vorkommens von Gelbkörperhormon im Frauenharn. *Schweiz. med. Wchnschr.* 64:1049 1934.

47 Aschheim Selmar and Zondek, Bernhard. Die Schwangerschaftsdiagnose aus dem Harn durch Nachweis des Hypophysenvorderlappenhormons. *Klin. Wchnschr.* 7:1404 (July 22) 1928.

48 Friedman M. H. Mechanism of Ovulation in the Rabbit. II. Ovulation Produced by Injection of Urine from Pregnant Women. *Am. J. Physiol.* 9:617 (Nov.) 1929.

40 Frank R. T. The Hormonal Causes of Premenstrual Tension. *Arch. Neurol. & Psychiat.* 26:1053 (Nov.) 1931. Frank, Goldberger and Spielman.

41 Frank R. T. Premature Sexual Development in Children Due to Malignant Ovarian Tumors. *Am. J. Dis. Child.* 43:942 (April) 1932.

42 Frank R. T. A Suggested Test for Functional Cortical Adrenal Tumor. *Proc. Soc. Exper. & Med.* 31:1204 (June) 1934.

mouse units per liter in the fourth month, and from 800 to 1,000 mouse units per liter at term. The urinary excretion of estrogenic substance increases gradually after the first week of pregnancy and by the later months may reach 20,000 mouse units per liter.<sup>21</sup>

This increase in estrogenic substance is not, however, sufficiently pathognomonic to permit of utilization as an early pregnancy test, although Mazer<sup>40</sup> has recommended it as a test (with 25 per cent error, the

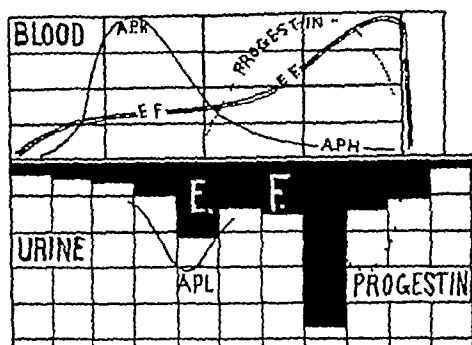


Chart 4—Correlation of preputitary estrogenic and gestational cycles in blood and urine of the normal adult woman. Progestin has not been demonstrated in the blood. This part of the graph is hypothetical.

Abbreviations used in the charts are as follows: A P H anterior pituitary gonadotropic hormone; A P L anterior pituitary like gonadotropic factor; A P F, gonadotropic factor (either A P H or A P L); E F estrogenic factor; R U rat unit; R U L rat units per liter; M U mouse unit; M U L mouse units per liter.

Aschheim-Zondek test in general showing not more than 2 per cent error).

**Pregnancy Abnormalities**—Fetal death is marked by reduction in the blood estrogenic factor within twenty-four hours, the urinary pregnancy tests (for gonadotropic factor) persisting for days. We have used this change in the amount of estrogenic substance to recognize fetal death occurring after the eighth week.<sup>50</sup>

Retention of part or of the whole placenta after abortion or after premature or term labor causes persistence of the pregnancy reaction in blood and urine. The same applies to a placenta buried in the abdominal cavity after delivery of the fetus in abdominal pregnancy.<sup>51</sup>

In hydatid mole and chorionepithelioma the blood and urinary gonad stimulating factor reaches abnormally high levels. We have observed from 40,000 to 100,000 rat units per liter in the blood and urine. This is of clinical value, as Aschheim has pointed out.<sup>52</sup> Incomplete removal, recurrences and metastases due to chorionepithelioma also can thus be diagnosed by persistence or recurrence of positive pregnancy tests in high dilution.

In hyperemesis gravidarum, Siebke<sup>53</sup> was unable to detect any abnormality in concentration of estrogenic substance in the blood.

In eclampsia, Anselmino and Hoffmann<sup>54</sup> report an increase of anterior pituitary-like gonadotropic factor in the blood, as well as of the antidiuretic factor of the hypophysis.

**Fetus**—Few observations are recorded. Brühl<sup>55</sup> found gonadotropic substance (reaction I) in the cord blood and urine of the neonatus of both sexes, disappearing within two days after birth.

We have found no estrogenic factor in the fetal blood, though Loewe<sup>56</sup> as well as Bruhl<sup>55</sup> have reported its presence in the new-born of both sexes. Estrogenic substance is also found in the urine, disappearing within four days post partum. It is present in the amniotic fluid in considerable concentration, the amniotic fluid of cattle being used as the source for a commercial preparation (amniotin).

**A Principle in the Female Having the Effects of the Testis Hormone**—Traces of a bisexual "anlage," so manifest in certain vertebrates as the hen (left gonad, ovary, right, aplastic testis), may account for the constant presence in the urine of women of a substance having the effects of the testis hormone (Loewe,<sup>57</sup> Koch<sup>58</sup>). Buhler<sup>59</sup> has found from 6 to 7 capon units daily in a hirsute female of the masculine type. No observations of any significant value have been made on patients with arrhenoblastoma—masculinizing tumor of the ovary.

#### MALES

**Hormones**—The testis hormone is demonstrable by several tests: by the capon's comb growth<sup>18</sup> (capon unit), by the cytologic regeneration test<sup>60</sup> (mouse unit) and by the seminal vesicle and prostate cytologic test<sup>61</sup> (rat unit).

The capon test, though time consuming, is more specific than the rat or mouse test. According to Moore and Gallagher,<sup>61</sup> 1 rat unit equals 6 bird units.

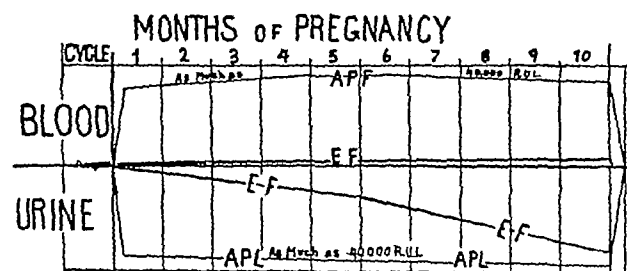


Chart 5—Stupendous increase of hormone production and excretion produced by pregnancy. Not to scale—the cyclic readings are exaggerated the pregnancy curve is reduced.

The gonadotropic hormone of the adenohypophysis, as in the female, in the male governs not only pre-

49 Mazer Charles and Hoffman Jacob. The Three Hormone Tests for Early Pregnancy, J A M A 96:19 (Jan. 3) 1931.

50 Spielman Frank, Goldberger M A and Frank R T. Hormone Diagnosis of the Viability of Pregnancy, J A M A 101:266 (July 22) 1933.

51 Ware, H H, Jr and Main R J. An Abdominal Pregnancy Near Term with Successful Termination Retained Placenta and Observations on the Postpartum Excretion of Prolan. Am J Obst & Gynec. 27:756 (May) 1934.

52 Aschheim Selmar. Meine Schwangerschaftsdiagnose durch Hormonnachweis im Harn. Ztschr f arztl Fortbild 26:5 (Jan 1) 1929. Am J Obst & Gynec 19:335 (March) 1930.

53 Siebke, Harald. Ergebnisse von Mengenbestimmungen des Sexualhormons I. Mitteilung. Zentralbl f Gynak. 53:2450 (Sept 18) 1929.

54 Anselmino K J, and Hoffmann, F. Arch. f Gynak. 144:506 1931. Klin Wchnschr 10:1438 (Aug) 1931.

55 Brühl R. Das Vorkommen von weiblichen Sexualhormon und Hypophysenvordelappenhormon im Blute und Urin von Neugeborenen. Klin Wchnschr 8:1766 (Sept. 17) 1929.

56 Loewe S and Voss, E H V. Eine placentare Inkrettsdrüse spendert in örtlich wirksamen Hormons? VIII. Klin Wchnschr 5:1083 (June 11) 1926.

57 Loewe, S. Voss H E. and Rothschild E. Ueber das Nebeneinander männlichen und weiblichen Sexualhormons, Biochem Ztschr 237:214 1931.

58 Koch F C. The Extraction, Distribution and Action of the Testicular Hormones. J A M A. 96:937 (March 21) 1931.

59 Buhler F. Sexualhormon befunde im Harn von Männern verschiedenen Alters. Ztschr f d. ges exper Med 86:650 1933.

60 Loewe S and Voss H E. Der Stand der Erfassung des männlichen Sexualhormons (Androkinins). Klin Wchnschr 9:481 (March 15) 1930.

61 Moore C R and Gallagher T F. The Threshold Relationship of Testis Hormone Indicators in Mammals. The Rat Unit. J Pharmacol & Exper Therap 40:341 (Nov) 1930.



puberal and puberal development but also sex function throughout adult life (Smith and Engle,<sup>62</sup> Zondek<sup>21</sup>)

The same tests are employed for the gonadotropic factors as have been shown to be employed in the female. Estrogenic substance regularly is found in the urine and often in the blood of males. The Allen-Doisy test, previously referred to, is used.

**Normal Male**—No cycle has been demonstrated in the male.

**Prepituitary Hormone** No conclusive studies on the gonad stimulating factor in the blood and urine appear to be available. Katzman and Doisy<sup>29</sup> found that the adult male excreted about 4 to 19 mouse units daily of gonadotropic principle.

**Testis Hormone** In 1928 Loewe<sup>63</sup> demonstrated the excretion of testis hormone in the urine. In 1930 Womack and Koch<sup>64</sup> and simultaneously Loewe<sup>65</sup> found the testis hormone in the blood of bulls, the former found 1 capon unit to 600 cc, the latter one-half mouse unit per liter. Buhler<sup>66</sup> found the daily excretion of testis hormone at various ages to be from puberty to 20 years, 1 capon unit, from 20 to 30 years, 2 capon units, from 30 to 40 years, from 1 to 2 capon units, from 40 to 50 years, less than 1 capon unit, and 60 years and thereafter, 0.

Oesterreicher<sup>66</sup> demonstrated testis hormone in the urine of men up to the ninety-first year. Even in extreme age there was no increase of gonadotropic factor such as occurs after the menopause in women. Dingemans and his co-workers<sup>67</sup> regularly found from 2 to 8 capon units of testis hormone per liter in the urine of males.

**Estrogenic Substance in the Male**—Estrogenic factor has been found in the blood of normal males<sup>68</sup>. Of forty-seven males, Goldberger and I<sup>69</sup> demonstrated it in three. It is a constant constituent of male urine. Laqueur<sup>67</sup> estimates the concentration as from 10 to 200 mouse units per liter.

Brahn<sup>70</sup> noted no quantitative difference in estrogenic substance in the urine of normal and of homosexual males.

**Manifestations in Disease**—Ferguson<sup>71</sup> found the urinary excretion of gonadotropic factor greatly increased in malignant tumors of the testicle.

In 117 cases, from 50 to 40,000 mouse units per liter was obtained. The highest titers were noted in embryonal adenocarcinoma, the next lower were found in embryonal carcinoma with lymphoid stroma and the least was found in seminoma (from 400 to 2,000 mouse units per liter). Metastases increase the excretion. Ferguson obtained only follicle ripening (reaction I).

62 Smith P. E. and Engle E. T. Experimental Evidence Regarding the Role of the Anterior Pituitary in the Development and Regulation of the Genital System. *Am. J. Anat.* 40: 159 (Nov. 15) 1927.

63 Loewe S. Voss H. E. Lange F. and Wabner A. Sexual Hormonbefunde im männlichen Harn. *Klin. Wchnschr.* 7: 1376 (July 15) 1928.

64 Womack E. B. and Koch F. C. Proc. Second Internat. Cong. Sex. Research. 1930.

65 Loewe S. Rothschild F., Rautenbusch W. and Voss H. E. Androkinin (männliches Sexualhormon) in männlichen Blut, *Klin. Wchnschr.* 9: 1407 (July 26) 1930.

66 Oesterreicher, W. Die Ausscheidung von Folliculin und Prolan bei älteren und alten Männern. *Klin. Wchnschr.* 13: 1019 (July 14) 1934.

67 Dingemans E. Freud J. Kober S. Laqueur E., Luchs A. and Munch A. W. P. Zur Trennung des männlichen (Sexual-) Hormons vom weiblichen (Menormon). *Biochem. Ztschr.* 231: 1 1931.

68 Dobrin M. Ist der Allen-Doisy Test spezifisch für weibliche Sexualhormone? *Klin. Wchnschr.* 8: 359 (Feb. 19) 1927.

69 Frank, R. T. and Goldberger M. A. Significance of Female Sex Hormone Reaction in the Male Blood. *Proc. Soc. Exper. Biol. & Med.* 25: 476 (March) 1928.

70 Brahn B. Haben homosexuelle Männer mehr Ovarialhormon in ihrem Harn als normale? *Klin. Wchnschr.* 10: 504 (March) 14) 1931.

71 Ferguson R. S. Pathological Physiology of Teratoma Testis. *J. A. M. A.* 101: 1933 (Dec. 16) 1933.

In ten cases of seminoma, or other types of carcinoma, my associates and I found negative Friedman tests in all. In one case, after metastases developed, 1,000 rabbit units per liter (reaction III) was found in the urine.

Chorionepithelioma, arising from teratoma of the testis<sup>72</sup> or ectopic, in the lungs,<sup>73</sup> gives a strong pregnancy reaction by either the Aschheim-Zondek or the Friedman test.

In my own five cases (to be published), all of which showed metastases when first observed, from 1,000 to 10,000 rabbit units per liter of anterior pituitary-like gonadotropic factor (reaction III, corpora lutea) was found in the urine. In one instance as little as 0.1 cc of urine gave a positive Friedman test. The amount of estrogenic substance in the urine varied from 25 to 250 mouse units per liter, the bloods all proved negative.

In a recent article, Geschickter and his co-workers<sup>74</sup> call attention to the high content of estrogenic substance in breast tumors and likewise imply that in gynecomastia of the male this abnormality must be ascribed to continuous increase of estrogenic or prepituitary-like factor.

#### SUMMARY

A. The bisexual gonadotropic hormone, which activates the ovaries and testes, has been demonstrated in the blood and urine.

1. Before puberty, small amounts of this hormone are noted in the blood and urine of children and adolescents. The hormone brings about the trophic growth of the genitals.

2. At puberty, greater amounts are demonstrable, causing full activation of the sex glands.

3. In the healthy adult female a cyclic activity of the prepituitary is manifested by the cyclic blood and urinary curve obtained.

4. After impregnation and throughout pregnancy an increase of from 100 to 200 times the amount found in the nonpregnant woman is noted in the blood and urine.

5. At the menopause the prepituitary cycle ceases. In one group (50 per cent) a permanent increase of a gonadotropic hormone is noted in the blood and urine, in the other group none is demonstrable. No clinical differences in these individuals are observed.

6. Functional diseases of the female genital tract appear due to disturbances of the prepituitary cycle. With present methods this cannot always be demonstrated by blood and urine hormone studies.

7. In the male there is no evidence of a prepituitary cycle or of a senile condition corresponding to the menopause.

B. The female and male sex glands produce distinctive hormones, which have been recovered from the blood and urine. A substance apparently identical with the testis hormone is found in the female, estrogenic substance is found in the male.

C. In the normal, mature, fertile woman, two hormones are secreted by the ovary.

1. The estrogenic factor, which circulates each month in increasing concentration in the blood stream until the onset of menstruation, with a typical urinary curve of excretion.

72 Heidrich L., Fels E. and Mathias E. Testikuläres Chorion epithelium mit Gynakomastie und mit einigen Schwangerschaftserscheinungen. *Beitr. z. klin. Chir.* 150: 349.

73 Frank R. T. Unpublished data.

74 Geschickter C. F., Lewis, Dean and Hartman C. G. Tumors of the Breast Related to the Oestrin Hormone. *Am. J. Cancer* 21: 828 (Aug.) 1934.

2 The progestational factor, as yet not demonstrated in the blood but found cyclically distributed in the urine

In pregnancy a higher level of the estrogenic factor is noted after the eighth week in the blood, and a disproportionately greater increase in the quantities excreted in the urine (placental effect)

D Normal genital function in the female is dependent on synchronism of prepituitary, estrogenic and progestational blood cycles (with corresponding, characteristic excretory curves)

Functional diseases, as has been shown by blood and urinary studies, are due to either underfunction or overfunction of the ovaries. The disturbances of function in most instances are primarily referable to disturbances of the prepituitary cycle

E The testis hormone has been demonstrated in the blood and urine. No cycle has been found, and little correlation between male functional diseases and changes in the humoral balance as yet has been discovered. Organic disease in the male can produce changes in the excretion of gonadotropic principle

10 East Eighty-Fifth Street

## Council on Pharmacy and Chemistry

### ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association held its annual meeting at the headquarters building, 535 North Dearborn Street, Chicago, Friday and Saturday, March 22 and 23, 1935. Those present were

Dr Stanhope Bayne-Jones	Dr Reid Hunt
Dr Kenneth D Blackfan	Dr Ernest E. Irons
Dr J Howard Brown	Dr Paul Nicholas Leech
Dr E M Bailey	Dr G W McCoy
Dr H N Cole	Dr E M Nelson
Dr Eugene F Du Bois	Dr W W Palmer
Dr C W Edmunds	Dr L G Rowntree
Dr Morris Fishbein	Prof W E Anderson of New Haven

Dr Reid Hunt was reelected chairman of the Council and Dr Torald Sollmann was reelected vice chairman

Among the many items discussed during the meeting, the following may be of interest both to physicians and to manufacturers

**Shotgun Vitamin Therapy**—The Council's clinical referee for vitamin preparations reviewed the present status of knowledge concerning the physiologic action of vitamin concentrates when administered in various combinations. It was brought out that there has been practically no experimental or clinical evidence which tends to show that the effect of vitamin concentrates are enhanced when these are given in combination. The best that could be expected from any given combination would be that each specific vitamin would produce its maximum effect independently of the other ingredients of the mixture and there are seldom conditions in which multiple avitaminosis exists

Evidence was reviewed which showed that the administration in combination of concentrates of vitamins each of which is active independently, may so alter the effectiveness of each as to render it inadequate or to necessitate an increase in its dosage. In view of this, it was pointed out that the attempt to supply a sufficient amount of a single vitamin concentrate specifically indicated, when a mixture of vitamins is prescribed, would result in an excess of the remaining active agents. The possibility of harm from such excess must be kept in mind, and, even when no harm is done such a combination may constitute

an economic waste. The clinical referee stated that there are some indications that the antiscorbutic effect of orange juice is diminished by addition of some preparations containing vitamins A and D (thus indicating that the cevitamic acid content is impaired) with the result that scurvy has been observed in children taking such combinations

It was brought out that there is an open field for the study of these questions, namely, incompatibilities, the possible impairment of vitamins when they are combined in mixtures containing a number of vitamins and extraneous material, and also the manner in which they are administered to the patient. Furthermore, it was pointed out that vitamins are rapidly entering the field of definite pharmaceuticals and may be considered as such—for instance, provitamin A (carotene), cevitamic acid (vitamin C) and the crystalline vitamin D type of preparation. A report on the status of vitamins is in the process of preparation

The Council voted not to accept combined concentrates of vitamins A, B and D until there is adequate evidence of the value of giving these vitamins in combination. The further action of the Council in the matter of vitamin mixtures will await the development of further evidence for or against this practice

**Use of Antioxidants in Fish Liver Oil Preparations**—The Council considered the practice of adding antioxidant agents, such as hydroquinone, to cod liver oil or halibut liver oil to prevent deterioration of vitamin A. The use of antioxidants is designed to delay the start of oxidation of vitamin A in oils having a short "induction period", that is, a short period before the fats begin rapidly to take up the oxygen of the air. Evidence is needed to show whether or not any by-product may be formed which might be toxic in the specific concentration of hydroquinone used. The possibility (which seems remote) of harm arising from continued use of hydroquinone must also be considered. Under ordinary conditions of use, however, there appears to be no necessity for the addition of an antioxidant to cod liver oil or halibut liver oil

The Council voted that manufacturers of accepted products be informed that under conditions of ordinary usage there does not appear to be necessity for use of hydroquinone for the proper preservation of cod and halibut liver oil and that until more convincing evidence in favor of the practice is submitted, it may not be permitted

**Differences in Antirachitic Effects of Fish Liver Oils of Different Species**—The Council considered a review of the article of Bills (*Physiol Rev* 15 1 [Jan.] 1935) showing, on the basis of comparative assays on rats and chickens, that there is an apparent difference between qualitative and quantitative relation of antirachitic effect of fish liver oils of different species. The Council postponed consideration of the bearing of the question on the fish liver oils for use by man. It was brought out that the question could be settled only by adequate comparative clinical tests

**Lay Advertising of Vitamin Preparations**—At its annual meeting in 1934, the Council decided not to countenance the advertising to the public of halibut liver oil, halibut liver oil with viosterol and viosterol in oil, because the high potency of these preparations renders them unsuitable for lay use without medical supervision. The Council sanctions proper advertising to the public of cod liver oil for prophylactic use. Attention was called to the fact that certain firms which market accepted halibut liver oils were not observing the Council's restriction as to lay advertising. After due consideration the Council reaffirmed its attitude as to lay advertising of halibut liver oil and directed that attention of firms be called to any disregard of the Council's rules by advertising of halibut liver oils to the public

**Permissible Claims for Vitamin A**—The Council has defined its attitude toward the permissible claims for vitamin A by the statement in *Hospital Practice for Interns*, page 78, under "Oleum Morrhuæ": "By virtue of its vitamin A content it promotes growth and, as indicated by experimental studies, may be an aid toward the establishment of resistance of the body

to infection in general, though it has not been shown to be specific in the prevention of colds, influenza and other such infections." There was recently brought to the Council's attention a summary of medical literature which, it was contended, contained evidence that vitamin A may be of value in reducing the incidence of the common cold. The Council's referee and a colleague reviewed this evidence and the referee presented the review to the Council. In the light of this review, it was agreed that there is not acceptable evidence to warrant the Council in countenancing the claim of anti-infective activity for vitamin A preparations. The Council voted that the permissible claims for vitamin A remain in statu quo, namely as defined in the quotation from *Hospital Practice for Interns* given at the beginning of this paragraph. In addition, it was the understanding that recommendations for the administration of vitamin A to aid in building general resistance should be made only in cases in which the lack of resistance is due to deficiencies of this vitamin.

**Liver Preparations**—The Council recently sent to manufacturers of accepted liver preparations new proposed standards for determining and expressing the potency of these products. These standards have been worked out in cooperation with the Pharmacopeial Revision Committee which is considering the same subject. The Council's referee reported on the replies of some firms giving certain objections that had been raised. Prof. E. Fullerton Cook, Chairman of the U. S. P. Revision Committee, participated in the discussion of this topic. Professor Cook reported on the progress being made by the Pharmacopeial Committee. The Council postponed final action in order to consider the matter of various suggestions made for revision of the proposed standards.

**Antipneumococcus Serums**—It has been brought to the attention of the Council that a pharmaceutical house is marketing an antipneumococcus serum with the claim that the product contains certain heterophile units' and neutralizing agents representing advantages over ordinary products of this class. The firm has not presented the product for inclusion in New and Nonofficial Remedies.

After some discussion, the Council voted that the firm in question be invited to present the available evidence in order that the Council may consider it and report to the profession on the status of such a product in the light of the evidence for the claims made.

**Scarlet Fever Preparations in Bulk Packages**—It has been brought to the attention of the Council that the marketing of scarlet fever preparations in bulk packages increases the likelihood of contamination and loss of potency. In the discussion of this question, it was pointed out that the Council has already indicated the hazards of using multiple dose containers and has repeated the warning in its report on the sterility of ampules (*THE JOURNAL*, Sept. 1, 1934, p. 678). The Council decided that further action in this matter should be left to the Scarlet Fever Committee, Inc., and the manufacturers concerned.

**Status of the Articles on Glandular Physiology and Therapy**—The Council authorized the preparation of this series of articles at its annual meeting in 1934. It was reported to the Council that the series, which is currently appearing in *THE JOURNAL*, is attracting wide attention. The Council authorized preparation of an additional article dealing with the status of commercial glandular products.

**The Council's Rules**—The Council discussed various proposed revisions and interpretations of the rules. It was decided that a compilation should be made of the various general affirmative actions or decisions of the Council and that these shall be published for the information of the manufacturers and others.

**Bacillus Acidophilus Preparations**—The Council has continued its consideration of bacillus acidophilus preparations with the view to determining their proper status. In the discussion it was pointed out that there remain in the accepted list only four or five brands of bacillus acidophilus milk and one concentrate. Advertising has been restricted to very modest claims. The Council recently reaccepted most of the milk preparations for a period of three years. It was agreed that a period of approxi-

mately five years will be needed for definitive study of the worth of the milk preparations with special attention to dosage. It was pointed out that all the work up to this date has been done with milk preparations and that claims have been made for concentrates of bacillus acidophilus on the strength of these studies. Evidence is needed that is based on results with the concentrates themselves, especially since these do not seem to retain viability for as long a time even as the milk preparations. It should be pointed out that the reduction in the number of accepted products has been caused mainly by failure of the omitted products to show, as a result of bacteriologic examination, the number of viable organisms per unit volume prescribed by the Council for accepted products.

**Use of the Term "Obstetrical" on Labels of Pituitary Liquid**—Attention was called to the practice of certain firms marketing accepted brands of solution of pituitary of including the bracketed term "Obstetrical" in the name.

The Council directed that the name "Pituitary Solution (Obstetrical)" be not recognized but that manufacturers of accepted brands of pituitary solution be informed that the Council will not object to the use of the phrase "for obstetrical use" underneath the name or elsewhere on the ampule label.

**Commercial Reprints of Council Reports**—The Council has at times considered the desirability of extending to commercial firms the privilege of using Council reports in the promotion of their accepted products. It was decided that the Council would not grant permission for such use of its reports.

**Sterility of Catgut Sutures**—The Council considered the question of sterility of catgut sutures. After considerable discussion, it was agreed that the Council should undertake a limited examination of samples of catgut on the market. The Council therefore voted to bring to the attention of the Board of Trustees the necessity for examination of catgut and to ask the Board for authorization of such an investigation under the direction of the Council's Committee on Serums and Vaccines. The Board was asked to consider the relationship between the work of the Council's committee and that of the Committee on Catgut Standards previously appointed at the instigation of the Section on Surgery of the Scientific Assembly. [The Board of Trustees has since made an appropriation and has given the Council the desired authorization.]

**Advertising for Aminophyllin**—The Council discussed the difficulty in determining the exact clinical status of Aminophyllin. It felt that some advertising claims for the product carried overoptimistic implications.

**Dinitrophenol**—The Council has already issued a preliminary report on this drug (*THE JOURNAL*, July 15, 1933, p. 210). It is still considering the drug but is not yet prepared to accept it for inclusion in New and Nonofficial Remedies, its therapeutic indications and limitations not being established although its toxicity is definitely understood. The Council decided that a progress report on the drug is necessary and instructed the referee to submit such a report in the near future with view to its publication.

**Fantastic Claims**—The Council definitely disapproved the use of fantastic statements and slogans offered in the advertising of certain accepted products. The Council directed that a general decision on similar vague health claims be prepared for adoption and later publication.

**Reports of Committees**—The Committees on Useful Drugs, New and Nonofficial Remedies, Hospital Practice for Interns, and Epitome of the Pharmacopeia and National Formulary reported that revision of these texts will be necessary in the coming year to bring them into harmony with the new Pharmacopeia and the new National Formulary. The committees asked for suggestions as to additional revisions which Council members might deem necessary.

The Committee on Therapeutic Research reported that it would continue to follow the same policy as formerly in making grants in aid of research, namely, a sum generally between one hundred and two hundred fifty dollars for the purchase of materials or special apparatus.

## NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS COMFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

**IPRAL SODIUM**—Sodium ethylisopropylbarbiturate—  
 $\text{NaC}_2\text{H}_5\text{C}_3\text{H}_7\text{CCONHCO NCO}$  The sodium salt of ethylisopropylmalonyl urea

**Actions and Uses**—Ipral sodium has the therapeutic properties of barbituric acid. It is soluble in water and is absorbed promptly. It is claimed that it is excreted rapidly, but some action commonly persists for twenty-four hours. In therapeutic doses it affects the higher cerebral centers almost exclusively, and such doses exert no perceptible effect on the heart or circulation directly.

Ipral sodium is used as a hypnotic to combat restlessness, irritability and sleeplessness. It is claimed that tolerance to ipral sodium is not developed readily, and that its action is persistent.

**Dosage**—From 0.12 to 0.25 Gm (2 to 4 grains) followed by a cupful of hot water, tea or milk.

Manufactured by E. R. Squibb & Sons, New York. U. S. patents 1,255,951 (Feb. 12, 1918, expires 1935) and 1,576,014 (March 9, 1926, expires 1943). U. S. trademark 208,813.

**Ipral Sodium Tablets 4 grains**

**Caution**—Aqueous solutions of ipral sodium are not stable but decompose on standing on boiling a precipitation occurs.

Ipral sodium is a white hygroscopic powder, soluble in water, slightly soluble in alcohol and practically insoluble in ether and chloroform. An aqueous solution of ipral sodium has an alkaline reaction to litmus.

Dissolve about 0.5 Gm of ipral sodium in 100 cc of water, add an excess of diluted hydrochloric acid, collect the resultant ethyl isopropyl barbituric acid on a filter, wash and dry at 100°C. It melts at 200-205°C. Incinerate about 1 Gm. of ipral sodium, the residue responds to tests for sodium carbonate. Boil about 0.5 Gm of ipral sodium with 5 cc. of a 25 per cent sodium hydroxide solution; it is decomposed with evolution of ammonia. Dissolve about 0.3 Gm of ipral sodium in 10 cc of water and divide into two portions: to one portion add 1 cc of mercuric chloride solution, a white precipitate results, soluble in an excess of ammonia; to the other portion add 5 cc of silver nitrate solution, a white precipitate results, soluble in an excess of ammonia.

Dissolve about 0.5 Gm of ipral sodium in 50 cc of water, add 5 cc of diluted nitric acid and filter through paper. Separate portions of 10 cc each of the filtrate, yield no opalescence on the addition of 1 cc of silver nitrate solution (chloride), no turbidity on the addition of 1 cc of barium nitrate solution (sulphate). To about 0.2 Gm of ipral sodium in 25 cc of water, add 1 cc of diluted hydrochloric acid, filter through paper, the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide (salts of heavy metals). Add about 0.1 Gm of ipral sodium to 1 cc of sulphuric acid, the solution is colorless (readily carbonizable substances).

Transfer about 1 Gm. of ipral sodium, accurately weighed to a glass stoppered cylinder, add 50 cc of anhydrous ether, stopper and shake for ten minutes, decant the supernatant liquid through filter paper and repeat twice using 25 cc and 15 cc portions respectively of ether, utilizing the same filter. Evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 90°C. The residue does not exceed 0.2 per cent (uncombined ethylisopropyl barbituric acid).

Dry about 1 Gm of ipral sodium, accurately weighed to constant weight at 100°C. The loss does not exceed 2 per cent. Transfer about 0.5 Gm of ipral sodium, accurately weighed to a suitable Squibb separatory funnel, add 50 cc of water followed by addition of 10 cc of diluted hydrochloric acid, extract with eight successive portions of ether, 25 cc each, evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 100°C. The amount of ethylisopropyl barbituric acid corresponds to not less than 88.5 per cent nor more than 90.5 per cent calculated to the dried substance. Transfer the acidulated aqueous portion from the foregoing immiscible solvent extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained add 5 cc of sulphuric acid, heat cautiously until the excess of sulphuric acid has been volatilized, repeat twice using portions of 1 cc each of sulphuric acid each time, add about 0.5 Gm of ammonium carbonate, ignite to constant weight and weigh as sodium sulphate, the percentage of sodium corresponds to not less than 9.5 per cent nor more than 11.5 per cent when calculated to the dried substance.

**DIPHThERIA TOXOID, ALUM PRECIPITATED (REFINED)** (See New and Nonofficial Remedies, 1935 p 394)

Wm S Merrell Co, Cincinnati

*Diphtheria Toxoid Alum Precipitated (Refined)* (See THE JOURNAL Dec 22, 1934 p 1947).—Also marketed in packages of ten 1 cc vials (ten immunizations).

**METYECAINE** (See New and Nonofficial Remedies 1934 p 54)

The following additional dosage form has been accepted

*Metycaine Tablets 15 grain*

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING AMENDED RULE

RAYMOND HERTWIG Secretary

## VIOLATION OF RULES

Acceptance of a product may be withdrawn if the spirit or meaning of these rules should be violated.

No food product or class of food products, or advertising therefor, will be accepted, or if accepted will be retained, if in the opinion of the Committee such acceptance is likely to be construed as an acceptance or approval of any other products or activities of a firm, when such other products or activities of such firm are in conflict with the policies of the American Medical Association as set forth in the rules of the Committee on Foods, or those of the Council on Pharmacy and Chemistry or of the Council on Physical Therapy.

## ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



## WARRANTY SIEVED TOMATOES

**Manufacturer**—The Nielsen Corporation, Ltd., Oakland Calif.

**Description**—Sieved tomatoes prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt.

**Manufacture**—Fresh tomatoes are washed, sorted, trimmed of all objectionable material, again washed, crushed, heated to the boiling point and delivered to a pulping machine and finisher, where the seeds, skins and cores are removed. The pulp is concentrated in a vacuum pan at a temperature of 63°C to the desired consistency, filled into cans and processed as described for Warranty Sieved Spinach (THE JOURNAL Feb 2, 1935 p 399).

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	91.6
Total solids	8.4
Ash	0.7
Sodium chloride	0.1
Fat (ether extract)	0.1
Protein (N X 6.25)	1.2
Reducing sugars as invert sugar	4.7
Sucrose	0.1
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	5.6
Titratable acidity as citric acid	0.5

**Calories**—0.3 per gram 9 per ounce

**Vitamin**—The method of preparation and processing insures the retention in high degree of the natural vitamin values.

**Claims of Manufacturer**—Specially intended for infants, children and convalescents, and for special smooth diets. Only warming is required for serving.

## COFFEE FLAVOR SPARKLE GELATIN DESSERT

**Manufacturer**—Quaker Maid Company, New York.

**Description**—Gelatin dessert powder containing sucrose, gelatin, coffee extract and sodium chloride.

**Manufacture**—The ingredients in formula proportions are automatically mixed, dried, and packed in cartons.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	1.3
Total ash	0.6
Protein (N X 5.55)	11.9
Sucrose	82.2
Carbohydrates and coffee solids (by difference)	86.2

**Calories**—3.7 per gram 105 per ounce

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SATURDAY, JUNE 1, 1935

## DEFINITION OF ALLERGIC DISEASES

The development of the term "allergy" and the rapid increase in knowledge concerning this state have resulted in widespread loose usage. An allergic state has thus been proposed as the explanatory mechanism in a vast number of diseases both common and rare. Perhaps it is time now to examine the definition and determine its present status.

Rackemann<sup>1</sup> quotes Pirquet as defining allergy as a changed reaction capacity that the human or animal organism gains through recovery from disease or through treatment with foreign substances. Later Rackemann states that "allergy is the capacity to react to many substances which are entirely innocuous to normal individuals." Tuberculosis, for example, could scarcely be classed as an allergic disease under this definition. In discussing the same subject, Vaughan<sup>2</sup> says "The word allergy is derived from the Greek and means altered energy or altered activity, or altered reactivity. The allergic individual reacts differently to certain stimuli with which he comes in contact. What is harmless for the nonallergic person causes severe symptoms in the allergic patient." This definition allows considerable leeway in interpretation. Although arising largely from a study of anaphylactic phenomena in animals, the conception of allergy as altered reactivity of the body might be stretched to cover almost any deviation from functional normality. While perhaps strictly permissible, this broad interpretation departs widely from the meaning of the term at the time of its introduction.

From time to time there have been investigators who uttered feeble protests at the all embracing progress of allergy, but these have been engulfed by animal experiments showing that almost any type of inflammatory lesion can be produced by protein sensitization. Suggestive evidence such as Key's<sup>3</sup> experiments, which

showed similar inflammatory lesions in animals from nonprotein chemicals, have been met by postulating a combination of these chemicals with human blood protein to make a new protein that behaves like a foreign one.<sup>4</sup> Although possibly true, the burden of proof of the latter view necessarily rests with those who propose it.

Aschoff<sup>5</sup> has recently lent his weight toward a relatively narrow definition of allergic diseases. He believes that allergy should be restricted to disorders that appear in attacks on the basis of a true tissue hypersensitivity. The transference of observations on artificial allergy in animals to human subjects he deprecates. This process has gone so far that allergic manifestations occurring in the course of infectious diseases are interpreted as meaning that the disease is itself allergic. A disturbing confusion has thus resulted in that etiologically different even if symptomatologically similar disturbances are designated as allergic because certain local histologic changes resemble the allergic inflammations that are produced artificially in animals. Aschoff objects to such disregard of specific pathogenic and pathologic laws. The tendency to assign the rheumatic state, for example, to a common allergenic agent is, he believes, a step backward. The grouping together of etiologically different diseases merely because of similar symptomatology or supposed common protein sensitivity is essentially unsound. Only a sharp etiologic differentiation makes effective causal therapy possible.

Whatever the ultimate outcome, it must be granted that much present use of the term "allergy" does not lend itself to clear thinking. The convenience of its use to explain processes not well understood recalls earlier use of such expressions as "ptomaine poisoning" or "intestinal flu." In the main it would probably be well to restrict the term to those disorders of sudden onset in which a specific tissue hypersensitivity is demonstrable. Pending the results of further investigation, allergy should be used sparingly in relation to the majority of inflammatory diseases.

## HUMAN STERILIZATION

Legislation affecting human sterilization has been or is being considered in the 1935 sessions of ten state legislatures. Already such legislation is presumably effective in many other states. The medical profession is frequently called on to present its views on the present status of knowledge of human inheritance and the indications for and limitations of human sterilization.

The inheritability of human structural and mental characteristics is not as easily determined as is that of animals, since the latter can usually be studied according to known laws of genetics. There is a body of opinion which believes that human inheritance cannot be determined. There are others who maintain that

<sup>1</sup> Rackemann, F. M. *Clinical Allergy*. New York: Macmillan Company, 1931.

<sup>2</sup> Vaughan, W. T. *Allergy and Applied Immunology*. St. Louis: C. V. Mosby Company, 1934.

<sup>3</sup> Key, J. A. "The Production of Chronic Arthritis by the Injection of Weak Acids Alkaline Distilled Water and Salt Solution into Joints." *J. Bone & Joint Surg.* 16: 67 (Jan.) 1933.

<sup>4</sup> Vaughan. *Allergy and Applied Immunology*, p. 76.

<sup>5</sup> Aschoff, Ludwig. "Ueber den Begriff der allergischen Krankheiten." *Med. Klin.* 31: 1 (Jan. 4) 1935.

much positive evidence is obtainable. Although at present the public interest is focused on mental defects, some of the best evidence of human inheritance lies in the field of developmental structural abnormalities. Some such physical defects appear to be pure dominant, some recessive and some sex linked. The same defect may be, for example, dominant in one family and sex linked in another. The mechanism in hemophilia, for example, is incontrovertible. Recently Macklin<sup>1</sup> has said that developmental defects, like developmental normalities, are hereditary.

There are several factors that make mental defects more difficult to follow. Mental defect grades from normal to abnormal without any sharp dividing line. Furthermore, moderate mental deficiency in families is often overlooked in the pedigree method of studying inheritance. In spite of these difficulties, data are obtainable that indicate beyond reasonable doubt the inheritance of certain mental characteristics. Macklin has pointed out the advantages and disadvantages of methods of study of human genetics. For example, the incidence of consanguineous marriages among the parents of persons showing a supposedly inherited trait may give information not only as to the inheritability but also as to the type of heredity exemplified in the trait in question. Similarly the same defect or disease occurring in identical twins in excess of the expected ratio for the general population would indicate a hereditary basis. Finally, Macklin believes that much important information is obtainable from a study of the frequency in related as compared with that in unrelated persons. Somewhat similar conclusions are pointed out by Roberts,<sup>2</sup> by the Brock<sup>3</sup> report in Great Britain and by others.

There is sufficient evidence of the inheritability of certain structural and mental defects, but control measures should be definitely limited to those defects whose essential inheritability and mode of transmission are known. The established genetic foundation must not be exceeded. Although compulsion serves as the basis for most state legal enactments in this country, mandatory action has been criticized by Myerson<sup>4</sup> and in the Brock report in view of the inherent danger in sterilization laws that might become punitive. Voluntary sterilization, limited to individuals possessing strong potentialities for perpetuating individually or socially serious physical or mental traits, is a rational procedure. The Brock report, however, raises at least two objections to a scheme for voluntary sterilization. It is argued that, if really voluntary, consent will not be obtained, also that defectives are so suggestible that they will be too readily persuaded and hence their consent is really meaningless. From a practical standpoint,

the Brock committee does not consider either objection valid, for, with reasonable eugenic knowledge and intellectual honesty among those responsible for proposing sterilization, these objections should be immaterial.

### "BAIT ADVERTISING" UNLAWFUL

The Constitution of the United States does not grant to any physician or dentist the right to use so-called bait advertising to lure patients into his office and to trap them into agreements which otherwise they would not make. It is no defense to say that the advertising is truthful or that in a particular case it was not resorted to for an improper purpose. If any legislature forbids through legislation all such advertising by members of any particular profession without regard to its truthfulness or purpose in particular cases, it is not for the courts to challenge that judgment. This is the gist of the decision recently rendered by the United States Supreme Court in *Semler v. Oregon State Board of Dental Examiners* (55 Sup. Ct. 570).

The case arose under a statute enacted by the Oregon legislature in 1933 (Oregon Laws, 1933, chapter 166), enlarging the list of causes for which licenses to practice dentistry might be revoked. It authorized the revocation of such a license if the licensee should be guilty of "advertising professional superiority or the performance of professional services in a superior manner, advertising prices for professional service, advertising by means of large display, glaring light signs, or containing as a part thereof the representation of a tooth, teeth, bridge work or any portion of the human head, employing or making use of advertising solicitors or free publicity press agents, or advertising any free dental work, or free examination, or advertising to guarantee any dental service, or to perform any dental operation painlessly." Semler, a dentist practicing in Portland, Ore., sought an injunction to prevent the enforcement of the act. His petition having been denied by the circuit court and by the Supreme Court of Oregon, he appealed to the Supreme Court of the United States. He contended that the statute was unconstitutional in that it denied due process of law and equal protection of the law and impaired the obligation of contracts. The United States Supreme Court, however, rejected this contention, saying as it did so:

We do not doubt the authority of the state to estimate the baleful effects of such methods and to put a stop to them. The legislature was not dealing with traders in commodities, but with the vital interest of public health, and with a profession treating bodily ills and demanding different standards of conduct from those which are traditional in the competition of the market place. The community is concerned with the maintenance of professional standards which will insure not only competency in individual practitioners, but protection against those who would prey upon a public peculiarly susceptible to imposition through alluring promises of physical relief. And the community is concerned in providing safeguards not only against deception, but against practices which would tend to demoralize the profession by forcing its members into an

<sup>1</sup> Macklin, Madge T. The Role of Heredity in Disease. *Medicine* 14:1 (Feb.) 1935.

<sup>2</sup> Roberts, J. A. F. Heredity and Mental Deficiency. *Brit. M. J.* 1: 413 (March 2) 1935.

<sup>3</sup> Report of the Departmental Committee on Sterilization. H. M. Stationery Office, 1934.

<sup>4</sup> Myerson, Abraham. A Critique of Proposed Ideal Sterilization Legislation. *Arch. Neurol. & Psychiat.* 33: 453 (March) 1935.

unseemly rivalry which would enlarge the opportunities of the least scrupulous. What is generally called the "ethics" of the profession is but the consensus of expert opinion as to the necessity of such standards.

It is no answer to say as regards appellant's claim of right to advertise his "professional superiority" or his "performance of professional services in a superior manner," that he is telling the truth. In framing its policy the legislature was not bound to provide for determinations of the relative proficiency of particular practitioners. The legislature was entitled to consider the general effects of the practices which it described and if these effects were injurious in facilitating unwarranted and misleading claims, to counteract them by a general rule even though in particular instances there might be no actual deception or misstatement.

While this decision has reference only to the Oregon law, it will protect from attack on the basis of supposed invalidity under the federal constitution the many similar laws<sup>1</sup> for the regulation of advertising by dentists that have been enacted during the last few years. Indeed, the dental profession seems to have concentrated its efforts toward modernizing the dental practice acts of many states and in doing so it has incorporated in them provisions looking toward the better regulation of dental advertising. The success of their efforts, which so far as advertising is concerned seems to be assured by the decision of the United States Supreme Court, should encourage the medical profession to seek similar legislation where present advertising privileges are abused.

## Current Comment

### BLOOD GROUPING TESTS AND THE LAW

At the meeting of the Session on Forensic Medicine of the Section on Miscellaneous Topics at the annual session of the American Medical Association in Cleveland last June, a motion was passed<sup>1</sup> to "organize a committee for the purpose of acquainting the suitable authorities in the legal profession with the existence and reliability of the blood grouping tests, so that

1 During 1933-1934 and to date in 1935 the following states have adopted amendments to their laws regulating the practice of dentistry substantially similar with respect to advertising prohibitions to the Oregon law 1933

Delaware Laws 1933 c. 240

Illinois Laws 1933 p. 708

Maryland Laws 1933 c. 564

Wisconsin Laws 1933 c. 189

1934

Massachusetts Laws 1934 c. 281

Rhode Island Laws 1934 c. — approved May 4 introduced as H 835

1935

California Laws 1935, c. 147

Colorado Laws 1935 c. — approved March 8 introduced as S 329

Idaho Laws 1935 c. — approved March 5 introduced as H 85

Indiana Laws, 1935 c. — approved February 26 introduced as H 218

Iowa Laws 1935 c. — approved May 6 introduced as H 203

Maine Laws 1935 c. 97

Montana Laws 1935 c. — approved February 23 introduced as H 87

Nebraska Laws 1935 c. — approved May 13 introduced as S 100

New Hampshire Laws 1935 c. — approved February 26 introduced as H 134

Tennessee, Laws 1935 c. 126

Utah Laws 1935 c. — approved March 22 introduced as S 9

The Indiana amendment appears to impose even more stringent prohibitions with respect to advertising than does the Oregon law.

1 Communication from the Session on Forensic Medicine of the Section on Miscellaneous Topics Minutes of the House of Delegates J. A. M. A. 102:2205 (June 30) 1934. Section on Miscellaneous Topics Session on Forensic Medicine Minutes of the Sections ibid 103:46 (July 7) 1934.

statutes may be enacted authorizing courts to order individuals to submit to blood grouping tests when they are required, in those jurisdictions in which blood tests are not obligatory at present." The first step toward this goal was taken recently in New York State, when blood grouping bills that had passed the legislature were signed by the governor.<sup>2</sup> Only a short time previously a case of disputed paternity had come before the supreme court of that state, in which blood tests were ordered by Justice Meier Steinbrink at the request of the defendant. The plaintiff refused to submit to the tests and on appeal to the appellate division of the supreme court, Justice Steinbrink's decision was reversed, since it was held that there was no statutory authority for such an order.<sup>3</sup> However, the new legislation will give this authority to judges trying future cases in New York State. A brief summary of the major forensic applications of blood grouping may be of interest at this time.<sup>4</sup> In illegitimacy proceedings, the tests can be used to exclude but not to prove paternity. Thus, if the mother belongs to group A, the child to group B and the supposed father to group A, the accused man could not be the father of the child, since the child possesses an agglutinin B which neither of the supposed parents has. On the other hand, if the accused man is found to belong to group B, this would not prove him to be the father of the group B child, since 15 per cent of all men belong to this group and there is a possibility of coincidence. With the aid of the four classic Landsteiner blood groups, one sixth of all falsely accused men can be exonerated. The agglutinogens M and N, discovered by Landsteiner and Levine<sup>5</sup> in 1928, have doubled the number of cases in which an exclusion can be obtained, so that now one out of three falsely accused men can be exonerated. In criminal cases the blood grouping tests are useful for purposes of identification. They are of great value in such cases, since at the present time as many as eighteen distinct types of human blood can readily be differentiated. For example, suppose that a criminal is wounded in a chase by the police but escapes. Some of his blood left at the scene of the crime is found to belong to group A, type N. All suspects except those belonging to this type can immediately be eliminated, and thus much time and expense can be saved. The value of keeping records of each criminal's blood group as well as his finger prints should therefore be evident. Incidentally, though clever surgeons with shady reputations have devised methods of altering the finger prints of criminals, it is impossible to change the blood group. The tests for M and N and the tests on old blood stains are of an exceedingly delicate nature and should be entrusted only to properly qualified individuals. This is important, since errors in diagnosis might result in grave injustice.

2 Time 25:66 (April 1) 1935

3 Beuschel v. Manowitz (N. Y.) 271 N. Y. S. 277 272 N. Y. S. 165 abstr. J. A. M. A. 104:344 (Jan. 26) 1935

4 A thorough and reliable compilation of all that is known concerning the individual differences in the blood and their applications has just been published (Wiener A. S. Blood Groups and Blood Transfusion Springfield Ill. Charles C. Thomas 1935). Landsteiner, Karl. Forensic Application of Serologic Individuality Tests J. A. M. A. 103:1041 (Oct. 6) 1934

5 Landsteiner, Karl and Levine, Philip. On Individual Differences in Human Blood J. Exper. Med. 47:757 (May) 1928. On the Inheritance of Agglutinogens of Human Blood Demonstrable by Immune Agglutinins J. Exper. Med. 48:731 (Nov.) 1928



## Association News

### THE ATLANTIC CITY SESSION

#### Scientific Exhibit

The attention of those attending the Atlantic City session is called to the fact that the Scientific Exhibit is not open evenings. The hours on Monday, June 10, will be from 12 noon until 6 p m and on other days from 8 30 a m until 6 p m, except Friday, June 14, when the Scientific Exhibit closes at 12 noon.

Admission to the Scientific Exhibit is limited to individuals wearing Fellowship badges or other badges of the convention and to guests to whom special cards of admission have been issued. The public is *not* admitted to the Scientific Exhibit.

#### Fraternity and Club Luncheons

Theta Kappa Psi Medical Fraternity will hold a luncheon Wednesday, June 12, at 12 30 p m at the Madison Hotel, Atlantic City.

The Phi Rho Sigma Luncheon will be held Wednesday, June 12, at the Ambassador Hotel in Atlantic City 12 30 p m.

Details on the Phi Beta Pi Medical Fraternity luncheon may be obtained from the Phi Beta Pi booth at the Atlantic City session.

#### Meeting of the American Radium Society

The American Radium Society will hold its annual meeting in the Vernon Room of Haddon Hall June 10 11. Symposia on radium packs, biopsies and breast cancer will form a large part of the program. The session, Tuesday afternoon however, will be devoted to miscellaneous problems.

#### Radio Broadcasts from Atlantic City and Philadelphia

Through the courtesy of the National Broadcasting Company and the Columbia Broadcasting System the American Medical Association will broadcast health talks to the public in connection with the annual meeting at Atlantic City June 10 to 14.

The talks over a network of the National Broadcasting Company will originate in the studios of Station WFIL at Philadelphia according to the following schedule (eastern daylight saving time):

- June 11 5-5 15 p m The Polio Situation by Dr J P Leake
- June 12 Hour to be announced News Features from the Convention W W Bauer M D
- June 14 5-5 30 p m Medicine in North America
- Nutrition and the Health of the Race by Dr James S McEster
- Truth in Therapeutics by Dr Jonathan C Meakins
- Speakers to be introduced by Dr Morris Fishbein.

The talks over a network of the Columbia Broadcasting System will originate in the studios of Station WPG, Atlantic City according to the following schedule:

- June 10 5-5 15 p m Sidelights on Sleep by Dr Clenville Giddings Jr
- June 14 3 15-1 30 p m Problems of the Hard of Hearing by Dr Austin A Hayden

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45 Chicago daylight saving time (3 30 central standard time). The next three broadcasts will be as follows:

- June 6 Wound Infections W W Bauer M D
- June 13 Summer Camps C C Bean
- June 20 Burns W W Bauer M D

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4 15 Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

- June 4 The Crippled Child W W Bauer M D
- June 11 See announcement of broadcasts from annual session
- June 18 Only One Pair of Eyes, W W Bauer M D

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**State Medical Election**—Dr Charles A Thigpen, Montgomery, was chosen president of the Medical Association of Alabama at its annual meeting, April 18. Dr Charles P Hayes, Elba, was named vice president of the southeastern division. Montgomery was designated as the place for the next annual meeting April 21-23 1936. At this session Dr James N Baker, Montgomery, was unanimously reelected state health officer for a second five year term, and a resolution was adopted urging the legislature to increase the state health officer's salary to a sum "commensurate with the office."

**Changes in Health Officers**—Dr Leslie G Cole has been appointed in charge of the Bullock County Health Department, succeeding Dr Ernest G Moore, Union Springs, who recently resigned to engage in private practice in Tallahassee. Dr Marion L Shaddix, Phenix City, has been named health officer of Russell County. Dr Lee Weathington, Boaz, has been appointed health officer of Marshall County. Dr Hugh C. Nickson has recently been appointed health officer of Chilton County at the head of a new full time health unit. Dr Myrtus R McWhorter, Woodland, has been appointed full time health officer of Randolph County, with headquarters in Wedowee.

### ARKANSAS

**Personal**—Dr James D Mooney has been elected mayor of Coal Hill. Dr James T Powell has been appointed health officer of Gravette and Dr J Pell Baker of West Helena.

**Society News**—Speakers before the Pulaski County Medical Society, Little Rock, recently, were Drs Louis Hamman, Baltimore, and Douglas Quick, New York, on heart pains and irradiation of cancer, respectively. The Physicians' Business and Credit Rating Bureau of Jonesboro has been organized with Dr Ralph M Sloan as president. At a meeting of the Academy of Medicine of Hot Springs National Park, April 2, Drs Neil D Buie and Thomas G Glass, Marlin, Texas, discussed hypertension.

### CALIFORNIA

**Dr Wilbur Made President of Motion Picture Council**—Dr Ray Lyman Wilbur, president of Stanford University and former Secretary of the Interior, has been elected president of the Motion Picture Research Council. This council was formed in 1928 to promote studies of the social value of motion pictures and to apply its conclusions to improving the movies.

**Changes in Health Officers**—The following physicians have recently been appointed health officers:

Oscar J Hansen, Redding of Shasta County, succeeding Dr Benjamin F Taylor.  
Oran Newton Taft to succeed the late Dr Perryman F Page Jr.  
William T Heffernan of Calexico to succeed Dr Frederick C Gregg.  
John A Wallace of Calipatria to succeed Dr John H Hutton.

**Society News**—The urologic section of the Los Angeles County Medical Society arranged a symposium on renal infections exclusive of tuberculosis for the meeting April 18. It was presented by Drs Hermon C Bumpus, Pasadena, William H Leake, Arthur Elmer Belt, George I Schenck, Verne R Mason and Robert V Day. Drs Pierre P Viole and Carl W Rand addressed a joint meeting of the Los Angeles Society of Ophthalmology and Otolaryngology and the Los Angeles Society for Neurology and Psychiatry, April 25, on Clinical and Post-mortem Conclusions Concerning the Intracranial Complications of Acute and Chronic Paranasal Sinus Disease and Visual Field Alterations Following Craniocerebral Injuries respectively. Dr John B deC M Saunders, San Francisco, discussed Development of the Spinal Column and Its Relationship to Certain Injuries before the Hollywood Academy of Medicine May 16.

### COLORADO

**Annual Surgical Clinics**—The first annual surgical clinics under the auspices of the Kit Carson County Medical Society were held at the Cheyenne County Hospital April 1-2, with Dr Leonard N Myers, Cheyenne Wells, as host. The session opened with clinics for appendectomy, inguinal hernia and hysterectomy. Following a luncheon, Dr Judson D Moschelle, Indianapolis, guest clinician, conducted a clinic and lectured on

thyroidectomy. Dr. Myers entertained in the evening with a dinner and smoker. The following morning was devoted to clinics.

### DISTRICT OF COLUMBIA

**Personal**—Dr. Edward J. Schwartz resigned as assistant health officer of the District of Columbia, April 1.

**Society News**—Speakers before the Medical Society of the District of Columbia, April 24, included Drs. George L. Weller Jr. on "Early Clinical Recognition of Adrenal Insufficiency Resulting from Partial or Total Atrophy of the Adrenal Glands", James Alexander Lyon, "Dissociation of the Thyroid from the Sympathetic Nervous System and Reduction of the Blood Supply to the Thyroid in the Treatment of Angina Pectoris," and Harry S. Bernton, "The Hygiene of Hay Fever."

### FLORIDA

**Society News**—Dr. Paul B. Welch discussed "A Comparison of Disease Incidence in Iowa and Florida with Special Reference to the Effect of Climate upon the Incidence of Digestive Disease" before the Dade County Medical Society in Miami, April 5, and Dr. Harry Hamilton Cooke "Skull Injuries."

**State Medical Election**—Dr. Orion O. Feaster, St. Petersburg, was chosen president-elect of the Florida Medical Association at its annual meeting in Ocala, May 15, and Dr. Herbert L. Bryans, Pensacola, was inducted into the presidency. Other officers of the association are Drs. Eugene G. Peck, Ocala, John W. Alsobrook, Plant City, and J. Turberville, Century, vice presidents and Dr. Shaler A. Richardson, Jacksonville, who was reelected secretary. It was decided to hold the convention in 1936 aboard the *S. S. Florida* on a cruise among the Bahama Islands, newspapers reported.

### GEORGIA

**University News**—Dr. Eliot R. Clark, professor of anatomy, University of Pennsylvania School of Medicine, Philadelphia, addressed a joint meeting of the University of Georgia Science Club and the Louis Dugas Journal Club of the University in Augusta, April 15, on the vascular system.

**State Medical Election**—Dr. Benjamin H. Minchew, Waycross, was chosen president-elect of the Medical Association of Georgia at its annual meeting in Atlanta, May 10, and Dr. James E. Paulin, Atlanta, was installed as president. Dr. Edgar D. Shanks, Atlanta, was elected secretary to succeed Dr. Allen H. Bunce. Dr. Bunce has been a member of the Board of Trustees of the American Medical Association since 1929. The next annual session of the association will be held at Savannah, May 12-15, 1936.

### ILLINOIS

**Society News**—Dr. G. Henry Mundt, Chicago, addressed the Livingston County Medical Society, Pontiac, April 18, on "The Relation of Medicine to the Body Politic."—Drs. Aaron Arkin and Harry Culver, Chicago, addressed the Decatur Medical Society, April 23, on "Blood Dyscrasias and 'Traumatic Lesions of the Urinary Tract,'" respectively. Dr. Arkin conducted a clinic on heart disease during the day.—Dr. William H. G. Logan, Chicago, addressed a joint meeting of the Warren County medical and dental societies, April 25, on "Common Lesions and Abnormalities of the Face, Mouth and Jaws."—Dr. Maurice L. Blatt, Chicago, was the speaker at a meeting of the Whiteside County Medical Society, April 25, on "Convulsions in Children: Diagnosis and Treatment."—Dr. Samuel Soskin, Chicago, discussed diabetes mellitus at a meeting of the Will-Grundy Counties Medical Society, April 24.—Dr. Sumner L. S. Koch, Chicago, spoke before the Fulton County Medical Society, April 24, on "Repairs of Defects of the Superficial Tissues Resulting from Burns and Injuries."

#### Chicago

**Personal**—At a banquet in his honor, April 24, Dr. Max Thorek was made a chevalier of the French Legion of Honor in recognition of his contributions to surgical science and humanitarian work among the poor. Consul General Rene Weiller conferred the decoration.

**Society News**—Puerperal infections occurring in maternal deaths in 1933 was the theme of the meeting of the maternal welfare committee of the Chicago Gynecological Society, May 21. Dr. Abraham F. Lash, assistant professor of obstetrics and gynecology, University of Illinois College of Medicine, presented the topic and Dr. Julius E. Fleischer discussed it. The committee has been conducting a survey of maternal deaths in the city for three years and plans to continue for at least one more year.

**Lecture on "Heroes in Medicine"**—Withrow Morse, Ph.D., New York, will give an illustrated lecture on "Modern Heroes in Medicine" at the Allerton Hotel, 701 North Michigan Avenue, June 9. The courage shown by workers in developing scientific facts will be illustrated by a sound motion picture and by slides. Dr. Anton J. Carlson, professor of physiology, University of Chicago, will introduce the speaker. Dr. Morse served as professor of biochemistry successively in the medical departments of the Universities of Nebraska and West Virginia and Jefferson Medical College, from 1916 to 1929. There will be no admission fee, and a cordial invitation is extended to physicians. The lecture will be at 8:30 p.m.

**Dr. Tahaferro Named Dean of Biologic Division**—William H. Tahaferro, Ph.D., associate dean, Division of Biological Sciences, University of Chicago, and chairman of the department of hygiene and bacteriology, has been appointed dean of the division to succeed Frank R. Lillie, Ph.D., Andrew MacLeish distinguished service professor of embryology, whose retirement at the age of 65 is effective this year. Dr. Tahaferro, who will take over his new duties July 1, is also professor of parasitology. He is 40 years of age and graduated from the University of Virginia in 1915. He received his degree of doctor of philosophy from Johns Hopkins University in 1918. He taught protozoology at Johns Hopkins from 1919 to 1924, when he became affiliated at the University of Chicago as associate professor of parasitology. In 1927 he was made professor in this subject and in 1931 became associate dean of the division. Dr. Lillie earned his philosophy degree at the University of Chicago in 1894. The following six years he served on the staffs of the University of Michigan and Vassar College. In 1900 he began his association with the University of Chicago and in 1907 was made professor of embryology. In 1911 he was made chairman of the department of zoology and in 1931 dean of the Division of Biological Sciences. Since 1925 he has been president of the Marine Biological Laboratory at Woods Hole, Mass. He was managing editor of the *Biological Bulletin* from 1902 to 1926 and was formerly associate editor of the *Journal of Experimental Zoology*. Dr. Lillie was recently elected president of the National Academy of Sciences and chairman of the National Research Council, Washington, D.C. Dr. Arthur C. Bachmeyer, director of the University Clinics, has been made associate dean of the division.

### INDIANA

**Society News**—Dr. Joseph Brennemann, Chicago, discussed acute conditions of the abdomen in the child before the Tippecanoe County Medical Society in Lafayette, April 11.—Dr. Aaron Arkin, Chicago, discussed "Differential Diagnosis of Organic Heart Disease" before the LaPorte County Medical Society in Michigan City, April 18.—The Muncie Academy of Medicine was addressed in Muncie, April 30, by Dr. Merritt Paul Starr, Chicago, his paper was entitled "The Clinical and Physiological Relation of the Pituitary to the Thyroid."—At a joint meeting of the Miami County Medical and dental societies in Peru, March 29, focal infections were discussed by Dr. Benjamin F. Eikenberry and John P. Van Osdel, D.D.S.—A symposium on the surgical pathology of appendicitis was presented before the Huntington County Medical Society in Huntington, April 2, by Drs. William C. Moore and Lall G. Montgomery, Muncie.—At a meeting of the Fort Wayne Medical Society in Fort Wayne, April 16, Dr. Cyrus C. Sturgis, Ann Arbor, Mich., discussed treatment of the anemias.—Dr. George H. Gardner, Chicago, addressed the Northeastern Indiana Academy of Medicine in Kendallville, April 25, on "The More Common Pelvic Infections: Etiology, Pathology, Differential Diagnosis, Treatment and Prevention."—The Madison County Medical Society was addressed in Anderson, April 15, by Dr. Francis C. Guthrie on "Cardiac Pathology and Its Interpretation."

### KANSAS

**Personal**—Dr. Charles M. Siever, for nineteen years head of the student health department at Kansas State College, Manhattan, resigned, April 1. Dr. Siever, whose resignation will become effective August 31, practiced in Holton from 1909 to 1916, serving as health officer of Jackson County six years of this time. He will probably continue private practice in Manhattan, it was stated.—Dr. Alonzo R. Adams, president of the Leavenworth County Medical Society, has been appointed city physician and health officer of Leavenworth.—Dr. Joseph W. Spearing, Cimarron, has been appointed health officer for Ford County.

**Society News**—Dr. Andrew B. Rivers, Rochester, Minn., addressed the Sedgwick County Medical Society, Wichita, April 19, on the diagnosis and treatment of peptic ulcer.—The Reno County Medical Society was addressed in Reno

March 1, among others, by Drs Ralph H. Major, Kansas City, Mo., on "Hippocrates and the Isle of Cos," and Cecil G. Leitch, Kansas City, Mo., "Pathology of Sudden Death from Heart Disease."—Dr Thomas G. Orr, Kansas City, Mo., addressed the Shawnee County Medical Society in Topeka, April 1 on fractures of the skull.—Dr William J. Feehan, Kansas City, on "Emergency Treatment of Simple and Compound Fractures." The society was addressed March 27, by Dr Harold V. Holter, Kansas City, on "Obstetrical Shock and Embolism."

## LOUISIANA

**Society News**—Speakers before the Orleans Parish Medical Society, New Orleans, April 8, were Drs Michael E. DeBakey and Edward William Alton Ochsner on "Diagnosis and Treatment of Amebic Hepatic Abscess," and John Sig-norelli, "Chronic Abdominal Discomfort in Children." Speakers before the society, May 13, included Drs James K. Howles and Edward William Alton Ochsner on "Mycotic Infections of the Skin" and "Total Ablation of the Thyroid in Cardiac Disease," respectively. The society was addressed, April 22, on acute mercury poisoning by Drs Edgar Hull and Louis A. Monte F. Boyce.—Dr Charles L. Scudder, Boston, addressed the Fourth District Medical Society in New Orleans, March 5 on "Fractures of the Hip and Spine" and Dr James B. Vaughan, Monroe, "The Cardiograph in the Diagnosis of Heart Disease."—Dr Charles J. Bloom has been elected president of the Louisiana State Pediatric Society, and Dr Ruth G. Aleman, New Orleans, vice president.

## MARYLAND

**Personal**—C Leroy Ewing, director bureau of laboratories, Baltimore City Health Department, was elected president of the Maryland Society of Bacteriologists recently.—The honorary degree of doctor of laws will be conferred on Dr James M. H. Rowland, dean, University of Maryland School of Medicine, Baltimore, by Washington College Chestertown, at the annual commencement.—Dr Mabel I. Silver has returned to Baltimore on furlough from her station at Tama, West Africa.

**Negro Death Rates Decline**—The general death rate per thousand of the total Negro population was 168 in 1934 as compared with 233 in 1915. Similar declines were noted in morbidity rates 204.3 in 1934 as compared with 402.1 in 1915 for tuberculosis, typhoid 7.6 in 1934 as against 47.2 in 1915 and 0.7 in 1934 against 7.1 in 1915 for diphtheria. The colored infant mortality rate per thousand live colored births was 104.1 in 1934 while 1915 showed a rate of 195.5. Increases were noted for heart disease and cancer, the respective rates being 258.6 and 87 in 1934 as compared with 222.4 and 55.2 in 1915.

**Health Department Staff Meetings**—Dr Joseph Earle Moore, associate in medicine, Johns Hopkins University School of Medicine, addressed the third meeting of the medical staff of the Baltimore City Health Department, April 12 on syphilis. These meetings were instituted February 8, when Dr Lewellys F. Barker spoke. Dr Victor F. Cullen, State Sanatorium, addressed the March meeting on tuberculosis. The medical staff is made up of seventy-four physicians, eleven of whom serve on a full time basis. The remaining sixty-three are engaged in private practice and act as health officers in the prenatal infant and school hygiene services, in connection with the control of tuberculosis or the venereal or other communicable diseases.

## MICHIGAN

**Exhibition of Hobbies**—The Woman's Auxiliary of the Wayne County Medical Society Detroit sponsored the second annual exhibition of hobbies by members of the profession their wives and families April 12-19. The display included a children's exhibit oil paintings, crayon sketches, sculpture, china photographs, anatomic drawings, pottery, watercolors and metal work.

**Society News**—Herbert V. Barbour, chief counsel of the Michigan State Medical Society, addressed the Oakland County Medical Society in Pontiac April 17 on "Legal Problems and the Practice of Medicine."—Dr William Wayne Babcock, Philadelphia, addressed a meeting in Grace Hospital, Detroit April 12 on "Diagnosis and Management of Carcinoma of the Intestinal Tract."—Among others, Dr Robert F. Ridpath, Philadelphia, addressed the twenty-fifth anniversary meeting of the Detroit Otolaryngological Society April 24 on "Voice Production and the Various Characteristics of the Voice."—Dr Fred L. Adair, Chicago, spoke before a joint meeting of the Detroit Pediatric Society and the Detroit Obstetrical and Gynecological Society April 3 on "Birth Trauma in Relation

to Fetal Deaths and Neonatal Morbidity and Mortality."—Dr Alexander A. Goldsmith, Chicago, addressed the Kalamazoo Academy of Medicine, April 16, on "Regional Ileitis."—Dr Louis A. Brunsting, Rochester, Minn., addressed the Kent County Medical Society, April 24, on "Changing Conceptions of Eczema."—Dr Burrill B. Crohn, New York, discussed "Nonspecific Ulcerative Colitis" before the medical section of the Wayne County Medical Society, April 1. Dr Irving S. Cutter, dean, Northwestern University Medical School Chicago, addressed a joint meeting of the society and the woman's auxiliary on "Contemporary Medicine," April 8. The Noon Day Study Club and the dramatic section of the society presented three one act plays, April 1. A Leap Year Bride, "The Dance Below" and "Before Breakfast."

## MINNESOTA

**Memorial to Lucretia Wilder**—Funds are being solicited by a committee at the University of Minnesota Medical School to establish either a memorial tablet or a scholarship prize in honor of the late Miss Lucretia Wilder, who died as the result of an infection received in the pursuit of her research work on leukocytosis. Contributions should be sent to Dr Elias P. Lyon, dean, 136 Medical Service Building, University of Minnesota, Minneapolis.

**Society News**—The Hennepin County Medical Society was addressed May 6 by Dr Edward H. Rynearson, Rochester, with "Recent Advances in the Study of the Endocrine Glands, Gland to the Carbohydrate Metabolism as Well as Its Role in the Sex Cycle of the Female."—Dr Henry W. Meyerding, Rochester, addressed the Becker-Clay Counties Medical Societies at Sand Beach, March 29, on bone surgery.

## NEW JERSEY

**Personal**—Philip McKim Garrison, secretary of the pharmaceutical firm of Merck & Co., Rahway, aged 65, died in New York, March 20, of anemia.—Members of the Machaon Club of Hudson County and other friends met at a dinner in honor of Dr Levings A. Opdyke, Jersey City, April 3, celebrating his fiftieth anniversary in the practice of medicine.—Drs Alexander Macalister, Camden, and John W. Marcy, Merchantville, were guests of honor at the meeting of the Camden County Medical Society, Camden May 7, marking the fiftieth anniversary of their graduation from the University of Pennsylvania School of Medicine. Both received embossed scrolls attesting their service.

**Society News**—Drs John R. Finley, New York, and Arthur W. Bingham, East Orange, addressed the Bergen County Medical Society April 9, on "Postpartum Care" and "Prenatal Care," respectively.—Drs Charles F. Geschickter and Murray M. Copeland, Baltimore, addressed the Essex County Medical Society Newark, on "Benign Tumors of the Breast and Their Endocrine Relationship" and "Cancer of the Breast and Their to Diagnosis and Treatment," respectively.—The Essex County Anatomical and Pathological Society celebrated its twenty-fifth anniversary February 28, with a dinner, at which Dr Harrison S. Martland, Newark, was the guest of honor.—Dr Israel Strauss, New York, addressed the Hudson County Medical Society May 7 in Jersey City on "Encephalography and Its Diagnostic Significance."

## NEW YORK

**A Member Fifty Years**—The Ontario County Medical Society at its spring meeting, April 9, paid honor to Dr George W. Sargent, Seneca Castle, who has been a member of the society for fifty years. Following a dinner at Clifton Springs Sanitarium, Clifton Springs, Dr Arthur J. Bedell, Albany, president of the Medical Society of the State of New York, made the congratulatory address. Dr Sargent graduated from the Syracuse University College of Medicine in 1879.

**Personal**—Dr Henry R. O'Brien, Albany, has been appointed health officer of Cattaraugus County to succeed Dr Reginald M. Atwater, who resigned to become executive secretary of the American Public Health Association.—Dr Spencer L. Dawes, medical examiner of the state department of mental hygiene since 1919, retired April 1.—Walter L. Hutchins, assistant secretary of the New York State Department of Mental Hygiene for the last twelve years, died at his home in Albany, April 21 after a brief illness.

**Septic Sore Throat Due to Contaminated Milk**—An epidemic of about 250 cases of septic sore throat at Baldwinsville Onondaga County was reported by the state department of health April 15. More than 90 per cent of those attacked were customers of a single dairy, which supplies about 450

quarts a day from five different farms. Investigation revealed that a cow on one farm was suffering from mastitis of a type previously encountered in outbreaks of septic sore throat. The disease was said to be severe, but no deaths had occurred up to the time of the report.

**Society News**—Dr Nels A. Nelson, Boston, addressed a special meeting of the Syracuse Academy of Medicine, April 30, on "Epidemiology of Syphilis."—Dr Frederic E. Elliott, Brooklyn, addressed the Medical Society of the County of Erie, April 30, on health insurance.—At the annual meeting of the New York State Dental Society in Upper Saranac, June 12-15, Drs I. Newton Kugelmass and Douglas Quick, New York, will speak on "Medical Management of Dental Caries in Children" and "Cancer of the Mouth: Its Prevention and Early Diagnosis," respectively, and Dr Arthur Q. Penta, Saranac Lake, N. Y., on "The Role of the Oral Spirochete and Associated Anaerobes in Pyorrhea and Pulmonary Suppuration."

### New York City

**Faculty Changes at New York University**—Dr Lewis D. Stevenson has been appointed assistant professor of neuropathology and Dr Howard C. Taylor, assistant professor of obstetrics and gynecology. In addition the following promotions have been announced:

Dr Edward R. Maloney to associate professor of dermatology and syphilology

Dr Evan W. McLave to assistant professor of clinical medicine  
Dr Harold R. Merwarth, to clinical professor of neurology  
Dr Meredith F. Campbell to clinical professor of urology  
Dr Aaron Brown to assistant clinical professor of medicine  
Dr Morris Goodman to assistant clinical professor of medicine  
Dr William H. Lewis Jr. assistant clinical professor of medicine

**Hospital News**—New laboratories were opened at the Hospital for Ruptured and Crippled, April 17, with a ceremony at which Dr Robert B. Osgood, emeritus professor of orthopedic surgery, Harvard University Medical School, Boston, delivered the principal address. The new department occupies a wing of the sixth floor and includes a medical museum and a library, in addition to facilities for research.—Ground was broken, April 7, for a new wing at the Richmond Memorial Hospital, Prince's Bay, Staten Island, which will double the capacity of the hospital, now forty-five beds. The addition is the gift of Mrs. Louis A. Dreyfus, who has previously given large amounts to the hospital.

**Society News**—The Medical Society of the County of Queens met with the Queens County Bar Association, April 30, for the following program: Mr. Lorenz Brosnan, "Medico-legal Relationship Between Physician and Patient"; Mr. Charles P. Sullivan, "The Criminal Legal Relationships of Medical Practice"; and Dr. Charles Norris, "Modern Forensic Medical Practice."—Dr. François Ackermann, Geneva, Switzerland, lately of the Faculty of Medicine and Dentistry of the University of Geneva, Switzerland, was guest of honor at the annual banquet of the American Stomatological Association, April 3. He delivered an address on "The Local Proximal and General Modifications Resulting from Normal Occlusion."

**Presumptive Diphtheria Carriers**—The procedure for administrative control of diphtheria carriers has recently been modified by the department of health. The term "presumptive diphtheria carriers" has been introduced to define a person who harbors diphtheria-like bacilli but who gives no history of a recent sore throat or nasal discharge, or who harbors diphtheria-like bacilli but has not been in contact with a recent case of diphtheria. These presumptive carriers will be visited, but they will not be isolated or their premises quarantined. Arrangements have been made for prompt testing of such persons for virulence of the bacilli and according to the results the carrier will be classified as "diphtheria carrier" or "no case," according to the department's bulletin. They will be excluded from school and prohibited from going out of town until the result of this test is reported. It is believed that the new procedure will relieve hardships sometimes imposed on harmless carriers of nonvirulent bacilli.

### NORTH CAROLINA

**University News**—Dr Foster Kennedy, New York, gave the second annual lecture sponsored by Nu Sigma Nu at Duke University School of Medicine, April 13, on "The Relation of Neurology and Psychiatry to General Medicine."—A new 400,000 constant potential volt x-ray machine has been installed at Duke Hospital.

**State Medical Election**—Dr Charles F. Strosnider, Goldsboro, was named president-elect of the Medical Society of the State of North Carolina at its annual meeting in Pinehurst, May 6-8, and Dr Paul H. Ringer, Asheville, was inducted into the presidency. The next annual session will be held at Pinehurst, May 4-6, 1936.

### OHIO

**University News**—Drs Adolphus W. Foertmeyer, Douglas A. Johnston and Clyde E. Shinkle were advanced from instructors to assistant professors in psychiatry at the University of Cincinnati College of Medicine at the March meeting of the board of directors.

**Personal**—Dr Rezin J. Pumphrey, Massillon, was honored by a dinner, April 9, celebrating the fiftieth anniversary of his entrance into medical practice. Dr George W. Crile, Cleveland, was the principal speaker.—Dr John D. Schonwald, Oxford, has been named medical director of Miami University, succeeding Dr Wade MacMillan, who recently retired.—Dr William A. McMichael, Keene, has been appointed health officer of Coshocton County to succeed Dr Samuel B. Kistler, Coshocton.

**Annual Cincinnati Homecoming**—The University of Cincinnati College of Medicine will hold its annual reunion and homecoming June 8. Dr Marion A. Blankenhorn, who becomes head of the department of internal medicine at the school, September 1, will be the guest of honor and principal speaker. Dr Ben L. Bryant, president of the Alumni Association, will preside at the banquet. The following program will be presented Saturday morning:

Dr Robert A. Kehoe, Lead Poisoning with Special Reference to Laboratory Diagnosis  
Dr George M. Guest, The Anemias of Early Childhood  
Dr William M. Millar, Newer Aspects of Radium Therapy in the Management of Malignant Disease  
Dr Johnson McGuire, Electrocardiography

The afternoon will be devoted to a series of round table discussions. Recent Advances in Hematology, Dr Leon Schiff; Diagnosis and Treatment of Diseases of the Biliary Tract and Pancreas, Dr Max M. Ziminger, and Peripheral Vascular Disease, Dean Alfred Friedlander and Louis Herrmann. All graduates of the College of Ohio, Miami and the University of Cincinnati College of Medicine are cordially invited.

### PENNSYLVANIA

**Montour County Graduate Assembly**—The monthly graduate assembly presented by the Montour County Medical Society for April was held at Geisinger Memorial Hospital, Danville. Dr William Wayne Babcock, Philadelphia, conducted a dry clinic on differential diagnosis of general surgical conditions, other guests were Drs Norris W. Vaux and Clifford B. Lull, Philadelphia, who presented a symposium on obstetrics.

**Personal**—Dr Charles S. Aitken Brookline, was appointed coroner of Delaware County recently to succeed Dr James Evans Scheehle Llanerch, who resigned to become state secretary of welfare.—Dr John M. Dumin, Mackeyville, has presented an acre of land to the Lock Haven Kiwanis Club as a permanent site for the Kiwanis Health Camp. For the past two years the club has maintained a camp in cooperation with the Clinton County Tuberculosis Society for fifty underprivileged children.—Dr Martin E. Griffith, Monessen, was guest of honor at a dinner given by the Kiwanis Club of Monessen, April 2, celebrating his fiftieth anniversary in the practice of medicine.—Dr James T. Strimple, Erie, was recently appointed health officer of Erie County, succeeding Dr Richard O. Miller.

### Philadelphia

**Personal**—Dr John A. Kolmer received the Poor Richard Medal of achievement, awarded by the Poor Richard Club April 4, in recognition of his work on poliomyelitis vaccine.—Dr Alfred N. Richards, professor of pharmacology, University of Pennsylvania, will receive the honorary degree of doctor of laws from the University of Edinburgh in June, Science reports.

**Needy Medical Students Aided**—The University of Pennsylvania has been made the beneficiary of most of the \$115,000 estate of the late Dr Delno E. Ketcher according to the New York Times. A loan fund will be created for needy students in the medical school who have satisfactorily completed the first year medical course. Graduate students and research workers in medical science will also be entitled to aid.

**Newbold Lecture**—Dr C. U. Ariens Kappers, director of the Institute for Brain Research at Amsterdam and professor of comparative anatomy, University of Amsterdam, delivered the thirty-fourth Mary Scott Newbold Lecture of the College of Physicians of Philadelphia, May 1. His subject was "Development of the Different Layers of the Cerebral Cortex with Reference to Some Pathological Cases, the Forebrain of Prehistoric Races."

**Hospital News**—Dr Karl Lindner, Vienna, Austria, gave a series of four lectures at Wills Eye Hospital, April 15-18, on cause and treatment of retinal detachment, clinical pathology of the vitreous, present operations for the treatment of ptosis, and glaucoma and extraction of cataract—A clinic for the administration of protective serum against poliomyelitis was opened at Temple University Hospital recently by Dr John A Kolmer

**Society News**—Dr Edward C Rosenow, Rochester, Minn, addressed the Academy of Stomatology of Philadelphia April 23, on 'The Present Status of Focal Infection Problems'—Drs Leon H Cornwall and Richard M Brickner, New York, addressed the Philadelphia Neurological Society, April 26 on 'Experimental Production of Multiple Sclerosis' and 'Treatment of Multiple Sclerosis,' respectively—Dr J. Norman Henry, health director of Philadelphia and Louis I Dublin, Ph.D., New York, addressed the Philadelphia Metabolic Association, March 29 on 'Public Health Aspects of Diabetes' and 'Diabetes Mellitus, Its Incidence and Epidemiology and Its Relationship to Heredity and Obesity' respectively—Dr Benjamin P Potter Secaucus N J addressed the Philadelphia Roentgen Ray Society May 2 on 'Bronchography as an Aid in the Interpretation of X-Ray Shadows Cast by Pleuropulmonary Changes in Tuberculosis'

### SOUTH DAKOTA

**Society News**—Dr Byrl R. Kirklin, Rochester, Minn., addressed the Aberdeen District Medical Society recently, on 'Diagnosis of Carcinoma of the Stomach'—At the spring meeting of the Yankton District Medical Society in Vermillion, April 24, Dr Nelms J. Nessa Sioux Falls, discussed 'Therapeutic Applications of X-Rays in Medicine'—Gilbert G Bicknell DDS., Yankton "Dental X-Rays as a Diagnostic Aid" and William E Donahoe, Sioux Falls "Economics of Organized Medicine"—The Seventh District Medical Society met at Sioux Falls April 9 with Dr Frank B Kirby North Chicago Ill., as speaker on 'Professional Economics'—Speakers at a meeting of the Huron District Medical Society in March at Huron were Aberdeen physicians Drs John L Calene on hypothyroidism Roland G Mayer hematuria, and Earle A Pittenger medical economics

### TEXAS

**Society News**—Dr Frank D. Dickson, Kansas City was guest speaker at the semiannual meeting of the Texas Surgical Society in San Antonio April 8-9 presenting 'A Survey of the Management of Intracapsular Fracture of the Neck of the Femur'—Drs Roy G Giles and George V Brindley Temple among others addressed the Bell County Medical Society April 3 on 'Filtration for Maximum Effects at Different Depths in Roentgen Therapy' and 'Carcinoma of the Colon,' respectively—Dr Robert H. Millwee Dallas among others addressed the Anderson-Houston Counties Medical Society April 2 on 'Development and Behavior of Cancer Cells'—Speakers at a meeting of the Falls County Palestine Marlin April 8 were Drs John Walter Torbett Jr and Neil D. Buie, Marlin, on 'Use of Short Wave Therapy in Medical Conditions' and 'Hypertension Treated by Spa Method' respectively

### VIRGINIA

**Faculty Changes**—The Medical College of Virginia, Richmond, announces the following changes and additions to the faculty, among others, for the session 1935-1936  
Drs Frederick M. Hodges and Daniel D. Talley Jr professors of clinical radiology  
Dr Harry Walker assistant professor of medicine  
Dr Irl C. Riggan state health officer lecturer in preventive medicine and public health

**Society News**—Drs William T. Green Jr. Nassawadox, and Joseph H. Hiden Pungoteague addressed the Eastern Shore of Virginia Physicians Journal Club at Nassawadox, February 12, on refraction of the eye and on scarlet fever respectively—The Virginia Peninsula Academy of Medicine was recently organized at a meeting in Newport, with Drs Edward L. Alexander Newport News as president and Frank S. Bacon, Hampton, as secretary—At the quarterly meeting of the Southside Virginia Medical Association in Petersburg, March 12, speakers included Drs W. Ambrose McGee, Richmond, on 'Early Diagnosis Prevention and Treatment of Whooping Cough,' Richard F. Slaughter Jr Norfolk 'Treatment of Acute Head Injuries,' and John Shelton Horsley, Richmond, 'Glomus Tumor'—Dr Stuart N. Michaux, Richmond, addressed the Lynchburg Academy of Medicine, March 4, on 'Etiology and Treatment of Cystocele and Uterine Prolapse, with Special Reference to the Watkins-Wertheim Method of Treatment'—Drs Thomas M. Rivers New York and

Emil Novak, Baltimore, addressed the Roanoke Academy of Medicine, February 4, on 'Virus Encephalitis' and "Gynecologic Aspects of Endocrinology," respectively—Among other speakers, Drs Mason Romaine, Wilbur M. Bowman, Leta J. White and William B. McIlwaine III, all of Petersburg, presented a symposium on anterior poliomyelitis at a meeting of the Postgraduate Medical Society of Southern Virginia at Hopewell recently

### WEST VIRGINIA

**Society News**—The Cabell County Medical Society at its March meeting adopted a resolution condemning health insurance conducted by government, national, state or local, and authorized the committee on public policy and legislation to communicate this decision to West Virginia representatives in Congress—Drs Karl G. Zwick and Samuel L. Bauer, Cincinnati, spoke on 'Past and Present Concepts of Eczema and Its Treatment,' and "Eczema in Children," respectively—Dr John A. Kolmer Philadelphia, addressed the Parkersburg Academy of Medicine recently, on 'The Role of Vaccines in the Treatment of Diseases'—Dr Martin L. Bonar, Charleston, addressed the Harrison County Medical Society, Clarksburg, March 7, on "Treatment of Syphilis"

### GENERAL

**Northwest Medical Meeting**—The fourteenth annual meeting of the Pacific Northwest Medical Association will be held at the Davenport Hotel, Spokane, Wash. June 27-29. The following physicians will be on the program  
Loyal Davis Chicago Brain Surgery  
J. Edwin Wood Jr. University Va., Medicine  
Arno B. Luckhardt Chicago Physiology  
Tracy B. Mallory Boston Pathology  
George E. Brown Rochester Minn. Vascular Diseases  
Fred W. Rankin Lexington Ky. Surgery  
In addition there will be a lecture on obstetrics, the speaker to be announced later

**Dr Cushing Awarded Another Medal**—At its annual dinner in New York, May 9, the National Institute of Social Science conferred its gold medal on Dr Harvey Cushing, New Haven Conn., in recognition of "distinguished services rendered to humanity." Following his graduation at Harvard in 1895 Dr Cushing engaged in the practice of surgery. He was associated with Johns Hopkins University School of Medicine from 1902 to 1912 then he was Moseley professor of surgery at Harvard and surgeon-in-chief at Peter Bent Brigham Hospital until his retirement in 1932. The following year he became the first incumbent of a new chair at Yale University School of Medicine the Sterling professorship of neurology. Many honorary degrees have been conferred on Dr Cushing. In 1922 he was awarded the Charles C. Mickle Fellowship of \$1,000 by the University of Toronto Faculty of Medicine. This prize is given to the member of the profession considered by the faculty to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science. In 1923 he was awarded the Distinguished Service Medal During the World War he was a colonel in the medical corps and director of U. S. Base Hospital number 5 (Harvard base hospital unit). He received the Lister Medal of the Royal College of Surgeons in 1930. He was president of the American College of Surgeons and the American Neurological Association in 1923, and of the American Surgical Association in 1927. He was the recipient of the Cameron Prize of the University of Edinburgh in 1924. Dr Cushing's 'The Life of Sir William Osler' won the Pulitzer Prize for biography in 1925.

**Bequests and Donations**—The following bequests and donations have recently been announced  
Northern Westchester Hospital Mount Kisco N. Y. \$10,000 by the will of the late Mrs. Margaret Jardine Addicks Greenwich Conn.  
The following New York City hospitals were beneficiaries in the will of the late Mrs. Mary Strong Shattuck St. Luke's Hospital \$35,000 Bellevue Broad Street and Women's Hospitals \$25,000 Babies Hospital \$15,000 and New York Eye and Ear Infirmary \$10,000  
J. Miller  
Lankenau Hospital Philadelphia \$10,000 by the will of the late Emilie Wood, Omaha  
Methodist Hospital Omaha \$10,000 as a gift from Dr. and Mrs. I. C. Philadelphia General Hospital \$20,000 Kensington Hospital for Children and Maternity Nurse Society St. Christopher's Hospital for the late George Leib Harrison Philadelphia each \$5,000 under the will of the late Helen A. Bray Adrian Mich. \$25,000 by the will of the late Mrs. Helmbold Drexel Hill Pa.  
New York Association for the Blind \$2,500 by the will of the late Mrs. Lydia Evelyn Dancink.  
Chestnut Hill Hospital Philadelphia \$10,000 by the will of Mrs. Elizabeth Cuthbert Roberts Wyatt  
An estate estimated at more than \$700,000 is to go to the Salem Hospital Salem Mass. when it reaches \$1,000,000 according to the will of the late John H. Frazier Marblehead

Memorial Hospital and Hahnemann Hospital Worcester Mass \$10 000 each through a trust fund established by the late Eli Collier and the will of his daughter Etta C Collier Johnson

Among bequests by the late Adolph S Ochs publisher of the New York Times was a fund of \$5 000 for a portrait bust of Dr J Bentley Squier to be placed in the Squier Urological Clinic of Presbyterian Hospital New York

Yonkers General Hospital and St Joseph's Hospital Yonkers \$25 000 each, and St John's Riverside Hospital Yonkers \$150 000 from the Surdna Foundation

The Children's and Episcopal Hospitals Philadelphia \$10 000 each from the trust estates of Elizabeth C and Frances A Roberts

Children's Hospital Philadelphia, \$12 000 under the will of the late Mrs Laura A Hollar to endow a free room to be called the William A Hollar Memorial Room

Episcopal and Methodist Episcopal hospitals Philadelphia \$5 000 each by the will of the late William S Vane

Medical College of Virginia Richmond \$1 500 for a fellowship in the department of pharmacology for research on digitalis by Rare Chemicals Inc Napa Park N J \$1 200 for research on arthritis by Eli Lilly & Co Indianapolis and Parke Davis & Co \$1 500 for research in the department of pathology

New York University College of Medicine about \$180 000 and the New York Academy of Medicine \$1 000 by the will of the late Dr William Chittenden Lusk

French Hospital New York and Monmouth Memorial Hospital Long Branch N J \$116 070 each by the will of the late John Hubbard

Jefferson Medical College Philadelphia a fund of \$63 000 left by Mrs Jennie M Shoemaker for aid of needy students as a memorial to her husband Dr John V Shoemaker who was head of the old Medico Chirurgical College at the time of his death in 1910 The fund has been held in trust since Mrs Shoemaker's death in 1921

University of Pennsylvania \$125 000 to found the George de Benneville Keim Memorial income from which is to be used for the medical school \$50 000 in trust for the graduate school of the university for research in internal medicine through the will of Mrs Sarah Keim Montgomery

## FOREIGN

**Cameron Prize**—The University of Edinburgh has awarded the Cameron Prize for 1935 to Dr Julius Wagner-Jauregg, emeritus professor of psychiatry and neuropathology in the University of Vienna, in recognition of his discoveries in connection with malarial treatment of dementia paralytica, *Science* announces

**Congresses in Brussels**—The fourteenth annual session of the 'Medical Days' in Brussels will be held June 29-July 3, with physiopathology of the endocrine glands as the principal topic of discussion. It is expected that this session will be more than usually interesting because of the international exposition in progress in Brussels. For information address Dr Rene Beckers, secretary general, 141 rue Belliard Brussels, Belgium. The eighth International Congress of Military Medicine and Pharmacy will be held at the same time, beginning June 27. Information concerning this meeting may be obtained from the general secretary, Health Service Ministry of National Defense Brussels

**Society News**—The International Congress on Life Assurance Medicine will be held in London, July 23-27. Among other speakers will be Drs Chester T Brown, medical director of the Prudential Life Insurance Company, Newark, N J, on "Methods of Estimating Risks," and Samuel B Scholz Jr, medical director of the Penn Mutual Insurance Company, Philadelphia, on "The Role of Health Service in Life Insurance."—The twelfth International Congress of Pharmacy will be held in Brussels Belgium July 30-August 5. J Breugelmans 3 rue du Gouvernement Provisoire, Brussels, is secretary.—Prof Fernand Bezançon, Paris, has been chosen general secretary of the International Union Against Tuberculosis succeeding the late Dr Léon Bernard

**Hungarian Memorial Volume**—A special issue of the *Orvosképzés* (Hungarian Medical Postgraduate Journal, published by the Hungarian Medical Postgraduate Central Committee, Budapest) has just been issued in commemoration of the 300th anniversary of the Royal Hungarian University of Sciences. The volume is dedicated by the Hungarian Medical Postgraduate Central Committee to its alma mater. The president of the committee is Prof Dr Emil de Grósz. The other officers and members of the committee are the professors of the various faculties of the university. A complete list of the names is shown on the front of the cover page of the volume. The contents of the volume comprise articles written by Prof Freiherr Anton von Eiselsberg, Vienna, Prof Ludwig von Aschoff Freiburg im Breisgau Prof R. Anthony Paris, the members of the committee, and other Hungarian professors and prominent scholars in the various faculties of medical science. The subject matter of the articles is medical education in the various branches of medical science as applied in the universities of Hungary at present with reference to its historical development. One article is on the education in public hygiene in the civilized countries, as at present. Several articles are written in French, several in German one in Italian and the most in Hungarian. The *Orvosképzés* is published bimonthly and the memorial volume is a special issue published in the twenty-fifth year of the journal's existence

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

May 4 1935

### No Increase of Malnutrition

Attempts have been made by the labor party to represent maternal mortality and other matters of public health as due to malnutrition and the result of insufficient unemployment dole. These allegations have always been shown to be unfounded. In December last a letter appeared in the *Times* from a Sunderland physician maintaining that between the Tyne and the Tees (a large industrial area in the north of England where unemployment is rife) there was, in spite of what the chief medical officer of the ministry of health said in his last two reports a substantial and progressive deterioration in public health. The minister of health immediately appointed some of his higher officials to make an investigation. They visited the area and reported that the death rates from bronchitis and pneumonia, and the case mortality rate from scarlet fever and diphtheria do not indicate an unfavorable effect of the present economic conditions. Tuberculosis and rickets told the same story. A general survey of the population showed in 75 per cent a good standard of health. The remainder manifested a varying degree of subnormality grading from minor manifestations to what for want of a better name may be termed 'malnutrition.' But these terms are to be construed in relation not only to diet but also to environment, family care, habits and recent or active illness. From their own knowledge of the district since 1928 these officials could see no evidence of deterioration. With an occasional exception the consensus of medical opinion in the district confirmed this conclusion. The conditions in the town of Sunderland were less favorable but this is attributed to less favorable housing and to environment. Realizing the long continued economic stress and with knowledge of the home conditions the officials were often surprised at the high standard of health and courage maintained.

### The Health of the Navy

The report on the health of the navy for 1933 just issued shows an increase of the incidence of disease compared with 1932 and the five year average from 1928 to 1932. The total force was 83 125 and the total number of cases of disease and injury 41,852. Medical officers had difficulty in deciding how to return the catarrhal epidemics that occur in ships each winter. Many returned them as "epidemic catarrh", but, as it is impossible to draw a line between this and an epidemic of mild influenza all these cases are now shown under this heading. They numbered 3 770. It has been shown that excrement from seagulls in areas in which the sea water is contaminated with sewage may contain *Bacillus typhosus*. Automatic chlorinators are being fitted to the dockyard wells in Sheerness, as these have sometimes been found to contain impurities. A salt water swimming bath in an establishment at Gosport for training boys was shown bacteriologically to be grossly contaminated.

### The Epidemic of Malaria in Ceylon

The serious epidemic of malaria in Ceylon, after some diminution is again assuming greater proportions. Colonel Gill the expert adviser from India is touring the affected districts. The experiment of treatment with the new drug atebri-musonate appears to be successful. The sponsor for this drug is Dr A T W Simeons who arrived in January. He has had much experience in India Africa and Siam and at the Institute of Tropical Diseases at Hamburg. So confident is he of the value of the drug that he has offered his services free to the government of Ceylon. The total number of deaths



registered in Ceylon during the five months from November to March was 113,811, compared with 47,107 in the corresponding period of last year. The excess is attributed to malaria.

### The Robert Jones Memorial

The Council of the Royal College of Surgeons has agreed to the suggestions of the Robert Jones Memorial Fund Committee for the foundation of a Robert Jones professorship of the Royal College of Surgeons of England for an annual lecture or lectures on some subject connected with orthopedic surgery (sum allocated \$5,000) and for the foundation of a traveling research fellowship to be awarded alternately by the University of Liverpool and the Liverpool Medical Institute jointly, and the Royal College of Surgeons (sum allocated \$10,000).

### The Future of Radiologic Diagnosis

At a meeting of the Medical Society of London, Dr H G Hodgson, radiologist to King's College Hospital, introduced a discussion on the future of radiologic diagnosis. He said that coming radiologists must equip themselves with a wider and more extensive basis in pathology and clinical medicine. They must be able to talk to the neurologist, laryngologist, bacteriologist and other specialists in their own language and have a full knowledge of their difficulties. In the future, hospitals would demand that radiologists should have the same higher qualifications as their physicians and surgeons. The progress of x-ray technic would take place along two main lines—increased anatomic detail due to teleroentgenography and increasing refinement of opaque materials. He referred to a rotating target tube which had six focal spots of the smallest possible size, through which only a fraction of the total discharge passed. Thus a much heavier current could be used without injury. This tube had the advantage of the finest possible focus. Recently useful work had been done in the study of the gastro-intestinal mucosa by small quantities of barium sulphate with a technic whereby the rugae were outlined. Another useful method was the filling of the colon with barium sulphate, which was afterward siphoned off and air injected, so that abnormalities not previously revealed, such as polypi, became visible.

### Sir John Rose Bradford

The death of Sir John Rose Bradford, F.R.S., past president of the Royal College of Physicians, has removed one of the leading figures of English medicine. Born in London in 1863, he was educated at University College, where after a distinguished career as a student he joined the staff. His earliest work was physiologic. In conjunction with Bayliss he wrote on electrical changes in secreting glands. The action of drugs on the circulation and secretion of the kidney, the innervation of blood vessels, the results of partial nephrectomy, and the influence of the kidney on metabolism were other subjects. On the basis of his physiologic work he became the leading authority on disease of the kidney. In Allbutt's "System of Medicine" he wrote the articles on the general pathology of the renal functions and on nephritis, and in Allchin's "Manual of Medicine," those on rabies, the mycoses and diseases of the ductless glands.

### A Device for Viewing Operations

At St Bartholomew's Hospital a device has been adopted to enable more persons to view a surgical operation. A mirror with a universal joint is attached to the arm of the lamp. After the field of operation is illuminated and ready for the surgeon, the mirror is adjusted to the angle that gives most visibility to those not immediately concerned with the operation. In the ordinary way the surgeon and his assistants so block the visibility of the field that others can get only an occasional glimpse. The use of the mirror enables a larger audience to view the operation and has proved satisfactory.

## PARIS

(From Our Regular Correspondent)

April 26, 1934

### Character and Treatment of Scleroderma

Leriche reported, at the January 16 meeting of the Societe de chirurgie, his experience in forty-six cases of scleroderma, in thirty-two of which operation had been performed. Scleroderma, although its chief clinical manifestation is a thickening of the skin, is primarily a skeletal disease, in which, under the influence of a hyperparathyroidism, the skeleton liberates calcium constantly and abnormally, thus depriving the body of its calcium reserves without replenishing them. The skin accumulates a portion of this free calcium, so that one often sees a scleroderma associated with Raynaud's disease and arthritis deformans. Therefore scleroderma is an endocrine dysfunction, affecting specifically the parathyroids. Scleroderma is not a sympathetic trophoneurosis. The sympathetic is simply an intermediary in the mechanism of production of the scleroderma. The parathyroid hormone causes vasomotor disturbances of a hypertonic type at the periphery; hence sympathectomy is efficacious. Since 1922, Leriche has operated in thirty-two cases. He excludes advanced sclerodermas with mummification, cases presenting bronzed skins and marked asthenia, and cases of scleroderma of the extremities of the edematous type, in all of which the operation is of no avail. Operation is indicated in all other forms, especially in the slowly developing cases with multiple skin areas (rather than in generalized cases) with the exception of those involving the abdomen. If there is hypercalcemia and elective localization in a young woman, he advises unilateral parathyroidectomy or a resection of both inferior thyroid arteries. If the patients are young and do not have lesions that are far advanced, one ought also to perform a periarterial sympathectomy. If the lesion is of long standing ganglionectomy or division of the ramus is the better operation. The various operative procedures have given some highly gratifying results. Three patients have been well for more than ten years.

### Examination of Students for Pulmonary Tuberculosis

At the February 12 meeting of the Academy of Medicine of Paris, Prof M L Saye of the University of Barcelona, Spain, reported the results of the examination of 637 first year students, varying in age from 17 to 20 years. Students were grouped as suspects if they had been exposed to infection in their homes during the preceding ten years or if roentgenoscopy or roentgenography revealed old lesions of the apexes or large tracheo-bronchial lymph nodes or if they had a pleurisy with effusion during the ten year period prior to matriculation. There were 126 of the 637 in this group of suspects while in thirty-three cases a definite pulmonary tuberculosis was found. In five of these thirty-three cases the students knew that the disease existed, two suspected such a condition and twenty-six did not. In twenty-six of the thirty-three cases the lesions were incipient. In five they were moderately and in the other two far advanced.

A comparison between roentgenoscopic and roentgenographic diagnosis revealed the latter as being far superior. In 42 per cent the roentgenoscopy was inadequate, while in 30 per cent lesions were discovered on the films that were not visible on simple fluoroscopic examination. In the discussion, Rist emphasized the necessity of subjecting all first year students to such complete physical examinations.

### The Treatment of Malignant Neoplasms with Snake Venom

At the February 5 meeting of the Academy of Medicine, Lavedan reported fifty-one cases of cancer, located in various parts of the body, treated with cobra venom. Every patient received a minimum of four months of injections. Forty-five were cases presenting local or metastatic recurrence following



either operation alone, or high voltage roentgen therapy alone or both. In six cases, no previous treatment had been given. The initial dose was 5 mouse units three times a day every forty-eight hours. After every third injection the dose was increased by 5 units up to 50 units. When the latter dose was reached, the injections were given twice a week. No complications were observed unless the venom was injected directly into a vein. The injections seemed to have no bad effect on the kidneys, but when bleeding was present it seemed to be increased, so that in cancers of the uterus one was obliged to discontinue the injections during the menstrual period.

In only about one tenth of the cases did the cobra venom have any influence on the pain, so that there is no reason why, in incurable cancers, one should not prefer to give morphine in gradually increasing doses rather than to attempt to alleviate the pain with a preparation such as cobra venom, the action of which is inconstant. The effect on the general condition is psychic. Just as after injections of lead, copper and streptococcus toxins, there is a temporary feeling of well being, of renewed force and a return of the appetite. This lasts about as long after cobra venom injections as after the other substances. The cobra venom has no influence on the development of the growths even when the injections are made directly into the tumor. Histologic study of such injected superficial tumors shows that the neoplastic cells retain all their vitality, the mitoses being just as numerous as though no injection had been made.

#### Late Recurrence of Cancer

At the February 26 meeting of the Academy of Medicine eight cases were reported by Prof. Henri Hartmann of recurrences of cancers operated on from nine to forty-three years previously. In four cases of cancer of the breast recurrence took place nine, sixteen, twenty-two and forty-three years after operation. In the case in which operation had been done forty-three years before, the patient was now 92 years old and a slowly developing malignant ulceration was taking place in the operative scar. In one case of cancer of the body of the uterus, recurrence was noted in the vaginal cicatrix thirteen years after complete hysterectomy. In a second case, treated on two occasions with radium for a cancer of the cervix, a recurrence was found in the vesicovaginal septum thirteen years later. In a case in which a resection of the rectum had been performed, a cancer of the ascending colon developed seventeen years later. In a case of pylorotomy for cancer, performed in 1904, radiography in 1931 revealed an extensive carcinomatous involvement of the stomach.

#### Professor Crouzon, Professor Johannsen and Lord Moynihan Elected Members of Academy

At the February 20 meeting of the Academy of Medicine, Professor Crouzon of Paris was elected fellow and Professor Johannsen of Sweden and Lord Moynihan of England were elected nonresident fellows. Such an election is considered a great honor and is in recognition of especially meritorious contributions to medicine.

#### Vaccination Against Yellow Fever

At the February 19 meeting of the Academy of Medicine, Prof. Charles Nicolle, whose research work on yellow fever is familiar to American bacteriologists, reported the results of the vaccination of 3,000 persons in the West African colonies of France. Each of these 3,000 natives has received three inoculations of the vaccine, that is, the full dose. A still larger number of Europeans have already been given one or two inoculations. The method is absolute, innocuous and highly efficacious much more than the administration of a serum against yellow fever. Professor Nicolle believes that serotherapy should be abandoned in favor of vaccination.

#### BERLIN

(From Our Regular Correspondent)

March 25, 1935

#### Cancellation of Professors' Certificates

The decision of the federal ministry for art, science and education, following a controversy in regard to the theory of racial origins, to deprive Privatdozent Dr. K. Saller of the *venia legendi*, has caused a stir in academic circles. Saller was an accredited instructor in ethnical science and an assistant in the Anatomic Institute. He had specialized, for years, in anthropologic and kindred studies. His articles and books were esteemed for their value without reference to political problems, although his point of view on racial questions did not agree with the Rassenpolitisches Amt of the national-socialist party. In his farewell speech to the students, Saller, who as an instructor had taken the oath to support Hitler, said "Races are not something absolutely rigid, something that has existed since primeval days. They are in a constant state of flux, sometimes increasing their diversification and sometimes passing through processes that tend to eliminate their differences. Racial differences are not manifested solely by physical characteristics but also by mental traits. In the process of time, our German race developed from previous races, and it has become entwined with the other modern races." The Rassenpolitisches Amt, however, issued a statement that the "state cannot approve the continuance in their posts of teachers who, by improper use of their scientific point of vantage, are endeavoring to break down and destroy the results of racial unity that are based on a common biologic foundation." From the beginning, Saller has refused to consider the political aspects of racial research, and in 1932 he expressed his disapproval of the existing views on race problems. Saller had stated that his love of truth and his sense of honor as a scientist would prevent him from renouncing his views. Judgment has been passed on him without a hearing, and he has voluntarily resigned his post. Dr. Gross, a physician and the director of the Rassenpolitisches Amt, has stated that "party and state cannot allow any person, under the cloak of an ostensibly scientific post, to exert a disturbing influence on the training of German youth in a uniform national and racial mode of thinking while, at the same time, possible reference may be made to national socialism and to its leader."

In addition, Dr. Arthur Kronfeld, who, although a Jew, has been able to hold his position as extraordinary professor in psychiatry at the University of Berlin, by reason of having fought at the front in the World War, has now been deprived of the *venia legendi*. According to the new regulations concerning habilitation (THE JOURNAL, April 6, page 1259), the minister of public instruction may withdraw or restrict the *venia legendi*, "if it seems desirable in the interest of the university." No explanation for the order was given. A special decree of the same minister excludes the 'non-Aryan' university instructors (there are a few who have retained their posts by reason of having fought at the front in the World War or for other specific reasons) from service on the examination boards. The Deutsche Dozentenschaft, the organization of the university instructors, has conveyed to the minister its expressions of gratitude for his action in this matter.

#### The Crusade Against Lupus

Professor Stühmer, ordinarius in dermatology at the University of Freiburg, who was chosen to promote the crusade against lupus in a region of southwestern Germany, published recently a report. A publicity campaign revealed an increasing number of patients, so that at the close of the campaign, Oct. 1, 1934, 2,800 lupus patients were under treatment, mostly of a severe type. The incidence of lupus is placed at one patient per thousand of population. In Westphalia, where the crusade has been best organized and under way for nearly nine years, the number of grave cases continues to increase. In Baden Stühmer dis-

covered in a short time more than 400 lupus cases in the vicinity of Freiburg. It appears that in the Black Forest area there is a relatively large number of severe cases.

### The Public Health Services

Beginning April 1, the public health services of Germany will take on a more uniform character. The federal minister of the interior has issued detailed instructions. The public health services in the larger cities and districts will be expected to accomplish the following five main tasks: (1) to observe the health conditions, (2) to watch over the applications of health legislation, (3) to render expert opinions to all competent authoritative bodies in matters pertaining to public health, and to submit to them plans for the promotion of public health, (4) to make the examinations and research needed for the application of the regulations affecting the preservation of purity of race and the prevention of hereditary defects in future offspring, and (5) to issue certificates in all cases in which the presentation of an official medical testimonial is required. The physicians in the public health services should take every opportunity to familiarize themselves with local conditions affecting the public health and should endeavor to combat ignorance and prejudice on every hand. The public health services must bring to the attention of the proper authorities all violations of health regulations. Physicians of the public health services are given admission to all places over which they must exercise supervision. They are assured also of the close cooperation of other official boards, the local police force, and the health forces of the national-socialist party. Full-time health officers may have private patients and may serve as medical advisers to certain bodies, but they will not be permitted to participate in general panel practice.

### Creation of Roentgenologic Archives

In Berlin the health insurance societies, in association with the competent medical organizations, have established a system of roentgenologic archives at the headquarters of the *Verband der Krankenkassen*. The panel physicians must return (following their use) to the physicians who have made a roentgenologic examination all the films received from them. Every three months the director of the roentgenologic archives will secure from the roentgenologists all the films, together with the observations made thereon, of the members (including their families) of the large Berlin *krankenkassen*. The films will be classified and preserved.

### Possibilities of Resuscitation After Apparent Death

At the University of Königsberg, Professor Bruns instituted experiments in connection with poisoning from carbon monoxide and from illuminating gas, to determine electrocardiographically the final cardiac standstill after breathing has ceased. It was found, in a number of animals that the electrocardiograph recorded action currents for about half an hour after disappearance of the heart tones and the pulse. The value of resuscitation methods was tested by the electrocardiogram. Only in unconscious persons with preserved corneal reflexes and demonstrable (though only weak) respiration and heart action do irritations of the skin or the mucosae (such as are employed in resuscitation attempts) reach the vital centers in the spinal cord or the heart itself. Artificial breathing has no effect on clinical cardiac standstill unless at the same time, it constitutes a stimulus to the heart action. Through the expiratory contraction of the chest a flow of blood from and to the veins of the thorax and in the pulmonary vessels is brought about. These movements of the blood are, at the same time mechanical irritations that bring about contractions in the endocardium, as is shown by the electrocardiograph. An indirect heart massage produced by thumping and agitating the heart region (seventy times a minute), by rhythmic elastic blows and by the short application of pressure likewise gives rise to action cur-

rents. These do not, however, result if only respiration with the aid of the pulmator is induced. These researches show that, in case of clinical cardiac standstill, the chief value attaches to energetic heart massage. The stimulation of respiration alone does not suffice, since that in itself is inadequate for the stimulation of the heart. If the electrocardiograph gives evidence of cardiac standstill, there is no maneuver that will restore the circulation, nor will any injection exert such influence. Nevertheless, coincident with heart massage, artificial respiration must be applied in order that, after restoration of heart action, blood containing a normal amount of oxygen may be supplied to the heart muscle. Hence in cardiac and respiratory standstill, that is in apparent death, only such methods of artificial respiration are useful that permit in addition an energetic heart massage through somewhat vigorous thumping of the heart region.

## ITALY

(From Our Regular Correspondent)

March 15, 1935

### Proposed Differentiation of University Professors

Some time ago Prof. Giacinto Bosco suggested that, after university professors have occupied a chair a certain number of years they be promoted to a higher rank. Recently Professor Taddei of Florence called attention to the difference in the preparation and the activities of a professor whose teaching is solely *ex cathedra* and the work of the professor whose duties include the active demonstration of fundamental principles. The surgeon, for example, is not ready to occupy a chair until he is at least 45 years of age, and he cannot ordinarily be a good demonstrator of surgical technic after he has passed the age of 70. On the other hand, a professor of law, of pure science or of languages may be a fairly good instructor at 28 and may continue to teach at the age of 75. Hence it is desirable, in the event of any reforms introduced in university professorships, that a distinction be made, from the standpoint both of salary and of morale, between professors of theoretical subjects and those who must combine active demonstration with instruction *ex cathedra*. The latter professorships require at least ten years more of preparation than the former and cannot be conscientiously held, by reason of diminished physical efficiency, up to the present age limit of 75, which is too high for such subjects.

### Tuberculosis and Pregnancy

From controlled investigations carried out several years after childbirth (or miscarriage) on 105 tuberculous gravidas examined during the period 1925-1932 in the school of obstetrics and the maternity institute of Trieste, Dr. Duca emphasized that it is impossible to question the unfavorable influence of maternity on the pulmonary types of the first Neumann group, namely, in the destructive types with bronchogenic diffusion. Eighty-five per cent of such deaths occurred within a year from the termination of the pregnancy, whether at term, prematurely or the result of miscarriage.

The tuberculous types of the third group reveal only exceptionally an unfavorable action due to maternity. Maternity may reactivate also the rudimentary types, but the exacerbation does not last long and shows no tendency to develop further. In such cases there are seldom any indications for the interruption of pregnancy. Such intervention may, however, be useful, and even necessary, in well established cases of pulmonary disorders of the second group (types that develop by the hematogenic route) although, from the statistics of Dr. Duca, it appears that 75 per cent of the patients did not suffer any exacerbation imputable to the functions of maternity. The rare indications for therapeutic abortion in the types of the second group may in all probability be overlooked if the patients can be placed in a sanatorium during pregnancy and for a long period after confinement.

**Prof Guglielmo Bilancioni**

The death of Prof Guglielmo Bilancioni, director of the Clinica otorinolaringoiatrica of the University of Rome, at the age of 53, has been announced. He graduated at the University of Rome in 1905 and early acquired the *venia legendi* in general pathology and the history of medicine. He became professor at the University of Pisa in 1924 and removed to Rome in 1929, where he organized a large clinic, a much frequented ambulatorium (more than 20 000 patients annually) and laboratories for research. He was the author of 300 publications, among which were several books and a manual of his specialty in three volumes. Recently he had been engaged in the compilation of a work entitled "Laringe e polmone," which remains unfinished. His research includes studies on the musculature of the eustachian tube and its relations to the middle ear explanations of the phenomena elicited by stimulation of the labyrinth and of their relations to the neurovegetative constitution of the individual, and studies on the changes in the blood vessels and in respiration during the rotatory movements of the body, on the manifestations of laryngeal fatigue, and on the local treatment of ozena. He was president of the *Istituto storico italiano dell'arte sanitaria*, founder of the monthly review *Il Valsalva* and a member of the national commission for scientific vindications and of numerous Italian and foreign societies and academies. During the World War he contributed to the creation of laboratories for medical research on aeronautics and was consultant in otology in military aviation.

**Course in Medicine Pertaining to Sport**

The *Federazione dei medici sportivi* has organized a course in medicine pertaining to sport, which will be given at Rome. The first lecture was delivered by Professor Busi, dean of the faculty of medicine of the university, on the importance for sport devotees of the radiographic record of the thorax. To demonstrate the value of serial radiologic thoracic researches on sport devotees, the speaker passed rapidly in review the principles that today are dominant with respect to the pathogenesis of pulmonary tuberculosis, and he emphasized that it is necessary to search diligently for foci of pulmonary tuberculosis in young persons who are planning to devote themselves to sports. In Italy the view that sports should be organized on a hygienic and scientific basis is gaining adherents. During the past three years, Busi has been carrying on a prolonged experiment with radiographic thoracic record cards which consists in making serial observations on students of the faculty of medicine. The results thus far secured reveal that about 30 per cent of young persons who appear perfectly healthy have latent tuberculous foci in the respiratory apparatus.

**Appointment of Four Health Inspectors for the Army**

Recent legislation provides for the appointment of four health inspectors for the army. They will be under the control of the higher officers of the medical corps and will have charge of the health inspection service in its relation to the various armed forces. The inspectors will be located in Turin, Verona, Rome and Naples.

**Radiologic Society**

The south central group of the *Societa italiana di radiologia medica* held recently its twentieth session in Naples, under the chairmanship of Professor Piccinino. Prof Antonio D'Istria discussed postoperative irradiation of mammary cancer. He stated that the current of opinion favorable to the use of postoperative roentgenotherapy has been gradually rising. Statistics revealed a frank improvement in the remote results in patients irradiated after the intervention in comparison with patients who have received no after-treatment. The speaker made an inquiry among the radiologic schools of the world, the greater part of which expressed themselves favorable to the systematic

application of the method. A few schools stated that they were decidedly opposed to systematic irradiation after surgical intervention and that they preferred to await a recurrence before applying irradiation.

Basing his opinion on replies to his questionnaire and on his personal experience, the speaker concluded that postoperative roentgenotherapy is to be regarded as surely effective. There were many communications presented on the subject.

Sorrentino gave a complete discussion of irradiation of the sinus caroticus, which he stimulated, either with diathermy or with roentgen rays, in healthy persons and in persons with high or low blood pressure. Contrary to the general opinion, he found that the results are slight and not of any practical value.

Milone emphasized the value of radiologic observations following gastro-enterostomy and explained his operative technic which he had been applying the past year with good results.

Two communications dealt with the subject of the azygos lobe, one being presented by Fucci of Naples, who carried out painstaking research on a lung with four lobes injecting into the various bronchi opaque substances, and reaching the conclusion that the azygos lobe is not an anatomic individuality.

**AUSTRALIA**

(From Our Regular Correspondent)

April 3, 1935

**Royal Australasian College of Surgeons**

An epoch of medical progress in Australia was marked March 4 when the building of the Royal Australasian College of Surgeons was formally opened in Melbourne by Sir Holburt Waring Bart., president of the Royal College of Surgeons of England, in the presence of a large gathering of physicians from many parts of the world. Every state in the commonwealth was represented as was the dominion of New Zealand, and representatives were present from the United Kingdom, from Canada, from South Africa, and from the United States of America. A special message to the college was sent by the king, and Sir Holburt Waring delivered a greeting from the council of the Royal College of Surgeons of England. Dr Henry Wade read a message from the council of the Royal College of Surgeons of Edinburgh. Dr Donald C. Bal four represented the American College of Surgeons and conveyed its greetings, and Prof. E. W. Archibald delivered a message from the Royal College of Surgeons of Canada.

Prof. F. Wood Jones of Melbourne delivered the Syme oration for 1935 choosing as his title "The Master Surgeon." The period of the master surgeon lay between the years 1550 and 1850. Even if this period was not that in which surgery attained its greatest heights, it at least produced the greatest master surgeons. Professor Wood Jones spoke of the dexterity and skill of these men, of their love of humanity and of their tireless energy and capacity for work. He pointed out that the master surgeons were all master anatomists—they made anatomy a lifelong study and continued throughout their active lives to dissect and operate on the cadaver. They had an intense dislike to the performance of operations to operate on the human body was something to be done almost as a confession of failure. Turning to antiseptic and modern aseptic surgery, with its safe and comfortable anesthesia, Professor Wood Jones said that operations were nowadays so easy and might be undertaken with such impunity that many medical graduates muddled along in safety. He had a dream, admittedly an academic one, that the day of the master surgeon might dawn again, that surgeons would strive to emulate the master surgeon of olden days, and that all save emergency operations would be performed by a master hand. He expressed the opinion that clinical teachers should continually search for students who showed promise of developing the qualities of

the master surgeon and that every effort should be made to help such students and to train them in the science and art of surgery

The new building is an architectural ornament to Melbourne, a city already renowned for the dignity of its buildings. It is situated in park lands in near relationship to the state parliament house and the treasury buildings. In the design of the College of Surgeons building the architects have succeeded in evolving an edifice which is fresh and modern in spirit yet does not break with tradition. The main interest of the façade is the portico, with its flight of black steps. The pediment is carved with the coat of arms and the motto of the college and is supported by lofty square columns of Sydney sandstone. Over each entrance door is a plaque symbolic of various branches of the Royal College of Surgeons. Over the left-hand door a black swan represents the Western Australian branch, the center, the lion of Great Britain, the parent body, and the right the galleon representing the New Zealand branch. These pieces of ornament are burned in full color in terracotta. The tall entrance doors are bronze and plate glass and emphasize the verticality and dignity of the portico. Spaced at points of importance round the building are four niches which it is intended to furnish with busts, and at each end of the building are stone plaques in which full size statues can be placed. It is to be hoped that some generous citizen may make it possible to represent here those two benefactors to mankind Pasteur and Lister.

The building is the first step in a three stage project, which will ultimately include the provision of research facilities. In the field of modern medical architecture it is a fitting successor to the Institute of Anatomy at Canberra—a building that is at once arresting and inspiring.

#### Lead Poisoning at Smelters in Queensland

In the report of a medical study into the incidence of lead poisoning at the smelting works at Mount Isa, Queensland, an analysis of the claims for compensation for lead poisoning shows that the mine is responsible for 18.5 per cent of the total claims, the mill for 14.8 per cent, and the smelting works for 66½ per cent, in other words, the smelters cause twice as much lead poisoning as the mine and the mill put together.

Routine examinations, including a careful blood investigation, were made of the 1,892 employees at the mine, and 27 per cent showed some slight or mild degree of lead poisoning. Serious cases detected in this way were 21 per cent.

The investigator Dr J. V. Duhig states that lead poisoning does not exist without changes in the blood and that proper examination of the blood, and especially a study of the morphologic changes of the red cells by a person of great experience and patience, are absolutely essential to the diagnosis of plumbism. He expresses the view that compensatable disability in acute cases does not exist unless punctate basophilia has been demonstrated by a suitable standard of technic to the extent of at least 1,000 coarsely stippled cells per million. Less degrees of change are to him of importance only so far as the early diagnosis of the condition is concerned.

Recommendations are made regarding the prevention of the emission of flue dust from smelter stacks, the ventilation of tapping floors, the protection of persons entering furnaces, the ventilation of buildings, works and other places where lead processes are carried on, the maintenance of roads, pathways and yards so that dust shall not arise, the provision of overalls and close head covering, the use of respirators, the provision of meal places so that they shall not be exposed to dust or fumes from any manufacturing process, and the provision of drinking water that is not contaminated by dust. The danger of preparing cigarettes or cutting and rolling tobacco in lead dust atmosphere is mentioned.

The regular analysis of atmosphere air about the plant is recommended. In order to exclude these employees with a low lead tolerance, a probationary employment period of four months is suggested.

#### Medical School for Queensland University

After years of patient effort, the arrangements for the establishment of a faculty of medicine at the University of Queensland, situated in Brisbane, are now reaching a concrete form. The state government has appointed a committee to advise on the details of establishment. It will be necessary for the state treasury to make a grant for the purpose.

The serious difficulty of accommodation was recently overcome by the generous donation to the university by the Masons of Brisbane of their old Masonic temple. The building is a massive construction and requires only a little renovation and alteration to make it serve its new function. The lodge rooms are well adapted for lecture theaters and the anterooms can be readily converted into laboratories and administrative offices.

#### BUCHAREST

(From Our Regular Correspondent)

April 5, 1935

#### Limiting Students at the Universities

A few months ago a new law was sanctioned by the chamber of deputies which limits the employment of members of the minority nationalities to 10 per cent of the Rumanian workers in any given commercial enterprise. Some extreme nationalists are now trying to extend this principle also to the granting of medical and legal diplomas. This new kind of *numerus clausus* is already being practiced in the faculties of medicine. In fact, the number of minority students is even less than 10 per cent. Some Rumanian newspapers attacked Professor Martinescu, dean of the medical faculty of the Cluj University, for being too lenient in the enrolment of minority and chiefly Jewish first year students. The dean explained his attitude as follows. The professorial board resolved to admit 150 first year students. The applicants have to write a thesis in physicochemistry, natural history and hygiene. Out of 241 applicants, all of whom duly passed the examinations, ninety have been rejected. The number of first year students, including repeaters, was 233, of whom 144 were Rumanians, thirty-nine Hungarians, thirty-six Jews, eleven Germans, two Bulgarians and one Albanian. The dean remarked that applicants of Rumanian nationality, without regard to the examination, all could enrol. He gave expression to his conviction that the universities should be thrown wide open, so that every one wishing to study should be able to do so.

#### The Strike of Bucharest Medical Students

A short time ago the students of the legal faculty of the Bucharest University went on strike, to demonstrate against the excessively high examination fees. The medical students followed suit, as they have to pass more examinations than the law students, and the examination fees are higher. They stopped going to lectures, so that the professors found only empty benches. They demand a system like that prevailing in France, namely, in lieu of numerous final examinations to have a final examination for the doctor's degree after the completion of all university semesters. The minister of public instruction is inclined to make a radical change on the present examination system. At Bucharest University, medical students now have to pass altogether thirty-eight examinations during the prescribed six years study, yet, at the completion of the studies, examinations have to be passed anew even on theoretical subjects.

The dean of the faculty of medicine announced to the students that the board of professors feels inclined to comply with their request and to pass their appeal, for approval, to the

ministry The students said that they are not satisfied with promises but will continue to strike until their appeal is definitely settled by an official enactment Thereupon the professional board appealed to the ministry for a decision, and the students stopped striking

### A Reward for Practicing in Villages

At a recent meeting of the chamber of deputies, the draft of a bill to provide villages with doctors was voted Ioanitescu, late minister of labor and public health, said that while in cities the ratio of physicians is 1 375 of population, in villages one doctor provides medical service to between 25 000 and 30 000 The present minister of public health stated that in some places there is one doctor to twenty or twenty-five villages and that distances are so great that if the doctor is called to a patient it requires a full day for the visit, during which time the rest of the people are without medical service The roads are bad and he is dependent on horse and carriage The mortality rate in children is the highest in Europe Our duty said the minister, is to induce physicians to leave the towns and settle in villages There are two solutions to this question Either to increase the number of village doctors by extending social insurance to the villages or to give a premium to physicians who settle in villages and who pledge themselves to remain there

### Faculty of Medicine Closed

At the faculty of medicine of the Bucharest University, antisemitic movements gained such headway that the board of the faculty saw it necessary to prevent further disturbances to suspend the holding of lectures until April 10, that is six days from today The board of professors told the instigators that if they do not stop demonstrations the faculty of medicine will be closed for a longer period and then they will lose the present semester The board discussing the question of the memorandum of the non-Jewish students in regard to the introduction of the "numerus nullus" resolved to put the leaders of the movement before the disciplinary committee Several antisemitic incidents occurred

### A New Law Against Adultery

The new Rumanian penal code includes the crime of adultery The text of the law is as follows Extramarital sexual relation of either member of a married couple is considered the crime of adultery, for which the punishment ranges from one to twelve months in prison but, if the relation is carried on after the court trial the punishment is from six to twenty-four months in prison Criminal process can be started only on the complaint of the innocent mate The innocent party may pardon his spouse at any phase of the trial even subsequent to the announcement of the punishment

## Marriages

BENJAMIN FRANKLIN COZART to Miss Helen Rebekah Newell, both of Reidsville, N C, May 18

GEDEON ARAM BELHUMEUR, Gardner Mass, to Miss Rose Lagueux of Levis, Que, April 30

JACK ALEXANDER MCKENZIE Jackson, Tenn to Miss Edith Woodard of Miami Fla, May 18

PHILIP DAVID STOUT, Bristol, Va to Miss Julia Holston Slack of Bristol, Tenn, April 17

RAYMOND D LUBLIN, East Hartford Conn, to Miss Anne Hurowitz of Hartford, April 14

PAUL Q BAKER, Axtell Neb to Miss Dorothy De Armon of Cheyenne, Wyo, April 23

CLARENCE DIVON FOWLER to Miss Mary Susan Prim both of Atlanta, Ga., April 19

LEE B WORD, Los Angeles, to Miss Allethia Averett of Atlanta Ga April 13

EDWARD HOLLANDER to Miss Ruth E. Fineman both of New York recently

## Deaths

Jesse Leroy McElroy, Neuilly-Sur-Seine, France, Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907, since 1933 superintendent of the American Hospital in Paris, served during the World War, formerly superintendent of the hospitals (Memorial, Dooley and St Philip) of the Medical College of Virginia Richmond, St Luke's Hospital, Chicago the University Hospital, Iowa City, Iowa Ancker Hospital, St Paul, and St. Mark's Hospital, New York, aged 50, died suddenly, May 5, of heart disease.

Harry Winfred Goodall ☉ Boston, Harvard University Medical School, Boston, 1902, fellow of the American College of Physicians, served during the World War, at one time lecturer on digestive diseases, Dartmouth Medical School Hanover, N H, and instructor in chemistry at his alma mater on the staffs of the New England Deaconess Hospital and the New England Baptist Hospital, Boston, the Burbank Hospital Fitchburg, the Chelsea (Mass) Hospital and the Framingham (Mass) Union Hospital, aged 58, died, April 17

Wilbur Hawley Gilmore ☉ Chicago, Jefferson Medical College of Philadelphia, 1903, member of the Radiological Society of North America, served during the World War member of the professional committee for medicine, Illinois Department of Registration and Education secretary of the Illinois State Medical Society 1913-1922, attending roentgenologist to the Illinois Masonic Hospital and the Illinois Eye and Ear Infirmary, aged 55, died April 27, of coronary thrombosis

Henry Burtis Costill ☉ Trenton, N J, University of Pennsylvania Department of Medicine Philadelphia 1882 member of the House of Delegates of the American Medical Association 1918, 1925 and 1927, formerly director of the New Jersey State Department of Health, past president of the Medical Society of New Jersey and the Mercer County Medical Society, president of the staff of St. Francis Hospital, aged 75, died April 27 of cerebral hemorrhage

George Robert Elliott ☉ New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York 1881 formerly assistant professor of clinical orthopedic surgery at his alma mater fellow of the American College of Surgeons, consulting orthopedic surgeon to the Montefiore Hospital attending orthopedic surgeon to St Francis and St Joseph's hospital, died, April 27

Frank J Holdsworth, Traverse City, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor 1900, member of the Michigan State Medical Society member of the American Academy of Ophthalmology and Oto Laryngology, on the staff of the James Decker Munson Hospital, aged 60, died, April 4, in the Presbyterian Hospital, Chicago of coronary thrombosis

Ernest Mozart Roseberry, Neosho Mo, Chicago Physio-Medical Institute 1890 Barnes Medical College St. Louis 1904 member of the Missouri State Medical Association deputy state health commissioner formerly member of the state legislature, served during the World War, aged 68, on the staff of the Sale Hospital, where he died, March 21 of angina pectoris

Nelson Wilson Janney, San Diego Calif, University of Pennsylvania Department of Medicine, Philadelphia 1906 member of the American Society of Clinical Investigation served during the World War, formerly on the staff of the New York Post Graduate Hospital, New York, aged 53, died, April 29, of chronic nephritis and arteriosclerosis

Henry Aaron Norden, Chicago, Rush Medical College Chicago, 1889, formerly junior dean and professor of medicine, Loyola University School of Medicine school health officer of Chicago, 1914-1923, fellow of the American College of Physicians aged 68 died May 1, of hemiplegia, hypertension and arteriosclerosis

Edward Nathan Schoolman, Chicago Chicago College of Medicine and Surgery, 1914, member of the Illinois State Medical Society, at one time medical director of the Elgin (Ill) State Hospital, on the staff of the Michael Reese and Mount Sinai hospitals aged 41 died, May 15, of coronary thrombosis

Jay Sproat McCulloch, Wellsville, Ohio Ohio Medical University Columbus 1904 member of the Ohio State Medical Association for many years member of the board of education at one time bank president health officer of Wellsville on the staff of the East Liverpool (Ohio) City Hospital, aged 59 died, April 24

**Isaac Wilsey Traverse**, Fort Madison, Iowa, Keokuk (Ia.) Medical College, 1893, member of the Iowa State Medical Society past president of the Lee County Medical Society served during the World War, on the staff of the Sacred Heart Hospital, aged 62, died, April 12, of cerebral hemorrhage

**James Archibald Orbison** ♂ Major M C, U S Army, North Bergen, N J, University of Illinois College of Medicine, Chicago, 1913, served during the World War, appointed first lieutenant in the medical corps of the U S Army in 1917 and was promoted major in 1929, aged 47, died, April 24

**Edward Harvey Griswold**, Peru, Ind, University Medical College of Kansas City, 1891 member of the Indiana State Medical Association, fellow of the American College of Surgeons aged 80, formerly medical director of the Wabash Railroad Employees Hospital, where he died, April 5

**Clesson Beckwith** ♂ Lieut, M C U S Army, Corning Iowa, State University of Iowa College of Medicine, Iowa City 1932, entered the medical corps of the U S Army as a first lieutenant in 1933 aged 29 died April 4, in Fort Des Moines of pulmonary embolism following an appendectomy

**Ben Hicks Metcalf** ♂ Ruskin Fla, Harvard University Medical School, Boston 1894 member of the Massachusetts Medical Society, served during the World War, in 1906 he established the Metcalf Hospital, now known as the Winthrop Community Hospital, aged 64 died March 31

**Thomas Paul Martin** ♂ Taos, N M College of Physicians and Surgeons, Baltimore, 1887 connected with the Indian Service health officer of Taos County served during the World War, aged 70 died April 11, in St Vincent's Hospital Santa Fe, of cerebral hemorrhage.

**George Potter Edwards**, Nashville, Tenn, Rush Medical College, Chicago 1882, at one time clinical professor of neurology, dermatology and electrotherapy Vanderbilt University School of Medicine, aged 76, died April 29, of acute multiple arthritis and senility

**Roger Marvin Griswold**, Kensington Conn University of the City of New York Medical Department, 1875 member of the Connecticut State Medical Society past president of the American Association for Clinical Research aged 82 died, April 28

**Eugene Ballantyne Sharpe**, Manti, Utah Jefferson Medical College of Philadelphia 1898 member of the Utah State Medical Association, served during the World War aged 60 died April 29, of chronic myocarditis and congenital polycystic kidney

**Clifford Henry Griffin** ♂ Providence R I, Harvard University Medical School, Boston 1898 for many years police surgeon, formerly member of the school committee and state legislature aged 64 died April 1, in the Jane Brown Hospital

**James Wallace Horner**, Alma, Mo, Jefferson Medical College of Philadelphia, 1877, member of the Missouri State Medical Association past president of the Lafayette County Medical Society aged 81 died March 15 of hypostatic pneumonia

**James Pringle Elliott**, Laguna Beach Calif Dartmouth Medical School, Hanover N H, 1887 University of the City of New York Medical Department 1887 aged 82 died February 28 of cerebral endarteritis and arteriosclerosis

**David Noble Kee** ♂ Gladstone Mich McGill University Faculty of Medicine, Montreal, Que Canada, 1890 health officer of Gladstone, formerly member of the school board aged 74, died March 6 of pneumonia and influenza

**James Edgar Wheat**, San Fernando Calif University of Southern California College of Medicine, Los Angeles 1900 member of the California Medical Association aged 74 died February 9 of diabetes mellitus and acute nephritis

**Field Vernon Gremillion**, Alexandria La Tulane University of Louisiana Medical Department, New Orleans 1906 member of the Louisiana State Medical Society aged 56 died suddenly, March 27, at his home in Pineville

**John William Hutton**, Newton Ill Barnes Medical College St Louis 1899 and 1900 member of the Illinois State Medical Society, county coroner aged 57 was killed March 26 when he was struck by an automobile

**William Noah Elkins** ♂ Junction City, Ark University of Tennessee Medical Department Nashville, 1908 past president of the Union County Medical Society, aged 51, died March 12 of cardiorenal disease.

**William Burnam Godard**, Macon Ga University of Georgia Medical Department Augusta 1906 aged 53 died March 10 in the R F Strickland and Son Memorial Hospital Griffin of lobar pneumonia

**Rufus Albert Hoover**, Hope, Ind, Bennett Medical College Chicago 1912 member of the Indiana State Medical Association county health officer, aged 62 died, March 22, of carcinoma of the stomach

**Travis Shaw Griffith**, Georgetown Texas Harvard University Medical School, Boston, 1932 aged 28, intern at the Charles V Chapin Hospital, Providence, R I, where he died March 30 of meningitis

**Thomas Barber**, Phillipsburg, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1898 state senator aged 66 died April 29 in the Lankenau Hospital, Philadelphia of bronchopneumonia

**Charles H Edwards**, Terre Haute Ind Cincinnati College of Medicine and Surgery 1885 member of the Indiana State Medical Association, aged 76 died, May 6 in the Union Hospital of pneumonia

**Clarence Matland Service**, Springfield Ill, Jenner Medical College, Chicago, 1902 inspector in the department of public works for the state of Illinois, aged 61 died May 3 of gastric carcinoma

**Louis Wilson Talbott**, Elkins W Va University of Maryland School of Medicine Baltimore, 1883 member of the West Virginia State Medical Association, aged 79 died March 17

**Norval Cobbs Vaughan**, Cincinnati Howard University College of Medicine, Washington, D C, 1896 aged 63 died April 20 of coronary thrombosis and angina pectoris

**Pierce Edward Somers**, Portland Maine Harvard University Medical School, Boston, 1903 aged 59, died February 26 of hypertensive heart disease nephritis and uremia

**Francis Alexander Robert Gow**, Greenwich, N S Canada Trinity Medical College, Toronto, Ont 1889 died February 13, in the Camp Hill Hospital Halifax

**R M Manley**, Cleveland Western Reserve University Medical Department, Cleveland 1904, served during the World War, aged 58, died, March 21, of heart disease

**Levi Brook Hirst** ♂ Camden N J, Jefferson Medical College of Philadelphia, 1894 on the staff of the Cooper Hospital aged 74 died March 6 of cerebral hemorrhage.

**Herman Groth** ♂ Pittsburgh Western Pennsylvania Medical College, Pittsburgh, 1902 aged 65, died, March 21 in St John's Hospital, of carcinoma of the colon

**Hugh Gerald Williams**, Vernon, B C Canada, Queen's University Faculty of Medicine, Kingston, Ont, 1894, aged 66, died, February 16 of valvular heart disease

**Stephen James O'Brien** ♂ Chicago Northwestern University Medical School Chicago 1907, aged 54 died May 7, of myocarditis and chronic nephritis

**Willis E Hosman** ♂ Akron, Ind, Eclectic College of Physicians and Surgeons, Indianapolis, 1892 aged 65 died, March 16 of coronary thrombosis

**Alfred T Bennett**, Louisville Ky Kentucky School of Medicine Louisville, 1861, Civil War veteran, aged 94 died April 23, of bronchopneumonia

**Robert John Young** ♂ Snow Shoe, Pa Temple University School of Medicine Philadelphia 1929 aged 34 died April 22 of heart disease

**Charles H Wallace**, Dallas Texas (registered by Texas State Board of Medical Examiners under the Act of 1907), aged 72 died, February 26

**Alpheus Hamilton Gans**, Abilene Kan University of Wooster Medical Department, Cleveland 1870, aged 88 died, February 9, of senility

**John Hackworth Wood**, Sweet Water Ala, Medical College of Alabama Mobile 1886 aged 70 died, February 23 or lobar pneumonia

**Patrick J Flannery**, Waverly N Y Baltimore Medical College 1895, died, March 10, of chronic endocarditis and arteriosclerosis

**David Charles Wybourn** ♂ Ossian Ind. Fort Wayne College of Medicine 1902 aged 56, died March 23 of acute appendicitis

**Ambrose C Clifford Jr**, Bedford Ind Kentucky School of Medicine Louisville 1893 aged 77, died, March 13 or pneumonia

**Emilio Raphael Tobia**, Los Angeles, Bennett College or Eclectic Medicine and Surgery Chicago 1910 aged 60 died February 9

**Henry M Hunt**, Chicago St Louis College of Physicians and Surgeons 1887, aged 85 died, April 16, of myocarditis

**John Galen Locke**, Denver Denver Homeopathic College 1904 aged 63 died, April 1 of coronary thrombosis



## Bureau of Investigation

### MISBRANDED "PATENT MEDICINES"

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**Foster's White Camphor Liniment**—Keystone Manufacturing Co. South Boston Va. Composition Essentially volatile oils including camphor, with ammonia (about 2 per cent) soap and water. Fraudulent therapeutic claims—[N J 21232 August 1934]

**Mineralcrystals**—Mineral Wells Crystal & Water Co. Mineral Wells, Texas. Composition Essentially dried Glauber's salt (over 98 per cent) with small amounts of common salt and the carbonates of calcium, magnesium and sodium. For rheumatism neuritis stomach kidney and bladder disorders etc. Fraudulent therapeutic claims—[N J 21236 August 1934]

**Sip O**—McCabe Drug Co. Fargo N. D. Composition Essentially plant drug extracts menthol tar chloroform sugar and water. For coughs bronchitis asthma catarrh fever etc. Fraudulent therapeutic claims—[N J 21238 August 1934]

**Sauer's Nerve and Bone Oil**—C. F. Sauer Co. Richmond Va. Composition Essentially wintergreen, camphor menthol camphor oil and eucalyptol, colored green. For rheumatism tumors toothache etc. Fraudulent therapeutic claims—[N J 21239 August 1934]

**Astra Asthma Relievers**—Superior Medicated Products Corporation, New York. Composition Stramonium leaves in cigaret form. For asthma bronchitis catarrh sore throat etc. Fraudulent therapeutic claims—[N J 21245 August 1934]

**Apinol**—Apinol Corporation Wilmington N. C. Composition Essentially pine oil. For sores burns pyorrhea boils blood poison lockjaw typhoid etc. False therapeutic claims—[N J 21248 August, 1934]

**Fowlerine**—Fowler Medicine Co. Memphis Tenn. Composition Sulphobated oil turpentine and methyl salicylate. For kidney bladder and rheumatic disorders indigestion diabetes dropsy, etc. Fraudulent therapeutic claims—[N J 21249 August 1934]

**Lee's Antiseptine Powder**—Moore & Co., Inc. Worcester, Mass. Misbranded because not a germicide and contained no aluminum sulphate or oxquinoline sulphate as claimed—[N J 21250 August 1934]

**Idan Ha Lithia Water**—Idan Ha Mineral Water Co., Soda Springs Idaho. Composition Essentially a moderately mineralized water containing chiefly magnesium limestone but very little lithia, hence the term 'Lithia Water' was false and misleading constituting misbranding—[N J 21501 August 1934]

**M. R. Son Pink Wonders**—M. R. Son Co. Inc., Boston. Composition Tablets each containing 25 grains of acetphenetidin and 35 grains of aspirin. For sciatica lumbago earache, toothache and periodical pains. Fraudulent therapeutic claims—[N J 21502 August 1934]

**Johnson's (Clark) Syrup**—Kells Co. Inc. Newburgh N. Y. Composition Essentially plant drug extracts including aloe with alcohol sugar and water. For stomach, liver and bowel disorders etc. Fraudulent therapeutic claims—[N J 21503 August 1934]

**Royce Antiseptic Solution**—National Medical Products Co. Los Angeles. Composition Essentially small amounts of boric acid volatile oils including wintergreen and thymol with oxyquinoline sulphate and water. For feminine hygiene pyorrhea sores body rash etc. Not antiseptic when used as directed. Fraudulent therapeutic claims—[N J 21507 August 1934]

**Espiritu Water No. 1**—Espiritu Water Co., Safety Harbor Fla. Composition A moderately mineralized water chiefly containing common salt, with other mineral substances found in ground waters. For stomach disorders Bright's disease diabetes, dropsy psoriasis etc. Fraudulent therapeutic claims—[N J 21508 August 1934]

**Almklov's Eczema Specific**—S. Almklov Cooperstown N. D. Composition Essentially zinc oxide (11 per cent) ammoniated mercury (9 per cent) and small amounts of camphor and menthol in a petrolatum base. Fraudulent therapeutic claims—[N J 21509 August 1934]

**Yerbavida**—Yerbavida Co. Los Angeles. Composition Essentially an American species of the plant ephedra. Cure-all and rejuvenator. Fraudulent therapeutic claims—[N J 21511 August, 1934]

**Compound Epsom Salt Tablets**—Hance Bros. & White Inc. Philadelphia. Composition In each tablet 51 grains of epsom salt and 35 grains of phenolphthalein. Adulterated because below professed standard of purity and because name Compound Epsom Salt Tablets was false and misleading in that phenolphthalein was the active ingredient—[N J 21512 August 1934]

**Stuart's Dyspepsia Tablets**—F. A. Stuart Co. Marshall Mich. Composition Large tablets essentially calcium carbonate magnesium carbonate ginger sugar and starch. Small tablets essentially calcium carbonate plant drug extracts including red pepper and a bitter drug with sugar and starch. For dyspepsia stomach ulcers bad breath heart burn etc. Fraudulent therapeutic claims—[N J 21513 August 1934]

**Lady Grace Mineral Crystals**—Grace Natural Mineral Co. Omaha. Composition Essentially crystallized Glauber's salt with a trace of common salt. For obesity constipation rheumatism Bright's disease, etc. Fraudulent therapeutic claims—[N J 21516 August 1934]

**Key Tasteless Cod Liver Extract Tablets**—Key Laboratories Chicago. Composition In each tablet 8.3 milligrams of chloroform soluble material including fatty material and a bitter drug extract, in a mixture of starch, sugar and talc. For building up. Fraudulent therapeutic claims—[N J 21518 August 1934]

**Garvin's Remedies**—Pest U. Di Chemical Co. Chicago. Composition Essentially boric acid potassium permanganate and water. For "female weakness" diphtheria canker, etc. Fraudulent therapeutic claims—[N J 21519 August 1934]

**Manam Sylladex**—Natural Health Products Co., New York. Composition About 80 per cent Plantago ovata and about 20 per cent of brownish particles containing a considerable proportion of ground carob bean cacao a reducing sugar such as lactose and a very small amount if any, of dextrin. Misbranded because of false and misleading claims as to composition and because of fraudulent therapeutic claims for efficacy in diarrhea stomach hyperacidity, etc.—[N J 21521 August 1934]

**Savol**—Savol Chemical Co. Mercer Pa. Composition Essentially phenols (including 55 per cent of carbolic acid) soap and water. For infections catarrh hay fever, etc. Fraudulent therapeutic claims—[N J 21522 August 1934]

**Penslar Sore Throat Gargle**—Peoples Drug Stores Washington, D. C. Composition Essentially potassium chlorate ferric chloride glycerin alcohol and water. Fraudulent therapeutic claims—[N J 21523 August 1934]

**Penslar Children's Cough Syrup**—Peoples Drug Stores Washington D. C. Composition Essentially plant drug extracts including ipecac, with flavoring materials alcohol sugar and water. Fraudulent therapeutic claims—[N J 21523 August 1934]

**Ingraham's Macedonian Oil**—Gerlach Medicine Co. Wooster Ohio. Composition Essentially a nonvolatile oil with 2 per cent of volatile oils including eucalyptol, menthol camphor and wintergreen. For rheumatism catarrh diphtheria liver and kidney troubles piles asthma etc. Fraudulent therapeutic claims—[N J 21525 August 1934]

**Rinex**—Rinex Laboratories Co., Cleveland Ohio. Composition Capsules each containing acetphenetidin 1 grain aspirin 2.3 grains, quinine 0.17 grain camphor, and a laxative drug and tablets each containing 4 grains of baking soda and starch. For asthma hay fever catarrh colds etc. Misbranded because acetphenetidin not properly declared on label and because of fraudulent therapeutic claims—[N J 21526 August 1934]. This nostrum was discussed in detail in THE JOURNAL April 11 1925 and in HYPOTA for June 1929.

**Electrovita Mineralized Water**—Electrovita Co. Inc. Norwalk Ohio. Composition Essentially diluted lime water. To combat harmful acids and assist nature in the elimination of waste matter. Fraudulent therapeutic claims—[N J 21527 August 1934]. This "patent medicine" was the subject of an article in THE JOURNAL, Jan. 23 1932.

**Cox's Liniment**—Hoover Liniment Co. Carlisle Ind. Composition Essentially turpentine oil an iodine compound linseed oil, a petroleum product and carbolic acid. Fraudulent therapeutic claims—[N J 21528 August 1934]

**Carpathian Herb Tea**—Polonia Medicine Co. Philadelphia. Composition Essentially senna leaves juniper berries chamomile flowers, fennel seed pennyroyal herb and sweet orange peel. Cure-all. Fraudulent therapeutic claims—[N J 21530 August 1934]

**French's White Pine and Cherry Compound Cough Syrup**—Atlantic Sales Corporation Rochester N. Y. Composition Essentially plant drug extracts including wild cherry and ipecac, with ammonium chloride menthol alcohol sugar and water. Fraudulent therapeutic claims—[N J 21532 August 1934]

**Rogers' Headache Soda**—Rogers Drug Co. Memphis Tenn. Composition Essentially acetanilid (33 grains per powder) caffeine and baking soda. Fraudulent therapeutic claims—[N J 21533 August 1934]

**Aromist**—T. J. Holmes Co. Inc. Chantley Mass. Composition Essentially volatile oils (about 13 per cent) including lavender and cardamom oils menthol camphor and eucalyptol with alcohol and small amounts of glycerin and water. For sore throat skin infections influenza etc. Fraudulent therapeutic claims—[N J 21534 August 1934]

**Autotoxine**—Autotoxine Co. Ottawa Kan. Composition Essentially epsom salt in water sweetened with saccharine. For rheumatism headache sour stomach, neuralgia etc. Fraudulent therapeutic claims—[N J 21536 August 1934]

**Sleepy Salts**—Sleepy Water Co. Chicago. Composition Essentially Glauber's and epsom salts with a small amount of common salt. For obesity rheumatism nervous disorders etc. Fraudulent therapeutic claims—[N J 21537 August 1934]. This nostrum was the subject of an article in this department of THE JOURNAL, May 5 1934.

**Pulvis Alkantis**—Lafayette Pharmacal Inc. Lafayette Ind. Composition Essentially calcium carbonate, magnesium carbonate bismuth subcarbonate cerium oxalate and a small amount of menthol. For gastric ulcer, acute gastric catarrh etc. Fraudulent therapeutic claims—[N J 21540 August 1934]

**Grissold's Family Salve or Plaster**—Sisson Drug Co. Hartford Conn. Composition Essentially lead oleate and rosin. For boils wounds ulcers hard tumors etc. Fraudulent therapeutic claims—[N J 21541 August 1934]

**Nash's Purgative Tablets**—Nash Bros. Drug Co., Jonesboro Ark. Composition Essentially mercurous chloride phenolphthalein and an extract of a laxative plant drug. Fraudulent therapeutic claims—[N J 21543 August 1934]

**Nash's Headache Tablets**—Nash Bros. Drug Co. Jonesboro Ark. Composition Essentially acetphenetidin aspirin phenolphthalein and caffeine. Fraudulent therapeutic claims—[N J 21543 August 1934]



## Correspondence

### AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

To the Editor.—I was interested in reading the report of the Council on Medical Education and Hospitals as published in *THE JOURNAL*, March 30. I was particularly interested in comments relative to obstetrics and the report of the Committee on Maternal Mortality of the New York Academy of Medicine. You are probably cognizant of the volume published by the White House Conference on Child Health and Protection which deals with the question of obstetric education. This report was rather carefully prepared after a comprehensive study and it should be of assistance to the Council on Medical Education and Hospitals as well as to others who are interested in improving obstetric education in this country.

The comments in paragraph 3, page 1065, were of interest. I think that the Council is under some misapprehension since the American Board of Obstetrics and Gynecology does not attempt to draw an arbitrary line between surgery of the reproductive organs and other contents of the abdominal cavity. We do attempt to draw a line between men who practice abdominal surgery in the male and in the female. The gynecologist who invades the abdomen does so primarily to deal with pelvic conditions. The general abdominal surgeon, especially in dealing with the male patient, usually invades the abdomen for some condition above the pelvic level. The board expects the qualified obstetrician and gynecologist to be able to deal with surgical conditions in the abdomen, but we do not expect him to invade the abdomen as a part of his routine practice, except for gynecologic conditions. The board has therefore ruled that a man accepting male patients in his practice is not eligible for certification by the board. He must be a specialist in obstetrics and/or gynecology.

Furthermore, the American College of Surgeons has already designated competent specialists in the various surgical fields. Their selection is based on the theory that the best available man in the community should be so designated. Our board has taken the position that a man must prove himself to be a qualified and bona fide specialist without reference to his geographic location.

Lastly, I should like to call your attention to the fact that the men who constitute these special boards are facing the facts. They are men who are in actual practice and know something of the problems of the medical profession from daily contact with them. So far as I know the Council criticized and more or less condemned the action of our board without making any direct attempt to discover from its members what its attitude is. So far as my personal contact with the members of the board is concerned I believe that no one of them feels that the final attitude of the board is crystallized and unchangeable. The principal idea of the board was that the specialty of obstetrics and gynecology should be placed on a higher plane in this country than it has occupied in the past.

The members of the board are selected by various special societies including the section of the American Medical Association presumably for their fitness to deal with these problems. The board members endeavor to represent and interpret the opinions of the special societies which they represent, and also of those who have been certified as specialists by the board.

While I am a member of the board this letter in no way represents any action or conference with other members of the board. I am sure the board is attempting to take a fair attitude toward all and so far as any actions taken by the board with which I am connected are concerned I fail to see that they have been actuated either by favoritism or by prejudice.

FRED L. ADAIR, M.D. Chicago

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### MICOTIC INFECTIONS IN CANNERIES

To the Editor.—In my city there is a packing plant where tomatoes, beans and corn are cooked in various ways packed in hot cans and prepared in differing types of marketable products. Meats as well are now being cooked and packed. Every few days a worker comes in with a swollen finger from this plant. He may or may not have sustained a scratch or bruise before the swelling begins. Sometimes there is a blister where the swelling is greatest. From day to day these fingers grow worse. The swelling will extend to the tip of the finger and back to the hand. It becomes tense and the feel of the finger is hard. Blistering may extend over much of the swollen area or a lesser amount but later it will extend over the entire swollen area. The adjoining finger or fingers may become involved after three to ten days though not so seriously as the first. The blistering and infiltration may extend even into the hand. The pain due to the tense swelling is marked. There will probably be a focal spot of greater intensity where the swelling is worst and some necrosis will be found under a degenerating blister. One will feel inclined to drain at this point but so far I have never got anything except blood and a little serum. Necrosis continues with or without drainage (incision) over a wide area sometimes from the tip of the finger to the hand. Sloughing will expose the sheaths and ligaments and extend down into the joints where it may expose the bones. A large wide open necrotic sore is the result. It heals slowly. The whitened surfaces of the sore make one fear that red granulations will never appear. The sore seems forever in casting off the necrotic detritus and in bringing to light living tissues. I have opened these fingers early and late, always regretting that I opened them at all and now I do not drain but allow them to drain through their own efforts. Hot applications do not even relieve the pain very much and certainly do not greatly shorten the course. What causes these juice sores to behave so strangely? What is the proper treatment?

E. O. HARROLD, M.D., Marion, Ind.

ANSWER.—The lesions described at once suggest the presence of virulent mycotic parasites. Lately a new fungus has been described by Thiene as the causative agent of an occupational disorder among workers in canneries. This new organism resembles *Monilia* and *Parasaccharomyces* but as yet this organism has not been finally classified. *Moniliasis* is itself a distinct possibility. The treatment for these fungic infections is the same as for mycotic lesions in general. Roentgen therapy has some merit. These conditions are more particularly associated with vegetable canneries, but it is observed in the query that meats likewise are packed. "Butchers dermatitis" is a well established occupational disease entity and perhaps has best been described by Schwartz (*J Indust Hyg* 13 233 [Sept.] 1931). His summary is as follows:

1 Butchers' dermatitis, characterized principally by erythematous areas on the hands followed by the appearance and subsequent eruption of pinhead vesicles, and accompanied by considerable itching as a symptom, is an occupational disease largely affecting butchers and inspectors who handle freshly killed carcasses.

2 The lesions which first appear on the webs of the fingers and spread to the sides and backs of the fingers and to the backs of the hands as far as the wrists, may extend up the arms as far as the elbows and in exceptional cases may spread to other parts of the body, such as the chest, abdomen, legs and face.

3 The disorder does not appear immediately on the exposure of susceptible persons but usually makes its appearance after an initial period of exposure varying from three to thirty days during which time susceptible persons presumably become sensitized to the tissues and fluids of swine, cattle and sheep.

4 While certain persons make a rapid recovery following the first attack, with or without treatment, others develop repeated attacks while the exposure to the inciting cause is continued in some persons the susceptibility lasts for several years.

5 The available evidence indicates that many seasoned workers lose their susceptibility to the disorder in the course of time.

6 While most susceptible persons appear to become fairly equally sensitized to the various classes of meat food animals that are slaughtered in abattoirs certain persons exhibit a specific susceptibility to one or two classes of these animals and are unaffected by contact with others.

7 The dermatitis may be checked by various local applications commonly used in treating related skin troubles in which there are no constitutional symptoms.

8 On the basis of available evidence, frequent washing of the hands in cold running water, thorough scrubbing of the hands with soap and brush at the end of the day's work, and coating the hands with petrolatum or other ointments before beginning the day's work are in most cases effective prophylactic procedures.

Schwartz's paper indicates the absence of precise knowledge of the causative agent of "butchers' dermatitis," but again it is believed that fungi of divers sorts may be the cause of some outbreaks. Different forms of mycotic organisms probably are responsible for the variations in severity, incidence and characteristics. Suggestions as to treatment are scarcely warranted in this situation until greater information is available as to the cause of the disorder. Chief emphasis at this time is placed on the desirability for carrying out microscopic examinations of skin scrapings, fluid discharges and culture materials for the purpose of establishing the exact nature of the offending parasite.

#### TREATMENT OF PYELITIS IN PREGNANCY

To the Editor—I was called in to see a pregnant woman aged 19 a primipara at the sixth month. She was complaining of pain of several days duration in her back also fever, nausea and vomiting. The pain was sharp and colicky in character and did not radiate. The temperature was 103.2 F the pulse 120 per minute and respiration 22 per minute. The blood pressure was 122 systolic 62 diastolic. Physical examination revealed nothing of note except tenderness in both costovertebral angles and in the lower midline of the abdomen. A diagnosis of pyelitis of pregnancy was made and confirmed by a urine examination. The latter showed an abundance of pus and moderate albumin but no casts or red cells. Alkalinization of the urine with sodium bicarbonate was attempted for three days with no improvement either in the severity of the pain or elevation of temperature. Urophosphate tablets were then given one tablet three times a day for four days without effect. The pain became more severe so that there was a suspicion of kidney stone. The patient was removed to a hospital where a flat roentgenogram of the abdomen was made. No stones were visualized. The urine still showed only pus and albumin and no red cells or casts. The white cell count was 13 000. It was decided to wash the kidney pelvis through ureteral catheters. A consultant suggested first trying intensive methenamine therapy. In four days the temperature was normal the pain relieved and the patient sent home although the urine still showed some pus. Previous to the patient's discharge from the hospital the urine had shown some red cells and an occasional cast. This was attributed to the urophosphate compound. The latter was therefore discontinued and pyridium was substituted. The casts and red cells cleared up. At home two urophosphate tablets were given three times a day for several days and then a course of pyridium two tablets three times a day. The temperature shot up suddenly to 104 on the day after discharge from the hospital. It gradually dropped to normal after a few days. With reduction in the dose of the urophosphate compound however the temperature has risen again. The urine has continued to show pus and albumin (but no casts or red cells) although in lesser amounts. The temperature will be subnormal or normal in the morning and rise to about 102 in the afternoon. Attempts to get the patient up in bed result in an exacerbation of the condition. It has now been over three weeks since I first saw the patient and the improvement has been only slight. The patient is extremely desirous of having her baby and would like to avoid returning to the hospital for the ureteral washing for financial reasons. The latter condition however can be surmounted. I would like your opinion regarding the handling of this patient in respect to the pyelitis and the remainder of this pregnancy and in preparation for future pregnancies. I might add in closing that there is now no pain in the back. The patient has suffered considerably from flatulence. A light high protein diet was given in view of the lack of any toxic symptoms and small salt water enemas were given. This seems to have relieved the condition. Please omit name. M D District of Columbia

ANSWER.—In this case the treatment carried out represents the latest known in pyelitis. The restraint in the use of the ureteral catheter is commendable because of the acuteness of the disease but, now that the inflammation is in a more subacute stage, it might be desirable to put a catheter into the kidney pelvis and leave it there for several days, in the meantime keeping up alternating alkaline and acid treatment. One need not fear toxemia from a high protein ketogenic diet, which lately is being much used in pyelitis. Under the acid treatment, liquids should be restricted. Under the alkaline they should be greatly increased, the idea being to wash the kidney pelvis.

Change of posture is very important and the patient should assume the knee-chest or elevated Trendelenburg or alternating elevated Sims position frequently and for considerable lengths of time.

Unless the patient improves under these measures it would be advisable to empty the uterus because this would hasten the cure and would give her a better chance to enter later pregnancies with undamaged kidneys.

If the pyelitis is bilateral the emptying of the uterus is more strongly indicated.

#### POISONING FROM CREOSOTE

To the Editor—A man, aged 60 has adjoining his home on the south an unvalued lot on which is stored a carload or so of creosote lumber which is all the way from 10 to 60 feet from his home. Last summer the man complained of loss of appetite, a nauseated feeling, vertigo, and increasing deafness, especially in one ear. Examination was entirely negative except for a scarred tympanic membrane. The symptoms were not appreciably altered by thorough elimination. The summer was long dry and hot with an almost constant wind blowing directly from the creosote timbers into the man's home. His business a small repair shop is located at his residence, so that he was subjected to these fumes almost all the time. What are the signs and symptoms of creosote poisoning? Do you think it possible that any or all of these symptoms could be due to the symptoms described? Please omit name. M D Oklahoma

ANSWER.—Distinction must be drawn between real creosote poisoning and the condition described in this query. The creosote used for this purpose may be water gas tar or a complex mixture of various high boiling coal tar distillation products. Tarry acids are present, including various substances akin to cresols and phenols. The commonest disorder is a dermatitis, ordinarily produced only by direct contact but occasionally from vapors existing near treated woods. Commonly this creosote material is regarded as not evaporating. This is relatively true on comparison with the evaporation of water or naphtha. However, some drying out does take place, particularly in hot weather, with the result that persons near extensive drying out surfaces may become involved. Track walkers walking on hot days along railroads having cross ties recently treated with creosote occasionally suffer from a dermatitis, nausea and distaste for food. In the case cited in this query it is unlikely that any association should be made between the creosote and the scarred tympanic membrane, increasing deafness and possibly the vertigo. On the other hand, in the absence of any other plausible explanation the feeling of nausea and the loss of appetite may well be linked with creosote emanations under the circumstances of close proximity of the lumber pile and hot weather. Probably this action is not specific but might arise from almost any other disagreeable odor. A mental element undoubtedly contributes, for almost any one would be disturbed and irritated by the prolonged presence of offensive vapors of any character. Although odors are usually held blameless as the direct source of any disease state, it must be recognized that odors directly or indirectly bring about shallowness in breathing with some subsequent deprivation of the body of adequate oxygen, nausea, gastric discomfort, occasionally vomiting, and distaste for food. Creosote vapors are capable of bringing about this type of minor dysfunction and have been known so to do.

#### TREATMENT OF WARTS

To the Editor—I read with interest the report by Dr. Sophie A. Lurie in THE JOURNAL (Nov. 3, 1934 p. 1399) on the treatment of warts with bismuth salicylate. Could you please send me detailed information such as interval of injections, amount injected, and so on, and also whether it has been tried in the removal of moles, also further references on the subject.

AARON BARCHAN M D New York

ANSWER.—A preparation of bismuth commonly used for intra muscular injection is the subsalicylate in a 10 per cent suspension of a vegetable oil. Of this, 1 or 2 cc. (from 0.1 to 0.2 Gm of the salt) is given once a week to adults.

The report of Dr. Lurie in Queries and Minor Notes in THE JOURNAL suggests that bismuth given in this way cures warts in just about 100 per cent of cases. A previous article by Dr. Lurie (Verrucae Vulgaris Palmar et Plantar, Treatment by Intramuscular Injections of Bismuth Salicylate, Arch Dermat & Syph 26 95 [July] 1932) reports the cure of thirty-four patients in a series of forty-nine treated. The result in the other fifteen could not be ascertained. At least one of the thirty-four cured could not be seen. The cure was reported by a nurse.

Two possibilities must be considered in attempting to explain this brilliant result. 1 That it was a coincidence that the warts cleared up soon after the treatment was begun. Goodman and Greenwood (Verrucae, Arch Dermat & Syph 30 659 [Nov.] 1934) criticize the reports on the cure of warts because they almost never include a control series, cases that were not treated, to compare the cases of spontaneous recurrences with the percentage of cures after treatment. Dr. Lurie's successes were so many however and most of them occurred so promptly after the onset of treatment, that coincidence can hardly be held responsible. 2 That the drug is an active curative agent. This does not fit with the experience of many other dermatologists, who have given full doses of bismuth compound intramuscularly for many weeks without result. It can be said, however, that some patients are more susceptible to the action of the drug.

than are others 3 That the warts were cured by suggestion Dr Lurie makes no statement that she attempted to rule out this possibility as others have done (Cormia, F E Autolysate Treatment for Verrucae Vulgaris, *Arch Dermat & Syph* 30 44 [July] 1934) by discouraging the patient, mentioning that warts are very hard to cure, and so on Cormia's results were poor, favoring the theory of suggestion rather than the curative effect of the Biberstein autolysate, which he was testing

If a bismuth compound is used, the urine should be examined before treatment is begun and frequently during treatment and on the appearance of albumin or casts the treatment should be suspended A careful watch should be maintained for itching skin eruptions and the drug stopped until they can be cleared A blue line on the gums next the teeth indicates saturation with the drug, with impending stomatitis, and treatment should be discontinued if it appears Usually a series of eight weekly injections is considered a full course

Warts are thought to be due to infection with a filtrable virus Treatment with bismuth compounds is rational for such a disease. Moles are new growths in the skin probably benign epitheliomas and there is no reason to expect bismuth compounds to have any effect on them

#### CANCER OF CERVIX AFTER CHILDBIRTH

To the Editor—Can you quote or refer me to statistics concerning the relative frequency of the occurrence of cancer of the cervix in women who after childbirth have had a trachelorrhaphy (or cauterization) as compared to those who after childbirth have not had done either of these procedures? I should like also to know the statistics on the occurrence of cancer of the cervix in all women as compared to those who have had done repairs or cauterizations of the cervix Please omit name and town

M D North Carolina

ANSWER—Lynch, writing for Davis's Gynecology and Obstetrics says "Carcinoma is the most frequent malignant tumor of the uterus. Usually it is primary and very rarely is it secondary from cancer in adjacent organs. Orth states that it forms 30 per cent of all carcinomas in women. It is responsible for at least 4 per cent of all gynecologic pathology. It kills more than 13 000 women annually in the United States (65 603 deaths from cancer of the uterus in the United States registration area 1925-1929 inclusive). 12 61 per cent of all cancer deaths are from cancer of the uterus these form 87 per cent of all deaths from cancer of the female genital organs (Hoffman)"

Lynch finds that the view that nulliparity or even virginity protects women from the chance of cervical cancer can be disproved from properly prepared reports, which show the relative proportion of cancer in nulliparous and multiparous women of the cancer age in the entire population

It would seem that it is the long continued chronic irritation of the cervix which is important, and all writers appear to agree that early cervical cancer is rarely found in women who have healed scars of cervical tears. Reference is commonly made to the report of Graves, who made a follow-up study of 6 000 women who had cervical repairs (not to remove the lacerations but to remove the infected areas contained therein) and found that only two women thus treated had developed cancer of the cervix at the time the study was made. Furthermore the history of women who have cancer of the cervix shows that relatively few have had either regular pelvic examinations or treatment of chronic irritations of the cervix. Thus far most of the statistical studies must be considered inadequate and the conclusions suggestive rather than absolute but gynecologists are generally of the opinion that the treatment of cervical irritations and lacerations definitely lessens the risk of cervical cancer

#### MYOSARCOMA OF BREAST

To the Editor—I am interested in available literature on myosarcoma of the breast

J L FORD MC Lancaster Pa

ANSWER—Reports on myosarcoma of the breast are difficult to locate because of the confused terminology used in reporting mammary sarcoma. The literature on sarcoma of the breast has been brought down to the present in articles published in the *Annals of Surgery* from 1915 to 1934

S L Fox in his recent paper (Sarcoma of the Breast *Ann Surg* 100 401 [Sept] 1934) reviews the reports of S H Gest and A O Wilensky (Sarcoma of the Breast, *Ann Surg* 62 11 1915) Rigney D Aunoy and R W Wright (Sarcoma of the Breast *Ann Surg* 92 1059 [Dec] 1930) collected sixty-eight additional cases including seven of their own, and in 1932 B F Schreiner and A A Thibeaudeau (Sarcoma of the Breast, *Ann Surg* 95 453 [March] 1932) added seven more

Some of these cases were probably myosarcomas that were not distinguished by the authors and were loosely grouped under mixed tumors or fibrosarcoma. Figures 9, 10 and 11, page 408, in Fox's article is a probable myosarcoma, although at the time of publication he regarded the tumor as possibly of neurogenic origin. The sections have been restudied. The sixth case of Schreiner and Thibeaudeau is a probable myosarcoma, although described as composed of spindle, round and giant cells

Gaudier, Grandclaude and Lambret (Tumeur maligne du sein a type myoepithelial *Ann anat path* 8 68 [Jan] 1931) report a mild epithelial tumor of the breast, which they thought was malignant

Leroux and Chaton (Dysembryome complexe de la glande mammaire, *Bull Assn franç pour l'étude du cancer* 22 80 [Jan] 1933) have reported a fibrorhabdomyosarcoma of the mammary gland and (Voluminoso sarcoma ad elementi polimorfi e giganti della mammella *Cancro* 3 226 1932) gives illustrations of a possible sarcoma of this type under the heading of Large Polymorphous and Giant Cell Sarcoma of the Breast. Both of these last two articles are abstracted in the *American Journal of Cancer* 20 906 (April) 1934

#### BURSITIS

To the Editor—About two months ago while I was removing a prepatellar bursa under local anesthesia the sac was ruptured making it a little uncertain as to whether it was removed in its entirety. The patient was permitted to be up and about forty-eight hours after the operation. At this time serum continues to discharge several drachms daily and if the skin incision should be permitted to close the condition would apparently recreate itself. What is the best procedure to follow in this case? Please omit name

M D California

ANSWER.—As long as any secreting cells remain, drainage will continue. In this case it is also necessary to determine roentgenographically whether there is now any osteomyelitis of the patella or a connection with the knee joint cavity. The latter may be demonstrated by means of injection of iodized poppy-seed oil. If these complications do not exist, the drainage tract should be curetted and then cauterized with surgical diathermy. A compression bandage must be applied to prevent reaccumulation of the fluid. If no healing occurs subsequent to this treatment or if the foregoing complications exist, reoperation will be necessary. At this time, all secreting tissue should be removed if possible and those portions which cannot be excised should be curetted and cauterized

#### POSSIBLE SENSITIVITY TO LIVER EXTRACT

To the Editor—I have been treating a patient who has pernicious anemia with intramuscular injections of a concentrated liquid liver extract prepared by one of the leading pharmaceutical chemists. I have administered this preparation in the dosage recommended by the manufacturer and the results obtained have been excellent so far as improvement in the blood picture and the general nutrition and health of the patient are concerned. However about sixty days after the mentioned treatment the patient developed a severe and extremely obstinate case of urticaria. Nothing gives her relief except epinephrine and this for only a short time. Is it possible that the liver extract is responsible for the urticaria? Please advise me as to the toxic manifestations that might result from this treatment and if you can suggest anything to relieve this urticaria I will greatly appreciate it. I have eliminated all articles of diet that might have been causative factors. A change in residence has been of no avail. A complete physical examination including gastro-intestinal roentgenograms reveals nothing of a pathologic nature. Please omit name

M D North Carolina

ANSWER.—In spite of its fairly wide use, reactions following liver treatment are rare. In one large clinic devoted to blood diseases reactions have occurred only twice in a large series of cases. 1 A man had asthma in addition to his anemia, and the first intravenous dose of liver extract was followed immediately by an attack of asthma before the second dose, however epinephrine was given and no reaction occurred. 2 In the second case cyanosis and collapse occurred immediately after injection. Urticaria however did not occur in either of these cases

In a case reported by Held and Goldbloom (THE JOURNAL April 25 1934 p 1361) generalized itching and redness with deep wheals like erythema nodosum followed the beginning of a series of intramuscular doses of liver extract. The skin lesions disappeared when the extract was withdrawn and reappeared when treatment was resumed. The same patient however was able to take cooked liver by mouth without difficulty. This is the only available published report. The condition is obviously rare

In the case under discussion urticaria developed sixty days after the beginning of liver treatment. The time interval is

pretty long, although the relief from epinephrine favors the theory of allergy as a cause of the trouble. The possibility is definite.

The treatment should be (1) to experiment with different brands of liver extract or (2) to substitute oral administration for intravenous or intramuscular administration, as in the reported case. If, later, the urticaria persists, the steps will be (1) to search and remove all foci of infection and (2) to consider the importance of dusts in the environment, making intradermal tests with extracts of such substances as silk floss, kapok, cottonseed, orris powder, animal danders, and pollens, since it is now recognized that urticaria and eczema result from exposure to foreign substances which may enter the system by way of the respiratory tract.

#### ICHTHYOSIS

*To the Editor*—While I was treating the son of a patient today she brought in an orphan she has been keeping for six years who has had a diagnosis of fish scale (or skin) dermatitis. He is now 9 years of age and every fall and winter when it is necessary to clothe him more fully he develops this condition which itches and changes the color of his skin to a grayish almost silver appearance. The fish scale diagnosis was made probably from the way in which the skin (which is dry flaky and rough) assumes a cracked appearance resembling scales. This condition extends over the entire body except the face and hands which are of course exposed. The scales and itching also infest the hair. He has been under treatment with light probably ultraviolet and baths averaging sixteen a week (washing with soap and water and then applying some oil thought to be fish oil). Under this treatment the skin responds fairly well to assuming its normal appearance. He has been made much worse with cod liver oil so his adopted mother states. During the summer months he is entirely free from any itching or scales and wears but little clothing which has been the rule for the last six years. Now as to what I have observed of this young chap from first acquaintance. He is very attentive and is doing well in school. He seems to be quick tempered but not nervous. He sleeps well at night. His appetite is good. He had his tonsils out six years ago. His teeth are very good. He weighs 60 pounds (27 kg.) and is 59½ inches (152 cm.) tall (normal for a boy his age). His mother and father cannot be traced but from the history the mother was 14 years old and the father 15 when he was born. Would this cause any maldevelopment of the integument giving these symptoms and appearance? Would thyroid extract benefit this boy? Have you an idea as to the cause and how to treat the condition to eradicate it? Kindly omit name. M. D. Ohio.

*ANSWER*—This is a case of ichthyosis of moderate severity. The disease is often familial, but the youth of the parents had nothing to do with it as far as is known. The disease cannot be cured but may be mitigated greatly by proper bathing andunction, as is already being done. These cases are always worse in winter when the skin is dry. Borax or sodium carbonate may be added to the bath water. Immediately after the bath, while the skin is still moist, it must be anointed with oil of theobroma, petrolatum, or a mixture of olive oil 3 parts, glycerin 1 part and emulsion of hydrous wool fat 10 per cent in lime water or any of many other kinds of fat. Salicylic acid from 2 to 5 per cent may be added if it is thought necessary. On the face and hands, glycerin and sodium bichlorate may be used or the familiar glycerin 10 per cent in rose water.

Desiccated thyroid has been of benefit in ichthyosis. In the case under discussion it would seem unnecessary and had better be avoided unless the basal metabolism is low.

Residence in a warmer climate would mitigate the severity of the disease.

#### PIGMENTATION OF SKIN BY MERCURY CREAMS

*To the Editor*—In THE JOURNAL Nov. 3, 1934, in the answer to a query with reference to the effects of mercury impregnation on the hair it is stated that treatment for the removal of the mercury is very unsatisfactory. I have a patient who used a mercurial cream on her face, neck and arms for a number of years. She came to me about nine months ago with definite symptoms of advanced chronic mercurial poisoning. On examining the urine I found mercury present. After the patient discontinued the use of the cream and with the institution of eliminative treatment the metallic taste, foul breath and spongy gums cleared up and her health in general is improved but the slate color of the skin which appears only where the cream was used does not improve. I have prescribed sweat baths, potassium iodide and tonics and in addition she has tried blistering the skin and massage but the discoloration of the skin remains unimproved. What would you suggest and what is the prognosis? Kindly omit name. M. D. Pennsylvania.

*ANSWER*—The production of lasting staining of the skin by cosmetics containing mercury was reported by W. H. Goeckerman (A Peculiar Discoloration of the Skin, THE JOURNAL, Aug. 19, 1922, p. 605). The pigment affected chiefly the eyelids, the nasolabial folds, the chin and the folds of the neck and looked as if the skin was dirty. On close inspection it was seen to be in black points in the follicular openings. Scrapings from this skin gave no information. Biopsy was not permitted. Treatment was but slowly helpful. Two per cent acetic acid

solution in water and from 0.5 to 1 per cent potassium cyanide in water were said by the patient to give definite improvement, showing how little credence can be given such reports, for, as was demonstrated later, the pigment was within the skin.

In a second report under the same heading (THE JOURNAL, Feb. 14, 1925, p. 506) Goeckerman reported thirteen more cases, from one of which he obtained a biopsy. The pigment was seen in the microscopic section scattered through all the layers of the skin, including the epidermis. Treating such a section with an iodine solution removed this pigment. Goeckerman recommends iodides internally or sodium thiosulphate.

J. B. Blashill (Pigmentation of the Face and Neck Due to Freckle Cream, THE JOURNAL, June 18, 1932, p. 2200) reported another of these cases, tried several forms of treatment, and concluded that time was the chief hope for these sufferers.

External application can be of no avail. Iodine or sodium thiosulphate internally seems the only rational method of attack.

There are, of course, other possibilities. The pigment may be ordinary skin pigment increased by local irritation or chloasma secondary to the general poisoning with mercury possibly due to liver damage. In this case, some improvement may be obtained by the persistent use of 30 per cent hydrogen dioxide 1 cc. and wool fat, 6 Gm., in sufficient petrolatum to make 10 Gm. This is to be applied to a small area once daily. If irritation results one should stop and wait for it to subside. The danger of increasing pigmentation by any irritating application must always be kept in mind. This treatment, of course, will not affect the mercury stain.

#### CHRONIC SINUS INFECTION

*To the Editor*—What is the accepted treatment of a chronic nasal and nasopharyngeal catarrh which condition is accompanied by an odor approaching that found in ozena? What is the status of nasal and nasopharyngeal irrigations in treatment of chronic infection of the paranasal sinuses? Please omit name. M. D. Iowa.

*ANSWER*—If the so-called catarrh is due to a chronic nasal sinus infection, the latter must be treated as such. In other words if there is obstruction to proper drainage, or if polypi are present, some type of operation on the sinuses will be necessary. If on the other hand there is an atrophic rhinitis or atrophic pharyngitis present, this must be treated in order to prevent the formation of abnormal secretion and its adherence to mucous membrane and then decomposition, the latter often giving rise to the foul odor of ozena. If the atrophic rhinitis or pharyngitis is present, a mild alkaline cleaning solution may be used. However, not only in this condition but in chronic infection of the nasal sinuses as well, douching is fraught with considerable danger to the ears unless certain precautions are observed, such as having an isotonic solution of a mild alkaline character, with the temperature of the fluid at slightly above body temperature, using but little pressure and having the mouth opened wide while the fluid is entering and leaving the nose. Douching, of course, is no cure but helps by removing secretions and, when ozena is present, often lessens the odor.

#### CONDYLOMA ACUMINATA

*To the Editor*—A primipara aged 20 was delivered by high forceps and a mild puerperal sepsis developed. Her temperature became normal but there is hypersensitiveness of the introitus and the vagina. There is a persistent leukorrhea from endocervicitis. The left Bartholin's gland gives a slight suggestion of chronic inflammation. Two growths developed one on each lateral wall of the vagina which look similar to hymenal tags except that they are red, bleed easily and are situated about 2 cm. proximal to the introitus but they do not seem to be hypersensitive. I have used 10 per cent silver nitrate to the cervix, sulphated bitumen glycerin tampons, gentian violet tampons and bismuth subnitrate tampons without results. The organism present on smears is an encapsulated diplobacillus similar in size and shape to the pneumococcus. Hot douches have not relieved the hyperesthesia to any marked extent. The uterus is in second degree retroversion and is difficult to palpate or manipulate on account of pain. Would coagulation of the cervix and replacement of the uterus relieve the hyperesthesia? How best could the latter be done considering the pain? I would appreciate any suggestions in management of this case. Kindly omit name. M. D. Minnesota.

*ANSWER*—Naturally it is impossible to make a diagnosis from the description that has been sent of these lesions. There are several conditions that might cause the signs and symptoms. Condyloina acuminata and granulomas (excessive granulation) might be suggested. These granulomas should be removed by scraping and the bases should be cauterized. This usually cures the discharge, and the tenderness disappears in a short time. One should be conservative with electrical coagulation of the cervix as it is easily overdone. The treatment of condyloina acuminata was described in THE JOURNAL, Jan. 12, page 137.

# LIVER EXTRACT INTRAMUSCULARLY

To the Editor—In using liver extracts intramuscularly, I have heard that reactions are rare but they do occur implying general reactions I presume. But is there such a phenomenon as local tissue reaction? I have given these intramuscular injections in a considerable number of cases without any apparent disturbance except slight irritation on injection however the present patient, a rather stout person with very pronounced anemia, took the first seven doses without complaint except that a palpable lump seemed to remain. After the eighth dose a hardened area the size of a hen's egg and a reddened area the size of the palm of the hand, developed. The ninth dose produced an even greater area of reaction when this form of treatment had to be abandoned. Do you suppose that a change of the brand of material would be sufficient or would you place the patient on oral liver therapy? Please omit name

M D, New York

ANSWER.—It would be wise to switch to another brand of potent liver extract, and it is important not to reinject in the same area too frequently. Different areas of the body should be chosen, so that no one area will be used more frequently than every third or fourth week. If the lump persists, a change to oral liver or desiccated hog stomach therapy is advisable.

# TRAVELING DURING PREGNANCY

To the Editor—A primipara four months pregnant is planning a three weeks vacation trip (her husband to do the driving) to Florida from Boston and back. Do you think it advisable and safe? Please omit name and town

M D Massachusetts.

ANSWER.—Almost universally, pregnant women are cautioned against taking long automobile, train or boat trips. However with few exceptions there is in reality but little risk involved in traveling. Nevertheless, if a patient has bled one or more times during her present pregnancy it is best for her not to go far away from home. Likewise, if a woman has had one or more spontaneous miscarriages it is best for her to avoid long trips unless they are absolutely necessary. When a trip is planned, it is advisable to avoid traveling during the few days when the menstrual period would have occurred were the patient not pregnant. Nowadays with the remarkably smooth roads in most parts of the country and with the riding comfort of the modern automobile, most pregnant women may safely take long trips. It is much safer to tour after the fourth month than before that period.

# TORSION OF SPERMATIC CORD

To the Editor—Can you give me any information on the following case? A Negro about 18 years old with fully developed external genital organs, has had his testicles retracted until the left one has returned into the abdomen and the right one has caught at the external abdominal ring. There has been no pain except for a short time in the right testicle due to pressure. The scrotum has entirely disappeared. From the time he first noticed any change, only about one week elapsed until the present condition was reached.

D F Stouck M D Geary Okla.

ANSWER.—Sudden changes in the external genitalia, such as mentioned in this query, can in all probability be best explained on the basis of torsion of the spermatic cord. This condition is acute in its onset and often is not recognized, so that the torsion is not released and atrophy of the testicle results, with or without retraction. However, attention may be called to the fact that torsion of the cord with atrophy of the testicle does not, as a rule, produce entire disappearance of the scrotum as stated here.

# SODIUM BICARBONATE NOT A CATHARTIC

To the Editor—Please comment on the use of sodium bicarbonate as a cathartic given in such dose as a "heaping teaspoonful in a glass of hot water half an hour before meals. Is this an old remedy? Is there any harm in its continued use? Please suggest a few substitutes that may act similarly and as favorably.

M D, Ind

ANSWER.—Sodium bicarbonate in a glassful of water is not a cathartic in the usual interpretation of the term, any more than a glass of water is. Nevertheless, cathartic action may be secured from either of these and no doubt, more certainly from the combination of the two. The latter should not be resorted to if the ingestion of a tumblerful of cold water suffices. If it does not, it would be preferable to employ a teaspoonful of sodium chloride in a glassful of hot water rather than the bicarbonate, as the latter may have a tendency to disturb the acid base equilibrium of the gastro-intestinal tract and even of the system. Indeed, it may act as a cathartic by disturbing normal digestive function.

# Medical Examinations and Licensure

## COMING EXAMINATIONS

- ALABAMA Montgomery, June 24-26 Sec Dr J N Baker 519 Dexter Ave. Montgomery
- AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Oral (Group A and Group B candidates) New York June 10 Sec. Dr C Guy Lane, 416 Marlborough St. Boston
- AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Final oral and clinical examination (Group A and Group B candidates) Atlantic City, N J June 10-11 Sec Dr Paul Titus, 1015 Highland Bldg., Pittsburgh
- AMERICAN BOARD OF OPHTHALMOLOGY Philadelphia June 8 and New York June 10 Sec Dr William H Wilder 122 S Michigan Blvd Chicago
- AMERICAN BOARD OF OTOLARYNGOLOGY New York, June 8 Sec. Dr W P Wherry 1500 Medical Arts Bldg Omaha
- AMERICAN BOARD OF PEDIATRICS Atlantic City N J June 10, and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St. Winnetka Ill
- AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Philadelphia June 7-8 Sec., Dr Walter Freeman, 1726 Eye St NW Washington D C
- AMERICAN BOARD OF RADIOLOGY Atlantic City N J June 8-10 Sec. Dr Byrl R Kirkin Mayo Clinic, Rochester Minn
- ARIZONA Basic Science Tucson June 18 Sec. Dr Robert L Nugent Science Hall, University of Arizona Tucson
- CALIFORNIA San Francisco July 8-11 and Los Angeles July 22-25 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento
- COLORADO Denver, July 2 Sec Dr Harvey W Snyder 422 State Office Bldg Denver
- CONNECTICUT Basic Science New Haven June 8 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven Medical Hartford July 9-10 Endorsement Hartford July 23 Sec Medical Examining Board Dr Thomas P Murdock 147 W Main St Meriden
- DELAWARE June 11-13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover
- DISTRICT OF COLUMBIA Washington July 8-9 Sec Commission on Licensure, Dr George C Ruhland 203 District Bldg Washington
- FLORIDA Jacksonville June 17-18 Sec Dr William M Rowlett P O Box 786 Tampa
- GEORGIA Atlanta and Augusta June 11-12 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol, Atlanta
- HAWAII Honolulu July 8-11 Sec. Dr James A Morgan 48 Young Bldg Honolulu
- ILLINOIS Chicago June 25-28 Address, Department of Registration and Education Springfield
- INDIANA Indianapolis June 18-20 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis
- IOWA Iowa City June 4-6 Dir Division of Licensure and Registration Mr H W Grete Capitol Bldg Des Moines
- KANSAS Topeka June 18-19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned
- KENTUCKY Louisville June 5-7 Sec State Board of Health, Dr A T McCormack, 532 W Main St. Louisville
- LOUISIANA New Orleans June 6-8 Sec. Dr Roy B Harrison 1507 Hibernia Bank Bldg New Orleans
- MAINE Augusta July 2-3 Sec Board of Registration of Medicine Dr Adam P Leighton Jr., 192 State St. Portland
- MARYLAND Regular Baltimore June 18-21 Sec Dr John T O Mara 1211 Cathedral St. Baltimore Homoeopathic Baltimore June 11-12 Sec Dr John A. Evans 612 W 40th St Baltimore
- MASSACHUSETTS Boston July 9-11 Sec. Board of Registration in Medicine Dr Stephen Rushmore 413 State House Boston
- MICHIGAN Detroit, June 5-7, and Ann Arbor, June 11-13 Sec Board of Registration in Medicine Dr J Earl McIntyre 202-3-4 Hollister Bldg Lansing
- MINNESOTA Basic Science Minneapolis June 4-5 Sec Dr J C McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis June 18-20 Sec Dr E J Engberg 350 St Peter St. St. Paul
- MISSISSIPPI Jackson June 25-26 Asst. Sec State Board of Health Dr R N Whitfield, Jackson
- MISSOURI St Louis, June 12-14 State Health Commissioner Dr E T McGaugh State Capitol Bldg Jefferson City
- NATIONAL BOARD OF MEDICAL EXAMINERS The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24-26 and Sept 16-18 Ex Sec. Mr Everett S Elwood 225 S 15th St Philadelphia
- NEBRASKA Omaha, June 11-12 Dir Bureau of Examining Boards, Mrs Clara Perkins State House Lincoln
- NEW JERSEY Trenton June 18-19 Sec Dr James J McGuire 28 W State St., Trenton
- NEW YORK Albany Buffalo, New York and Syracuse June 24-27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany
- NORTH CAROLINA Raleigh June 10-14 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh
- NORTH DAKOTA Grand Forks July 2-5 Sec Dr G M Williamson 4 1/2 S 3d St. Grand Forks
- OHIO Columbus June 4-7 Sec, State Medical Board Dr H M Platter 21 W Broad St Columbus
- OKLAHOMA Oklahoma City June 5-6 Sec. Dr J M Byrum Mammoth Bldg Shawnee
- PENNSYLVANIA Written Philadelphia and Pittsburgh July 9-11 Bedside Philadelphia, July 12-13 Dir Bureau of Professional Licensing Mr W M Denison 400 Education Bldg Harrisburg
- RHODE ISLAND Providence July 2-3 Dir Department of Public Health, Dr E. A. McLaughlin 319 State Office Bldg Providence
- SOUTH CAROLINA Columbia June 25 Sec Dr A Earle Booser 505 Saluda Ave Columbia

**SOUTH DAKOTA** Rapid City July 16-17 Dir, Division of Medical Licensure, Dr Park B. Jenkins Pierre  
**TENNESSEE** Knoxville Memphis and Nashville June 13 14 Sec Dr H W Qualls, 130 Madison Ave Memphis  
**TEXAS** Austin, June 18 20 Sec Dr T J Crowe, 918 19 20 Mercantile Bldg Dallas  
**UTAH** Salt Lake City July 8 10 Dir Department of Registration, Mr S W Golding 326 State Capitol Bldg Salt Lake City  
**VERMONT** Burlington June 26 28 Sec Board of Medical Registration Dr W Scott Nay Underhill  
**VIRGINIA** Richmond, June 19 21 Sec Dr J W Preston 28½ Franklin Road Roanoke  
**WASHINGTON** Basic Science Seattle July 11 12 Medical July 15 17 Dir Department of Licenses Mr Harry C Huse Olympia  
**WEST VIRGINIA** Clarksburg July 8 State Health Commissioner Dr Arthur E McClue Charleston  
**WISCONSIN** Basic Science Milwaukee June 1 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee Medical Milwaukee June 25 28 Sec Dr Robert E Flynn 401 Main St LaCrosse

### Colorado January Report

Dr William Whitridge Williams, secretary Colorado State Board of Medical Examiners, reports the written examination held in Denver, Jan 2, 1935. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Four candidates were examined all of whom passed. Ten physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Colorado School of Medicine		(1933)	83
Jefferson Medical College of Philadelphia		(1925)	83
Osteopaths*			77 87 6

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Arkansas School of Medicine		(1931)	Arkansas
College of Medical Evangelists		(1934)	California
School of Medicine of the Division of the Biological Sciences		(1932)	Illinois
University of Illinois College of Medicine		(1928)	U S Navy
Indiana University School of Medicine		(1928)	Indiana
Baltimore Medical College		(1901)	W Virginia
St Louis University School of Medicine		(1927)	Texas
Cornell University Medical College		(1921)	New York
University of Pittsburgh School of Medicine		(1925)	Penna
McGill University Faculty of Medicine		(1933)	A B M Ex

\* Licensed to practice medicine and surgery

### District of Columbia January Examination

Dr George C Ruhland secretary, Commission on Licensure reports the written examination held in Washington Jan 14-15 1935. The examination included 58 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, 14 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine		(1933) 88 2	89 1
Georgetown University School of Medicine		(1932)	82 3
(1933) 82, 84 89			
Howard University College of Medicine		(1933)	88 7
Johns Hopkins University School of Medicine		(1929)	89 6
University of Maryland School of Medicine and College of Physicians and Surgeons		(1933)	84 5
Long Island College of Medicine		(1934)	86 2*
University of Oregon Medical School		(1930)	81 7
Medical College of Virginia		(1929)	88 3

School	FAILED	Year Grad	Per Cent
Georgetown University School of Medicine		(1932)	72 3

\* License withheld pending completion of internship

### Iowa January Examination

Mr H W Grefe, director, Division of Licensure and Registration, reports the written examination held by the Iowa State Board of Medical Examiners at Des Moines Jan. 3-5, 1935. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Loyola University School of Medicine		(1933)	85 3
University of Minnesota Medical School		(1928)	86 3
Creighton University School of Medicine		(1934)	84 5*
Friedrich Wilhelms Universität Medizinische Fakultät Berlin		(1933)	82 9†

\* License withheld pending completion of internship

† Verification of graduation in process

## Book Notices

**X Ray Interpretation** By H Cecil H Bull M.A. M.B. M.R.C.P., Physician and Hon Radiologist Royal Waterloo Hospital London Cloth 1 price \$7 Pp 382 with 280 illustrations New York & London Oxford University Press 1935

This has been written as an aid to clinical diagnosis, hence it devotes more space to common pathologic conditions than to the rare ones. Simple drawings and silhouettes were chosen to illustrate the text in the just belief that a sketch comes through with greater clearness and brings the writer in closer touch with the reader than any reproduction can do. The text is divided into chapters on the osseous system, brain, alimentary tract, cholecystography, chest, genito-urinary system, soft tissues, teeth and pregnancy. In each chapter a description of the normal appearance of the organ discussed is followed by a presentation of the most frequent pathologic conditions, including traumas. Valuable additions to the chapters on bones and articulations deal with ossification centers and their order of appearance. The orthodiagrammatic method of estimation of the size of the heart has not been described, sodium iodide is the only drug recommended for ascending pyelography, the use of thorium dioxide for visualization of the spleen should be discussed, although it frequently meets adverse criticism, Caldwell's, Grangers and Waters-Waldrons positions for roentgenography of the sinuses deserve description, the use of occlusal films for recording the relationship of the teeth in the horizontal plane should be mentioned. These are minor omissions. The work is remarkably practical and comprehensive despite its conciseness. The author deserves credit for a simple, attractive presentation of his subject. The book should be enthusiastically received by the practitioner wishing to acquire an elementary knowledge of roentgen interpretation.

**Praktische Diätetik mit über 500 Kochrezepten für diätetische Behandlung für Ärzte und Patienten** Von Geh Hofrat Dr L Roemheld Sanatorium Schloss Hornegg (Wittbg.) Fourth edition of Praktischen diätetischen Kochbuch von Dr Curt Pariser Cloth Price 6.20 marks Pp 226 Leipzig Fischers medizinische Buchhandlung 1935

The author of this small book, the medical chief of a German sanatorium urges physicians to use it in the daily adjustments of the feeding of their patients. The first part is devoted to a brief general discussion of diets for various ailments. The second part consists of recipes for a multitude of dishes. Theoretical considerations seem to be purposely avoided. Quantitative values are given practically only in connection with recipes. Caloric values, dextrose, fat and protein contents, mineral vitamin and fiber constituents are almost completely ignored. General discussion is mostly vague, many recommendations are antiquated and some contrary to present-day knowledge in nutrition. For example various vegetable days, fruit days, milk days, oat days and rice days are still recommended in the diabetic regimen. All meats, vegetables and eggs, among other things, are completely unrestricted in the diabetic diets. As far as the recipes are concerned, it is difficult to imagine where their usefulness might lie. They seem unsuitable for either physician or chef. On the whole, this book seems to serve only the purpose of demonstrating the poor development of German dietetics.

**The Nutritional Origin of Cancer** By Edwin E Ziegler M.D. Paper Price \$2.50 Pp 91 Boise Idaho The Author 1934

The author has compiled a mass of statistical data designed to prove his thesis that the changing diet of man from an acid-forming diet to a base-forming diet explains the geographic incidence of cancer as well as the increase in the incidence of cancer. It is claimed that the effect of a prolonged base-forming diet is nutritional alkaloses with important adverse effects in the body. The author believes that certain European countries have a higher cancer death rate because they consume large quantities of alkaline foods, such as potatoes, whereas those countries which derive their calories chiefly from grain have the lower cancer death rates. For prophylaxis and treatment the author suggests the use of an acid-ash diet, hydrochloric acid and pepsin, the administration of predigested proteins, the administration of acid salts, and the parenteral injection of amino acids. It is obvious that the author accepts



unequivocally many statements in the literature that are open to challenge. For example, it is well known that the claimed difference in the incidence of cancer in noncivilized and in civilized communities has been demonstrated to be due to the fact that necropsy control and accurate records are naturally inferior in the less civilized countries.

The author does not present a true and clear concept of the normal acid-base balance of the blood and of the complicated regulative mechanism that keeps it within physiologic limits. As a matter of fact, the acid-base balance is only slightly disturbed even in severe diseases and almost not at all in the usual dietary differences of individuals during health. Thus Peters and Van Slyke state: "Hasselbalch demonstrated that changing from a high carbohydrate to a high protein diet caused the  $\text{CO}_2$  capacity of the blood to fall about 3 volumes per cent. Blatherwick has analyzed the acid and base content of the ash of many foodstuffs and has classified them according to their acidifying or alkalinizing powers. He has also demonstrated that by selecting diets from foods belonging to one or other group the reaction of the urine may be altered in the desired direction. The adjusting ability of the kidneys, however, is so great that the products of normal metabolism cause hardly appreciable effects on the internal acid-base balance as indicated by the plasma bicarbonate content and  $\text{pH}$ ."

The author's assumption that a heavy protein diet is more acid forming is contradicted by Peters and Van Slyke (*Quantitative Clinical Chemistry*, p. 966), who state that the alkaline tide is most evident after a heavy protein meal and may fail to appear after one consisting predominantly of fat and carbohydrate.

On page 84 the author says: "Fever, starvation, incomplete surgical operation and other factors have been observed to cause regression of the cancer. The effect of these various agents is the production of a relative acidosis in the body." The regression of cancer under these circumstances is most questionable and, if it ever occurs, it is with extreme rarity. How an incomplete surgical operation can cause cancer regression and produce a relative acidosis is not clear. However the curious circumstance is that the author points to the acidosis of fever, starvation and incomplete surgical operation as a causative factor in tumor regression in the face of the thousands of patients who die of cancer in the presence of fever, starvation and because of incomplete surgical operation.

On page 85 the author makes the statement: "That the acidosis treatment is so spectacular emphasizes the fact that cancer is a deficiency disease." What evidence is there to support the spectacular nature of the acidosis treatment of cancer? A single isolated and highly questionable observation.

The excellent motives and high purpose of the author are beyond question, and on his interest and industry in collecting a vast array of data he is to be commended. The fundamental fallacy is obvious. In his eagerness and enthusiasm to prove his thesis he has selected the data that support his theory and omitted all evidence to the contrary. The work is uncritical and the conclusions therefore are unsound. It would be an accident indeed if a great truth should be discovered by considering only such data as seemed to support a theory without considering all phases of the question. The alkalosis theory of cancer causation and the acidosis treatment of cancer remain unproved theories.

*Diättherapie der Lungentuberkulose*. Von Dr. Max Gerson. Mit Röntgenbefunden und einem Röntgenkapitel von Dozent Dr. Felix Fleischner. Paper. Price 36 marks. Pp. 619 with 154 illustrations. Leipzig & Vienna: Franz Deuticke 1934.

This book, with a foreword by Felix Fleischner, contains an elaborate discussion of diet in the treatment of tuberculosis. Many pages are devoted to a theoretical discussion of acute and chronic infection, anaphylaxis, allergy, vitamins and minerals in the diet. Considerable attention is given to the importance of recognizing allergic conditions which may result in migraine, asthma and gastro-intestinal disturbance with the thought of discovering the exciting cause and removing it when the diet is responsible. Gerson's diet in the treatment of pulmonary tuberculosis which has become well known in various parts of the world, is outlined and discussed in considerable detail. Cases are reported representing various forms of tuber-

culosis that have been treated by the Gerson diet. This section of the book contains a large number of illustrations made from x-ray films of the chests of patients who have been treated by the dietetic method. It is interesting to note that diet has played an important part in the treatment of tuberculosis since the time of Hippocrates and that from time to time special diets have been advocated, not one of which has proved a panacea for the treatment of tuberculosis. It seems highly improbable that diet alone will ever suffice in the treatment of this disease. However, food is important in the treatment of any chronic disease but patients must be treated individually, since what may be definitely beneficial in one case may be harmful in another. Any physician treating tuberculosis will be helped by the information obtained from Gerson's book, provided he gives diet its proper evaluation and does not neglect other standard forms of treatment.

*A Textbook of Nursing Technique: A Manual Used in the Associated Hospitals in the University of Minnesota School of Nursing*. By Marion L. Vannier, R.N., and Barbara A. Thompson, R.N., B.S., Director of the Wisconsin Bureau of Nursing Education. Second edition. Cloth. Price \$2.50. Pp. 265 with illustrations. Minneapolis: University of Minnesota Press 1935.

In the preface of the first edition the authors stated that "the purpose of the manual is to assure accuracy in detail and to obviate the necessity of note-taking by the students during the presentation of the demonstrations by the instructor." Now, after four years of use, a revision has been made in an effort to clarify the steps in the procedures to alter techniques as indicated in the light of new scientific knowledge, and to eliminate those procedures which do not easily fit into the schemes of different hospitals. The first half of the book is given over to a discussion of the elementary procedures, and the second half to advanced procedures. The latter includes an excellent chapter on problems related to communicable disease nursing techniques. Also a copy of the record form used to evaluate student proficiency in nursing service is shown. An outline for the presentation of material for each procedure has been set up and consistently followed. This is complete, giving the purpose, the general instructions, the equipment needed, the steps in the procedure, and references. Throughout the entire book emphasis is given to the need for kindly consideration of the individual patient and to a careful use of supplies. A chart in the front of the book indicates that the principles and practice of nursing course is an integration of the basic general social, biologic and sanitary sciences directed and applied to the end that intelligent nursing service to individuals may result. While these procedures have been established specifically for their use in the associated hospitals of the University of Minnesota School of Nursing they may very well serve as a guide to many other similar institutions. The joint authors, associated as they were for many years with the University of Minnesota School of Nursing were intimately acquainted with the specific needs and in the preparation of this book have made a real contribution valuable to the student, the graduate nurse and the teacher. With increase in scientific knowledge, however, methods change and textbooks of this sort of necessity need frequent revision. Because there is so frequently a gap between the demonstrations of ideal procedures in the classroom and the practical daily performance by the students in the wards where supplies are often limited and time is insufficient it might be well to supplement each procedure with suggestions of suitable adaptations based on the same fundamental principles but less elaborate than the original procedure. These situations may occur either within the hospital or within the private homes of patients. A manual of this nature is invaluable as an authority for the student nurse and as a reinforcement of classroom teaching and should be in the possession of every student nurse.

*The B.C.G. Vaccine*. By K. Neville Irvine, D.M., M.A., B.Ch., Hon. Physician to the Henley War Memorial Hospital. Cloth. Price \$1.75. Pp. 70. New York & London: Oxford University Press 1934.

This book presents a history of attempts to immunize against tuberculosis as well as the beliefs concerning immunity resulting from infection with tubercle bacilli in nature. The author has spent considerable time visiting clinics and laboratories where B.C.G. has been studied and used in both animals and human beings. Moreover, he has made an extensive study of



the literature. The criticism of BCG on the ground that its virulence may return is cited. The author points out that among human beings who die of tuberculosis some time after the administration of BCG it is virtually impossible to prove with certainty whether in any given case the BCG has become virulent, since there are other possibilities, such as the individual having been infected with virulent human bacilli before the vaccine was administered or that infection may have occurred after the vaccine was administered.

The Lubeck disaster in which seventy-three infants died of tuberculosis after the administration of BCG, is discussed. Criminal proceedings were instituted and the final decision of the court was that the vaccine had been contaminated with virulent micro organisms. The director of the laboratory was sentenced to two years in prison and one of his co-workers to fifteen months for homicide and inflicting bodily injury through negligence. It is interesting to note that Petroff who followed the trial carefully, is of the opinion that the verdict was unjust and was based only on inference and not on facts.

Dr Irvine presents at some length the experimental work that has been attempted to produce immunity in animals and he calls attention to the statements of a number of workers who believe that the vaccine has a protective value for cattle. He closes the chapter on this subject with a statement to the effect that the results of work are most encouraging in cattle are not very striking in guinea pigs and provided no clue whatever in monkeys. However the work of Larson which showed that it has no practical effect on controlling tuberculosis in cattle, is not included.

Considerable space is given to the degree of immunity produced in man by the use of BCG. The author concludes this chapter by stating that the only conclusion that can be drawn is that statistical evidence on the subject is difficult to produce and that at the moment the results show that the BCG vaccine produces in man a definite but unmeasured degree of immunity. In his summary he points out that the virulence of BCG can be increased when suitably grown that it occasionally produces progressive tuberculosis in laboratory animals that it has not yet been proved to have caused progressive tuberculosis in man and that a definite degree of immunity is produced in cattle but that in other animals the results are not so clear. He states that a certain increase of immunity is produced in man but that it is impossible to say whether enough protection is produced to warrant the reorganization of the present scheme in England for dealing with tuberculosis. At this point it is interesting to note that England has not adopted BCG largely because fundamental methods of tuberculosis control consisting largely of finding the open case and breaking contact is so rapidly decreasing the morbidity and mortality that an uncertain method of immunization has not seemed to offer any advantage. Irvine is of the opinion that research should be begun in England to decide the degree of immunity produced in man. Doubtless many will take issue with this recommendation on the ground that already a sufficiently large number of persons in Europe and America (more than a million) have had BCG introduced into their bodies and that this should be a sufficiently large number from which to draw final conclusions as to the ultimate benefits or harm produced by BCG. Such conclusions cannot be drawn until after at least two decades, during which the most careful observations must be made on the present material.

**Le diagnostic des phlébites des membres.** Par M. Audier, chef de clinique médicale adjoint à la Faculté de médecine de Marseille. Travail de la clinique médicale du Professeur D. Olmer. Papier. Price 25 francs. Pp 179. Paris: G. Dolin & Cie 1935.

This is a valuable addition to the existing French monographs of Ducuing and Delater on phlebitis. The recognition of the initial, preedematous stage is stressed. This stage may last from four to eight days before the fully developed stage of edema appears. The role of spasm, on both the arterial and the venous side, is emphasized. The author uses the McClure-Aldrich test extensively to diagnose an early phlebitis and to determine its termination. An excellent bibliography containing mostly French literature, is given. Being a treatise on diagnosis, nothing is added to the possible prevention and to the abortive treatment of this important malady.

**Hughes' Practice of Medicine.** Edited and revised by Burgess Gordon M.D. Associate Professor of Medicine Jefferson Medical College. With sections on Nervous and Mental Diseases by Harold D. Palmer M.D. Associate in Psychiatry Medical School University of Pennsylvania and on Diseases of the Skin by Vaughn C. Garner, M.D. Assistant Professor of Dermatology and Syphilology University of Pennsylvania. Fifteenth edition. Fabrikoid. Price \$5. Pp 808 with 61 illustrations. Philadelphia: P. Blakiston's Son & Company Inc. 1935.

Eulogy of a classic that enters its fifteenth edition is superfluous; hence a review may be confined to pointing out a few omissions and offering certain suggestions. Insoluble bismuth preparations are not mentioned in the chapter on syphilis, according to the consensus, a continuous mode of treatment in early stages of syphilis is preferable to the interrupted one, many will take exception to the recommendation of a two months interval after the first course of injections, a clear outline of a combined treatment with arsenical and bismuth preparations is desirable. Tetrachloro ethylene, efficacious in the therapy of hookworm disease, should be mentioned. Hexylresorcinol deserves a place among drugs recommended for the treatment of ascariades, whipworms and pinworms, and carbon tetrachloride for elimination of the tapeworm. Brudzinski's test in meningitis is not described. The use of ammonium chloride and phosphoric acid in the treatment of lead poisoning deserves mention. A prescription for relief of eye symptoms in hay fever would be welcome. Carbarsone, chiniofon and vioform widely employed in the treatment of amebic dysentery, are not mentioned. Undoubtedly such and similar omissions are due to a laudable attitude of skepticism and conservatism of the new editor. The type has been reset, old illustrations have been replaced by new ones, and numerous additions have been made. The purpose of the book, viz, presenting the average picture of disease and its treatment in condensed form for the general practitioner has been accomplished in an admirable manner. The book fully deserves its popularity.

**A Short Practice of Surgery.** By Hamilton Bailey F.R.C.S. Surgeon Royal Northern Hospital London and R. J. McNeill Love M.B. F.R.C.S. Surgeon Royal Northern and Metropolitan Hospital London. Second edition. Cloth. Price 30s. Pp 987 with 731 illustrations. London: H. K. Lewis & Company Ltd. 1935.

This work is now presented in one volume and presents many of the advances in surgery since the publication of the first edition. The text follows the same plan as that used by most surgical manuals. The first six chapters consider a general survey of surgical principles as applicable to the body as a whole. The remaining chapters are devoted to the specific organs with their individual pathologic processes. This book should serve as an excellent introduction to surgery for the student and as a reference book for the general practitioner and is to be recommended for such purposes.

**Orthopedics for the Teachers of Crippled Children.** By Samuel W. Boorstein M.D. F.A.C.S. Cloth. Price \$1.50. Pp 120. New York: Aldem Publishing Company 1935.

This monograph was published for teachers and nurses of crippled children. It is based on a series of lectures on orthopedic surgery for a group who were teaching or preparing to teach physically handicapped children. The aim is to help teachers recognize the conditions they are going to encounter and to understand the psychology of the crippled child. The general aim of this series of lectures has been to present the major aspects of the more common conditions that cause physical handicaps. More particularly, the author has endeavored to show how the parent physician and teacher, by proper cooperation, can go far toward bringing the affected child to almost a normal physical state. He stresses the importance of properly orienting the mental attitude of the child and he outlines the means by which the teacher can become the most important single factor in the child's recovery. The author believes that the future of the child may depend on the teacher he encounters. Many cripples have made a success of life. Such examples as Alexander the Great, Milton, Byron, Helen Keller, Stemmetz and President Roosevelt forcibly illustrate that a brilliant personality may be housed in an asymmetrical body. The appendix contains a list of the cripples who attained success or fame despite the physical handicaps. One

feels certain that Charlie Chaplin would resent the reference to him in this category and Jimmy Durante would not like to be classed as "deformed and repulsive"

The following is a list of some of the better known handicapped who rose to fame

Abnormality in stature Charlie Chaplin Friedrich Hensing brace maker in Germany 1858 1918  
Deformed and repulsive Napoleon emperor of France 1769 1821  
Edgar Allan Poe, author and poet, 1809 1849  
Hunchback Michael Angelo sculptor 1475 1564  
Paralyzed Charles Darwin naturalist 1809 1849 Charles Dickens author 1812 1870 Leonardo da Vinci artist died in 1519 Franklin D Roosevelt, President of the United States Philip Snowden chancellor of the exchequer of England  
Lame because of dislocation of hip Victor Hugo author 1802 1885  
Maimed upper extremity Wilhelm II ex kaiser of Germany  
Club-Foot Lord Byron poet 1788 1824 Talleyrand diplomat 1754 1838

With reference to the proper attitude toward braces, the author quotes Dr Frank D Dickson of Kansas City, as follows

To those who need help and support for impaired limbs and backs, braces are true friends and helpmates but, as with friends, they must be carefully chosen and cherished Neither friendship nor braces can be expected to stand up under the demands of life if poorly chosen and treated with neglect"

**Surgical Applied Anatomy** By Sir Frederick Treves Bart Ninth edition revised by C C Choyce CMG CBE BSc Professor of Surgery University of London Cloth Price \$4 Pp 720 with 174 illustrations Philadelphia Lea & Febiger 1934

This small volume, originally written fifty years ago and now revised by Prof C C Choyce, presents surgical anatomy in practical and readable form It divides the body into six regions—head and neck, thorax, upper extremity, lower extremity, abdomen and pelvis, and spine and spinal cord—and each is amply covered from the standpoint of the general surgeon as well as the various surgical specialties Surgery of the blood vessels, which deals with ligations, abnormalities and collateral circulation, is omitted for the sake of brevity The work is concise but written clearly and simply, though not abundantly illustrated Its survival as well as its popularity is indicative of its usefulness as a textbook to the senior student and "to the practitioners whose memory of their dissecting room work is growing a little gray"

**Practical Neurological Diagnosis with Special Reference to the Problems of Neurosurgery** By R Glen Spurling MD Assistant Clinical Professor of Surgery (in Charge of Neurosurgery) University of Louisville School of Medicine Cloth Price \$4 Pp 233 with 99 illustrations Springfield Illinois & Baltimore Charles C Thomas 1935

The author discusses in three parts the fundamentals of neurologic diagnosis The first part (145 pages) covers the neurologic diagnosis in general examination of the cranial nerves, reflexes, brain and spinal cord (the peripheral nerves are omitted) The second part (about thirty pages) is devoted to the cerebrospinal fluid, and in the third part (forty-four pages) he deals with roentgen diagnosis, including encephalography and ventriculography The review is brief but clear so that a beginner can derive full benefit from the well written text and good illustrations many borrowed Anatomic and physiologic considerations have not been neglected, and only necessary, well established facts have been recorded Spurling's modest textbook will undoubtedly be of great benefit to students and practitioners in general

**A New Deal in Liquor A Plea for Dilution** By Yandell Henderson Professor of Applied Physiology Yale University Also a Reprinting of an Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind By Dr Benjamin Rush Cloth Price \$2 Pp 239 with 5 illustrations Garden City N Y Doubleday Doran & Company Inc 1934

This is a historical physiologic and sociological monograph on the alcohol problem in society, by a physiologist well known to American physicians for his investigations, especially on the heart, circulation and respiration. As indicated by the subtitle, Dr Henderson's solution for the liquor problem is dilution, that is to discourage, by education and appropriate legislation, the consumption of beverages with an alcohol content higher than 15 or 20 per cent As to this, the author is on the solid ground of established physiologic and medical facts,

but he ends his discussion with the pessimistic prophecy "that our future in respect to alcohol will be essentially like our past", that is, periodic oscillations between the extremes of prohibition and unrestrained indulgence in ardent spirits The monograph is both readable and reliable. While intended primarily for laymen it contains matters of much interest to physicians, among which is a reprint of the classic essay by Dr Benjamin Rush "The Effects of Ardent Spirits on the Human Body and Mind" (1814)

## Medicolegal

**Dental Practice Acts Legislative Prohibition of "Bait Advertising" Upheld**—The plaintiff, a licensed dentist, sought to restrain the Oregon state board of dental examiners from revoking his license on the ground of unprofessional conduct The trial court entered a decree of dismissal and the plaintiff appealed to the Supreme Court of Oregon

The provision of the dental practice act under which the board proposed to revoke the plaintiff's license defined "unprofessional conduct" as follows

Advertising professional superiority or the performance of professional services in a superior manner advertising prices for professional service advertising by means of large display glaring light signs or containing as a part thereof the representation of a tooth teeth bridge work or any portion of the human head employing or making use of advertising solicitors or free publicity press agents or advertising any free dental work or free examination or advertising to guarantee any dental service or to perform any dental operation painlessly (Laws of 1933, chapter 166)

The plaintiff contended that the foregoing provision was unconstitutional

A person who aspires to treat human ailments and thereby invites the confidence of the public to an exceptional degree, said the Supreme Court of Oregon, should be compelled to submit to such regulations as will guard the public as far as possible against fraud and deception The extent to which the police power may be exercised depends largely on the manner and degree in which the public welfare is involved Courts, with good reasons, have refused to define police power, for to do so might thus limit it to the detriment of the public welfare Regulation of professional conduct deemed unduly drastic ten years ago might well be considered reasonable under present conditions The necessity for legislation rests primarily on the judgment of the legislature. It is only when a legislative act clearly appears arbitrary, capricious, and without reasonable relation to the object sought to be attained that courts will interfere. The challenged statutory regulations were enacted, in the opinion of the court, by the state in the proper exercise of its police power and therefore do not violate the due process clause of the federal and the state constitutions The statute has for its purpose the elevation of the standards of the dental profession and the prevention of advertising of a character ordinarily used by unscrupulous practitioners to deceive or mislead the public. The fact that the legislation here involved applies only to dentists does not constitute it class legislation and therefore unconstitutional The state has the power to deal with each profession as a class and in doing so does not violate the equal protection clause of the constitution The Supreme Court of Oregon affirmed the decree of the lower court whereupon the plaintiff appealed to the Supreme Court of the United States

The plaintiff was not entitled to complain of interference with any contracts he had made for display signs and for advertisements in newspapers, said the United States Supreme Court His contracts were necessarily subject to the reasonable exercise of the protective power of the state Nor could the plaintiff object because the particular regulation was limited to dentists The state was not bound to deal alike with all professional classes or to strike at all evils at the same time or in the same way It could deal with the different professions according to the needs of the public in relation to each That the state may regulate the practice of dentistry, prescribing the qualifications that are reasonably necessary, and to that end may require licenses and establish supervision by an administrative board, is not open to dispute. The state may thus afford protection

against ignorance, incapacity and imposition. A state may deny to corporations the right to practice, insisting on the personal obligations of individuals (*State Board of Dental Examiners v. Miller*, 90 Colo 193, 8 P (2d) 699, *Miller v. State Board of Dental Examiners* 287 U S 563, 53 S Ct 6). A state may prohibit advertising that tends to mislead the public (*Dr Bloom Dentist, Inc v. Cruise*, 259 N Y 358, 182 N E 16, *Id.*, 288 U S 588, 53 S Ct 320).

The plaintiff insisted, however, that the statute in question prohibits advertising of the character described although it may be truthful. He contended that the superiority he advertised existed in fact, that by his method he was able to offer low prices and to render a beneficial public service contributing to the comfort and happiness of a large number of persons. But said the United States Supreme Court, the state court defined the policy of the statute. It said that while, in itself, there was nothing harmful in merely advertising prices for dental work or in displaying glaring signs illustrating teeth and bridge work, it could not be doubted that practitioners who were not willing to abide by the ethics of their profession often resorted to such advertising methods "to lure the credulous and ignorant members of the public to their offices for the purpose of fleecing them." The legislature was aiming at "bait advertising 'Inducing patronage' said the Oregon court, "by representations of 'painless dentistry' 'professional superiority' free examinations' and 'guaranteed dental work' was as a general rule 'the practice of the charlatan and the quack to entice the public'." The state is authorized continued the United States Supreme Court, to estimate the blifeful effects of such methods and to put a stop to them. The legislature was not dealing with traders in commodities but with the vital interest of public health, and with a profession treating bodily ills and demanding different standards of conduct from those which are traditional in the competition of the market place. The community is concerned with the maintenance of professional standards which will insure not only competence in individual practitioners, but protection against those who would prey on a public peculiarly susceptible to imposition through alluring promises of physical relief. The community is concerned in providing safeguards not only against deception but against practices which would tend to demoralize the profession by forcing its members into an unseemly rivalry which would enlarge the opportunities of the least scrupulous. What is generally called the "ethics" of the profession is but the consensus of expert opinion as to the necessity of such standards.

It is no answer to say, as regards the plaintiff's claim of right to advertise his "professional superiority" or his "performance of professional services in a superior manner," that he is telling the truth. In framing its policy the legislature was not bound to provide for determinations of the relative proficiency of particular practitioners. The legislature was entitled to consider the general effects of the practices which it described and, if these effects were injurious in facilitating unwarranted and misleading claims, to counteract them by a general rule even though in particular instances there might be no actual deception or misstatement. The Supreme Court of the United States, therefore, affirmed the judgment of the Supreme Court of Oregon—*Scimler v. Oregon State Board of Dental Examiners (Ore.)* 34 P (2d) 311 55 S Ct 570.

**Hospitals, Charitable Charitable Status Determinable by Court, Not by Jury**—The appellee, while a patient at the City Hospital of Akron sustained a leg burn which he attributed to the negligence of hospital employees in applying a hot water bottle. He sued the hospital and obtained judgment in the trial court, from which the hospital appealed to the court of appeals of Ohio, Summit County.

If the trustees of a public charitable hospital in Ohio exercise reasonable care in selecting and retaining competent physicians, nurses employees and servants, the hospital is not liable to a patient for damages resulting from the negligence and incompetence of those so selected and retained. A careful review of all the evidence in the case convinced the court of appeals that the hospital was a public charitable institution and was not negligent in the selection or retention of the nurse to whose negligence was attributed the patient's injuries. The trial court erred in not granting the motion of the hospital at

the close of all the evidence for a judgment in its favor. As a general rule the question of whether a hospital is a charitable institution or not is not a question of fact that is required to be submitted to a jury but is one of law to be determined by the court—*City Hospital of Akron v. Lewis (Ohio)*, 192 N E 140.

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 10-14 Dr Olin West 535 North Dearborn Street Chicago, Secretary
- American Academy of Pediatrics New York June 7-8 Dr Clifford G Grulice 636 Church Street Evanston Ill Secretary
- American Association for the Study and Control of Rheumatic Diseases Atlantic City N J June 10 Dr Loring T Swaim 372 Marlborough Street Boston Secretary
- American Association for the Study of Goiter Salt Lake City June 24-26 Dr W Blair Mosser 133 Biddle Street Kane Pa Secretary
- American Association for Thoracic Surgery New York, June 3-5 Dr Duff S Allen 3720 Washington Boulevard St Louis, Secretary
- American Association of Genito-Urinary Surgeons White Sulphur Springs W Va, June 6-8 Dr Henry L Sanford 1621 Euclid Avenue Cleveland Secretary
- American Association of Industrial Physicians and Surgeons Philadelphia June 10-11 Dr Volney S Cheney Armour and Company Union Stock Yards Chicago Secretary
- American Association of Medical Milk Commissions Atlantic City N J, June 10-11 Dr Harris Moak 360 Park Place, Brooklyn N Y Secretary
- American Child Health Association Iowa City June 19-22 Dr Philip Van Ingen 50 West 50th Street New York Secretary
- American Federation of Organizations for the Hard of Hearing Cincinnati June 2-6 Miss Betty C Wright 1601 34th Street W Washington D C Secretary
- American Gastro-Enterological Association Atlantic City N J, June 10-11 Dr Russell S Boles 1901 Walnut Street Philadelphia Secretary
- American Heart Association Atlantic City N J June 11 Dr A M Marvin 50 West 50th Street New York Acting Executive Secretary
- American Laryngological Rhinological and Otolological Society Toronto Canada June 3-5 Dr Robert L Loughran Sharon Conn Secretary
- American Neurological Association Montreal Canada June 3-5 Dr Henry Alsop Riley 117 East 72d Street New York, Secretary
- American Ophthalmological Society Hot Springs Va June 5-7 Dr J Milton Griscom 2213 Walnut Street Philadelphia Secretary
- American Orthopedic Association Philadelphia June 5-8 Dr Ralph K Ghormley Mayo Clinic Rochester Minn Secretary
- American Physiotherapy Association Atlantic City N J June 11-12 Miss Louise Jetter 17 East Styles Avenue Collingswood N J Secretary
- American Proctologic Society Atlantic City N J June 10-11 Dr Frank G Runyeon 1361 Perkiomen Avenue Reading Pa Secretary
- American Radium Society Atlantic City N J June 10-11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society of Clinical Pathologists Atlantic City N J June 1-9 Dr A S Giordano 531 North Main Street South Bend Ind Secretary
- American Surgical Association Boston June 6-8 Dr Vernon C David 59 East Madison Street Chicago Secretary
- American Therapeutic Society Atlantic City N J June 7-8 Dr Oscar B Hunter 1835 Eye Street N W Washington D C Secretary
- American Urological Association San Francisco June 25-28 Dr Gilbert J Thomas 1009 Nicolet Avenue Minneapolis Secretary
- Associated Anesthetists of the United States and Canada Atlantic City N J, June 10-12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10-11 Dr Warren T Vaughan 808 Professional Building Richmond, Va., Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10-11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- Conference of State and Provincial Health Authorities of North America Atlantic City N J June 15 Dr A J Chesley State Department of Health St Paul Secretary
- Maine Medical Association York Harbor June 23-25 Miss Rebekah Gardner 22 Arsenal Street Portland Secretary
- Massachusetts Medical Society Boston June 3-5 Dr Alexander S Begg 8 The Fenway Boston Acting Secretary
- Medical Library Association Rochester N Y June 17-19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9-11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24-26 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary
- Montana Medical Association of Helena July 2-3 Dr E G Balsam 208 1/2 North Broadway Billings Secretary
- National Tuberculosis Association Saranac Lake N Y June 24-27 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- Pacific Northwest Medical Association Spokane Wash June 27-29 Dr C W Countryman 407 Riverside Avenue Spokane Wash Secretary
- Rhode Island Medical Society Providence June 6 Dr J W Leech 167 Angell Street Providence Secretary
- Society for the Study of Asthma and Allied Conditions Atlantic City N J June 10-11 Dr W C Spain 116 East 53d Street New York Secretary

## Current Medical Literature

### AMERICAN

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Titles marked with an asterisk (\*) are abstracted below.

#### American Journal of Medical Sciences, Philadelphia

189 457 600 (April) 1935

- Lobar Pneumonia and Digitalis A. E. Cohn and W. H. Lewis Jr. New York—p. 457  
Pneumonia in Undulant Fever. Report of Three Cases R. M. Johnson Minneapolis—p. 483  
Value of Serial Electrocardiograms in Coronary Thrombosis H. A. Richter Chicago—p. 487  
Observations on Effect of an Arteriovenous Fistula on Human Circulation L. B. Laplace Philadelphia—p. 497  
Studies on Structure and Function of Bone Marrow. IV. Bone Marrow in Agranulocytosis R. P. Custer Philadelphia—p. 507  
\*Study of Diagnostic Value of Sternal Puncture in Clinical Hematology C. Reich New York—p. 515  
Effect of Ultraviolet Rays on Snake Venoms D. I. Macht Baltimore—p. 520  
\*Effective Treatment of Arachnidism by Calcium Salts. Preliminary Report E. W. Gilbert and C. M. Stewart Los Angeles—p. 532  
Hypoproteinemic Nephrosis and Its Treatment with Acacia. Report of Two Cured Cases J. H. Barach and D. M. Boyd Pittsburgh—p. 536  
Effect of Equivalent Amounts of Dextrose and Starch on Glycemia and Glycosuria in Diabetes M. Wishnofsky and A. P. Kane, Brooklyn—p. 545  
Dermatitis Gangrenosa. Complication of Diabetes Mellitus S. S. Riven Nashville Tenn.—p. 550  
Temperature Determinations in Female Pelvis During Diathermy E. A. Horowitz D. Derow and W. Bierman New York—p. 555  
Acute Primary Diaphragmatitis (Hedblom's Syndrome) M. Joannides Chicago—p. 566  
Vitamin A Content of Human Liver P. D. Crumm and D. M. Short, Evansville Ind.—p. 571

**Value of Sternal Puncture in Clinical Hematology—**During the last year Reich employed sternal puncture as a routine procedure in all cases of blood dyscrasias seen in consultation. Sternal puncture is valuable in differentiating the various types of anemia, in establishing the diagnosis of leukemia in doubtful cases and in differentiating aleukemic lymphatic leukemia from agranulocytosis. In one instance it was possible to see tumor cells in the sternal marrow. This method of investigation does much more for the hematologist, however than aid him in his diagnosis. It gives him an insight into the fundamental processes underlying his observations on the peripheral blood and opens new avenues of clinical research. It is now possible to study the changes in the bone marrow almost as frequently as those in the peripheral blood and to observe the direct effect of therapy on the formative tissue.

**Effective Treatment of Arachnidism by Calcium Salts—**Gilbert and Stewart review the therapeutic measures in the treatment of arachnidism and present five cases in which they found that intravenous injections of a 10 per cent solution of calcium chloride gave instantaneous and prolonged relief of the pain and at the same time produced immediate relaxation of the muscle spasm so commonly seen in these patients. However, calcium chloride is not given without considerable danger as to its necrotic action on tissue outside a vein. This danger is greatly magnified when its use is attempted in the treatment of children. Therefore, calcium gluconate (10 cc of a 10 per cent solution, intravenously), which does not have this objectionable feature was used and found to produce as good results as the calcium chloride. The intramuscular route advisable for children, gave relief within a minutes time. Calcium lactate orally was ineffective probably because of its incomplete and slow absorption. The active principle of the venom has not been definitely determined, but it is generally accepted that the toxin directly stimulates the myoneural junctions or that it acts on the nerve endings as calcium apparently depresses the neuromuscular junctions in muscle or is depressant to most nervous and muscular functions.

**Hypoproteinemic Nephrosis and Its Treatment with Acacia—**Barach and Boyd cite two cases of chronic lipid nephrosis, one in a woman, aged 20, and one in a boy, aged 4. Neither patient showed evidences of improvement until acacia was given intravenously. One patient received eleven injections, totaling 295 Gm of acacia, the other required only one injection to start the diuresis and bring about a clinical recovery. In both patients there was a striking diuresis following the injections of acacia. Systemic reactions from the injections were mild and without ill effects. The authors employed a 30 per cent solution of acacia with a 4.5 per cent solution of sodium chloride, which should be a clear pale yellow. Darker solutions may cause reactions and should be avoided. This acacia solution is diluted with physiologic solution of sodium chloride to a total volume of 500 cc and injected slowly.

#### American Journal of Orthopsychiatry, Menasha, Wis.

5:1 86 (Jan) 1935

- The Prison of the Future Suggestion Number 5 F. C. Richmond Madison Wis.—p. 1  
Behavior of Children from Broken Homes B. Silverman Montreal—p. 11  
Personality Changes in Female Adolescents Karen Horney Chicago—p. 19  
Technical Difficulties Encountered in Child Analysis H. S. Lippman St. Paul—p. 27  
Club Activities as an Approach to Study of Personality Make Up of Problem Children Florence M. Rosenthal Cincinnati—p. 32  
Dissimilar Identical Twins. Results of Brain Injury at Birth R. L. Jenkins Chicago—p. 39  
Delinquency in Cleveland and Cuyahoga County During Depression Period. M. E. Kirkpatrick, Cleveland—p. 43  
Newer Attitudes Toward Mental Abnormalities H. E. August Detroit—p. 49  
Outlook of a Depressed Patient Interested in Planned Gambling Before and After His Attempt at Suicide N. Israeli Worcester, Mass.—p. 57  
Therapy of Endocrinopathic Dyslogia in Cretinism C. H. Voelker Columbus Ohio—p. 64  
Rejoinder to Glueck's Reply to the Critique of One Thousand Juvenile Delinquents H. B. Elkind and M. Taylor Boston—p. 66

#### American Review of Tuberculosis, New York

31 373-498 (April) 1935

- Clinical Improvement of Pulmonary Tuberculosis by Massive Atelectasis. Report of Six Cases W. E. Adams and J. J. Singer St. Louis—p. 373  
\*Extrapleural Thoracoplasty in Pulmonary Tuberculosis. Results in a Series of Fifty Cases J. Head Chicago—p. 386  
Thoracoplasty. Report of Fifty Consecutive Cases P. D. Crumm J. W. Straver and C. S. Baker Evansville Ind.—p. 393  
First Cases of Pulmonary Tuberculosis Treated by Artificial Pneumothorax in Connecticut H. F. Stoll Hartford, Conn.—p. 401  
Pleural Shock C. H. Cocke, Asheville N. C.—p. 404  
Pulmonary Tuberculosis in the American Negro. Do Environment and Attitude of Patient Affect His Disease? G. Walsh and H. M. Mason Fairfield Ala.—p. 413  
Tuberculosis Among Negro Children with Especial Reference to Their Resistance to Disease J. Donnelly Huntersville N. C.—p. 429  
Laryngopulmonary Tuberculosis. Review of Twenty Years Experience J. P. Dworetzky Liberty N. Y.—p. 443  
Pulmonary Syphilis. Report of Case M. Jacobs Philadelphia—p. 453  
\*Gastric Acidity in Pulmonary Tuberculosis. Study of Fifty Patients Between the Ages of Twenty and Thirty Years I. Gray and J. Melnick Staten Island N. Y.—p. 460  
Subsurface Growths of Mycobacterium Tuberculosis in Solid Culture Mediums J. M. Thuringer and H. W. Butler Oklahoma City—p. 466  
\*The Alternately Expanding and Contracting Tuberculous Cavity E. Korol Lincoln Neb.—p. 475  
Value of Leukocyte Picture in Management of Tuberculosis J. Kaminsky Waltham Mass.—p. 480  
Longevity of Tubercle Bacilli in Sewage and Stream Water C. Rhines New Brunswick N. J.—p. 493

**Extrapleural Thoracoplasty in Pulmonary Tuberculosis—**Head gives the early results in fifty thoracoplasties in which different types of operation were used. Fifty-six per cent of the cases are arrested or apparently arrested, 18 per cent are markedly improved and with a favorable prognosis, 18 per cent are improved, 2 per cent are unimproved, 2 per cent of the patients died from the operation and 6 per cent died later of causes unconnected with the procedure. The results in the different groups of cases were in proportion to the completeness of the collapse of the diseased area of the lung. He suggests that, if thoracoplasty is used at the proper time and if a complete collapse of the disease is obtained the indications for the operation will be considerably extended and the results markedly improved.

**Gastric Acidity in Pulmonary Tuberculosis**—Gray and Melnick base their conclusions on gastric acidity in pulmonary tuberculosis on a study of fifty tuberculous patients between the ages of 20 and 30 years. 1 In young persons pulmonary tuberculosis produces gastric hypo acidity in approximately one third and anacidity in one fourth of the patients within a period of from one to four years. Approximately one half of the number show a normal acidity at all times. 2 In male patients a little more than half show normal acidity through a six-year period of disease. Approximately one third show a decrease or absence of acid. 3 In the female patient normal acidity is present in one third, with a decrease or an absence of acid values in two thirds. There is a definite tendency in the women toward a decrease in acid values. 4 The gastric contents show tubercle bacilli in the majority of these young adults. As the acid figures decrease, tubercle bacilli are found more frequently in the contents of the stomach. 5 Gastric symptoms are somewhat more frequent in the female than in the male patient and usually start at an earlier period.

**The Alternately Expanding and Contracting Tuberculous Cavity**—Korol believes that the condition of the draining bronchus has a determining influence on the size and progress of the cavity. A temporary narrowing of the bronchus will lead to sudden enlargement of the cavity, a return of the lumen to its former size will result in rapid shrinking of the cavity. The narrowing of the draining bronchus may be temporary, owing to catarrhal swelling, granulation tissue, foreign body, caseous material, tenacious sputum or a blood clot. Cavities have thus been seen to reopen or to enlarge following a head cold or an attack of grip. After the bronchial passage has returned to normal the cavity shrinks rapidly. A case is described in which the upper lobe of the right bronchus was partly occluded by a blood clot, which was visualized on the roentgenogram. An enlargement of the cavity in the right upper lobe occurred. After the discharge of the clot the cavity promptly returned to its original size.

## Annals of Surgery, Philadelphia

101: 979-1138 (April) 1935

- Role of Plastic Surgery in Burns Due to Roentgen Rays and Radium. H. D. Gillies and A. H. McIndoe. London, England.—p. 979.
- \*Zinc Peroxide in Treatment of Micro-Aerophilic and Anaerobic Infections with Especial Reference to Group of Chronic Ulcerative Burrowing Nongangrenous Lesions of Abdominal Wall Apparently Due to Micro-Aerophilic Hemolytic Streptococcus. F. L. Meleney. New York.—p. 997.
- \*Parathyroidectomy for Raynaud's Disease and Scleroderma. Preliminary Report. Alice R. Bernheim and J. H. Garlock. New York.—p. 1012.
- Meckel's Diverticulum. C. E. Farr and Madeline Penke. New York.—p. 1026.
- Carcinoma of Large Bowel. Part II. Rectum. T. S. Raiford. New York.—p. 1042.
- \*Surgical Treatment of Rectal Prolapse. New Operation for Its Relief. A. A. Salvin. New York.—p. 1051.
- Osteochondritis of Growth Centers. L. M. Overton. Rochester, Minn.—p. 1062.
- Fracture of External Condyle of Humerus in Children. J. H. Heyl. New York.—p. 1069.
- Avulsion of Epiphysis of Iliac Crest. S. Kleinberg. New York.—p. 1078.
- \*Ambulatory Method of Treating Fractures of Patella. R. Anderson. Seattle.—p. 1082.
- Ankle Bone Block for Paralytic Drop Foot. End Results of Eighty-Five Cases 1925 to 1932. L. C. Wagner. New York.—p. 1091.
- Cystoscopy and Urography. J. P. Robertson and A. B. Lee. Birmingham, Ala.—p. 1101.

**Zinc Peroxide in Treatment of Micro-Aerophilic and Anaerobic Infections**—Meleney discusses the clinical course of six cases of chronic infection of the abdominal wall, characterized by a slowly developing ulceration without gangrene but with extensive undermining of the skin by the liquefaction of the subcutaneous tissue and the formation of the deep sinuses. Apparently the essential causative organism in these infections was a micro-aerophilic hemolytic streptococcus, preferring anaerobic environment and in most cases found only by anaerobic methods of cultivation. Zinc peroxide in three cases changed the course of the disease favorably and was followed by relatively rapid resolution of the process. In two of these cases, following the use of zinc peroxide, the organisms apparently underwent a striking change, losing their hemolytic and their anaerobic properties. In the laboratory culture mediums, the micro-aerophilic hemolytic streptococci from these cases were rapidly killed when zinc peroxide was added while their aerobic,

nonhemolytic progeny grew luxuriantly. Zinc peroxide has been found to inhibit the growth and kill other micro-aerophilic and anaerobic organisms both in the test tube and in infected wounds consistently enough to permit the author to advise its use more extensively in these infections. In searching the literature the author has not been able to find an adequate description of the clinical course or the bacteriologic features of this disease and he assumes that it is relatively rare, but its chronicity and its severity are indicative of its importance. The disease must not be confused with the acute gangrene of the skin as represented by hemolytic streptococcus gangrene or with the chronic progressive postoperative gangrene of the synergistic type. It may be easily differentiated from these both clinically and bacteriologically if careful consideration is given to the characteristic features of these diseases.

**Parathyroidectomy for Raynaud's Disease and Scleroderma**—Bernheim and Garlock are of the opinion that disturbances in calcium metabolism are factors in the development of Raynaud's disease and other vasospastic conditions. How disturbances in calcium metabolism produce the manifestations seen in vasospastic conditions is not clear. One function of the parathyroids is to maintain a constant serum calcium level. If patients suffering from vasospastic conditions are given an adequate calcium regimen, many of them will respond favorably. That is, there will be a marked amelioration of symptoms which have been due primarily to vasospasm. When improvement does not take place in spite of prolonged treatment, they feel that a change of a more or less permanent nature has taken place in the parathyroids and that in such instances removal of two or more parathyroid bodies is indicated. Six patients were subjected to parathyroidectomy. Three cases presented generalized scleroderma with moderately severe Raynaud's manifestations in the hands and feet, one advanced sclerodactylia with symptoms of vasospasm of the hands and feet and two Raynaud's disease uncomplicated by changes of the skin. Following operation a dramatic relief of symptoms due to vasospasm was noted in each instance. The relief of pain and the change in color of the involved extremities to normal occurred within about twenty-four hours. The most astonishing results were noted in the cases of uncomplicated Raynaud's disease. Rapid improvement was noted in the oscillometric determinations both as to range of oscillation and as to degree of spasm. Improvement also in surface temperature was evident. After a lapse of from three months to one year, these patients have continued to do well. Cases of scleroderma continue to improve up to a certain point and then remain stationary. The involved skin becomes noticeably softer, wrinkles return and finger function improves. In the first three cases, two parathyroids were removed. In the other three cases, total excision of two glands and subtotal removal of a third was performed, after isolation of all four parathyroids. In every case the glands presented hypertrophy of varying degrees. Those showing the greatest enlargement were removed. The gland removed from the patient with extensive scleroderma presented an acute parathyroiditis with pronounced infiltration of polymorphonuclear leukocytes. The cases of uncomplicated Raynaud's disease showed marked hyperplasia. The remaining cases failed to show any abnormalities. It is important to isolate all four parathyroids and to exclude the presence of an adenoma before any gland is removed.

**Surgical Treatment of Rectal Prolapse**—Salvin outlines a method of treating prolapse of the rectum. With the patient in the high Trendelenburg position, a left paramedian abdominal incision was extended from the symphysis to the level of the umbilicus. The uterus was elevated and fixed to the anterior abdominal wall. The recto-uterine peritoneal reflection was incised transversely, two lateral longitudinal incisions extending through the rectal serosa into the mesorectum. The rectum was dissected from the vaginal septum and the sacral excavation, and its perineal and sacral flexures were mobilized. The rectum was attached with Pagenstecher sutures to the left lateral posterior aspect of the ventrofixed uterus, well up and across to the right side. A few more sutures fixed the middle part of the sigmoid to the anterior abdominal wall, the lower part of the sigmoid for a distance of 3 or 4 inches being left entirely free of sutures. This was done in order to prevent

linking and development of obstruction at the site of fixation of the rectum to the abdominal wall and to form a defensive barrier against the effect of too great peristaltic activity on the transplanted rectum. The bowels were kept constipated seven days with deodorized tincture of opium, when an enema of 5 ounces (150 cc.) of olive oil was given for two days, resulting in a natural movement. Thereafter feces passed normally every day. The sphincters function perfectly, with no involuntary escape of flatus. Normal intestinal function has been restored. The operation presents definite advantages. The low position of the pouch of Douglas is corrected. The prolapsed rectum is elevated and fixed on its entire length to the anterior abdominal wall, thus preventing the possibility of forming a new protrusion in the anterior wall of the rectum. There is no danger of coming in contact with the ureters or injuring the internal iliac vessels. The method of suturing the transplanted intestine to the anterior wall prevents kinking and angulation and possible formation of later intestinal obstruction.

**Ambulatory Method of Treating Fractures of Patella**  
—Anderson believes that many advantages follow his method of treating fractures of the patella, which permits immediate ambulation. The fact of walking is most pertinent to injuries of this structure, because the musculature of the knee is more susceptible to atrophy than that of other joints. The method is founded on two principles: (1) reduction by the application of skeletal traction to the upper patellar fragment and (2) immobilization through the agency of a case in which are incorporated both this superior transfixion and a distal anchoring pin passed through the upper end of the tibia.

### Archives of Dermatology and Syphilology, Chicago

31: 445-614 (April) 1935

- Pigmented Purpuric Lichenoid Dermatitis Condition Resembling Schamberg's Disease. F. Wise and J. Wolf. New York.—p. 445  
Further Studies in Fungicides: Comparative Evaluation of Phenol Derivatives by Modified Laboratory Procedure. L. B. Kingery, Portland, Ore., R. Williams and G. Woodward. Eugene, Ore.—p. 452  
Sources of Nickel Eczema: Report of Two Examples and Review of Pertinent Literature. P. D. Foster and F. I. Ball. New York.—p. 461  
\*Effect on Skin of Emotional and Nervous States: Etiologic Background of Urticaria, with Especial Reference to Psychoneurogenous Factor. J. H. Stokes, G. V. Kulchar and D. M. Pillsbury. Philadelphia.—p. 470  
Platform Method of Growth of Certain Pathogenic Fungi. J. W. Williams. Cambridge Mass.—p. 500  
Dyskeratosis Follicularis (Darier's Disease). K. Frost, Los Angeles.—p. 508  
Sebaceous Cyst: Its Importance as Precancerous Lesion. M. J. Stone, Stamford, Conn. and E. A. Abbey. New Haven, Conn.—p. 512  
Colloidal Sulphur in Dermatology. H. E. Miller. San Francisco.—p. 516  
Nutritional Treatment of Acne Vulgaris. C. Lerner. New York.—p. 526

**A Study of Urticaria.**—Stokes and his associates discuss urticaria as a disease of complex rather than single causation, with groups of predisposing and exciting causes and with special consideration of the psychogenic component. The weak spot in an otherwise fairly complete theoretical chain is at the cortical end, and suggestions for joint investigations are made. In their 100 cases there was a marked familial and hereditary urticariogenic background in 60 per cent. There was a distinct predisposition to urticaria as such in 28 per cent, in addition to the other elements of the allergic (atopic)-neurogenic background. Cutaneous infections were frequent (50 per cent), but of unproved etiologic significance. Constipation was the one gastro intestinal symptom of major importance. Subjective disturbances of other kinds, including symptoms of disturbances of the gallbladder, were present in only 18 per cent of the cases. Abnormality of the biliary tract occurred in about 50 per cent and hypochlorhydria or achlorhydria occurred in 45 per cent of other groups investigated for the condition. Focal and intercurrent infections have undoubted etiologic importance, the precise weight of which is undetermined. Removal of a focus may or may not help. Urticaria may follow a focal flare-up or a fresh infection. Positive reactions to scratch tests for allergic conditions were obtained in 64 per cent of the cases. Atopic (multiple) sensitivity was observed. The most common allergic concomitants of urticaria were hay fever and vasomotor rhinitis. With regard to the possible causal factors, the largest proportion of the cases exhibited two causes other than the psychogenic, and 75 per cent showed from one to three

causes. An atopic and allergic history was most important in the cases due to food allergy and to psychoneurogenic factors. The combination of a psychogenic background with a food excitant appeared in 25 per cent and in seven cases was the sole etiologic factor determined. Abnormal psychoneurogenic elements appeared in the background in 83 per cent of the cases of urticaria, as compared with 24 per cent in a control series of psoriasis, acne and impetigo, but a psychoneurogenic cause operated alone in only 12 per cent. The principal psychogenic elements are the tension make-up, neuroticism, the worry habit, shocks, family troubles and finance. Sex disturbance was of minor significance. The urticariogenic psychoneurogenic background lies in a personality type rather than in external impinging circumstances. The therapeutic methods employed were the use of an acid calcium regimen, nonspecific desensitizations, psychotherapy, actinotherapy, dietotherapy, and occasionally the administration of atropine and ephedrine. Of the known outcomes, 60 per cent were good ("cures"), improvement occurred in 34 per cent of the patients, and failures in 6 per cent. The exclusion of substances to which the patient gave a positive reaction (scratch tests) and an elimination diet were unsuccessful as therapeutic measures. Attention to several factors in a case rather than to one alone increases the proportion of good results. An unknown proportion of cases of urticaria is self-cured. Dogmatic assertion as to sole causes is therefore to be deprecated.

### Archives of Internal Medicine, Chicago

55: 533-708 (April) 1935

- Cardiac Output and Related Functions Under Basal and Postprandial Conditions. Clinical Study. S. A. Gladstone, New York.—p. 533  
Increase in Circulation Rate Produced by Exophthalmic Goiter Compared with That Produced in Normal Subjects by Work. W. M. Boothby and E. H. Rynearson, Rochester, Minn.—p. 547  
\*Incidence of Bacteremia in Pneumonias and Its Relation to Mortality. J. G. M. Bullowa and Clare Wilcox, New York.—p. 558  
\*Leukemic Sinus Reticulosis (Monocytic Leukemia) with Intestinal Obstruction: Report of Case with Partial Autopsy. R. B. Hanning, T. S. Kumball, Los Angeles and O. W. Jones, Glendale, Calif.—p. 574  
Xanthomatosis Generalisata Ossium: Report of Case Simulating Osteitis Fibrosa Cystica. D. H. Shelling and A. F. Voshell, Baltimore.—p. 592  
Heart Disease in Patients with Uterine Myoma: Clinical Study of Fifty Cases. F. Fetter and T. G. Schnabel, Philadelphia.—p. 609  
Juvenile Dementia Paralytica II. Family History with Especial Consideration of Familial Neurosyphilis. W. C. Menninger, Topeka, Kan.—p. 626  
\*Toxemia of Pregnancy: Its Relation to Cardiovascular and Renal Disease. Clinical and Necropsy Observations with Long Follow Up. W. W. Herrick and A. J. B. Tilman, New York.—p. 643  
Oxygen Utilization and Lactic Acid Production in Extremities During Rest and Exercise in Subjects with Normal and in Those with Diseased Cardiovascular System. Soma Weiss and L. B. Ellis, Boston.—p. 665

**Incidence of Bacteremia in Pneumonias.**—Bullowa and Wilcox believe that the recovery of pneumococci from the blood stream during the course of pneumococcal pneumonia may be prima facie evidence that the protective mechanism which prevents or overcomes bacteremia is at least partially in abeyance. Whether recovery or death will be the outcome in pneumococcal pneumonia depends to a great extent on whether the protective mechanism alone, or aided by serum, suffices to prevent an increase in the number of organisms or to clear the blood of pneumococci after it has been invaded. In most cases, positive blood cultures give unequivocal evidence of the type of pneumococcus responsible for the illness and the disappearance of bacteremia in response to treatment may be a real measure of efficient specific therapy. In cases in which invasion of the blood continues in spite of therapy, the illness is almost uniformly fatal. The authors list the incidence of bacteremia in connection with the fatality rate for different types of pneumococcal pneumonia in a series of 725 cases due to a single type, occurring over a period of five years. The percentage of invasion of the blood differs for the different types, though in the main the percentages of invasiveness and mortality are approximately the same. The importance of (1) differentiating the types formerly included as group IV or the  $\chi$  group and (2) of typing individual cases for prognosis and eventual treatment, when specific treatment is available, is manifest. Only 3 per cent of pneumococcal pneumonias escape classification at the present time, when typing is carried from I to XXXII (Cooper). The variation in percentage of invasion and fatality from year



to year in different pneumococcus types is evidence of the variations that are encountered from season to season and shows the necessity of extending the testing of any proposed curative substance over a period of several years

**Leukemic Sinus Reticulosis with Intestinal Obstruction**—Hanning and his associates cite a case of acute monocytic leukemia in a young woman with localized mucosal and submucosal reticulosis in the rectal wall which assumed the proportions of a tumor. The tumor produced complete intestinal obstruction, clinically the case exactly simulated carcinoma of the rectum with intestinal obstruction. The venous sinuses of the spleen and of the bone marrow and the lymph sinuses of the spleen and of the lymph glands probably are lined by differentiated reticular cells. These cells are similar to the Kupffer cells of the liver. Like the Kupffer cells, they are entirely different from the endothelial cells lining the ordinary blood and lymph channels. The term 'reticulo-endotheliosis' applied to monocytic leukemia does not elucidate the fact that the endothelial cells lining the ordinary blood and lymph vessels have nothing to do with the process. Neither does it attempt to distinguish between true reticulum and sinus reticulum (reticulo-endothelium). Monocytic leukemia is probably a sinus reticulosis whereas myeloid and lymphoid leukemia are probably true reticuloses. There are good grounds for the conception that leukemia is a malignant neoplastic process. Malignant processes and neoplasia are closely associated in the authors' minds with infiltration and with tumor formation. Specific localization with tumor formation is apparently infrequent in leukemic sinus reticulosis (monocytic leukemia).

**Toxemia of Pregnancy**—Herrick and Tillman report on 594 cases of toxemia of pregnancy that have been studied by internists during the period of toxic gestation and during a follow-up period averaging five and six-tenths years with extremes of one and twenty-two years. The death rate in this group was 27 per cent based on the mortality figures for women in general between the ages of 20 and 45 years in the city of New York which is 0.4 per cent. The mortality in this group was 157 per cent. Of the deaths 80 per cent were from causes within the cardiovascularrenal field. From a medical point of view the cases fall into two groups. The first and smaller is associated with a latent or manifest primary glomerulonephritis, and the second, and larger, with hypertensive cardiovascular disease. These differ in their clinical manifestations during the toxemia and in the follow up period and also in the prognosis and treatment. More than half of the survivors of toxic pregnancy show symptoms and signs of one or the other of these conditions within three years. Eleven cases have come to necropsy. In these the pathologists, independently of the clinic have described two types of disease. In four cases there were changes typical of chronic glomerulonephritis, and in seven there were changes characteristic of cardiovascular disease with hypertension. The clinical and pathologic evidence suggests a continuous chain of events in cases of toxemia with cardiovascular sequels. The vascular damage of the acute phase of the disease may not be repaired but may become permanent leading in at least half the cases to the manifestations of hyperpneis in the follow-up period and to ultimate disclosure at necropsy of characteristics of this generalized disease of the arterial system which ends in cardiac failure, apoplexy or renal failure through narrowing of the vascular channels supplying the kidneys.

### Arch. of Physical Therapy, X-Ray, Radium, Chicago

16 129 192 (March) 1935

- Specific Therapeutic Exercise in Certain Orthopedic Conditions J C Elsom Madison Wis—p 135  
Diagnosis and Management of Cutaneous Cancer G M Machee and A C Cipollaro New York—p 139  
Physical Therapy in Chronic Diseases with Especial Reference to Peripheral Vascular Disease and Ulcerations I M Leavy New York—p 145  
Newer Concept of Infra Red Radiation in Upper Respiratory Infections A R Hollender Chicago—p 150  
Physiologic Basis of Wet Dressings H F Wolf New York—p 153  
Prevention of Rheumatism C G A Bjorkman New York—p 155  
Stasis of the Colon J S Hibben Pasadena Calif—p 159  
The Arthritides and Colon Therapy J Gutman Brooklyn—p 162

**Prevention of Rheumatism**—Bjorkman offers some observations on prophylactic measures against the ravages of this disease. He submits rheumatism as an example of how small

and insidious disorders in a muscle or a joint may with irresistible tenacity gradually increase in severity and finally completely wreck a vigorous body and doom it to years of invalidism. He believes that hypothermia is the beginning of this disease, which often completely destroys the main bearings of the locomotor apparatus. Rheumatoid arthritis, osteoarthritis and their subsequent degenerative stages, proliferative, climacteric and senile types, myositis or fibrositis are but names for different stages and complications of the same disease, which begins with the overlooked and untreated effects of partial or general refrigeration of the body. Rheumatism and its many consequences are pathologic conditions chiefly encountered among people exposed to cold windy and wet weather, but people living in the tropical or subtropical belt are by no means exempt. Sudden drops in the temperature accompanied by wind and wet during the rainy season explain the frequent incidence of rheumatism in these countries. The author believes that massage, in the prevention of the pathologic fibrous organization in the human locomotor apparatus resultant on exposure to inclement weather and wind, is the only means by which cold edema and its organized by-products can be removed. Rheumatism is not encountered among the better situated classes of people in Europe or America, who as a matter of personal hygiene indulge almost daily in massage. The author concludes that massage is a true prophylactic agent against this devastating disease. It is a fact not to be overlooked, that the popular steam baths and massage of Sweden are important factors in almost completely confining rheumatism to the working classes, who use these baths less frequently than others.

### Canadian Medical Association Journal, Montreal

32 357-474 (April) 1935

- Importance of Bedside Study and Teaching T B Fletcher Baltimore—p 357  
Attempt to Inhibit Development of Tar Carcinoma in Mice Second Report J R Davidson Winnipeg Manit—p 364  
Bacteriologic Diagnosis of Whooping Cough N Silverthorne and D T Fraser Toronto—p 367  
Malignant Conditions of Skin and Their Treatment by Radiation R K Paterson Ottawa Ont—p 371  
\*Gonococcal Tenosynovitis of the Hand D W G Murray and J R E Morgan Toronto—p 374  
Otitis Media and Mastoiditis Due to Pneumococcus Type III E E Scharfe Montreal—p 376  
Serum Phosphatase in Toxic and Hemolytic Jaundice A R Armstrong and E J King Toronto—p 379  
Cancer of the Breast M Cutler Chicago—p 383  
Total Ablation of Thyroid Gland in Treatment of Angina Pectoris and Congestive Heart Failure J Hepburn Toronto—p 390  
Medicolegal Applications of Blood Clotting with Especial Reference to Agglutinogens M and N of Landsteiner and Levine A S Wiener Brooklyn—p 393  
Diagnosis and Treatment of Intestinal Amebiasis J C Paterson Sarnia Ont—p 399  
Myasthenia Gravis Report of Case P S Irwin Honolulu Hawaii—p 405  
Pulmonary Atelectasis Resulting from Hemoptysis T G Heaton Toronto—p 409  
Dermatitis Exfoliativa Report of Two Cases J W Auld Calgary Alta—p 411  
\*Primary Thrombosis of the Axillary Vein H C Ballon Montreal—p 414  
Avertin as an Auxiliary Therapeutic Measure in Tetanus H S Mitchell Montreal—p 415  
Non Asylum Treatment for Acute Mania E C Menzies St John N B—p 418

**Gonococcal Tenosynovitis of the Hand**—Murray and Morgan discuss a case of gonorrheal tenosynovitis, which occurred six days after the first appearance of an acute gonorrheal urethritis. They believe that at the time of the patient's slight injury of the hand the man was suffering from a gonococcal bacteremia. Trauma produced a minor resistant focus, with localization of the organism at that point. The authors believe that this type of tenosynovitis occurs with greater frequency than is generally recognized. The probability of the organism being the gonococcus was recognized before operation. The presence of a frank suppurative tenosynovitis determined the course of treatment. While a gonorrheal infection of the tendon sheaths may occur without suppuration and as such may be treated conservatively, the presence of pus justifies incision and drainage. The result of this method of treatment was good and the patient now suffers but little disability.

**Primary Thrombosis of the Axillary Vein**—Ballon presents a case of primary thrombosis of the axillary vein in which the presence of boils previous to the development of the



thrombosis may have been a complicating factor. The incision of the abscess on the left arm may have been a contributing or predisposing factor. All conditions that may produce mechanical compression of the axillary vein must first be excluded before a diagnosis of primary thrombosis of the axillary vein is made. Complete roentgen studies were made in the case reported, and such conditions as tumor, aneurysm, fracture, cervical rib, tuberculosis and pleurisy were excluded.

### Canadian Public Health Journal, Toronto

26: 105 156 (March) 1935

- Propose Scheme of Health Insurance for Manitoba J C McMillan, Winnipeg Manit.—p 105  
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 Activities in Province Wide Program for Control of Tuberculosis R G Ferguson Fort San Sask.—p 130  
 Treatment of Creamery and Cheese Factory Wastes A V DeLaporte Toronto—p 138

### Delaware State Medical Journal, Wilmington

7: 41 60 (March) 1935

- Results of High Voltage X-Ray Treatment in Metastatic Carcinoma of Bones C C McElfatrick Wilmington—p 41  
 The Pathology of Bladder Tumors D M Cay Wilmington—p 48  
 Therapeutics of Tin E Podolsky Brooklyn—p 51

### Endocrinology, Los Angeles

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- Physical Associations in Adults with Behavior Problems A W Rowe and Miriam Van Waters Boston—p 129  
 Experiment to Produce Lactation in Castrate Women A A Werner St Louis—p 144  
 Endocrine Interrelations During Pregnancy H Selye J B Collip and D L Thomson Montreal—p 151  
 Changes in Anterior Hypophysis of Male Albino Rat After Castration and Experimental Cryptorchism E T Ellison and J M Wolfe Nashville Tenn.—p 160  
 \*Results of Preoperative Administration of Extract of Pregnancy Urine Study of Ovaries and of Endometrium in Hyperplasia of the Endometrium Following Such Administrations E C Hamblen Durham N C—p 169  
 Hormonal Symptomatology of Thyroid To What Extent Is It Explicable on Basis of Altered Metabolic Rate? J H Means and J Lerman Boston—p 181  
 \*Concerning Anterior Pituitary-Gonadal Interrelations W O Nelson, Columbia, Mo.—p 187  
 Concentration of Gonad Stimulating Hormone in Blood Serum and of Estrin in Urine Throughout Pregnancy in the Mare H H Cole and F J Saunders Davis Calif.—p 199  
 Case of Pituitary Infanthism Treated with Commercial Anterior Pituitary Preparations G B Dorff Brooklyn—p 209  
 Evaluation of Periodical Literature from the Standpoint of Endocrinology Jennie Gregory Boston—p 213

**Preoperative Administration of Extract of Pregnancy Urine**—Hamblen studied the ovaries and the endometrium of twenty-four patients nine with known normal menstrual cycles, eleven with hyperplasia of the endometrium and four with amenorrhea. A commercial anterior pituitary luteinizing extract of pregnancy urine was used. The single subcutaneous injection has varied from 100 to 400 rat units. The frequency of dosage has varied from one to four times daily. The total dosage has ranged from 800 to 8,200 rat units. The duration of injections was from three to thirteen days. The time elapsing from the last injection to the laparotomy varied from one to fourteen days. Injections were given on the second to the thirty-second day of the menstrual cycle. Laparotomy was performed on the eleventh to the fortieth day of the cycle. At the time of laparotomy a careful gross study of both ovaries was recorded including the size of the ovaries the presence and relative number of small cysts and the presence or absence of recent or old corpora lutea. Endometrial specimens were obtained before the administration of the extract and after the injections of extract at the same time as the ovarian specimens. Anterior pituitary luteinizing extract does not affect primordial or early follicles and it acts primarily on maturing and mature ones increasing the degenerative changes commonly observed and probably producing cystic degeneration. The response in the younger age group (immaturity) is different from that of the older age group (maturity) of patients with hyperplasia. Recent corpora lutea are produced apparently in the latter group by injections of anterior pituitary luteinizing extract. Hemor-

rhage into or about follicles constituted an unimportant observation. Endometrial changes were produced in a single instance.

**Anterior Pituitary-Gonadal Interrelations**—Nelson discusses cell counts on the anterior lobes from sixty-eight normal male and fifty-six female rats showing that the male gland has a higher percentage of basophils and acidophils and a lower percentage of chromophobes than that of the female. The anterior pituitaries from twenty-five castrate male and seventeen spayed female rats that had been injected with estrogenic substance showed a profound decrease in the percentage of both castration cells and nonvacuolated basophils. Evidence indicates a fundamental difference in the sensitivity to the gonad hormone on the part of the male and female hypophysis, and that may explain the cyclic character of female reproduction and the absence of a cycle in the male. In the female the production of the estrogenic hormone attains periodically a concentration sufficient to suppress the production of the gonadotropic hormone. As the production of the estrogenic hormone decreases with the lack of stimulation, the gonadotropic hormone is secreted again and a new cycle is initiated. In the male the hypophysis is less easily influenced by gonad hormone with the result that apparently it is never suppressed to the extent that the male reproductive functions exhibit cyclic characteristics. The pituitary-gonadal interrelations also appear to be concerned in the control of certain other physiologic processes. In guinea-pigs—twenty-six males whose mammary glands had been caused to proliferate through the agency of ovarian grafts or estrogenic injections, eight parturient females and seventeen nonpregnant females—it was possible to promote or suppress lactation by varying the amounts of lactogenic hormone and estrogenic substance that were administered. Estrogenic substance also has been shown to be active in the control of experimental pancreatic diabetes. In four monkeys the profound hyperglycemia and glycosuria that followed pancreatectomy were abolished by the injection of estrogenic substance.

### Indiana State Medical Assn Journal, Indianapolis

28 113 170 (March 1) 1935

- Treatment of Extensive Cutaneous Burns Ultraviolet Light as Adjunct to Repair of Burn Defects H M Trusler Indianapolis—p 113  
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- Collapse Therapy and Pulmonary Tuberculosis W C Moore Muncie—p 171  
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### Iowa State Medical Society Journal, Des Moines

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 Rocky Mountain Spotted Fever in Iowa C F Jordan Des Moines—p 142  
 Rocky Mountain Spotted Fever Report of Two Iowa Cases with Recovery H E Stroy Osceola—p 145  
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**Journal of Bacteriology, Baltimore**

29: 223-332 (March) 1935

- The Pigment of *Bacillus Violaceus* I Production, Extraction and Purification of Violacein W C Tobie Cambridge, Mass.—p 223
- New Species of Genus *Bacillus* Exhibiting Mobile Colonies on Surface of Nutrient Agar J L Roberts Galveston, Texas—p 229
- Significance of Marine Bacteria in Fouling of Submerged Surfaces C E Zobell and Esther C Allen La Jolla, Calif.—p 239
- Decomposition of Salts of Organic Acids by Bacteria of Genus *Salmonella* A A Hayna Baltimore—p 253
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- Identification of Von Hübner's *Bacillus VI* as *Bacillus Carni* (Klein) I C Hall and N D Duffett, Denver—p 269
- Species of *Salmonella* Producing Water Soluble Pigment M W Deskowitiz and L Buchbinder New York—p 293
- Persistence of Avian Tubercle Bacilli in Soil and in Association with Soil Micro Organisms C Rhines New Brunswick N J—p 299
- Further Studies on Frozen Vegetables R P Straka and L H James, Washington D C—p 313
- Bactericidal Action of Azochloramid (N N Dichloroazodicarbonamidine) F C Schmelkes and Elizabeth S Horning Belleville N J—p 323

**Journal of Experimental Medicine, New York**

61: 299-446 (March 1) 1935

- Nutritional Edema in the Dog I Development of Hypoproteinemia on Diet Deficient in Protein A A Weech E Goetsch and E B Reeves New York—p 299
- Renal Damage Following Ingestion of Diet Containing Excess of Inorganic Phosphate E M MacKay La Jolla, Calif., and J Oliver, Brooklyn—p 319
- \*Serologic Differentiation of Pathogenic and Nonpathogenic Strains of Hemolytic Streptococci from Parturient Women Rebecca C Lancefield New York and R Hare London England—p 335
- Studies on Uncomplicated *Coryza* of Domestic Fowl III Effect of Extranasal Injection on Growth of Fowl *Coryza* *Bacillus* J B Nelson Princeton N J—p 351
- Id IV Susceptibility After Extranasal Injection of Fowl *Coryza* *Bacillus* J B Nelson Princeton N J—p 361
- Phenomenon of Local Skin Reactivity to *Bacillus Tuberculosis* I Skin Preparatory and Reacting Potencies of Tuberculin, Old Tuberculin, and *Bacillus Tuberculosis* Culture Filtrates G Schwartzman, New York—p 369
- Grading of Local Skin Reactivity to Bacterial Filtrates G Schwartzman, New York—p 383
- Colony Morphology of Tubercle Bacilli I Presence of Smooth Colonies in Strains Recently Isolated from Sources Other Than Sputum K C Smithburn New York—p 395
- Experimental Studies on Encephalitis II Specific Virus Character of Infectious Agent from Cases of St Louis and Kansas City Encephalitis, 1933 L T Webster New York and G L Fite Baltimore—p 411
- Transmission of Myeloid Leukemia of Mice Its Relation to Myeloma J Furth, New York—p 423

**Differentiation of Strains of Hemolytic Streptococci**

—Lancefield and Hare show by precipitin tests that the majority of strains from definite infections of the uterus are members of group A. The majority of hemolytic streptococci from the birth canal that do not bring about active infections are not members of this group. Most of them fall into either group B or group D, the former being identical with certain strains causing bovine mastitis, and the latter resembling *Streptococcus faecalis* more than *Streptococcus pyogenes*. These two groups have been confirmed serologically. The remaining noninfective strains fell into groups C, F or G or were unclassified. In their biochemical reactions they resemble group A. That they differ immunologically from group A strains can hardly be doubted. The differentiation, by a comparatively easy precipitin test, of hemolytic streptococci that are potentially infective from those which are harmless to man is entirely feasible. It seems highly probable that the human nasopharynx is the main reservoir of group A strains in nature. Because of this and because of the great rarity of group A hemolytic streptococci in the normal vagina before childbirth, there can be little doubt that the majority of puerperal hemolytic streptococcus infections are due to inoculation from some other source than the patient's genital tract and probably arise from the nasopharynx in the patient or attendants. Hemolytic streptococci may be harbored in the birth canal before or after delivery without causing disease, provided they belong to serologic groups other than group A. Group A hemolytic streptococci, on the contrary, are usually absent from the vagina before delivery or are exceedingly rare as the authors show by the failure to find organisms of this group in cultures taken before delivery from their series of patients. However, group A hemolytic streptococci, if present in the vagina before delivery, almost always give rise to serious puerperal infection. Accordingly, group A strains are probably

the only hemolytic streptococci capable of causing definite puerperal infection in the human species, and such infection almost invariably occurs if group A hemolytic streptococci are present in the vagina.

61: 447-592 (April 1) 1935

- \*Neutralization Test in Poliomyelitis Comparative Results with Four Strains of Virus J R Paul and J D Trask, New Haven Conn.—p 447
- Effect of Various Protein Rations on Serum Protein Concentration of Rat A L Bloomfield San Francisco—p 465
- Further Studies with Toxic Serum Extracts of Hemolytic Streptococci Julia T Weld New York—p 473
- Experimental Studies on Encephalitis III Survival of Encephalitis Virus (St Louis Type) in *Anopheles Quadrimaculatus* L T Webster, Anna D Clow and J H Bauer, New York—p 479
- Primary Serum Toxicity as Demonstrated by the Chicken Embryo E Witebsky and E Neter New York—p 489
- Cultivation of Virus of Grasserie in Silkworm Tissue Cultures W Trager Princeton N J—p 501
- \*Studies on Hemolytic Streptococcus of Human Origin I Observations on Virulent Attenuated and Avirulent Variants H K Ward and C Lyons Boston—p 515
- Id II Observations on Protective Mechanism Against Virulent Variants C Lyons and H K Ward Boston—p 531
- Studies on Meningococcus Infection VII Study of an Isolated Epidemic G Rake—p 545
- Precipitin Reaction Between Type III Pneumococcus Polysaccharide and Homologous Antibody II Conditions for Quantitative Precipitation of Antibody in Horse Serums M Heidelberger and F E Kendall New York—p 559
- Id III Quantitative Study and Theory of Reaction Mechanism M Heidelberger and F E Kendall New York—p 563

**Neutralization Test in Poliomyelitis**

—In experiments devised to compare the neutralizing action of normal adult human serums on different strains of poliomyelitis virus and to fill in certain gaps in their series of neutralization tests with different strains of virus on different types of cases in different age groups, Paul and Trask made the following observations.

1 The difference between two human and two passage strains of the virus when tested by the neutralization method amounted to about 25 per cent, and there was less power in normal adult serums to neutralize human than passage strains of virus.

2 The differences between the two human strains amounted to 15 per cent, and between the two passage strains to 8 per cent, the last figure falling within the limits of the experimental error of the method. The extent to which these observations affect certain concepts with regard to the epidemiology of poliomyelitis based on experiments on passage strain neutralization can not be determined from the data presented in this paper, except that they more or less confirm the view previously derived from passage strain experiments that from 70 to 95 per cent of normal urban adults possess in their blood a substance which neutralizes poliomyelitis virus in a given amount. However, certain other indications appear when the present results are supplemented by those that the authors obtained previously. Primarily, they found no relation between the clinical acquisition of poliomyelitis and the presence of substance in the serum which neutralizes a passage strain of poliomyelitis virus. With a passage strain the results seem rather to bear a closer relationship to age than to illness. With a human strain they obtained results in which there is some evidence, shown only in the juvenile group, that acquisition of the clinical disease is accompanied by the appearance of antiviral properties in the blood.

**Studies on Hemolytic Streptococcus of Human Origin**

—Ward and Lyons describe four common variants of the hemolytic streptococcus of human origin and designate them the F, M, attenuated M and C variants. The F and M variants have been isolated only from the blood stream in streptococcal infections. Only the M, however, has any primary virulence for the mouse. Both these variants resist phagocytosis in human blood under suitable conditions, and this appears to be a reliable test for human virulence. The attenuated M variant, found only in laboratory cultures, has a capsule as well developed as that of the virulent variants and yet does not resist phagocytosis. The C variant has no capsule and is readily phagocytized. It appears to correspond to the avirulent variant in other species. The authors are inclined to regard the F variant as the parent form of the *Streptococcus haemolyticus* of human origin since they have encountered it only in primary isolation. On the other hand, all the other variants may be derived from the F. While the F variant was isolated from the blood stream the

whole year round, the M variant was isolated in blood cultures only during the winter months—the so called streptococcus season. Since it is known that the M variant may be derived from the F by mouse passage, it is conceivable that the winter prevalence of the M variant may be due to the high incidence of infections of the upper respiratory tract and consequent frequent passage of the hemolytic streptococcus from one patient to another

### Journal of General Physiology, New York

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- Crystalline Chymotrypsin and Chymotrypsinogen I Isolation Crystal lization and General Properties of New Proteolytic Enzyme and Its Precursor M Kunitz and J H Northrop, Princeton N J—p 433  
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Electrical Factors Influencing Rate of Filtration of Aqueous Electrolyte Solutions Through Cellophane Membranes H L White, Betty Monaghan and F Urban St Louis—p 515  
Comparison of Electrophoretic Velocities of Cellophane and Collodion Suspensions with Electro-Osmotic Velocities Through Membranes of Same Materials Betty Monaghan, H L White and F Urban St Louis—p 523  
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Effects of Blood Transfusions on Donors J W Martin and J T Myers, Omaha—p 593  
The Doctor as Inventor E Podolsky Brooklyn—p 598  
Carcinoma and Schistosomiasis of Appendix Case Report J Levine and R A Mann, New York—p 602  
\*Familial Renal Glycosuria. M S Brown Jr and R Poleshuck, New York—p 605  
Significance of Iron and Copper in Bile of Man E. S. Judd and T J Dry with technical assistance of Mary Sue Bledsoe Rochester, Minn—p 609  
\*Amidopyrine and Granulopenia Reappearance of Granulocytosis in Case of Recurring Agranulocytosis After Large Doses of Amidopyrine Clinical Experiment L. R. Limarzi and Iva G Murphy Chicago—p 616  
Action Potentials from Intercostal Muscles Before and After Unilateral Pneumectomy F M Anderson and D B Lindsley, Boston—p 623  
Complement Fixation in Diagnosis of Lymphogranulomatosis Venerea W E. Coutts and T Ponce, Santiago Chile—p 629  
Technic of Urinalysis in Fat Embolism Clinical and Experimental Study F J Jirka and C S Seuder Chicago—p 631  
Simple and Accurate Method for Standardizing Cell Volume Percentage of Any Blood for Sedimentation Test H L Chung Peiping China—p 633  
Value of H and O Agglutination Technic in Routine Widal Examinations Rosemary Bole Columbus Ohio—p 638  
Determination and Recognition of Lead in Biologic Tissue and Fluids C N Myers, Florence Gustafson and B Throne New York—p 648  
Fractional Urine (Diabetic) Chart D W Kramer, Philadelphia—p 657  
Rapid Method for Demonstration of Negri Bodies J R. Dawson Jr, Nashville, Tenn—p 659

**Familial Renal Glycosuria.**—Brown and Poleshuck present four cases as additional evidence of the familial or hereditary nature of the condition known as renal glycosuria. These observations help to substantiate the belief that it is an entirely benign condition. Two of the patients have been known to have glycosuria for seventeen and sixteen years, respectively. At its discovery the diagnosis of diabetes mellitus was made in each case and the treatment for that disease was instituted. The other two patients have absolutely normal dextrose tolerance tests. All these patients showed dextrose in all specimens of urine examined, in one patient even during the hour in which the blood sugar level range was from 85.8 to 50 mg per hundred cubic centimeters. In spite of the persistent loss of sugar in the urine there has been no loss of weight, or polyuria, in any of the four patients. In fact, one patient gained 21 pounds (9.5 Kg) in a period of six weeks on a high caloric diet as reported by Brown and Ralli, and this diet in

no way affected his carbohydrate tolerance. In addition, over a period of two years there has been no change in his carbohydrate tolerance as shown by dextrose tolerance curves

**Amidopyrine and Granulopenia.**—Limarzi and Murphy report a case of recurring granulopenia in which there were recoveries from four attacks. In all four there was granulopenia and in three a leukopenia. Analysis of the differential blood counts shows that the case was one of granulopenia and differentiates it from aleukemic lymphadenosis and aplastic anemia. Recovery from the first attack followed a blood transfusion that was associated with a severe immediate and delayed reaction. Recovery from the second and third attacks occurred spontaneously. Recovery from the fourth attack occurred after the administration of yellow bone marrow and liver extract (by mouth and parenterally). In the fourth attack large doses of amidopyrine (a total of 370 grains, or 24 Gm) were administered during the malignant phase and were continued into the recovery phase, showing that it was not possible to depress the granulocytosis by the administration of amidopyrine. Since recovery from the last attack, doses of 15 grains (1 Gm) of amidopyrine have been given without influencing the total or differential white count. The amidopyrine patch test was negative.

### Journal of Nutrition, Philadelphia

9: 395-532 (April 10) 1935

- Vitamin B and G Content of Prunes Agnes Fay Morgan Marion J Hunt and Mildred Squier Berkeley, Calif—p 395  
Relation Between Basal Metabolism and Endogenous Nitrogen Metabolism with Particular Reference to Estimation of Maintenance Requirement of Protein D B Smuts Urbana, Ill—p 403  
Rates of Absorption and Glycogenesis from Various Sugars S Feyder and H B Pierce Rochester, N Y—p 435  
Fat Formation from Sucrose and Glucose. S Feyder Rochester, N Y—p 457  
Effects of Deficiency of Iodine and Vitamin A on Thyroid Gland of Albino Rat Helen M Coplan and Myra M Sampson Northampton Mass—p 469  
Utilization of Gelatin, Casein and Zein by Adult Rats Inez D Mason and L. S. Palmer St Paul—p 489  
Vitamin C Requirement of Guinea Pig Margaret Dann and G R Cowgill New Haven, Conn—p 507  
Effects of Lactose on Growth and Longevity E O Whittier, C A Cary and N R Ellis, Washington, D C—p 521

### Journal of Urology, Baltimore

33: 331-426 (April) 1935

- Clinical Importance of Congenital Renal Hypoplasia D N Eisendrath, Paris France—p 331  
\*Effect of Morphine on Human Ureter N F Ockerblad, H E Carlson and J F Simon Kansas City Kan—p 356  
Value of Cystometry M Muschat, Philadelphia—p 366  
\*Some Endocrinologic Relationships of Prostatic Hypertrophy Clinical and Experimental Studies Preliminary Report C L Deming R H Jenkins and Gertrude van Wagenen, New Haven, Conn—p 388  
Principles of Treatment of Hypospadias H Cabot W Walters and V S Counseller Rochester Minn—p 400  
Cyst of the Urachus J B Cross Buffalo—p 408  
Method for Suprapubic Suction J W Draper Jr New York—p 411  
Device for Permanent Suprapubic Drainage Following Cystostomy W C Stirling, Washington, D C—p 413  
New Instruments to Facilitate Prostatic Resection O A Nelson, Seattle—p 414  
New Device for Securing Biopsy Specimens O S Lowsley, New York—p 417  
Silver Solution in the Lumen of the Vas After Bladder Instillation V J O Connor Chicago—p 422

**Effect of Morphine on Human Ureter.**—Ockerblad and his associates studied the effect of morphine on the intact human ureter in twenty-four patients by means of hydrophorographic tracings by Trattner's method, and some were subjected to roentgenoscopy. Morphine given subcutaneously in the usual clinical doses was found to increase markedly the ureteral tone and the amplitude of the contractions. The larger the dose the greater the effect. The effect is produced by morphine in from two to five minutes and persists for at least three hours and probably much longer. Atropine in doses of  $\frac{1}{100}$  gram (0.00065 Gm.) invariably stops the contractions of the morphine stimulated ureter with a consequent loss of tone but does not act strikingly or constantly when given alone. The usual notion that morphine quiets the ureter is wrong and the view based on the experimental data which indicates that morphine stimulates the ureter is the correct one.

**Endocrinologic Relationships of Prostatic Hypertrophy**—Deming and his co workers in their approach to the study of relationships between the prostate and the endocrine glands studied the influence of castration on the genital tract of three monkeys and two controls. In the castrated animal the seminal vesicles as a whole are smaller and the diameter of the individual tubule is lessened. The prostate has lost in volume. Histologic sections show the expected decrease in height of prostatic epithelium and the size of the individual tubules. Despite the atrophy demonstrated the effect of castration is not so precipitate or complete as it is in the rat. The authors now believe that prostatic hypertrophy arises from the right and left lateral lobes of the prostate and the prespermatic lobe of the prostate and from the submucosal glands of the prostatic urethra and trigon. The anatomic origin of prostatic hypertrophy has an important bearing on the endocrine relationship. Hypertrophy of the submucosal glands arises from the prostatic urethra and should not be influenced by the pituitary-testicle-prostatic relationship. Experimental studies in the castrated monkey are compatible with this idea as castration failed to show any change in the mucosa of the prostatic urethra. Hypertrophy of the prostate has been the subject of an endless dispute as to whether it is a hyperplastic process or a true neoplasia. In all cases of so called hypertrophy there is an atrophy of the uninvolved portion of the gland. This may be ascribed to pressure although it has not been possible to prove this hypothesis. The endocrine relationship on this already atrophied true prostatic tissue following castration would be a negligible factor in relieving obstruction. The authors' work leads them to believe that the monkey does not have submucosal glands in the prostatic urethra but conversely, that the rat has all the anatomic origins necessary for prostatic hypertrophy.

### Kentucky Medical Journal, Bowling Green

33: 107 156 (March) 1935

- Trend of Modern Medicine C G McLean Lexington—p 112  
Hydrotherapy in Treatment of Osteomyelitis R T Hudson Louisville—p 117  
Vitamin, Endocrine and Allergen Relativity R A Bate Louisville—p 120  
The Wearing of Glasses as It Relates to Medicine A O Pfingst, Louisville—p 129  
Ruptured Ectopic Pregnancy W O Johnson Louisville—p 135  
Pulmonary Emphysema Sequela of Pulmonary Tuberculosis K Dunham, Cincinnati—p 139  
Hemolytic Icterus Familial Type Margaret Limper Louisville—p 143  
Treatment of Diarrhea in Infancy J W Bruce Louisville—p 145  
Some Further Studies and Observation of Hyperthermia (Fever Treatment) Cases J C Rogers Louisville—p 149  
The Doctor L Logan Barbourville—p 151

### Michigan State M. Society Journal, Grand Rapids

34: 197 262 (April) 1935

- Heredity and Environment in Relation to the Handicapped Lecture I Origin and Nature of Human Handicaps L F Barker Baltimore—p 197  
The General Practitioner as His Own Neurologist H A Freund Detroit—p 208  
Neurotic Reactions in Marriage H A Reye Detroit—p 212  
Some of the Changes Found in Eyes in Control and Treatment of Which the General Practitioner and the Eye Physician Should Cooperate T D Allen Chicago—p 219  
\*Spondylitis in Undulant Fever Report of Two Cases C H Snyder Ann Arbor—p 224  
The Future of Medicine J C S Battley Port Huron—p 229  
Traumatic Neurosis Biosociological Problem I M Altshuler Detroit—p 236

**Spondylitis in Undulant Fever**—Snyder points out that in spondylitis due to undulant fever the prognosis is favorable and treatment consists usually only in immobilization, while prolonged fixation or bone grafting will be necessary in tuberculosis. Two cases of spondylitis in undulant fever occurring in patients in Michigan are reported.

### Military Surgeon, Washington, D. C.

76: 173 228 (April) 1935

- The Mission of the Sanitary Corps (Sanitation Section) in War Time J A Tobey—p 173  
The Civilian Conservation Corps as Viewed by a District Surgeon H C Michie—p 181  
The Civilian Doctor's Part in National Military Emergency G A McBride—p 191  
Powdered Milk for Field Service W Platt—p 200  
New Device for Certain Laboratory Analyses F J Vokoun—p 209

### Minnesota Medicine, St. Paul

18 201 268 (April) 1935

- Retinal Detachment F E Burch St. Paul—p 201  
Gastritis a Phenomenon of Pyloric Obstruction and Its Relation to Duodenal Ulcer W Walters and G T Church Rochester—p 206  
Pathologic Factors in Curability of Carcinoma of Colon L M Larson Minneapolis—p 212  
Preoperative Operative and Postoperative Technic of Prostatic Resection with Direct Vision Cold Knife Instrument G J Thomas, Minneapolis—p 218  
Transurethral Prostatic Resection Review of Seven Hundred and Twenty One Cases in Which Operation Was Performed During 1932 and 1933 G J Thompson and W F Braasch Rochester—p 224  
Palliative Treatment of Tic Douloureux E J Engberg, St. Paul—p 229  
Medical Aspects of Commoner Industrial Poisonings R N Briet Minneapolis—p 234  
Treatment of the Commoner Industrial Poisonings Lead Arsenic and Carbon Monoxide H N Wright Minneapolis—p 236

### Nebraska State Medical Journal, Lincoln

20 81 120 (March) 1935

- Complications and Disappointments in Radium Therapy for Cancer of Uterus P Findley Omaha—p 83  
Primary Hypochromic Anemia J C Sharpe Omaha—p 89  
Conduct of Normal Labor F P Murphy Omaha—p 92  
Epithelial New Growths J A Borghoff Omaha—p 96  
Conservative Treatment of Chronic Discharging Ear J C Davis, Omaha—p 100  
Oral Cancer H N Boyne Omaha—p 102  
Trichomonas Vaginalis Olga Stastny Omaha—p 105  
Pulmonary Tuberculosis Collapse Therapy J D Bisgard Omaha—p 108  
Tuberculous Epididymitis M Emmert Omaha—p 111

20 121 160 (April) 1935

- The Causation of Cancer H E Eggers Omaha—p 121  
Important Lines of Attack on Cancer Problem B C Russum Omaha—p 123  
Early Diagnosis and Treatment of Cancer J Weinberg Omaha—p 125  
Clinical Aspects of Radiation in Neoplastic Disease H B Hunt Omaha—p 127  
\*High Voltage Treatment of Cancer R L Smith Lincoln—p 133  
Carcinoma of Stomach Necessity of Early Diagnosis and Treatment A Sachs and R L Traynor Omaha—p 137  
Treatment of Lymphoblastoma E W Rowe, Lincoln—p 141  
Cancer with Especial Reference to Palliative Treatment S A Swenson Oakland—p 143  
Roentgen Ray Treatment of Malignancies of Face A P Overgaard Omaha—p 146  
Carcinoma of the Breast H H Davis Omaha—p 148  
Statistical Study of Carcinoma and Sarcoma D C Hilton Lincoln—p 153

**High Voltage Treatment of Cancer**—In treating cancer in any stage Smith divides the skin surrounding the tumor in as many 15 by 20 cm. areas as possible and directs the beam of radiation directly toward the tumor. He administers 300 roentgens daily to a single area and treats all areas in rotation until each has received a total of 2,100 roentgens. In the event of the tumor being located close to the surface, the tumor receives additional treatment of one-half erythema dose of low voltage through the use of 185 kilovolts of mechanical rectified current and filters of 0.5 mm of copper and 1 mm of aluminum at a skin distance of 50 cm. The low voltage treatment is administered immediately following the completion of high voltage series. When dealing with recurrent nodules following mastectomy, which frequently occur in and under the skin on the chest wall, the author proceeds in a similar manner employing high voltage radiation for its effect on the deep structures and modifying the voltage to produce a much longer wavelength for the skin effect. Usually 140 kilovolts of mechanical rectified current, 3 mm of aluminum filter, 28 cm focal skin distance is applied for a sufficient time to produce a threshold erythema. The combination of extremely highly filtered x-rays of a very short wavelength and the low voltage or longer and less penetrating radiation seems to produce more rapid recession of cancer tissue. This effect is not obtained when either is employed singly. The marked relief of symptoms and rapid recession of the tumor mass often permit surgical removal, which otherwise would have been impossible. The microscopic examination of numerous sections of tumors treated with high voltage radiation prior to removal shows many striking changes of the cells.

## New England Journal of Medicine, Boston

212: 501-544 (March 21) 1935

- Indications for and Results of Total Cystectomy for Cancer of Bladder  
W C Qumby, Boston—p 501
- Ureterorectal Anastomosis T N Hephurn Hartford, Conn—p 503
- Significance of Postoperative Rises of Blood Nonprotein Nitrogen H A Derow Boston—p 509
- Contraception as Possible Means of Reducing Gynecologic Morbidity  
E Stone Providence R I—p 511

212: 545-596 (March 28) 1935

- Acute Hepatitis in a Diabetic with Severe Acidosis and Suppression of Urine H F Root Boston—p 545
- Glomerulonephritis with Three Azotemic Episodes Case T S Evans, New Haven Conn—p 547
- Chronic Cystic Mastitis Practical Management in Cancer Clinic H Rogers Boston, and I T Nathanson, Wrentham, Mass—p 551
- \*Exposition of Preparation and Administration of Amniotic Fluid Concentrate H L Johnson, Boston—p 557
- Your Profession and Society J A Hartwell New York—p 559
- The Prolongation of Life H D Chadwick Boston—p 566

**Preparation and Administration of Amniotic Fluid Concentrate**—Johnson states that the action of amniotic fluid concentrate on the peritoneum is to stimulate the production of a defense exudate similar to that laid down in the presence of infection. It accomplishes an early peritoneal immunity, giving maximal protection with minimal physiologic disturbance. Its use is especially indicated in surgical procedures of the peritoneal cavity involving widespread trauma or contamination. Operative introduction may be practiced as a routine in all primarily clean cases of abdominal surgery. Preoperative instillation is usually reserved for cases reputed to have a high mortality from postoperative peritonitis. The dosage ranges from 50 to 300 cc, depending on the method of introduction, the nature and severity of the surgical procedure and the size of the abdomen. The dosage for preoperative instillation is from 50 to 100 cc from eight to twelve hours before operation. An intraperitoneal trocar or spinal needle (18 to 20 gage) may be used to accomplish preoperative instillation.

## New York State Journal of Medicine, New York

35: 239-286 (March 15) 1935

- Psychiatry and the General Practitioner Syndromes Commonly Met with in Practice M W Raynor White Plains—p 239
- The Problem of Acute Appendicitis in New York City S Krech New York—p 248
- Diagnosis and Treatment of Intestinal Amebiasis T T Mackie, New York—p 261
- Tuberculosis Hospital and the Family Physician G W Weber Kings ton—p 267

35: 287-336 (April 1) 1935

- Hearing Reclamation and Preservation in Moderately Deafened Child Management and Treatment Based on Ten Years of Clinical and Laboratory Research E P Fowler New York—p 287
- \*Clinical Aspects of Forced Perivascular Drainage of Central Nervous System G M Retan Syracuse—p 295
- Between Mental Health and Mental Disease B Liber, New York—p 305
- Importance of Medical Supervision During Early Infancy on Infant Death Rate H Bakwin and Ruth Morris Bakwin New York—p 313
- Community Control of Professional Blood Donors E H L Corwin, New York—p 317

**Forced Perivascular Drainage of Central Nervous System**—Retan treated a case of syphilitic meningitis in 1930 in an infant, aged 6 months, which had a progressive hydrocephalus. Vigorous antisiphilitic treatment for three months failed to produce any clinical or serologic improvement. He then decided to alter the osmotic pressure of the blood stream by the intravenous injection of a hypotonic solution containing an arsenical, also to drain the spinal fluid, hoping that it might be possible to draw enough arsenic through the lesions of the central nervous system to produce a therapeutic effect. After four such treatments the patient had apparently recovered and has developed normally since. The author suggests forced perivascular drainage as a term that describes the essential factor involved in this treatment. A study of 115 forced perivascular drainage treatments shows the following results in regard to cellular behavior in the spinal fluid. 1 Patients without active infection of the central nervous system fail to show any cells in fractions of fluid examined during the intra-

venous injection of hypotonic solution. 2 Patients with syphilis of the central nervous system, of a duration of many years and who have had years of antisiphilitic treatment, also fail to show cell response. Similar results have been obtained in cases of chronic encephalitis of a duration of six and seven years. 3 In cases of septic meningitis there is a steady reduction in the number of cells found in fractions of the spinal fluid throughout the treatment. These cells continue to be practically 100 per cent polymorphonuclear leukocytes. 4 In cases of acute poliomyelitis, during continuous drainage and before the hypotonic solution is injected into the blood stream, there is a reduction in the number of cells found in fractions of the spinal fluid. However, the relation between the percentage of polymorphonuclear cells and lymphocytes in the spinal fluid is not greatly changed. If a hypotonic solution is then injected into the blood stream there is a prompt increase in the number of cells found in fractions of the fluid, with a shift to a preponderance of lymphocytes. 5 In cases of chorea, in which the cells in the spinal fluid are all lymphocytes, usually with a normal cell count, almost all later fractions contain lymphocytes, usually in increased numbers. However, certain fractions may contain no cells. These cases show in their later fractions a very small number of cells as compared to the later fractions in acute poliomyelitis. The author's technic is given.

## Northwest Medicine, Seattle

34: 111-148 (April) 1935

- Rocky Mountain Spotted Fever Epidemiology, with Particular Reference to Distribution and Prevalence in Western United States R R Parker Hamilton Mont.—p 111
- Surgical Shock E Andrews Chicago—p 122
- The Airway in Asphyxia A B Murphy, Everett Wash—p 126
- Operability of Carcinoma of the Breast V C Hunt Los Angeles—p 129
- Large Quantities of Fluids Intravenously Principles and Practice for Their Use C R Jensen Seattle—p 132

## Ohio State Medical Journal, Columbus

31: 241-312 (April 1) 1935

- Hyperthyroidism H G Sloan, Cleveland—p 261
- Meniere's Symptom Complex Medical Treatment A C Furstenberg F H Lashmet and F Lathrop Ann Arbor Mich—p 263
- Trichinosis F J Doran, Cleveland—p 267
- Traumatic Neurosis G T Harding Columbus—p 268
- Occupational Disease Report for 1934 and Summary for Past Years E R Hayhurst Columbus—p 275

## Public Health Reports, Washington, D C

50: 323-358 (March 8) 1935

- Occurrence of Infestations with Endamoeba histolytica Associated with Water Borne Epidemic Diseases A V Hardy and Bertha Kaplan Spector—p 323
- Variations in Physique and Growth of Children in Different Geographic Regions of the United States Physical Measurement Studies Number Two C E Palmer and S D Collins—p 335

50: 421-468 (March 29) 1935

- \*Urinary Excretion of Silica by Persons Exposed to Silica Dust J J Bloomfield R R Sayers and F H Goldman—p 421
- Mottled Enamel in Texas H T Dean, R M Dixon and C Cohen—p 424

50: 469-502 (April 5) 1935

- Public Health Nursing in Bi County Health Department Brunswick Greenville Health Administration Studies Number Four Pearl McIver—p 469
- Studies of Sewage Purification I Apparatus for Determination of Dissolved Oxygen in Sludge-Sewage Mixtures E J Thernault and P D McNamee—p 480

**Urinary Excretion of Silica**—Bloomfield and his associates examined 123 anthracite coal workers, twenty of whom had been out of the industry for an average of seven years, for urinary silica by the method of King and Dolan. The amounts of silica found in the urine varied from 0.6 to 117 mg and averaged 25 mg per hundred cubic centimeters. Normal persons were found to be excreting only an average of 1 mg per hundred cubic centimeters. A close correlation was found between the silica dust exposure of these men for a specified number of years and the amount of urinary silica. A study of former anthracite coal workers showed that, even after a lapse of several years away from any silica dust exposure, an increased amount of silica is being excreted by them. This furnishes additional evidence of the etiology of the disease.

## Surgery, Gynecology and Obstetrics, Chicago

60 763 890 (April) 1935

- Late Complications in Irradiation Treatment of Cancer of Cervix  
Q U Newell and H S Crossen St Louis—p 763
- \*Cause of Death Due to Liver Autolysis E C Mason and C A Nau,  
Oklahoma City—p 769
- Histology of Biliary Ducts and Its Correlation with Symptomatology of  
Common Duct Stone I G Macdonald Cornwall N Y—p 775
- Bleeding Tendency in Jaundice A C Ivy P F Shapiro and  
P Melnick Chicago—p 781
- \*Effect of Viosterol in Jaundice R W McNealy P F Shapiro and  
P Melnick Chicago—p 785
- Mechanics of Physical Signs in Lower Trunk Injuries L Brahdy,  
New York—p 802
- Energy Background of Genesis of Gallstones and of Prevention of  
Immediate Postoperative Shock and of Later Digestive Disturbances  
G Crile Cleveland—p 818
- Total Abdominal Hysterectomy Anatomy and Technique Lillian K P  
Farrar, New York—p 827
- Surgery of Gangrene of Extremities Study of One Hundred and  
Seventy-One Cases from Records of New Orleans Charity Hospital  
J R Veal and Elizabeth M McFetridge New Orleans—p 840
- \*Positive Treatment for Fractures of Shaft of Femur Preliminary Report  
Emphasizing Ambulatory Treatment R A Griswold Louisville, Ky  
—p 848
- Closure of Chronic Osteomyelitic Cavities by Plastic Methods J P  
Lord Omaha—p 853
- Operative Injuries of the Ureter I R Sisk Madison Wis—p 857
- Prognosis of Thyroid Cancer H M Clute and S Warren Boston  
—p 861
- \*Aseptic Uretero Enterostomy E J Poth San Francisco—p 875

**Cause of Death Due to Liver Autolysis**—Mason and Nau carried out experiments on dogs and rabbits to determine whether the type of diet could in any way modify their previous results in explaining the cause of death when liver tissue is found free within the abdomen. They believe that their investigations furnish a satisfactory explanation for the cause of death. Sectioned liver tissue undergoing aseptic autolysis within the abdomen is accompanied by definite damage to the host. This is evidenced by changes in liver and kidney of the host and also by toxic symptoms manifested. All their previous experimental data were obtained from dogs. Therefore, when the first three rabbits of the present series survived the operation the authors were of the opinion that the survival was due to the type of diet selected by the rabbit. This conclusion also agreed with the observation of Salzmänn. Continuing their experiments they concluded that all the surviving animals received implanted liver tissue sectioned from the periphery of the liver. Such tissue proved to be free of the anaerobic bacillus. They further observed that the implanted liver tissue sectioned from the central portion caused death and also gave a positive culture for the organism. It has been observed by others that this organism may be injected in large amounts into the peritoneal cavity without causing the death of the animal. The authors injected the organism intravenously and found that it affected the animals little, if at all. However, if shortly after such an injection the animals were killed and incubated, the tissues were subsequently found completely riddled by the organism, the liver being destroyed. The sequence of events that leads to the death of the animals appears to be as follows. The bacteria remain in a latent state until stimulated to activity by the asphyxiation of the liver tissue. The activity of the bacteria then accelerates the production of toxic products and these, in turn, cause death by producing a chemical reaction. The picture is not that which is usually considered a generalized peritonitis, but the bacteria confine their activity locally to the selected substrate. The damage to the tissues of the host shown in the microscopic sections, with and without the presence of bacteria, suggests that the process which produces death is not necessarily a difference in kind but rather a difference in degree, the action of the bacteria only accelerating the liberation of toxins from the liver tissue. Trusler and Reeves have demonstrated the fact that the organism does not produce exotoxins, and it has been shown that the organism may be cultured within the abdomen, substrates other than adult liver tissue being used without causing death.

**Effect of Viosterol in Jaundice**—McNealy and his associates studied the relationship between viosterol administration and blood calcium in 810 unselected cases in an effort to determine clinically whether viosterol would decrease the bleeding tendency of cases of jaundice or hepatic insufficiency. The patients were grouped broadly into 376 surgical and 434 medi-

cal patients. The average dose of viosterol was 30 drops (2 cc.) of 250 D three times a day. In cases presenting acholic stools, bile salts also were administered to ensure the absorption of vitamin D. In addition, calcium and dextrose were sometimes administered orally or intravenously. This administration was done in the control cases in about the same proportion as in the definitive group. There is no single method of predicting a bleeding tendency that is applicable to all types of hemorrhagic diatheses. In purpura the platelet count and in hemophilia the Howell method of coagulation time determination are the most reliable methods of predicting a bleeding tendency. The test that the authors found reliable in cases of hepatic deficiency was an application of the Duke method after a pressure of 40 mm of mercury was applied to the arm. In this test the Ivy bleeding time does not normally exceed 240 seconds. In the hemorrhagic diathesis the Ivy bleeding time practically always exceeds 240 seconds provided there is active or latent tendency to hemorrhage. Viosterol 250 D in doses of 30 drops three times a day supported by bile salts only in the presence of acholic stools almost always succeeded in reducing the prolonged Ivy bleeding time in cases of jaundice or hepatic deficiency to within normal limits in from four to seven days, provided the hepatic deficiency was not too far advanced or fulminating in its progress. With the reduction in the Ivy bleeding time, the hemorrhagic tendency would subside and the clinical condition improve. The most plausible hypothesis in explanation is that in hepatic insufficiency there is difficulty in absorbing fat soluble vitamins, and the deficiency in the latter aggravates the bleeding tendency. When an excess of fat soluble vitamin is exhibited in the form of viosterol this deficiency is corrected. In complete acholia, the absorption of viosterol is practically inhibited. The administration of bile salts then permits the absorption of viosterol.

**Treatment for Fractures of Shaft of Femur**—Griswold applied the following method of treating fractures of the shaft of the femur, five of which were ambulatory. Under spinal or local anesthesia the patient is placed on the fracture table and extension by Collin's hitches is applied until the length of the limb is restored. After the skin is prepared, a steel pin, one-eighth inch in diameter and from 6 to 8 inches long, is inserted transversely through the distal fragment just above the adductor tubercle. A second pin five thirty-seconds inch in diameter and from 8 to 10 inches long, is inserted in the anteroposterior direction at or slightly below the level of the lesser trochanter. Accurate placement is aided by the fluoroscope. These pins are inserted directly through the skin. The distal pin is slung from the suspension bar of the table by a suitable caliper and lifted to correct flexion of the distal fragment. Flexion of the proximal fragment is corrected by a clockwise motion of the upper pin, which is held manually in a caliper. From the anterior aspect the deformity is corrected by abduction or adduction of the distal fragment combined with medial or lateral traction on the proximal pin. Rotation is corrected by appropriate motion of one or both pins. The position is checked by fluoroscopy or roentgenograms in two planes and any necessary residual correction is carried out. A nonpadded walking spica is applied according to the method outlined by Boehler and Schnek. The anterior superior spines and sacrum are protected by thin padding, which is covered by a circular layer of flannelet extending from the xiphoid process to the symphysis. A previously prepared roll of padding is applied to the tuberosity of the ischium for counterpressure. The pad is about 8 inches long and has the thickness and firmness of a Thomas splint roll. The long ends of the bandage are pulled snugly upward over the flannelet so that the pad impinges firmly against the tuberosity. Circular plaster bandages are applied to the trunk and pelvis and molded about the crest and spines of the ilium. Anterior and posterior splints are applied to the skin from the Collin's hitch well up over the pelvic portion of the cast and covered with circular plaster bandages closely incorporating both pins. On the perineal side of the thigh, plaster is modeled over the ischial roll to form a shelflike structure, which holds the roll in place and transfers some of the pressure of weight bearing to the ischium. The junction of the thigh and pelvic portions of the cast is strengthened by additional splints and bandages. When this plaster



has set, the Collin's hitch is removed and the cast is extended. An anterior plaster splint is applied as far as the base of the toes and a posterior one to a point one-half inch beyond the tips of the toes. These are covered with circular plaster bandages, making firm union with the rest of the cast. A Boehler walking iron is incorporated when the plaster has hardened. Trimming of the cast is carried out to uncover the upper part of the abdomen and allow free motion of the uninjured thigh. Weight bearing is allowed as soon as the plaster is sufficiently hard and roentgenograms have checked the position in the cast. Weight bearing should be painless after the first few days. The cast remains in place throughout the period of healing and may take the place of a convalescent walking splint. The pins may be removed at the end of about eight weeks. In feeble elderly patients too weak to carry the cast, the pelvic portion of the cast may be omitted or removed, leaving the ischial pad and maintaining firm fixation of the proximal pin, but pivoting of the proximal fragment on the pin might occur with resulting outward bowing. The omission of the pelvic cast is advisable only if the patient cannot walk and when it is essential to allow him to sit up in bed or a wheel chair.

**Aseptic Uretero-Enterostomy**—Poth describes an operative technic used in experiments on dogs for performing uretero-enterostomy that ensures complete surgical asepsis, healing in a clean anastomotic bed and assurance of an opening between the ureter and the intestine. The operation is divided into two stages. The first stage is concerned with embedding the intact and uninterrupted ureters in the wall of the intestine between the muscular layers and the submucosa. At the second stage the ureters are interrupted distally, openings are made between the ureters and the intestine, and the bladder is removed. Following the first stage, in which the two ureters are embedded simultaneously, the blood urea is usually increased for three or four days, corresponding to a temporary postoperative anuria. The animals drink and eat little during this time. They then begin to drink and urinate freely, and the blood urea returns to normal in the course of the next two days. Some of the animals eat, drink and urinate normally the day following operation, and the blood urea is not increased during this postoperative period. Intravenous urography reveals no dilatation of ureters or kidney pelves. At the second stage of the operation some three weeks later there is no evidence of hydro-ureters or hydronephrosis. The kidneys are macroscopically and microscopically normal. The establishment of the communication between the ureter and the intestine at the second operation is accomplished with a minimum of healing surfaces. The blood supply to the healing mucosal edges is unimpaired, and so fibrosis must be minimal. Urine flows freely into the proctoscope as soon as the opening is made between the ureter and the intestine. At no time has there been anuria during the second postoperative period. The urea content of the blood rises somewhat in the course of a few days and fluctuates from day to day, apparently depending on the amount of water and nitrogenous material reabsorbed from the intestine. Intravenous urography again reveals normal outlines of the kidney pelves and ureters.

### Virginia Medical Monthly, Richmond

62:1-60 (April) 1935

- Certain Symptoms Due to Diseases of Urinary Tract Which Are Often Diagnosed and Treated as of Other Origin G L Hunner Balti more—p 1
- Hypersensitive Rhinitis (Hay Fever) Treatment by Zinc Ionization C M Miller Richmond—p 11
- Wandering Spleen with Torsion of its Pedicle Report of Case J C Motley Abingdon—p 14
- Role of Hormones in Cause and Treatment of Functional Uterine Bleeding H F Kane Washington D C—p 19
- Fractional Sterilization by Heat in Corneal Ulceration N H Turner Richmond—p 23
- Pathologic Lesions Correctly Diagnosed by Roentgenologic Methods and Later Missed at Surgical Exploration C Moore Washington D C—p 28
- Some Problems of the Industrial Physician H T Hawkins Waynesboro—p 30
- Convalescent Serum in Treatment of Undulant Fever Case Report T F Kennan Raphine—p 34
- Acute Perforation of Gastric Ulcer Followed by Rupture of Abdominal Wound and Complete Cure Report of Case H Cantor Petersburg—p 37
- Sarcoma of Uterus R H Hoge Richmond—p 40

### FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Children's Diseases, London

32 182 (Jan March) 1935

- Some Observations on Rheumatism in Children T W Preston—p 1
- Analysis of Over Four Thousand Cases of Educational Deafness Studied During Past Twenty Five Years M Yearsley—p 21
- Case of Double Rigas Disease P H Newman—p 39
- Premature Grayness of Hair V Koley—p 41

### British Journal of Dermatology and Syphilis, London

47 85 142 (March) 1935

- Dermatomyositis Summary of Literature and Report of Case with Commentary E S Stuckey—p 85
- Some Observations on Eczematides G H Percival—p 109

### British Journal of Ophthalmology, London

19 129 176 (March) 1935

- The Visual Cells of Lampreys G L Walls—p 129
- Some Notes on Treatment of Strabismus S R Gifford—p 148
- Familial Macular Degeneration R E Wright—p 160
- Rising Front Bifocals F A Williamson Noble—p 165

19:177 240 (April) 1935

- Entoptic Phenomena Associated with Retina C R Marshall—p 177
- \*Orbital Teratoma E W O G Kirwan—p 201
- Posterior Lenticonus Report of Case T H Luo—p 210
- Hyaline Bodies on Disks F C Plummer—p 215

**Orbital Teratoma.**—Kirwan presents a case of orbital teratoma in a girl baby which was brought to the hospital one week after birth. From the left orbital cavity a red mass about the size of an ordinary tomato protruded and in the middle of the mass the anterior half of the eye could be seen, the posterior half being buried in the growth. The cornea was irregularly opaque. The tension of the eyeball was normal. The size of the cornea appeared to be about the same as in the normal eye. The upper and lower eyelids were tremendously distended. The mass was growing principally on the inner side of the orbital cavity and was pressing on the lateral side of the nose, obliterating the left nasal cavity. The growth was hard and elastic. An exenteration of the orbit was carried out. The mass was incised and found to contain a cyst holding about half an ounce of serous-like fluid. The rest consisted of solid growth about the size of a large walnut. The baby had an uneventful recovery. The palpebral fissure and the eyelids are now (two years later) the same as in the right eye. There is only a small conjunctival sac. The vertical and the horizontal meridians of the bony orbit are somewhat larger than in the right eye. In other respects the child is normal. Serial sections show all the different types of tissues to be found in the body that originate in the three germinal layers: cartilage, nerve, lymphoid tissue, fat, involuntary and heart muscle, skin, hair follicles, vascular tissue with melanoblasts, small intestine, liver and parathyroid. The eyeball and the optic nerve are normal and are independent of the origin of the tumor.

### British Medical Journal, London

1 571 630 (March 23) 1935

- Study of Human Nutrition The Outlook Today F G Hopkins—p 571
- Prostatectomy as Performed by the Late Professor Andrew Fullerton W A Page—p 578
- Some Present Day Problems of Tuberculosis Research E M Fraenkel and R J V Pulvertaft—p 580
- Cat Bite Fever Case G E Beaumont and A M Gill—p 582
- \*Unusual Outbreak of Gastro-Enteritis J Fanning—p 583
- Diagnosis and Treatment of Malignant Diphtheria B A. Peters—p 585

**Outbreak of Gastro-Enteritis.**—Fanning describes an outbreak of gastro-enteritis that differed from the ordinary type of outbreak of food poisoning in that it was spread over a period of a month and it was difficult to find any definite connecting link between the cases. The persistently negative bacteriologic observations in the pathologic specimens examined may be held almost certainly to exclude infection by the *Salmonella* or dysentery group of organisms. Attention is therefore directed to the part played by other organisms in gastro-enteritis. Although suspicion may fall on *Staphylococcus*



aureus as a possible cause of the outbreak there is not sufficient evidence to come to any definite conclusion. It would appear that *Staphylococcus aureus* is a potential cause of gastroenteritis and that butter, the only food that came under suspicion, is sometimes contaminated by that organism to a considerable degree. *Staphylococcus aureus* was isolated from the spleen in one of the fatal cases, but this is not necessarily significant. The symptoms consisted of severe epigastric pain, vomiting, diarrhea and collapse, with a normal or subnormal temperature.

### East African Medical Journal, Nairobi

11 375 408 (March) 1935

Medical Aspects of White Settlement in Kenya M Mackinnon—p 376  
Autopsy on a Case of Acute Bacterial Endocarditis E J Blackaby—p 394

### Edinburgh Medical Journal

42 205 240 (April) 1935

Scoliotic Vertebral Osteosis D M Greig—p 205

### Guy's Hospital Reports, London

85 1 128 (Jan.) 1935

Studies on Tumor Formation G W Nicholson—p 8  
New Study of Heat Production in Man T W Adams and E P Poulton—p 56  
Congenital Word Blindness and Reading Disability K Duguid—p 76  
\*Eosinophilia in Allergic Conditions F A Knott and R S B Pearson—p 94  
Observations on Gastritis C K Simpson—p 102  
Case of Midline Cerebellar Tumor Death by Spontaneous Rupture of Heart C G Pantin—p 126

**Eosinophilia in Allergic Conditions**—Knott and Pearson examined the sputum of 222 asthmatic patients for eosinophil concentration. They observed that there is a slightly increased tendency for respiratory infection to occur in asthmatic patients as age increases. Those developing asthma late in life are more likely to have an associated infection but the length of time during which they have suffered from asthma does not appear to be of importance in this respect. Cases in which there is a heavy infection give less evidence of protein sensitivity as demonstrated by skin reactions than the purely allergic cases and also show a smaller hereditary tendency, but the difference is not sufficiently marked to justify complete subdivision on etiologic grounds of this infected group from the purely allergic group. The difference clearly lies in the degree to which either the allergic or the infective factor predominates. The results of sputum examination, skin testing and analysis of the clinical history of these patients afford support for the suggestion that hypersensitivity is a factor in all cases of asthma. Many also show bronchiolar infection, sometimes so marked as to obscure the presence of eosinophils. Infection may be a dual factor in allergic patients. It may by actual damage to the bronchial mucous membrane and possibly by lowering the general health of the individual render him more liable to development of hypersensitivity, and in cases of subclinical allergy, when the tendency is present but symptoms have not occurred, the mucous membranes may be turgid and "boggy" and therefore more liable to be infected than healthy mucous membrane, when infection does occur, asthma is precipitated. An example of this mechanism is probably seen in the case of the infant with allergic eczema that clears up, leaving the baby well until perhaps 3 years of age, when an infection of the turgid mucous membrane occurs with subsequent development of asthma. Finally, notably various gram-negative bacilli so frequently found in sputum from asthmatic patients can, by their proteolytic action, actually produce histamine-like substances and these by direct effect on the bronchioles may act as a subsidiary cause of the asthmatic attacks. The evidence that the authors collected suggests that infection acts only as a subsidiary cause of asthma, which always develops on a basically allergic (hypersensitive) background.

### Indian Medical Gazette, Calcutta

70 121 180 (March) 1935

Drug Addiction in India and Its Treatment R N Chopra—p 121  
Conservative Surgery in Malignant Disease T H Somervell—p 131  
Duration and Degree of Immunity Against Smallpox Conferred by Infantile Vaccination J L Pinto—p 135  
Some Observations on Lactose Fermenting Organisms Encountered in Bacteriologic Analysis of Water in the Tropics G Mackey—p 140  
Fumigation and Trapping of Mosquitoes J F James—p 143

### Journal of Laryngology and Otology, London

50: 153 232 (March) 1935

Malignant Tumors of Nasal Mucosa L W Price—p 153  
Maxillary Sinusitis Statistical Investigation I B Thorburn and J L Ratazzi—p 185

50 233 316 (April) 1935

Malignant Disease of Larynx and Pharynx Third Communication R Stewart Harrison and R Sarasin—p 233  
Influenzal Labyrinthitis Without Suppurative Otitis Media A B Smith—p 263

### Journal of Pathology and Bacteriology, Edinburgh

40 201 424 (March) 1935

*Staphylococcus* Toxins and Antitoxins A T Glenny and Muriel F Stevens—p 201  
Healing of Artificial Defects of Duodenal Mucosa H W Florey and H F Harding—p 211  
Quantitative Estimation of Fragility of Red Corpuscles L E H Whinny and M Hynes—p 219  
Growth and Development of Psittacosis Virus in Tissue Cultures J O W Bland and R C Cantl—p 231  
Effect of Antistreptolysin on Infection of Mice by Hemolytic Streptococci E W Todd—p 243  
\*The Pituitary Gland in Addison's Disease A C Crooke and Dorothy S Russell—p 255  
Action of Retrorsine on Rat's Liver J Davidson—p 285  
Experiments with Virus of Infectious Ectromelia Action of Immune Serum *In Vivo* and on Growth of Virus in Culture A W Downie and C A McGaughey—p 297  
\*Encephalomyelitis Produced by Neurotropic Yellow Fever Virus G M Findlay and Ruby O Stern—p 311  
Eosinophils and Homologous Proteins I W Hall—p 319  
\*Peculiar Vascular Transportation and Generalization of Carcinoma Without Local Metastasis Contribution to Knowledge of Metastatic Growth H Oertel—p 323  
Hemoglobinuria in Toxic Conditions R Muir and J F Heggie—p 335  
Simple and Efficient Egg Albumin Medium for Cultivation of *Neisseria* I N O Price—p 345  
Large Concentrically Laminated Fibrinous Balls Unattached in Urinary Bladder F P Welser—p 351  
Differentiation of Streptococcus Pyogenes from Man and Animals by Sorbitol Trehalose Test F C Minetti—p 357  
Occurrence of Auer's Bodies in Monocytic Leukemia Note J C Hawksley—p 365  
Streptococcus Toxin Antitoxin Flocculation R A Q O Meara—p 371  
Comparison of Polynuclear Count in Healthy and Diseased Subjects in Moukden (China) and in Great Britain H C Pai—p 381  
Investigation of Causal Agent of Bovine Pleuropneumonia F F Tang H Wei D L McWhirter and J Edgar—p 391  
Origin of Tar Tumors in Mice Whether from Single Cells or Many Cells J C Mottram—p 407

**Healing of Artificial Defects of Duodenal Mucosa**—Florey and Harding demonstrate that cells typical of Brunner's glands regenerate conjointly with the cells forming villi, but owing to the fact that the muscularis mucosae does not reform they do not produce a layer of the same structure as Brunner's glands. Instead they are present where Lieberkühn's crypts would normally be. The regenerated Brunner's gland cells are apparently identical with those of true Brunner's glands, so that it is probable that they secrete their contained mucus, which thus forms a film on the villi. It would appear probable that the new Brunner's gland cells spring from the old ones bordering the denuded area. If Brunner's glands when injured can produce epithelium identical with that which occurs on the surface of the stomach as well as epithelium indistinguishable from pyloric glands, it strongly supports the view that in the cat at least Brunner's glands can be regarded as an extension of the pyloric glands into the duodenum. True goblet cells have been observed to occur interspersed among the Brunner gland type of mucous cell. The experiments described by the author have been done on healthy cats and in all cases the ulcer showed evidences of active or complete healing. It is possible to consider that in the healing of "naturally" produced human ulcers a similar regeneration does not occur. It is therefore of interest to find from human pathology evidence of mucosal scars incorporating regenerated "Brunner's glands" at the bases of the newly formed crypts.

**The Pituitary Gland in Addison's Disease.**—Crooke and Russell describe the chromophobe, acidophil and basophil transitional, and ripe acidophil and basophil cells in the normal pituitary when stained by a modification of Mallory's acid fuchsin aniline-blue method. They examined the cellular composition of the gland with the same technic in twelve cases of Addison's disease and made a comparison with the normal. The Addison's disease was due either to tuberculosis or to

atrophy of the adrenals This 'destructive atrophy' has been contrasted with "simple atrophy" secondary to destruction of the anterior lobe of the pituitary In five of the twelve cases the whole pituitary gland was cut in serial sections and differential counts of the cells were made according to Rasmussen's method The counts confirmed the impression gained from inspection The chromophobe cells are increased in number, and a variable proportion of exceptionally large examples is present The acidophil cells are reduced, but seldom conspicuously Constant features are the extreme reduction of the basophil cells and the presence of a series of abnormal basophil transitional cells Evolution of the thymus and hyperactivity of the thyroid have been found in most cases but not in all The reduction in the number of basophil cells in the anterior lobe of the pituitary is considered to be a constant change and the most significant change in the other ductless glands following destruction of the adrenal cortex in Addison's disease The authors suggest that this reduction is the cause of the low blood pressure and possibly of the hypoglycemia in the disease

#### Encephalomyelitis Produced by Yellow Fever Virus

—Findlay and Stern state that the neurotropic yellow fever virus produced in susceptible animals (1) an inflammatory reaction in the central nervous system, (2) degenerative changes in the nerve cells and (3) acidophilic intranuclear inclusions The inflammatory reaction was characterized by infiltration with mononuclear cells and proliferation of the microglia Degenerative changes in the ganglionic cells were present in all stages, from slight swelling of the body of the cell to neuronophagia with complete disintegration of the cell Specific acidophilic intranuclear inclusions were seen only in ganglionic cells that had not undergone extensive degeneration and never in cells exhibiting neuronophagia The inclusions did not stain with the Feulgen technic Demyelination was not observed

#### Vascular Transportation of Carcinoma Without Local Metastasis

—Oertel presents an instance of a quantitatively massive vascular transportation and generalization in a cancer of the stomach, which throughout maintained a purely intravascular restriction without transgression beyond it to the actual formation of secondary organic tumors At necropsy the case appeared to be free from such metastasis, and only subsequent microscopic examination revealed its concealed generalization From his observations the author believes that the extensive generalization is in all probability not so much an evidence of a massive, sudden invasion as a peculiar restricted manner of cancerous progress which confines itself to the blood and lymph channels The evidence of the case points to the fact that cancer cells are not necessarily destroyed in the circulating lymph or blood of their host but, on the contrary, may thrive in it It is only the markedly retarded or arrested blood and lymph streams which affect their nutrition and growth adversely, for under those conditions nutriment needed in abundance by these rapidly multiplying cells falls below their requirement or is completely shut off The author points out that "aggressive" and "malignant" properties of tumor cells may be simulated and possibly explained by purely nutritive modifications, which their presence imposes on a stationary differentiated tissue He did not observe evidence of a specific antitumor-cell body activity (Borst, Lumsden and others)

#### Lancet, London

1: 595-658 (March 16) 1935

- Respiratory Failure Including So Called Asphyxia Neonatorum II  
Diagnosis. A Moncrieff—p 595  
The Schick Test and Active Immunization in Relation to Epidemic  
Diphtheria. H J Parsh and Joyce Wright—p 600  
\*Treatment of Vulvovaginitis with Estrin. D Nabarro and A G Signy  
—p 604  
Results of Radiotherapy in Cervix Cancer. Helen Chambers—p 606  
Agranulocytosis Treated with Pentnucleotide. G S Smith—p 607  
Agranulocytic Angina Case. F T Ranson—p 609  
Plaster of Paris in Treatment of Colles's Fracture. Simple Technic Used  
in Fifty Consecutive Cases. H Blauvelt and F W Willway—p 609  
Gargenous Appendix Removed from Lumbar Hernia. A R C Higham.  
—p 612

Treatment of Vulvovaginitis with Estrogenic Substance.—Nabarro and Signy used estrogenic substance in the treatment of twenty cases of vulvovaginitis in children It was

necessary to douche these children once a day, and 4 Gm of iodine to one pint of water was the usual solution used The first ten patients were given intramuscular injections of estrogenic substance The dosage varied from 100 to 1,000 units daily and as a massive intramuscular dose from 20,000 to 50,000 units The second series of ten patients received the estrogenic substance orally In these the results were more uniform The first two received 1,000 units daily for an average period of ninety-three days The length of time between the start of the treatment and the last positive swab obtained was seventy-seven days in each case and both cases relapsed The next five patients received 2,000 units daily, the average length of treatment was fifty days, the time elapsing before the last positive swab was obtained was twenty-seven days, and four of the five children relapsed These seven cases were eventually cured as their relapses responded readily to further estrogenic treatment In the other three children the dose was increased to 4,000 units daily by mouth In these three children the average length of treatment was twenty-eight days, their last positive swabs were obtained only sixteen days after the start of the treatment and none relapsed In conclusion the authors advocate using from 1,000 to 2,000 units of estrogenic substance daily by injection or 4,000 units daily by mouth The latter, besides being a more congenial method to all concerned, can be given to outpatients and the results with the oral method seem more satisfactory, as none of the cases on this dosage have relapsed

#### Practitioner, London

134: 385-576 (April) 1935

- Tiredness as Symptom in Childhood. G F Still—p 385  
Constitution and Diathesis in Childhood. C P Lajage—p 393  
Diseases of the New Born. N B Capon—p 403  
Artificial Feeding of Infants. W Sheldon—p 415  
The Diet of the Preschool Child. E Pritchard—p 429  
Dehydration and Acidosis in Gastro-Enteritis. S Graham—p 441  
Diagnosis and Treatment of Acute Rheumatism. F J Poynton—p 451  
Diagnosis of Heart Disease in Children. R Miller—p 462  
Chronic (Nontuberculous) Lung Disease in Childhood. A G Matland  
Jones—p 470  
\*Pituitary Disorders in Childhood. H Gardiner Hill—p 480  
Skin Diseases in Children. R T Brain—p 492  
Intestinal Parasites. F M B Allen—p 502  
Minimal Infections. N Hollows—p 513  
Appendicitis in Children. A Simpson Smith—p 518  
Talipes Equinovarus. D Browne—p 525  
Some Diseases of Eye Common in Children. G G Penman—p 538  
Laboratory Aids to Diagnosis. Norah Schuster—p 549  
Favorite Prescriptions. IV Pharmacopoeia of Hospital for Sick Children, Great Ormond Street. W J Pearson—p 560

Pituitary Disorders in Childhood.—Gardiner-Hill points out that the clinical picture of pituitary disorders in childhood varies widely The hypopituitary conditions are in most instances well understood and their underlying pathology has been worked out Their symptoms vary to some extent according to whether or not a tumor is present The most characteristic feature of preadolescent hypopituitarism is a defect of growth Sex infantilism also occurs but is difficult to assess in young children and is, in fact, generally not recognized until the changes of puberty fail to appear Far less is known of preadolescent hyperpituitarism Moreover, adenomas of the anterior lobe, the characteristic effects of which have been so carefully studied in adults, are seldom found before the second or third decades, so that this line of approach to hyperpituitary pathology is not available in children A diagnosis of pituitary disorder in children appears to be made all too frequently and on insufficient grounds The terms hypopituitarism and Fröhlich's syndrome, for instance, are often used in reference to children who are grossly overweight, in the absence of growth and sex defects Fröhlich's syndrome in its true form is comparatively rare and the majority of fat children seen in medical practice have no defects of growth or sex development at all The reverse is more often the case Acceleration of growth during childhood and above the average stature are often found and judging by the family histories both the growth and obese tendencies are inherited characteristics Their growth characteristics suggest glandular overactivity rather than deficiency, and their metabolic tendencies an exaggerated storage mechanism rather than any fundamental inability to utilize food The

clinical syndrome of accelerated growth and obesity may possibly be due to hyperpituitarism. If so, it would seem to be a pituitary disorder in an inherited form. Genetic and chromosomal factors play an important part in the endocrine disposition. However, there is no certain guide to a diagnosis of endocrine diathesis and it would seem wiser to regard this particular syndrome as a constitutional peculiarity rather than an indication of definite pituitary disease.

### Quart Bull, Health Org, League of Nations, Geneva

3 531 732 (Dec) 1934

- Perilous Threshold of Life. Being a Description of the Demographic Setting of Infant Mortality. K. Stouman—p. 531  
Fifth Analytic Review of Reports from Pasteur Institutes on Results of Antirabies Treatment. A. G. McKendrick—p. 613  
Brief Guide to Varieties of *Anopheles Maculipennis*. Report by the Malaria Commission of the League of Nations—p. 654  
Milk Hygiene in Department of Meurthe-et-Moselle. J. Parisot, P. Melnotte and L. Fernier—p. 662

### Japanese Journal of Experimental Medicine, Tokyo

13:1 124 (Feb 20) 1935

- Studies on Virus of Lymphogranuloma Inguinale. Nicolas Favre and Durand First Report. Y. Miyagawa, T. Mitamura, H. Yaei, N. Ishii, H. Nakajima, J. Okamishi, S. Watanabe and K. Sato—p. 1  
\*Cultivation of Vaccinia and Varicella Viruses in Chorio-Allantoic Membrane of Chick Embryo with Especial References to Preparation of Bacteria-Free Vaccine and Prophylactic Inoculation Against Varicella. T. Taniguchi, Y. Kogita, M. Hosokawa and S. Kuga—p. 19  
Studies on Mitochondria and Metachondria of Epithelial Cells of Uterus and Vagina. G. Honda—p. 31  
Relation Between Endocrine Glands and Estrus Cycle. Second Report. Influence on Estrus Cycle and on Female Generative Organs of Constituents of Pituitary Body, Thymus Gland, Thyroid Gland, Supra-renal Gland, Pineal Body, Ovary, Testicle, Liver, Spleen, Kidney, Lung and Muscle and of Physiologic Sodium Chloride Solution. S. Tsuchimoto—p. 59  
Experimental Studies on Syphilis of the Central Nervous System. VII. Persistence of Spirochetes of Syphilis Suboccipitally Introduced in the Brain. T. Tani and H. Hutaki—p. 63  
Id. VIII and IX. T. Tani, K. Saitô, K. Ôguti, H. Hutaki and I. Ôya—p. 69  
Id. X. Syphilis of Mice. T. Tani and K. Ôguti—p. 75  
Change of Pathogenicity of Spirochaeta Icterohaemorrhagica. K. Kaneko—p. 83  
Changes of Characteristics of Spirochaeta Autumnalis in Animal Passage. K. Kaneko—p. 93  
Do Changes in Virulence of Spirochaeta Hebdomadis Take Place Through Animal Passage? K. Kaneko—p. 103  
Study on Virus of Summer Encephalitis of Japan. T. Taniguchi, S. Kuga, M. Hosokawa and Z. Masuda in cooperation with T. Wada, T. Horimi and S. Hashida—p. 109

**Cultivation of Vaccinia**—Taniguchi and his associates affirm the superiority of the egg method of Woodruff and his co-workers for preparing the bacteria-free variola vaccine. The authors have been able to prepare the bacteria-free vaccine that can affect the rabbit's skin in 1 in  $10^{10}$  dilution by the method of Goodpasture, Woodruff and Buddingh for the cultivation of vaccinia in the chick membrane. They have also been able to produce ovovaccinia vaccine from their strain of varicella virus, which has a noticeable power to give rise to lesions. Thus, they are inclined to believe that a preventive method of chickenpox by inoculation can be devised. By the sequence of the application of the ovovaccine, diluted ten to twenty or again as much, to more than 100 vaccinated and unvaccinated persons, all the inoculations took with the normal process as with the vaccine lymph, but theirs, diluted one in ten, was observed to be more virulent. The authors also tested the ovovaccine of their varicella virus on human bodies and were convinced that vaccination with it is feasible in the human being. Of fifteen unvaccinated persons who had never been afflicted with the disease, two were unsusceptible. Four children who had the disease were unsusceptible. The inoculation of ten vaccinated children with varicella vaccine did not show an allergic reaction as in the case of variola vaccine. The lesion, however, is abortive and is not as typical as in unvaccinated children. The appearance of the local lesion of the varicella vaccine on the human body is practically the same as that of the vaccinia. With an incubation period of from forty-eight to seventy-two hours, papules were observed, which gradually advanced to vesicles and then to pustules with a halo around them. After about two weeks, the scabs fell off. The prophylactic inoculation against varicella with the testicular vaccine is also applicable besides the ovovaccinia vaccine.

### Presse Medicale, Paris

43: 425 448 (March 16) 1935

- \*Clinical Researches on Biliary Secretion. E. Chabrol and M. Cachin—p. 425  
Debate on Diaphyseal Fractures. J. Gosset—p. 429

**Research on Biliary Secretion**—Chabrol and Cachin studied the biliary secretion in 300 patients by means of duodenal tubage. Most of these showed a close parallelism between bile pigments, salts and cholesterol. Less frequently they observed a dissociation with relative increase of pigments and lowering of bile salts and cholesterol. More rarely a dissociation with increase in the bile salts was noted. The authors therefore conclude that duodenal tubage cannot be relied on to establish the diagnosis of lithiasis and that cholesterol pigmentary dissociation is not characteristic of this condition. Duodenal tubage shows, however, that all icterus tends toward dissociation with increase of the bilirubin at the expense of cholic acid and that the same dissociation exists in the cirrhoses with out icterus. Tubage has similarly shown that the elimination of cholic acid and the acid amines is disturbed in nephritis. In three splenectomized patients there was a remarkable excretion of bile salts contrasting with relatively small amounts of bile pigments.

43 449 464 (March 20) 1935

- Demonstration of Marked Epinephrine Excess of Adrenals in Permanent Hypertension. Case. R. Leriche, H. Hermann and P. Etienne-Martin—p. 449  
\*Chronic Brucellosis in Man. J. Jullien—p. 451  
Physiologic and Clinical Role of Bromine Exchange. L. A. Jacobson—p. 452

**Chronic Brucellosis**—Jullien describes two cases of chronic Brucella infection. In one case a cardiorenal condition and in the other a localized chronic rheumatism appeared undoubtedly to be of this origin. The author agrees that there is no doubt as to the existence of chronic undulant fever. He feels, however, that Brucella frequently prepares the field for associated infections, such as tuberculosis, syphilis, malaria and ordinary infective organisms. The latter should therefore be searched for. The best treatment is preventive. Symptomatic treatment must be applied and occasionally nonspecific vaccines appear to be of some value.

### Policlinico, Rome

42: 701 748 (April 15) 1935 Practical Section

- \*Histamine Test as Diagnostic Method in Pulmonary Tuberculosis with Few Auscultatory Signs. G. Luzzatto Fegiz—p. 701  
Intestinal Occlusion Due to Meckel's Diverticulum. E. Giupponi—p. 707  
Intestinal Occlusion Due to Meckel's Diverticulum. L. Tomasi—p. 712

**Histamine Test in Pulmonary Tuberculosis**—Luzzatto Fegiz injects 1 cc. of a 1:1,000 solution of histamine subcutaneously in tuberculous patients. Following injection the skin is massaged vigorously and the patient remains in the recumbent position for several minutes until the signs of the histamine reaction appear. Auscultation is performed with quiet breathing and with forced breathing. The site of anticipated changes in the respiratory sounds and the appearance of moist rales are observed. Particular attention is paid to the anterior region of the thorax, in which many rales may be heard after injection, revealing foci previously silent. It is important that the patients do not cough much during the test, because coughing tends to decrease the rales rather than to increase them. The patient is examined three or four times in from two to three minutes and then rests for an hour until the signs of peripheral vasodilatation completely disappear. A raised pale wheal surrounded by an area of erythema appears locally at the point of injection after one minute. Immediately afterward peripheral vasodilatation is manifested in the face, the conjunctiva, the neck and the upper part of the thorax, reaching its maximum in five minutes. The patient frequently has a feeling of heat in the face, mild headache, palpitation of the heart and, less frequently, a feeling of constriction of the thorax and a dry cough. The changes in respiration several minutes after injection are (1) increased harshness of the respiratory sounds and (2) disappearance of cogwheel respiration. Rales appearing after injection of histamine in areas where there was previously no moisture are subcrepitant or inspiratory rales of medium size. In cases in

which there is ulceration the rales acquire a clear resonant sound. Frequently dry rales of bronchial quality occur, such as sibilant rales and rhonchi. All auscultatory signs disappear after from fifteen to twenty minutes. Of fifty cases presenting various pulmonary tuberculous lesions, eight showed localized cogwheel breathing following injection, thirteen showed rales, thirteen showed an increase of preexisting signs of moisture and modification of the quality of the rales, six showed rales and cogwheel breathing and ten showed no modifications at all. There were no contraindications, with the exception of patients presenting bronchial stenosis. The test was well tolerated in all instances.

### Riforma Medica, Naples

51: 317 356 (March 2) 1935

Lesions and Dysfunctions of Kidneys in Diabetic Patients M. Roch — p. 319

\*Depigmenting Action of Microsporon Furfur F. Franchi — p. 321  
Sepsis Due to Pseudomonas Pyocyanea with Benign Course Case R. Dusso — p. 326

**Depigmenting Action of Microsporon Furfur**—Franchi exposed several patients presenting tinea versicolor to ultraviolet irradiation. After irradiation the author treated the dermatosis with lemon and sodium thiosulphate. This has the double purpose of completely eliminating the mechanical protective factor represented by the parasite mixed with the desquamated skin and the other eventual pathologic changes caused by the disease. No appreciable inflammatory reaction was produced and total disappearance of the tinea lesions and of the parasites, checked by repeated microscopic examinations, occurred. The author exposed skin areas previously invaded by the parasite but normal in appearance, and healthy segments of skin, to slight irradiation because an intense erythema would have covered up everything. Twenty-four hours after irradiation, anemic spots with clear margins, representing the negative image of the dermatosis, are observed in the erythema. By their form and site they correspond to the preexisting small spots of tinea. In erythema a pigmentation takes place in which the already anemic small spots are recognized by a moderate achromia. These results demonstrate that *Microsporon furfur* in the skin is the cause of a depigmentation so mild as to escape observation and to require a contrast pigmentation of the surrounding skin to become visible. The removal of pigment in tinea versicolor results from (1) a mechanical protective action of the mycelia of the fungus and (2) the depigmenting action of the parasite itself. The author considers the marked depigmentation in tinea versicolor an exaggeration of a symptom normally observed in the ordinary forms of this disease.

### Prensa Medica Argentina, Buenos Aires

22: 509 558 (March 13) 1935 Partial Index

\*Intraspinal Bismuth Therapy C. Bonorino Udaondo J. Pereyra Kafer and H. Zunino — p. 509

Mediastino-Disphragmatic Triangular Images Due to Retraction of Inferior Pulmonary Lobe. R. F. Vaccarezza G. Pollitzer and R. Ferretti — p. 538

Normal Image of Azygos Vein F. C. Tucci and J. E. Mosquera — p. 549

**Intraspinal Bismuth Therapy**—Bonorino Udaondo and his collaborators state that the treatment of dementia paralytica, taboparesis and tabes by intraspinal injections of a bismuth compound is practicable. It is possible during the course of the treatment, to reach high doses (0.12 Gm. per injection) of a preparation of carbonate of metallic bismuth but it is advisable to start the treatment with small doses (0.015 and 0.02 Gm. per injection) of the bismuth preparation and then to increase the doses until 0.12 Gm. per injection is reached. It is advisable to resort more frequently to the intraspinal bismuth treatment of the forms of neurosyphilis mentioned in order to establish a definite basis for indications, dosification and probable repetition of the treatment. The humoral changes observed in the patients both during the administration of the treatment, which consisted of seven or eight injections given at intervals of one or two weeks, and shortly after its discontinuation, were not related to the clinical improvement of the patients and do not authorize the authors, as yet, to draw definite or general conclusions as to their significance.

### Archiv fur Dermatologie und Syphilis, Berlin

171 223 334 (March 16) 1935 Partial Index

\*Dermatomyositis and Poikiloderma Atrophicum Vasculare (Jacobi) with Changes in Muscles J. J. Zoon — p. 223

Blue Dermographism P. W. Koschewnikow — p. 238

\*Dermatomyositis R. Bezecky — p. 242

Studies on Hypersensitivity to Oil of Turpentine by Means of Patch Test N. Danbolt and W. Burckhardt — p. 252

Langerhans Cells in Benign and Malignant Neoplasms B. M. Klein and R. Missriegler — p. 280

**Dermatomyositis and Poikiloderma with Changes in Muscles**—Zoon points out that it is still a matter of dispute whether poikiloderma atrophicum vasculare (Jacobi) is a distinct disease entity or whether it is identical with dermatomyositis. He made comparative studies in two cases of typical dermatomyositis and one case of poikiloderma (Jacobi). A comparison of the histologic aspects of the skin disclosed that the following changes are present in both disorders: (1) a more or less severe atrophy of the epidermis, without great changes of the epidermal adnexa, (2) atrophy of the stratum papillare, (3) inflammatory manifestations, primarily of lymphocytic character, (4) changes in the elastic tissue, especially in the subepidermal and the perivascular region, (5) noticeable changes in the walls of capillaries and smallest arteries, and (6) pigment in the cutis. Essential differences could not be observed. The fact that in dermatomyositis the muscles are so noticeably involved constitutes, in the author's opinion, the only reason for the differentiation of the two disorders. However, Jacobi's original description of poikiloderma atrophicum vasculare mentions also great muscular weakness. Moreover, Oppenheim, in describing poikiloderma atrophicum vasculare, differentiates cases with and without muscular changes and Petges suggested the term poikilodermatomyositis. The author examined an excision from the quadriceps femoris muscle of the patient with typical poikiloderma and found the identical changes, although in a somewhat milder degree, that are observable in dermatomyositis. He concludes from this that in this case of poikiloderma the muscles were involved, although the clinical aspects did not indicate it. He advises the examination of the muscles in other cases of poikiloderma and thinks that thus it might be possible to establish the identity of the two disorders.

**Dermatomyositis**—Bezecky describes two cases of dermatomyositis. In one of the patients the disorder disappeared shortly after the extirpation of an ovarian carcinoma, and the author assumes a relationship between the intervention and the cure of the dermatomyositis. The second patient died, but in this one both breasts had carcinoma. On the basis of these observations the author considers it possible that in these two cases the symptoms of dermatomyositis may have been caused by toxins of the malignant tumors, perhaps by way of the sympathetic nervous system. He does not exclude the possibility that the cure in the first case may have been effected by the change in the internal secretion, which was produced by extirpation of the ovarian tumor. He believes that dermatomyositis is a syndrome that may be caused by various disorders.

### Deutsche medizinische Wochenschrift, Leipzig

61 533 572 (April 5) 1935 Partial Index

Natural Diet and Protein Metabolism A. Bickel — p. 533

\*Treatment of Complicated Cases of So-Called Cardiospasm H. Starck — p. 537

\*Lobar Pneumonia as Epidemic Disease M. Gundel and E. Wallbrunn — p. 539

**Treatment of Cardiospasm**—Starck discusses the non-surgical treatment (cardiotonic dilation) of cardiospasm. In the complicated cases the course of the esophagus is usually abnormal, for, as the disorder continues, the esophagus loses its normal form and becomes wider and longer. Whereas the portion between the cricoid cartilage and the hiatus in the diaphragm ordinarily measures from 28 to 30 cm, it may reach a length of 40 cm. in cardiospasm. The result is that the esophagus is no longer straight but takes a convex or a serpentine course. Occasionally the esophagus descends diverticula-like over the dome of the diaphragm. The older dilation instruments with their rigid guides are unsuitable for such complicated cases. In order to lead the instrument to the diaphragm-

matic hiatus, the author used mercury tubes (from 10 to 25 cm in length) as guides as a result of their weight they follow the shortest route downward, and because of their flexibility they follow the course of the esophagus. In some instances, somewhat more rigid guides have to be used, and, in cases with severe diverticulation, pieces of elastic catheters with diverticular guides are attached to the instrument, or hard rubber guides, bent in the manner of a diverticular catheter are used. With the aid of this instrumentarium it was always possible to pass the hiatus and bring the dilator to the right location. The difficult cases should be treated before the x-ray screen. Force should be avoided. Once the guide has passed the hiatus, the rigid dilator follows easily. The dilation is done suddenly and under strong pressure, so that the ring of the cardia is opened in from one to two seconds, and almost before the patient realizes it the instrument is removed again. The author considers complicated cases of cardiospasm those that occur in children. He suggests a method for these cases. Other difficult cases are those in which the neck is extremely short or in which the head cannot be bent backward. He emphasizes that in complicated cases the treatment requires considerable experience and practice.

**Lobar Pneumonia as Epidemic Disease**—Gundel and Wallbruch describe an epidemic of lobar pneumonia in a village of approximately 300 inhabitants. Two weeks before the appearance of the first case there had been a mild influenza epidemic, but the nineteen cases of lobar pneumonia that developed subsequently were readily differentiable from the influenza. The nineteen cases occurred in twelve out of the total number of fifty families. The epidemic commenced among the school children. In seventeen cases pneumococci of type I were isolated and in one case the examination of the sputum gave negative results but serologic tests revealed the presence of specific antibodies against pneumococci of type I. The type diagnosis failed in only one of the cases. Examination of the sputums or of the pharyngeal smear preparations disclosed a high percentage of carriers of pneumococci of type I among the inhabitants of the village. The authors conclude that the epidemic appearance of lobar pneumonia cannot be doubted and that it may be grouped with the true infectious diseases.

### Klinische Wochenschrift, Berlin

14: 449-480 (March 30) 1935 Partial Index

- \*Progressive Lipogranulomatosis of Musculature Pathogenesis of Progressive Osteoplastic Myopathy Teutschlaender—p 451
- New Studies on Presence of Acetylcholine in Blood R Ammon—p 453
- \*Enteral and Parenteral Administration of Calcium Hoesch—p 461
- \*Granulocytopenia Following Medication with Amidopyrine B von Bonsdorff—p 465

**Progressive Lipogranulomatosis of Musculature**—Teutschlaender reports the formation of lipogranuloma in the musculature of a child, who has been under his observation for five years. He shows that this disorder, which formerly was regarded as probably an early stage of myositis ossificans progressiva, is really not a disease of the muscular parenchyma but a disorder of the intramuscular connective tissue or, rather, of the lipomatous internal perimysium. In lipomyomatosis that develops on the basis of a congenital (or hereditary?) constitutional anomaly there appear, as the result of a locally progressing endarteritis obliterans and of progressive trophic disturbances, necroses with reactive granuloma formation into which calcium salts are deposited. The author applies to these formations the term lipocalcinogranulomatosis. In the reported case the lipocalcinogranulomatosis was symmetrical and progressive. Some processes underwent inflammatory softening, fistula formation, evacuation of the fat-calcium emulsion and finally healing and cicatrization, while others, apparently by metaplastic bone formation, developed into progressive osteoplastic myopathy. The author insists that the disorder, the nature of which has been misunderstood heretofore, is a well defined disease entity and should be differentiated from its possible after-disease, "progressive osteoplastic myopathy," for it does not necessarily terminate in ossification. It may be assumed that, as in other disturbances of the muscular and motor apparatus, this disorder occurs also in different types. The reported case might be considered as an example of an

infantile or juvenile scapular or scapulohumoral type of lipocalcinogranulomatosis.

**Administration of Calcium**—Hoesch stresses the therapeutic value of calcium gluconate in tetanic spasms and reports his studies on the action of enteral and parenteral calcium therapy on the calcium content of the serum. Whereas former studies investigated the changes in the calcium content only for a relatively short time after the injection, he studied the changes, at intervals of two or three hours, for a period of one or two days. He points out that there are three fractions of calcium in the serum: (1) the ionized calcium, (2) the calcium in a complex compound and (3) the colloidal calcium. In the first series of his experiments he determined the total calcium content and the ultrafiltrable calcium. The total calcium minus the ultrafiltrable calcium equals the colloidal calcium, for the ultrafiltrable calcium contains the ionized calcium as well as the calcium in the complex compound. The colloidal calcium is the fraction that is combined with the protein. The author's studies disclosed that the intravenous injection of calcium gluconate increases the ultrafiltrable calcium greatly and the colloidal calcium slightly. The two fractions reach their maximum usually at different times. Two forms of hypocalcemia occur after parenteral and oral calcium therapy. The intravenous administration of calcium is followed by a renewed increase in the blood calcium after fourteen or sixteen hours. The hypocalcemia following the intravenous administration of calcium gluconate is occasionally accompanied by mild tetanic symptoms. Repeated medication with calcium (oral or parenteral) at shorter or longer intervals (up to twenty-four hours) produces an effect on the course of the calcium content of the blood similar to that produced by the repeated administration of carbohydrates on the blood sugar of persons without diabetes, that is it prepares the way for the assimilation. The author thinks that this facilitation of assimilation is effected by intermediary factors.

**Granulocytopenia Following Medication with Amidopyrine**—Von Bonsdorff reports the history of three patients with granulocytopenia. In two cases it was virtually certain that medication with amidopyrine was the cause and it was probable in the third case. In some persons a few small doses of amidopyrine elicit a granulocytopenia, while in other cases it appears suddenly some time after large doses of the substance have been administered without causing disturbances at the time of administration. This shows that therapeutic doses of amidopyrine in sensitive persons may have a detrimental effect on the general condition and on the hematopoietic organs. The action on the granulocytopoietic apparatus is stimulating as well as inhibiting. The total number of granulocytes decreases, but the immature and young forms increase. In some instances, leukocytosis may follow. Amidopyrine influences the organs that produce the monocytes and lymphocytes as well as the erythropoiesis. The changes disappear spontaneously when medication is discontinued. However, it may be assumed that the continuous use of amidopyrine may eventually cause grave clinical symptoms. Animal experiments proved likewise that the administration of amidopyrine or of related substances may eventually impair the hematopoietic organs and lead to leukocytosis, leukopenia or anemia. Moreover, amidopyrine tolerance tests on persons who have had granulocytopenia indicate that amidopyrine may lead to granulocytopenia.

### Medizinische Klinik, Berlin

31: 365-404 (March 22) 1935 Partial Index

- Periodicity of Genital Hemorrhages. H Knaus—p 371
- \*Chemotherapy and Serotherapy of Spirochetal Jaundice (Weil's Disease) P Uhlenhuth and E Zimmermann—p 375
- \*Antianemic Substances in Urine A Decastello—p 377
- Therapeutic Action of Intravenously Administered Liver Extracts in Hypochloremic Azotemia R Bauer—p 380

**Chemotherapy and Serotherapy of Spirochetal Jaundice**—Uhlenhuth and Zimmermann studied the therapeutic action of several bismuth preparations in guinea-pigs that had been infected with spirochetal jaundice. They found three preparations quite effective and think that with due caution these preparations could be tried in human subjects with spirochetal jaundice. These preparations should be administered

intramuscularly or intravenously. Although chemotherapy of spirochetal jaundice is still in the experimental stage, serotherapy has been proved effective. Studies on patients convalescing from infectious jaundice disclosed that the convalescent serum has the greatest therapeutic value when it is withdrawn between the thirtieth and the fiftieth day following the onset of the disorder. This convalescent serum should not be more than six months old at the time of administration. Rabbit serums have about the same therapeutic value as human convalescent serums and they have the added advantage that they can be preserved for longer periods.

**Antianemic Substances in Urine**—Decastello gave patients with pernicious anemia daily enemas (300 cc) of the urine of healthy persons and observed that as the result of this treatment the reticulocytes increased and subsequently the blood picture and the general condition improved. The same effect could be produced also with the urine of patients with pernicious anemia. The author tried the treatment with urine also on patients with other forms of anemia but it proved ineffective. He thinks that the antianemic substance in the urine is probably identical or related to Castle's intrinsic factor. This would indicate that this factor is not entirely absent in patients with pernicious anemia but that it may be present in the blood without reaching the stomach. In megalocytic-hyperchromic anemias with normal gastric chemistry (anemia caused by intestinal worms, anemia developing during pregnancy and some cases of pernicious anemia) the primary deficiency of the blood in antianemic substance may be the etiologic factor. The author thinks that the antianemic factor may eventually be chemically extracted from urine, and thus another biologic preparation would be available for the treatment of pernicious anemia.

### Monatsschrift f Geburtshilfe u. Gynakologie, Berlin

99 1 128 (March) 1935 Partial Index

\*Heredity of Deformities E Goldmeier—p 2

\*Etiology and Pathogenesis of Eclampsia with Especial Consideration of Condition of Heart A Dienst—p 13

Pre-menstrual Rise of Temperature A von Fekete—p 29

Gonorrhea and Pregnancy R Spiegler and W Hartung—p 41

Critical Studies on Pregnancy Reactions E Fischer—p 69

Value of Confrontation and of Bordet-Gengou's Method for Recognition of Latent Gonorrhea in Women A P Kuschelewsky—p 73

**Heredity of Deformities**—Goldmeier studied twenty-two cases of congenital deformities such as clubfoot, harelip, cleft palate and micromelia. He was able to demonstrate hereditary transmission in nine cases. He found that the hereditary transmission is not necessarily strictly specific in that exactly the same disorder is transmitted, but that the defect may appear in a different form or that other defects may complicate the specific one.

**Etiology of Eclampsia**—Dienst, on the basis of his studies and of other reports reaches the following conclusion. The relative cardiac insufficiency during eclampsia which leads to an insufficient blood perfusion of the organs that form antithrombin (particularly liver, placenta and thyroid) and the consequent antithrombin deficiency of the circulating blood is, in the last analysis, responsible for the flooding of the arterial blood with the antagonists of the antithrombin, namely, with thrombin or thrombokinas. The presence of the large amount of thrombin has a toxic effect on all parenchymatous organs the brain, the sympathetic nervous system and the entire capillary system. Among other changes it causes an albuminous degeneration of the fibers of the cardiac muscles, angiospasm, increased blood pressure and permeability of the capillaries, which explains the internal edemas. Serous transudation from the choroid plexus into the third ventricle leads to irritation of the center of convulsion and thus produces tonic spasms, that is the eclamptic convulsions. If the eclampsia takes a chronic course, the pulmonary circulation becomes involved and then the heart and the arterial circulation including the placenta. This also explains the development of hemorrhagic necroses in the myocardium, liver, kidney and placenta. The author considers the increase of thrombin the true toxin in eclampsia. The excess of thrombin causes general vascular spasms, oxygen deficiency and internal suffocation.

### Monatsschrift fur Kinderheilkunde, Berlin

61: 321 400 (March 15) 1935 Partial Index

Percutaneous Reactions with Tuberculin Deficient in "Death Substance"

H Strauch—p 321

Bronchoscopy and Other Interventions in Severe Stenoses of Unknown

Etiology E Hassler—p 330

\*Experiences with Auto-Urotherapy M Krebs—p 342

Clinical Aspects of Alveolar Enanthem in Measles H Seckel—p 351

\*Abortive Form of Pneumococcic Peritonitis E Kramar—p 370

**Experiences with Auto-Urotherapy**—Krebs points out that if auto-urotherapy is employed in allergic conditions, the result may be favorable or a complete failure. This uncertainty makes it desirable to devise a method for the examination of the urine that will permit the determination of the probable efficacy of the urine in advance. The author's first aim was to detect differences in the urines that were highly effective or entirely ineffective in the same disorder. He found that the therapeutically active and inactive urines differed in a deviation of the normal ratio of oxydase and reductase. He determined the oxydases by means of the artificial oxydase system of Loele and the reductase according to his own method and he gained the impression that to a certain extent these methods permit the determination of the possible effect of the urine before its application. He found auto-urotherapy effective in Quincke's edema, laryngospasm, urticarial disturbances and some cases of migraine. The duration of whooping cough could be reduced in most cases (fourteen of eighteen) by means of auto-urotherapy. Some of the case reports indicate that the author injected 0.5 or 1 cc of urine. He cites another report indicating that in doses up to 2 cc urine may be injected many times. He emphasizes the necessity of sterility and the freedom from toxin. If a patient is sensitive to phenol, it is advisable to add another disinfectant to the urine.

**Abortive Form of Pneumococcic Peritonitis**—Kramar shows that pneumococcic peritonitis may occasionally take an abortive course. In the two cases observed carefully from the beginning, the disorder began with fever, vomiting and abdominal pains and resembled a simple gastric disturbance. The signs of peritoneal irritation did not develop until several hours later, were not accompanied by severe general disturbances, and disappeared again on the following day. The diagnosis was corroborated by abdominal puncture. The author thinks that the abortive form of pneumococcic peritonitis is not as rare as may be believed and that some cases do not come under medical observation or come so late that they are not recognized. He calls attention to the cases of lobar pneumonia in which operation is performed because appendicitis is suspected. Early operation is inadvisable in cases of pneumococcic peritonitis, because an abortive course is possible. Abdominal puncture and the bacteriologic examination of the punctate is helpful in establishing a correct diagnosis. The author thinks that a high degree of immunity against pneumococci is the chief cause of the abortive course. The term abortive pneumococcic peritonitis should be restricted to mild cases of short duration.

### Wiener klinische Wochenschrift, Vienna

48 385-416 (March 29) 1935 Partial Index

\*Experimental Studies on Pathogenesis of Tuberculous Infection and of Development of Primary Complex B Busson—p 385

Respiratory Therapy and Physical Exercise K Schütz—p 392

**Studies on Pathogenesis of Tuberculosis**—Busson observed a paralysis of the hind legs in one of a group of guinea-pigs that had been given a subcutaneous injection of a tubercle bacillus culture into the inguinal fold. The necropsy disclosed no signs of tuberculous infection, even at the site of injection. With the exception of hyperemia of the leptomeninges, there was nothing abnormal. Emulsions were prepared from the brain and spinal cord and were injected into guinea-pigs intracerebrally, intramuscularly or subcutaneously. The guinea-pigs that had been given the intracerebral injections developed, after ten or twelve days, severe cerebral symptoms then paralytic disturbances of the extremities and finally tonic spasms. The disease usually lasted about five days. The necropsy of these animals gave essentially the same results as that of the first animal. The histologic examination of the leptomeninges disclosed infiltration, and the bacteriologic examination revealed the presence of tubercle bacilli in the leptomeninges. On the



basis of these observations and of reports in the literature the author concludes that a tuberculosis of the central nervous system is possible in which the changes that generally characterize tuberculosis are absent and in which the histologic aspects frequently can be correctly interpreted only on the basis of bacteriologic examination. Following further discussions on the absence of the primary focus in some cases of tuberculous infection, the author advances the theory of a regulatory action of the macro-organism on the course of the tuberculous infection and thinks that this regulatory action has failed in cases in which no primary focus develops and in which the central nervous system becomes involved at once.

### Zentralblatt für Gynäkologie, Leipzig

59: 721-784 (March 30) 1935 Partial Index

\*Aschheim-Zondek's Pregnancy Reaction and Roentgen Rays L. Nürnbergberger—p. 722

\*Embolie Transmission of Foreign Body (Rubber Catheter) into Heart in Criminal Abortion J. Bláha—p. 746

\*Use of Vernix Caseosa in Formation of Artificial Vagina and Histologic Examination of the Latter R. Kleitsman and L. Poska-Teiss—p. 755

**Aschheim-Zondek's Reaction and Roentgen Rays**—Nürnbergberger investigated the outcome of the pregnancy reaction in infantile female white mice that had been exposed to roentgen irradiation. The data given in a tabular report indicate that it is possible to elicit the Aschheim-Zondek reaction in infantile female mice even after prolonged irradiation with large doses of roentgen rays. This is surprising, particularly when it is considered that degenerative changes appear in the follicular epithelia a few hours after irradiation with large doses of roentgen rays. In order to gain a better insight into the processes that take place in the ovaries of the irradiated animals, the author subjected to histologic examination the ovaries of control animals that were irradiated and killed after the same number of days as those that had been given injections of pregnancy urine. In all ovaries, changes were evident that are known to be the result of irradiation, namely, shrinking of the ova, globular chromatin degeneration and vesiculovacuolar disintegration of the protoplasm of the follicular epithelium and shedding of debris of nuclei and of protoplasm into the follicular cavity. In spite of these considerable changes in the irradiated ovaries, the administration of the gonadotropic hormone was followed by maturation of the follicle and by formation of corpora lutea. The uterus of the animals treated with pregnancy urine was enlarged and thickened and in the vagina the typical cast-off, non-nucleated horny lamellae were found.

**Embolie Transmission of Catheter into Heart Following Abortion**—Bláha reports the history of a woman who requested a medical examination because on the previous day she had attempted an abortion by means of a rubber catheter. Examination disclosed a perforation of the cervix. Roentgenoscopy did not reveal the shadow of a foreign body. An exploratory laparotomy was resorted to, but a catheter could not be found. Curettage disclosed that there had been an incomplete abortion and it was assumed that the catheter had induced the abortion and had been expelled without the woman noticing it. Sepsis developed and the woman died on the seventh day. At necropsy, on examination of the cervical organs, the lower, rough end (evidently broken off) of the catheter, which was 23.5 cm long and 4 mm thick, was detected in the inferior vena cava near the diaphragm. From there the catheter extended through the right auricle, the superior vena cava and the innominate vein into the left common jugular vein, in which the upper, smooth end of the catheter was found several centimeters above the clavicle. A comparison of the conditions found at necropsy with the clinical course indicates that, following perforation of the cervix, the catheter must have entered a wide vein of the uterine plexus, from which it slipped directly into the right hypogastric vein and into the inferior vena cava. It may be deduced from a number of symptoms that the catheter reached the heart on the fifth day following its introduction into the uterus. At any rate the catheter must have been in the heart for about forty-eight hours without causing severe impairment of the heart action. The author reviews the literature on foreign bodies in the heart and found that in the majority of cases the foreign body was a projectile. He thinks that the reported case is the first one in which such a large

foreign body entered the heart by embolic transmission. He reviews cases from the literature in which catheters disappeared following introduction into the uterus. In some cases the catheter was extracted from the uterus, in others it entered the retroperitoneal tissue and was later extracted from an abscess, in others it entered the preperitoneal tissue and caused an abscess in the anterior abdominal wall, in others it entered Douglas's pouch, and in a considerable number of cases it entered the free abdominal cavity and produced diffuse peritonitis. The author stresses the necessity of careful inspection.

**Vernix Caseosa in Formation of Artificial Vagina**—The report of Bregård on wound treatment with vernix caseosa induced Kleitsman and Poska-Teiss to use vernix caseosa in the treatment of refractory bed sores. They gained the impression that vernix caseosa produced more rapid healing than did other measures, and they decided to use sterile vernix caseosa instead of epidermic flaps to cover the wound canal in the artificial formation of a vagina. They describe a case in which this was done and in which complete epithelization of the artificial vagina was obtained in a relatively short period. Histologic examination disclosed that the epithelium of the newly developed vaginal mucous membrane apparently did not develop from the elements of the vernix caseosa. The mode of action of the vernix caseosa is still a matter of conjecture.

### Klinicheskaya Meditsina, Moscow

13: 159-314 (Feb.) 1935 Partial Index

Systemic Diseases of Circulatory Organs D. O. Krylov—p. 159

Diagnostic Value of Cost's Reaction in Pulmonary Tuberculosis E. N. Trebitskaya—p. 199

Roentgenologic Appearance of Lungs in Patients with Skin Tuberculosis A. Braynin—p. 213

Tuberculosis and Annular Granuloma I. A. Gorchakov—p. 217

Active Immunization of Man Against Tetanus Z. Michaylova and I. Velikanov—p. 247

\*Effect of Diphtheritic and Scarlet Fever Toxins on Heart of Dog M. L. Reyngold—p. 258

**Effect of Diphtheritic and Scarlet Fever Toxins on Heart**—Reyngold studied the effects of diphtheria and scarlet fever toxins on the heart of a dog under the conditions of the Starling preparation of heart and lungs. The animal's own blood and Ringer-Locke solution were used for perfusion. Nine successful experiments were carried out. He found that the dog's heart is capable of tolerating large doses of scarlet fever and diphtheria toxins. The diphtheria toxin affects primarily the heart muscle, causing a diminution in the minute volume, lowering of pressure in the right auricle and acceleration of the pulse after an initial slowing. The diphtheria toxin is capable of producing at times a temporary initial stimulation of cardiac activity, causing an increase in the minute volume output of blood and an increase in the pressure within the right auricle. The scarlet fever toxin affects the heart musculature to a lesser degree than the diphtheria toxin. Its effects in the beginning are to increase the cardiac contractions with a consequent increase in the minute volume output and a fall of the blood pressure of the right auricle. This is followed by cardiac depression and involvement of the cardiac musculature as a result of which the minute volume output diminishes, the pressure in the right auricle increases and the pulse becomes accelerated. Scarlet fever toxin was found to lower the oxidizing power of blood in experiments. The alterations produced in the heart by the diphtheria or scarlet fever toxins are permanent and are influenced for only a short time or not at all by stimulation with cardiac stimulants and nutritive fluid (blood).

### Finska Lakaresällskapets Handlingar, Helsingfors

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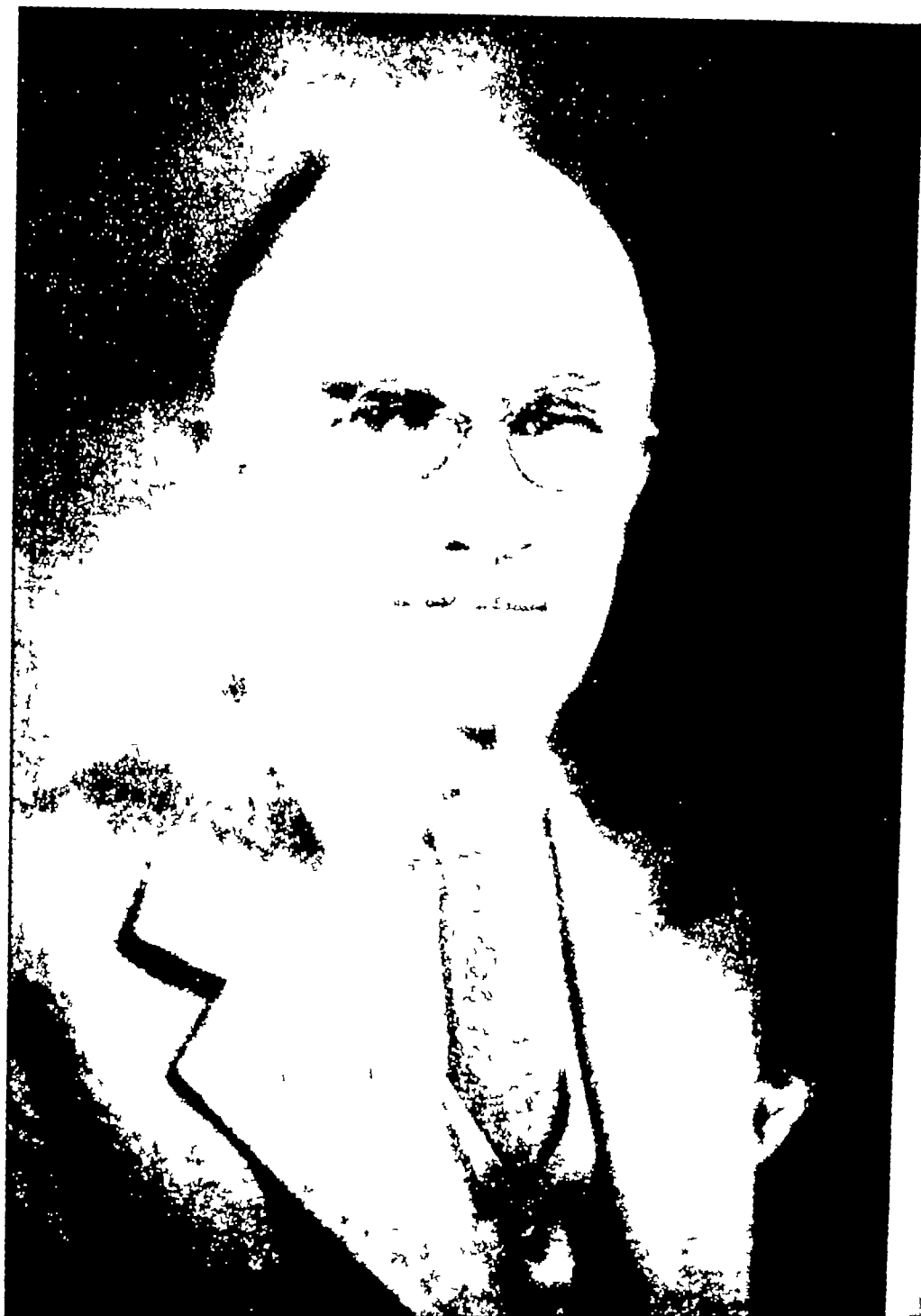
\*Postoperative Tetany with Changes in Electrocardiogram Case J. Wickström—p. 89

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**Postoperative Tetany with Changes in Electrocardiogram**—Wickström's case presented a lengthening of the systole in the electrocardiogram to 0.47 second, which, according to Frederica's formula, exceeds the normal boundary value by 0.05 second. Calcium treatment resulted in a decrease of this lengthening and, parallel with it, the tendency to spasms was reduced and the blood calcium values were increased.







*James V. McKeester*

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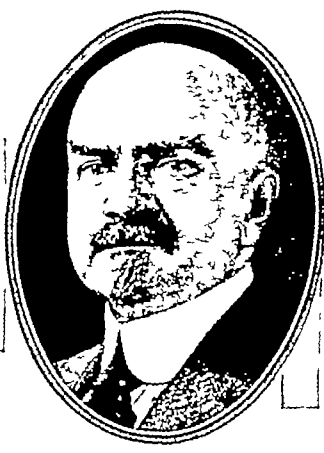
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## FOODS THAT COMMONLY DISAGREE WITH PEOPLE

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Which are the foods difficult of digestion or likely to cause distress of one kind or another? Which are the most likely to cause gas, abdominal discomfort heartburn, regurgitation, "biliousness" or urticaria? Surely, after thousands of years of cumulative experience we physicians should be well prepared to answer these questions which are being put to us several times a day, and yet, it does not look as if we were

Today the average physician when asked for advice as to diet, is likely to warn against the eating of fried or greasy or rich foods, or of foods that he himself cannot digest, or he will give a printed list, which may fit the needs of his patient about as well as the key to one door fits the lock of another. And if the patient should protest that he is unable to partake of, let us say, milk or eggs, he is likely to be told impatiently that the trouble is in his head and that he must do what he is told. Even the hospital dietitian is likely to insist that milk and eggs are invaluable "health foods" which must be taken every day if disaster is to be avoided and unless she is an unusually intelligent woman given to habits of independent thought, or unless she has worked with an allergist, she will not budge an inch from the way in which she was taught to go

And who can blame her for this when her whole training was built around one idea namely, that of supplying to her patients, each day a diet complete enough to insure good growth in a baby rat? In recent decades the leaders in dietetics have been so absorbed in the search for "the little things in the diet" that there has been no time left for consideration of such a minor (?) matter as the digestibility of the foods that happen to carry the desired vitamins or iron or calcium. By digestibility we mean here the likelihood or unlikelihood that the food will disagree in some way with the person who eats it. Some of the books on diet fail even to mention digestibility, others comment briefly on the subject, and one book written by a practicing physician, has a short chapter on it

### DIFFICULTY OF DISCOVERING OFFENDING FOODS

Another reason for present-day disregard of this item of digestibility in a diet is doubtless to be found in the fact that the attainment of knowledge in this field is difficult. The most intelligent observer can easily be deceived and the patient may well be mis-

taken when he states his inability to eat some particular food. Often it was condemned unjustly and on insufficient evidence perhaps the fish was blamed when really the culprit was the tartar sauce, the cottonseed oil in which the fish was fried, or the pie that was eaten for dessert. Or the food eaten at dinner was blamed when really the offending substance was taken into the body with luncheon or breakfast. Or the upset was due simply to overeating or to back pressure from an over-filled colon, to annoyance over an argument at the dinner table, to an oncoming cold, or even to a slight flareup in an unrecognized cholecystitis. Under the circumstances, surely, no one should reject a food unless it gives trouble repeatedly and at times when other causes for the symptoms can be excluded.

### THE ATTITUDE OF THE PHYSICIAN

There appear now to be three courses open to a physician one, to pooh-poo all but the severest manifestations of food sensitiveness, another, to look on almost every illness known to man as due to food allergy, and another, to steer his way carefully between the error of operating on a patient with an allergic intestinal crisis and the tragedy of trying to cure with diet a patient with empyema of the gallbladder.

There is no doubt that some half-starved "dyspeptics" dominated by the fear of many foods, can be cured only when as an experiment, their protests are overridden and they are made to eat, but it is equally certain that others, now badly handicapped, could easily be cured by the complete removal from their diet of one or more foods.

### THE CONTRIBUTION OF THE ALLERGISTS

Curiously, in the advance that is now being made it is not the gastro-enterologist or the dietitian who is leading the way but the allergist. He became interested in diet through his efforts to help persons with asthma, hay fever and skin lesions. First he tried to discover the offending foods with the help of skin tests, but when these often failed him he turned to the method of trial and error first simplifying the problem by limiting the patient to a few foods, and these chosen from a list of the ones that seldom give trouble.

### FOOD SENSITIVENESS NOT ALL ALLERGIC IN NATURE

Perhaps because this new knowledge has come from the allergists it is customary now, when a food disagrees with a patient to take it for granted that the offending substance was a protein and the mechanism of injury an allergic one. Actually, there is no reason for assuming that even a large number of the patients with whom foods disagree suffer in an allergic way. The trouble does not have to have an allergic mechanism back of it, even when it occurs in persons who suffer with allergic types of disease. Thus one can hardly

call sulphur dioxide a protein, and yet the inhalation of this substance may throw an asthmatic person into an attack. Similarly, substances such as pepper and mustard and alcohol may well alter peristalsis by direct irritation of nerve endings in the mucosa of the stomach and the intestine. There are reasons for suspecting that cucumbers, melons and tomatoes contain an emetic substance that in small doses produces only regurgitation and belching. Fats can produce distress simply because of their tendency to delay the emptying of the stomach, and flatulence and colicky distress can be due to the presence in some foods of laxative substances which in small doses produce only peristaltic unrest.

Furthermore, the stories that many persons tell are incompatible with the theory that their sensitiveness is allergic in nature. For instance a woman who usually vomits milk states that she can digest it perfectly when a patented egg-powder is added to it, and two others who regurgitate or vomit cold milk have no trouble when this food is warmed. Many others who say that they are highly sensitive to undigested egg will eat angel food cake, custard and chicken and the many who have trouble with boiled cabbage can usually digest cole slaw.

If as we believe, much of the trouble caused by food is due purely to irritation of the intestinal mucous membrane by chemicals or by woody cellulose it is easy to see why in so many cases the skin tests are useless. One can expect them to be positive only when the symptoms are due to unchanged protein getting into the blood stream.

It is the severe reaction at a distance from the abdomen that is most likely to be due to foreign protein but even some of these upsets can be due to small amounts of poisonous drugs, such as the oxalic acid in beet greens, the solanin in potatoes, the powerful hemolysin in raw onions<sup>1</sup> or the laxative substances in rhubarb and prunes.

#### FOODS THAT COMMONLY DISAGREE WITH THE EATER

But to get back to our original problem how can we physicians secure information as to the foods that commonly disagree with the eater? Probably the best way would be to list all the foods incriminated in the production of symptoms in hundreds of cases of fairly definite food sensitiveness. Thus Rowe<sup>2</sup> reported the curing of 175 patients by the elimination from the diet, in order of frequency, of wheat, eggs, milk, chocolate, cabbage, tomato, oranges, walnuts, strawberries, bananas, white potato, cauliflower, oats, pork, carrots, rice, oysters, salmon, celery, lettuce, squash, apricots, apple, cantaloup, grapefruit and peaches.

Rowe's list of skin reactions to food observed in 500 patients is also of interest but probably not so helpful. Most commonly irritating to the skin were wheat, spinach, egg, milk, celery, squash, string beans, corn, cabbage, tomatoes, cauliflower, white potatoes, black pepper, onions, rice, oranges, asparagus, turnips, grapefruit and lettuce.

Vaughan's<sup>3</sup> list is not comparable with Rowe's, because he studied 508 persons living in villages in Virginia and then chose from these the 244 who complained only of symptoms designated by him as being

those of "minor allergy." These are nausea, vomiting, heartburn, belching, flatulence, cramps, hives or rashes, headache and the prolonged tasting of food. The foods blamed were, in order of frequency, cabbage, onion, tomatoes, cucumbers, strawberry, watermelon, pork, cantaloup, apple, beans, potato, sea foods, banana and egg.

Obviously, further research is needed, and particularly with large unselected groups of persons. Fortunately there is enough agreement among investigators so that one can now be fairly certain that the commonest offenders are the foods, such as wheat, eggs, milk, chocolate, cabbage, onions, tomato and orange, which are eaten almost every day. It is this very fact that they are eaten almost every day that has so greatly retarded knowledge in this field. It is only the unusual patient who, without expert help, can discover that his breakfast cup of coffee or the toast that goes with it are responsible for such mild symptoms as flatulence or a stuffy head.

While waiting for the publication of more studies like those of Rowe and Vaughan, we decided to see what we could learn by questioning several hundred patients as to the foods which they had been forced to give up or which they could eat only with some distress.

#### THE NEED FOR CARE IN QUESTIONING PATIENTS

Obviously such questioning had to be done with care and discrimination. Too often, cross examination showed that some foods, such as cucumbers mentioned as indigestible had really never been touched because of their bad reputation, while other foods had not been touched for years following some occasion when they were blamed, perhaps unjustly, for a digestive upset. Accordingly, we have listed only such foods as were incriminated on what seemed to us to be fairly valid evidence, and whenever the type of answers given by an individual showed a lack of intelligence and judgment we stopped the questioning and rejected the data already obtained from this source.

It was found necessary also to ask specifically in regard to one food after another, because, time and again, the patient who first said he could eat everything told a different story when his memory was helped by perusal of a list of foods.

Unfortunately, also, patients are prone to blame, perhaps unfairly, the food that is tasted during belching or regurgitation. As W. E. Garrey<sup>4</sup> once pointed out to us the fat in a meal must tend to gather in a layer, which floats on top of the fluids in the stomach. If onions have been eaten, the odoriferous essence will become dissolved in this layer of fat lying next to the cardia, and every time the person belches he will taste onions and will blame them for an indigestion that may have been caused by something else.

In many cases aversion to a particular food is of psychic origin and due to the patient's association of this food with some particularly unpleasant digestive upset of the past. In some of the persons questioned by us, even the thought, sight or smell of such a food caused nausea or belching. One man told of being nauseated by scrambled eggs, but he can eat them fried or poached, and, as is well known, many who eat cooked eggs cannot bring themselves to touch a raw egg.

We questioned more than 700 patients, most of them complaining of gastro-intestinal troubles, but we

<sup>1</sup> Gruhitz O. M. I. Anemia of Dogs Produced by Feeding of the Whole Onions and Onion Fractions. *Am. J. M. Sc.* 181: 812-815 (June) 1931.

<sup>2</sup> Rowe A. H. Food Allergy: Its Manifestations, Diagnosis and Treatment. *J. A. M. A.* 91: 1623-1631 (Nov. 24) 1928.

<sup>3</sup> Vaughan, W. T. Minor Allergy: Its Distribution. *Clinical Aspects and Significance. J. Allergy* 5: 184-196 (Jan.) 1934.

<sup>4</sup> Garrey W. E. Personal communication to the authors.

analyze here only the answers given by the first 500 intelligent or fairly intelligent men and women who admitted food sensitiveness and talked sensibly about it. In making some of the tables we were able to use only data from the last 400 records in which we took care to note the nature of the disturbances produced by the different foods.

#### THE FREQUENCY WITH WHICH SENSITIVENESS TO FOOD OCCURS IN THE GENERAL POPULATION

Before going on to tell how many patients we found sensitive to various foods, we feel we should warn the reader that the percentages given by us must be larger than those likely to be obtained through a study of an unselected group of persons, such as might be found in a restaurant. We dealt with selected patients, most of whom were suffering with indigestion and many of whom were seen by the senior writer because they complained of food sensitiveness or of symptoms that were thought to be due to it. Among those with an apparently functional type of indigestion there was hardly one who did not feel that he was sensitive to one or more foods.

According to Rowe,<sup>5</sup> 31 per cent of 400 university students and nurses were sensitive to food, and in a house-to-house canvass of 508 villagers in Virginia, Vaughan<sup>3</sup> obtained a corresponding figure of 62.6 per cent. Apparently, then, some idea of the percentages of the general public sensitive to the various foods can be obtained by multiplying our figures by some factor between 0.3 and 0.6. This factor will be the larger, the more intelligent the persons questioned and the more skilled and pertinacious the interrogator.

The physician who may wonder why he so rarely encounters food sensitiveness in his practice should remember that even the man of science tends to see only those things that he has been trained to see or that he is looking for, all else is likely to be missed or ignored or pooh-poohed.

#### THE MOST COMMON OFFENDERS

In all the lists published here it must be remembered that the frequency of appearance of a food must depend partly on the frequency with which it appears on the table of the average American. Obviously, then, the poor representation in these lists of a food like butter means much more than that quail or *pate-de-fois-gras* are not mentioned. This difference in the frequency with which foods are eaten may account for the fact that cauliflower and sprouts do not rank as high in table 1 as does cabbage.

The first thing to be noted in table 1, which sums up all the complaints made against the various foods, is that some of the most commonly eaten ones head the list. One patient in every four or five suffered discomfort after eating onions, apples, cabbage or milk. Certainly it does not look now as if an apple a day would keep the doctor away!

We can abundantly confirm the well known fact that many of the persons who cannot touch raw onions or apples can digest with comfort boiled onions or cooked apples. Curiously, most of the patients who dare not eat boiled cabbage are able to digest cole slaw and sauerkraut. One patient who has violent symptoms after eating boiled cabbage can eat it raw and another can digest sauerkraut only when it is not cooked.

Another striking fact to emerge is that chocolate is such a common offender, and, what is more, it is often a serious offender. The percentage given in the list should probably be larger, as it seems that a number of the persons who knew only that they must avoid sweets or candy were really sensitive to chocolate. In one case even the smell of chocolate causes sneezing. As will be seen later, this food seems to be the worst offender in cases of migraine.

One of the interesting points brought out by this study is the fact that pie and pastry, which have such a bad reputation, were rarely complained of and hence are not represented in our lists. The commonly despised fats and greasy foods were blamed by many persons, but often this may have been due solely to the fact that they were tasted at the time of belching.

#### CURIOUS OBSERVATIONS

Curiously, we found one person, a physician, who gets an attack of asthma after eating onions, raw or cooked, but who can eat them if they are first soaked in vinegar. Another patient who expected his statement to be received with incredulity, maintained that for him cucumbers with the rind on were harmless, it

TABLE 1—Foods That Gave More or Less Distress to 500 Persons

	Per Cent		Per Cent
Onions (usually raw)	27	Corn	7
Milk cream ice cream	26	Pickles and sour foods	7
Apples (raw)	26	Bananas	7
Cabbage (cooked)	25	Peanuts	6
Chocolate	18	Oranges	6
Radishes	17	Sweets	6
Tomatoes (more often raw?)	15	Spices	6
Cucumbers	13	Cheese	5
Eggs	13	Peppers	5
Fats greasy and rich foods	12	Salmon	4
Cantaloup	11	Fruits	4
Meat and beef	11	Nuts	4
Strawberries	10	Prunes	3
Coffee	10	Peas	2
Lettuce	8	Potato	2
Dried beans	8	Coarse foods	2
Cauliflower	8	Fish	2
Watermelon and melons	8	Chicken	2
Pork	7	104 other foods 1 per cent or less	

was only when peeled that they gave him distress. Another stated that for him, the harmful part of the apple was in the peelings.

It is hard to understand why, in one person so slightly absorbable a substance as agar should produce stiff and tender fingers. In another person the eating of bran brings pain in the jaw, and in another, a highly allergic girl, even a small amount of hydrocarbon oil, eaten inadvertently in mayonnaise, produces violent abdominal pain.

Seven patients knew that they could bring on attacks of asthma or vasomotor rhinitis by eating certain foods. Three others appeared to have become sensitive to food after cholecystectomy, and we wonder if changes in the flow of bile served to alter the permeability of the intestinal mucosa to intact foreign protein. Another person, however, lost much of his food sensitiveness after cholecystectomy. It is interesting that in several persons the eating of certain foods caused pain typical of cholecystitis.<sup>6</sup>

There were three cases of an ulcer-like syndrome due apparently to the eating of one or two of the following

<sup>5</sup> Rowe A. H. Food Allergy Its Manifestations Diagnosis and Treatment with a General Discussion of Bronchial Asthma Philadelphia Lea & Febiger 1931

<sup>6</sup> Alvarez W. C. Pseudocholecystitis Apparently Caused by Food Sensitiveness Proc Staff Meet Mayo Clin 680 683 (Nov 7) 1934

foods banana, apple, "meat," cabbage, turnips and milk. In five other cases presenting a deformed duodenum, hunger distress was brought on by the eating of such foods as apple, tomatoes, milk, eggs, radishes, onions, pickles, sauerkraut and spinach. In one case, appendicitis was simulated by the eating of onions.

Eight patients attributed canker sores or sore tongue or burning in the mouth to the eating of certain foods,

TABLE 2—Severe Reactions of 500 Patients to Food, with Symptoms Such as Vomiting, Diarrhea or Severe Pain

Per Cent Cases		Cases	
Milk cream and ice cream	7 34	Peanuts	4
Chocolate	5 25	Pork	4
Apples (raw)	4 10	Strawberries	4
Onions (raw usually)	3 17	Raw fruits	4
Eggs	3 10	Lobster	4
Tomatoes	3 15	Veal	4
Cabbage (cooked)	2 12	Dried beans	3
Meat beef and beef fat	2 11	Cucumbers	3
Corn	2 11	Oranges	3
Coffee	2 8	Radishes	3
Bananas	2 8	Sweets	3
Nuts	1 6	Peas	3
Caullflower	1 5	Fats	2
Cantaloup	1 5	Peppers	2
Fish	1 5	Pickles and sour foods	2
Chicken and chicken broth	1 5	Spinach	2
Watermelon and melons	1 5	Oat meal	2
Cheese	1 5	Sauerkraut	2
Lettuce	4		

The following foods were each complained of once

Wheat	Chili peppers	Okra
Potato	Brazil nuts	Vinegar
Butter	Walnuts	Cranberries
Coco cola	Broccoli	Raspberries
Rhubarb	Shrimp	Asparagus
Sprouts	Oysters	Vienna sausage
Eggplant	Crab	Green beans
Mushrooms	Scallops	Garlic
Pepper	Grapes	

and food seemed to be responsible also for joint pains in five persons and for irritation of the bladder in three.

#### SEVERE REACTIONS

As Vaughan has wisely pointed out some of the foods that appear high on the list of those that cause trouble are only mild offenders in that the symptoms produced are belching, regurgitation, "tasting" or slight urticaria, which do not greatly inconvenience the victim. Other foods such as chocolate shell-fish or eggs when they do offend are likely to cause such serious trouble that the patient has to consult a physician.

Table 2 shows, in order of frequency with which complaint was made, the foods which produced such a troublesome reaction that the patient was compelled to avoid them. It is interesting to note that milk heads the list, and that seven in 100 persons seen by us were almost unable to touch it. From our figures it appears that perhaps nineteen more in 100 patients consulting a gastro-enterologist will not be able to take it with comfort. Three persons in every 100 questioned by us did not dare to eat eggs.

One of the most interesting observations is that only one person in the 500 questioned knew that he must not eat wheat, and, as we remember, this handicap had been pointed out to him by an allergist. If, then, the allergists are right, and wheat is the commonest of all seriously offending foods, it is apparent that patients, by themselves, practically never discover their sensitiveness to it.

#### MIGRAINE

A number of patients who suffered with migraine had discovered a relation between their attacks and the ingestion of food, they knew that the eating of certain foods would be followed by headache, but only a few had been able to cure themselves by restricting the diet. Unfortunately, in each case there were other causes at work besides food.

The most interesting feature to be noted in the list of foods complained of by migrainous patients is the fact that it is headed by chocolate. Following chocolate came onions, milk, peanuts, cabbage, eggs, pork, apples, coffee, cucumbers, "meat" and oranges. According to the allergists, the commonest offender in cases of migraine is wheat.

#### BAD EFFECTS OF FOOD ON THE NERVOUS SYSTEM, OTHER THAN THOSE SEEN IN MIGRAINE

One of the most interesting facts and one that should be brought forcibly to the attention of the medical profession is that in many persons the eating of certain foods has a disturbing effect on the nervous system producing not only headache but such symptoms as nervousness, irritability, sleepiness, drowsiness, dizziness, numbness "queer feelings," cold sweats, feverishness, and perhaps even some mental aberration. One patient seen by us was so benumbed mentally that for many years he was unable to work and spent his time going from one psychiatrist to another. Within a few days after the removal of fish and a few other foods from his diet "his head cleared" and he returned to work.

One of the most striking examples of what seemed to be a cerebral disturbance due to food was encountered in the case of a husky chauffeur who one evening did his best to eat a freezer-full of strawberry ice cream left over from a party given by his employer. About 2 a m his wife woke to find him unconscious and in violent convulsions which lasted for several hours. Next day there was an eosinophilia of more than 25 per cent. He had never had a convulsion before this.

TABLE 3—Foods Blamed by 157 Among 400 Patients Who Complained of Gas, Belching, Flatulence or Distention

	Per Cent of 157		Per Cent of 157
Onions	36	Strawberries	7
Cabbage	34	Pork	6
Apples	33	Meat and beef	6
Radishes	21	Bananas	6
Dried beans	17	Pickles and sour foods	5
Cucumbers	16	Corn	4
Milk cream & cream	16	Peppers	4
Fats rich foods	13	Nuts	4
Cantaloup	11	Salmon	3
Caullflower	11	Spices	3
Chocolate	11	Cheese	3
Coffee	11	Peas	3
Lettuce	11	Prunes	3
Watermelon and melons	10	Sweets	2
Peanuts	9	Ginger ale	0
Eggs	8	Sour foods	2
Oranges	8	Sweet potato	2
Tomatoes	8	Beer	2

episode, and he was well for years afterward. Another patient in the group studied was almost freed from epileptiform attacks by the removal of beef from his diet.

Such observations should not be surprising when it is common knowledge among laymen that certain foods, such as cooked cheese, are likely to produce nightmares and restless sleep. Not infrequently the first comment of a patient who responds well to an elimination diet is "my head feels right again."

## URTICARIA, RASHES AND ITCHING

Most interesting is the fact that 40 per cent of the patients who were subject to transient attacks of urticaria were unable to incriminate any particular food. As one would expect, strawberries head the list of the foods that were blamed, and after them come tomatoes, eggs, fish, milk, chocolate, meat, pork and oranges. In most of the cases of severe, almost constant urticaria, neither we nor the victim could pin the blame on any food.

TABLE 4—Foods Blamed by 98 Among 400 Patients Who Complained of Regurgitation, Lingering Taste or Repeating

	Per Cent of 98		Per Cent of 98
Onions	22	Caullflower	6
Radishes	20	Strawberries	6
Cantaloup	20	Meat	6
Cucumbers	17	Milk	6
Cabbage	15	Chocolate	5
Lettuce	10	Peppers	5
Fats etc	10	Bananas	4
Watermelon and melons	8	Salmon	3
Apples	8	Celery	3
Eggs	8	Beans	2
Tomatoes	8	Cheese	2
Coffee	7	Nuts	2
Oranges	7	Sweets	2

## GAS, BELCHING, ABDOMINAL DISTENTION, REGURGITATION AND HEARTBURN

Table 3 gives the foods that most frequently seemed to be responsible for the production of gas, belching or distention of the abdomen. It is interesting that onions, cabbage, apples and radishes are to be found listed ahead of dried beans, which are commonly supposed to take first place. It is interesting to find milk in seventh place. It is possible that onions head the list on account of the fact already mentioned that when they have been eaten the belcher tastes them.

As one would expect, onions head the list of foods (table 4) that were blamed by patients as producers of regurgitation, usually because they could be tasted for hours after a meal.

It is interesting to note that the foods which were blamed for heartburn were somewhat different from those that were tasted for hours after a meal. This would indicate that the mechanism producing these two groups of symptoms is different. At the head of the list were tomatoes, onions, oranges, apples, radishes, coffee, pork, spices, cabbage and eggs.

## ORIGIN OF AND PERIODIC VARIATION IN SENSITIVENESS

In a few instances the patient questioned during this study was able to trace his or her sensitiveness to a period of overindulgence in a particular food. Thus, one man in his student days ate at one sitting 2 pounds of dates left over from a fraternity party and thereby became highly sensitized to this food. Another became sensitized to milk by taking from four to six quarts a day during treatment for tuberculosis. After that small amounts produced nausea and diarrhea.

As was to be expected, many persons who could not eat full servings of certain foods were able to eat small amounts or they could eat these foods for one or two days but not for three. One patient who can digest one egg usually vomits when he eats two; another can eat eggs for four days in succession before he begins to regurgitate them; another can drink milk for three days

before getting an attack of migraine, and another can drink it for three days before his bowels become loose.

Several allergists have commented on the way in which sensitization comes and goes, so that at times the patient can eat a certain food with impunity and at other times it will make him sick.<sup>7</sup> One of the patients studied by us has difficulty in digesting some foods only if she exercises after the meal.

## TWO FACTORS COMBINING TO PRODUCE UPSETS

Some observations recently made indicate also that two sources of irritation, both constituting subliminal stimuli, may combine to produce serious trouble. Thus a woman of our acquaintance who is insensitive to wheat during the winter can avoid severe hay fever in the summer by excluding this food from her diet. Another patient becomes wheezy on exercising only if he is eating wheat.<sup>8</sup>

Similarly, fatigue, nervousness and psychic strain can at times so injure, perhaps, the absorptive power of the intestine that a food which ordinarily would cause some flatulence will produce violent diarrhea and mental dulness.

## A LIST OF FOODS THAT SELDOM OFFEND

Once the most common offenders are well known, a complementary list of probable nonoffenders can be made, and this can then be used as the starting point of investigations into the food sensitiveness of individuals.<sup>9</sup>

Unfortunately, the list presented here cannot have great value until the foods on it have been tested by

TABLE 5—Number of Complaints Lodged Against Each Food During an Investigation of 400 Patients (Not Percentages)

	Total No of Com- plaints	Vomit- ing Diar- rhea	Gas Belch- ing	Heart burn	Regur- gita- tion	Head ache
Onions	120	15	56	10	22	10
Milk cream ice cream	114	27	25	3	6	5
Apples	107	15	60	7	8	2
Cabbage	101	12	64	4	15	3
Chocolate	70	19	17	2	5	14
Radishes	75	3	33	5	20	1
Tomatoes	58	11	12	12	8	1
Cucumbers	56	2	25	1	17	2
Eggs	56	10	12	3	8	3
Fats rich foods	51	2	21	3	10	2
Cantaloup	51	6	17	2	20	0
Meat and beef	44	7	9	1	0	2
Beans (dried)	41	3	27	0	2	0
Watermelon and melons	38	0	10	2	8	0
Strawberries	38	4	11	1	0	0
Coffee	37	0	17	5	7	2
Caullflower	34	6	17	0	6	0
Pork	33	4	0	4	0	3
Lettuce	30	1	17	1	10	0
Corn	29	0	7	0	0	1
Bananas	29	8	8	3	4	1
Pickles and sour foods	29	2	8	3	1	0
Oranges	26	3	12	10	7	2
Peanuts	25	2	14	1	1	4
Spices	22	0	5	4	1	1
Sweets	21	3	4	3	2	0
Nuts (various kinds)	21	2	6	0	2	0

many patients. As we said before, the fact that a particular food is not found in tables 1 or 2 of this paper may mean simply that it is seldom eaten by persons living in the North Central states.

<sup>7</sup> Rowe, Food Allergy, p. 29.

<sup>8</sup> An introduction to some of the literature on this phase of the problem is given by Gelfand, H. H., Extra Pollen Hypersensitivity—An Important Consideration in the Treatment of Hay Fever, *Am J M Sc* 182: 81-86 (July) 1931.

<sup>9</sup> Such a list may be found in Rowe, A. H., Food Allergy, 3 Revised Elimination Diets for the Diagnosis and Treatment of Food Allergy, *Am J Digest Dis & Nutrition* 1: 387-392 (Aug.) 1934 and Vaughan, W. T., The Diagnostic Program in Food Allergy, *Am J M Sc* 182: 459-467 (Oct.) 1931.

Fortunately for the student of food sensitiveness, when a patient is markedly sensitive to one of the foods seldom eaten he is usually aware of the fact and can warn his physician not to include it in his first elimination diet. Presumably also the foods seldom used are the least likely to get into the blood in such large quantities as to produce sensitization.

For a supply of protein, the deviser of an elimination diet will depend largely on lamb and gelatin. Oysters and scallops might perhaps be added occasionally, because if the patient is sensitive to these foods he will probably know it.

The best fat is probably butter. If well washed, it can usually be eaten even by persons sensitive to milk.

Among carbohydrates, the most useful appear to be cane, beet or maple sugar and rice. Trial may be made also of rye, barley and arrowroot. Tapioca and sago might be more useful if they could be prepared tastily without milk and egg. Some persons who are moderately sensitive to wheat can eat a little highly dextrinized, thin toast or zwieback. Lima, soya or string beans might be useful especially as they contain needed protein. Perhaps cooked apple would be harmless in most cases. Pineapple juice might also be tried.

For vegetables, the patient will try perhaps beets, asparagus, peas, Irish or sweet potato, egg plant, turnips, parsnips, pumpkin and artichokes. For fruits he may try cooked pears.

Tea rarely seems to give trouble. Occasionally a person who is somewhat sensitive to milk will take with comfort buttermilk, boiled, dried or curdled milk (junket) or cottage cheese. There is evidence to show that the lactalbumin of milk can be changed and rendered harmless by heat.

Usually a patient is kept on a narrow elimination diet for so short a time that no one need feel worried because it is not well balanced and not full of vitamins and salts.

#### ELIMINATION DIETS

In some ways the ideal elimination diet would consist of no food at all. If the symptoms continued during a fast, it would be obvious that foods were not at fault. If, however, the symptoms disappeared, foods could be tested singly, one after the other, until all were classified as harmless or hurtful.<sup>10</sup>

In order to spare the patient the annoyance of fasting, and in order to conserve weight and strength in the weak and the thin, it is customary now to give, at the start, a few foods that are not likely to cause trouble. When relief follows, the search for the offending food is then fairly easy. If relief does not follow, the physician must fear either that one or more of the foods in the basic elimination diet used is an offender or else that the disease is not due to the eating of food.

Physicians will find that the much traveled and intelligent "dyspeptic" will usually welcome enthusiastically this idea of searching for the offending foods. He is sick and tired of diets imposed ex cathedra, and he is much impressed with the logic underlying the new idea.

#### SUMMARY

Patients who ask for dietary advice usually get either indefinite or inadequate or antiquated information, or else a ready-made formula or list which may or may not fit their individual needs and idiosyncrasies. Unfortunately, today, most textbook writers and many

dietitians are so concerned with the vitamin content of foods that they ignore the matter of digestibility and refuse to make allowances for individual weaknesses.

Unfortunately also it is not easy for the physician to get trustworthy information as to the likelihood or unlikelihood that a given food will disagree with the eater.

The allergists have contributed much toward a solution of this problem. They are finding that the commonest offenders against health and comfort are the foods most commonly eaten, such as wheat, milk, eggs, chocolate, cabbage, tomatoes and oranges.

Not all food sensitiveness is on an allergic basis. There appear to be many druglike substances in food that can cause irritation of the bowel or even disturbances at a distance from the abdomen. The largely indigestible cellulose in many foods is another factor in causing discomfort.

This paper is based on answers obtained on questioning 500 patients of fair or good intelligence who were for the most part complaining of indigestion. They were asked about the foods that they could not eat or could digest only with discomfort. With the exception of wheat which was mentioned once, the foods complained of were those already incriminated by students of allergy. Many of the patients suffered after eating onions, apples, cabbage or milk. Other common offenders were chocolate, radishes, tomatoes, cucumbers, eggs, fats, cantaloup, beef, strawberries, coffee, lettuce, dried beans, cauliflower, melons, pork, corn and pickles.

Because most of the persons studied were seen because they were suffering with indigestion, the percentages given here must be considerably higher than those obtainable in an unselected group of persons.

Seven patients in 100 were unable to drink milk because the distress produced was so severe, three in 100 could not eat eggs.

A number of patients with migraine had recognized a connection between the headache and the eating of certain foods such as chocolate, onion, milk, peanuts, cabbage and eggs.

Food can at times produce mental depression, drowsiness, and a number of curious sensations in the head.

Transient urticaria was commonly ascribed by the patients to the eating of strawberries, tomatoes, eggs, fish, milk and chocolate. Constant urticaria seldom seemed to be due to food.

Onions, cabbage, raw apples, and radishes were rated above Boston beans as makers of gas. Milk also was a common offender.

Two factors may combine to produce symptoms in some persons, one coming from food and another perhaps from pollen, dust, fatigue or emotion.

A list has been made of the foods that are seldom mentioned by patients with indigestion. These foods, which are probably fairly innocuous, can be used as a basis for the "elimination diet" with which the physician and patient can narrow down their search for offending foods. The substances suggested for trial are lamb, gelatin, butter, sugar, rice, rye, barley, arrowroot, tapioca, sago, lima or soya or string beans, cooked apple, pineapple juice, beets, asparagus, peas, Irish or sweet potatoes, eggplant, turnips, parsnips, pumpkin, artichokes, cooked pears and weak tea.

The idea today is not to warn only against greasy foods or to hand out a ready-made diet list but to fit a diet to the individual. Often by such study it can be shown that the nature of the diet has nothing to do with the indigestion complained of.

<sup>10</sup> Alvarez, W. C. Ways of Discovering the Foods That Are Causing Indigestion. Proc. Staff Meet. Mayo Clin. 7: 443-446 (June 27) 1932.



CENTRAL FRACTURES OF THE  
NECK OF THE FEMUR

AN ANALYSIS OF THE END RESULTS

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A great deal of confusion still exists in regard to the results obtained in the treatment of central fractures of the neck of the femur. This is unquestionably the result of a lack of uniformity in the methods of compiling the statistics and explains the otherwise impossible disparity in the published results which vary from 20 to 90 per cent in which bony union is obtained. In other words, for figures to be of value one must know exactly how the cases were selected, under what circumstances they were treated and on what criteria the assumption of bony union was determined.

It is fairly well conceded that the reports of end results in central fractures of the femoral neck which are properly and accurately compiled average about from 55 to 60 per cent solid bony union.

My colleague Dr Willis C Campbell has recently compiled an analysis of all our fractures about the hip joint. In this classification of true central fractures of the neck of the femur, excluding impacted or incomplete fractures, the end results showed 53.3 per cent solid bony union. These cases were all treated by the Whitman method and were personally observed for a minimum period of two years. The mortality was 12

per cent. These figures correspond with other published results.

In view of the work that has come out in the last ten years, especially the articles of Phemister and of Santos regarding aseptic necrosis of the femoral head following fracture of the neck of the femur, it was thought that a study based on these facts might give interesting data regarding the cause for the high percentage of nonunions. Consequently a series of 100 acute complete central fractures of the neck of the femur adequately treated and traced to a final determination as regards union or nonunion

in which it became necrotic and to determine, if possible, the bearing this had on union or nonunion.

Roentgenologic and histologic study of the femoral heads removed during reconstructive operations in cases from this series and from other cases will be used to illustrate and confirm the conclusions drawn.

A tabulation of the results in this series showed 52 per cent solid bony union and 48 per cent nonunion.

There has been a great deal of controversy regarding the causes of nonunion in fractures of the neck of the femur, the more common explanations given may be discussed under the heads of improper or incomplete reduction, insufficient immobilization and aseptic necrosis of the femoral head.

## IMPROPER OR INCOMPLETE REDUCTION

There is no question that improper or incomplete reduction is a common cause of nonunion in cases improperly treated. It cannot be consid-

ered as an important element in this series, however, as the cases were all treated by the Whitman method which, in the hands of those accustomed to its use, is generally conceded to effect an accurate apposition of the fractured surfaces. The reliability of this statement is substantiated, both by the postreduction roentgenograms in the closed cases and by the visual demonstration, which may be obtained in those cases treated by open reduction. We have operated on a number of acute fractures recently for the purpose of using some type of internal fixation. In each of these cases the Whitman manipulation has been carried out with the head and neck under direct vision and it is very comforting to see the accuracy of the reduction and to know that certainly in the average case there is sufficient apposition of the fractured surfaces to permit bony union. The introduction of the lateral views of the hip, the technic for which has recently been perfected, is a further check and help in closed reductions.

## INSUFFICIENT IMMOBILIZATION

There is unquestionably some motion permitted between the fragments in a fractured hip even in a double spica cast. This is particularly true in obese patients after the cast has become loose. How seriously this affects the apposition of the fragments and the formation of callus can be judged by the number of cases in which the roentgenogram shows displacement immediately after removal of the cast. It has been our experience that, in those cases in which the head is living and in which union is progressing satisfactorily, the position is almost uniformly held satisfactorily. In those cases in which apposition has been lost it will usually be shown, either at the time or subsequently that other factors such as necrosis of the head and absorption of the neck account for the displacement. Again it is a common observation to find excellent apposition of the fragments on removal of the cast, which later is lost when immobilization is removed. Here the cast has maintained position in spite of the fact that union has not occurred.

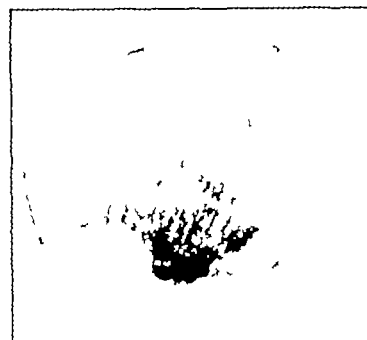


Fig 2 (case 1)—Head removed at reconstruction operation showing symmetrical atrophy.

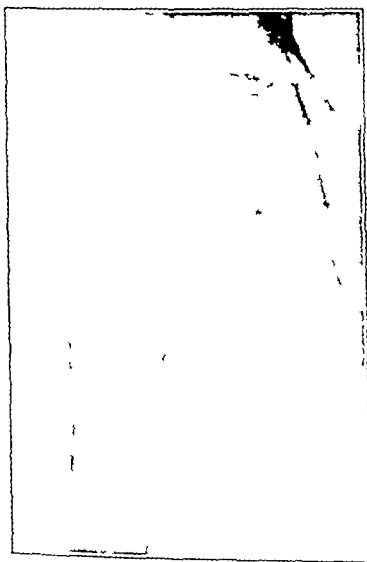


Fig 1 (case 1)—Mrs S R D had a central fracture of the neck of the femur ununited of five months duration. The illustration shows a head with corresponding atrophy in the head and trochanteric region, indicating a living head. (In the illustrations it has been extremely difficult to reproduce the contrast in density between the head and trochanteric regions which is clearly evident in the original roentgenograms.)

was selected. Incomplete or impacted fractures, and those cases in which death occurred or which were lost sight of were discarded.

Basing conclusions on the evidence afforded by the roentgenograms I made an effort to divide the series into those in which the head remained viable and those

Consequently, while incomplete reduction and inefficient immobilization may account for a small percentage of the cases treated by the Whitman method, one must look further for the fundamental cause producing such a high percentage of nonunions

#### ASEPTIC NECROSIS OF THE FEMORAL HEAD

A careful roentgenologic study of the femoral heads in sixty cases of nonunion, and microscopic studies of

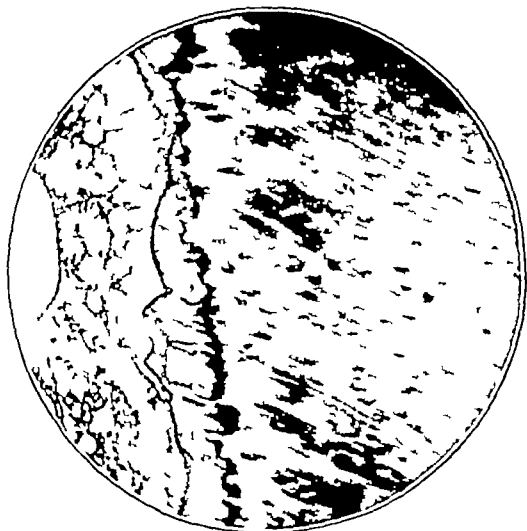


Fig. 3 (case 1) —Section showing junction of the articular cartilage with the medullary cavity. Both the cartilage and the cells in the medulla are living

those heads available lead to the very definite conclusion that the vast majority of nonunions are the result of an aseptic necrosis of the femoral head. Deprived of the major portion of its blood supply, it does not receive sufficient nourishment to maintain the viability of its cellular elements.

Clinical recognition of the fact that the femoral head undergoes necrosis following central fractures of the femoral neck dates back to the time of Sir Astley Cooper, approximately 100 years ago. Kocher in 1896, basing his conclusions largely on clinical observation, stated that in all fractures of the femoral neck the head became necrotic.

It has been only in the last ten years that the earlier clinical observations regarding the process of aseptic necrosis have been placed on an accurate scientific basis and that a complete pathologic description of the process of necrosis with subsequent revascularization and substitution has been given.

Schmor, Hesse and Bonn were among the earlier investigators to describe the process of secondary revascularization. Phemister has recently contributed valuable studies on the general subject of aseptic necrosis. The comprehensive article of Santos, which was published in 1930, reviews the entire subject and, using the data gathered from the study of a series of femoral heads removed at autopsy or operation, clearly describes the entire pathologic process, correlating the clinical, x-ray and microscopic changes.

In attempting to estimate the number of heads in this series which became necrotic, it was necessary to rely almost entirely on the x-ray evidence, as in only a few cases were the heads obtained for microscopic study. It is realized that even though the roentgenograms were all taken at the same place with a routine technic there still remains a probable percentage of

error due to the element of personal equation in interpreting the comparative density of the femoral head and the adjacent bone. It is on this variation in density that distinction between the viable and the necrotic heads is made.

It is frequently impossible to determine the viability of the head from a single film, but in most instances if the cases are followed over a sufficient period of time with successive roentgenograms, a very definite decision can be reached.

In every case in which it has been possible to check the x-ray reading with the microscopic examination of the head they have been found to coincide. Based on the roentgenologic evidence, it was found that the head was necrotic in 34 per cent of this series of 100 acute fractures of the femoral neck. In thirty cases nonunion occurred. Granting that the average series reported will show 40 per cent of nonunions, it is apparent that approximately 75 per cent of our nonunions can be explained on the basis of aseptic necrosis of the femoral head.

#### SOLID BONY UNION WITH VIABLE HEAD

Cases that are progressing to a solid bony union with a viable head show definite characteristics at the end of the routine three months period of cast immobilization. Roentgenograms show the normal relative position of the head and neck to have been maintained. The density of trochanter, neck and head are approximately the same, each having undergone the usual physiologic atrophy that characterizes bone with a normal blood supply.

At this time it should be possible to form a fairly definite idea as to the probable prognosis in each case.

Variations from the normal should be viewed with apprehension. It is true that some cases will go on to solid union after slight displacement of the fragments or after absorptive changes in the neck but they are unusual. Even though perfect anatomic alignment has been maintained definite contrast in density between the head and the distal neck fragment and trochanter should make the prognosis guarded. There have been a number of such cases in this series in which the head proved to be necrotic, the apparent union disintegrating as soon as immobilization was removed and a typical nonunion resulting.



Fig. 4 (case 2) —Mr. H. B. G. had a central fracture of the neck of the femur with nonunion of nine months duration with aseptic necrosis of the head. The trochanter and acetabulum show normal physiologic atrophy producing a definite contrast in density with the head which has retained its original density.

Definite evidence that bony union has taken place is first shown by the reformation of the lines of force extending from the neck across the fracture line into the head. If the normal anatomic relationship between

the head and the neck has been maintained, these lines assume the same location and arrangement as those of the normal hip, but if the neck has become shortened or a coxa vara deformity has occurred, these reinforcement lines will follow the lines of greatest mechanical force.

The final evidence of union is shown by a gradual recalcification of the head, neck and trochanter as function and weight bearing are resumed.

Forty-eight per cent of this series obtained solid bony union with viable head.



Fig 5 (case 2)—Aseptic necrosis of head. The normal density has been retained except for small areas of early replacement changes.

#### NONUNION WITH LIVING HEAD

In improperly treated cases nonunion in the presence of a viable head is a common occurrence. It is easily explained by failure to secure or maintain apposition of the fragments.

That it is relatively infrequent in cases treated by the Whitman method is clearly shown by the fact that only 7 per cent of the cases in this series showed nonunion with a living head. Here again the conclusions were based on x-ray evidence, only one living head having been available for microscopic study.

If the head, neck and trochanter showed a uniform decrease in density, or if the head showed a regular symmetrical atrophy as shown by successive roentgenograms during the first six months following the fracture, it was considered viable.

The accuracy of the x-ray deductions is supported by the fact that the one head removed showed unchanged marrow cells and living bony trabeculae in the microscopic sections and that in two other cases union was obtained following bone grafting.

Bony union associated with a necrotic head occurred in 4 per cent.

It is clearly evident, both from cases observed in this series and from those reported by other authors, that union may and does take place between the living distal fragment and a necrotic femoral head. Aulhausen explains this by the formation of a bridge of connective tissue and callus extending from the distal fragment across the fracture line and into the necrotic head. The head later undergoes revascularization and eventually replacement by newly formed bone and cartilage.

Santos states that "in none of the cases here reported was there any evidence either histologic or roentgenologic that the new bone formed in connection with the blood vessels entering the head by way of the fovea played any part in the healing of the fracture."

It must be concluded, then, from the evidence at present available that union under such conditions is entirely the result of an outgrowth of living elements from the distal fragment that invade the necrotic tissues of the head. This new growth or bridge consists at first of the same young connective tissues and blood vessels seen in the early substitution of the head. Later new living bony trabeculae grow out from the distal portion of the neck, crossing the fracture line and extending up into the head.

Santos reports a case of an impacted fracture of the femoral neck which came to autopsy four weeks after the injury, in which histologic sections taken across the fracture line showed new bony trabeculae extending from the distal portion of the neck into the necrotic trabeculae of the head.

It does not seem improbable that they may here blend with the new bone formed in the process of substitution of the necrotic head.

It must be assumed that in such cases, if one is to obtain a satisfactory functional result, a complete substitution must be made for the necrotic head, which must be replaced by living bone and cartilage. Otherwise degenerative changes with subsequent erosion and fragmentation of that portion of the head which is not so replaced will occur on the resumption of weight bearing.

With present knowledge and methods of observation, it is impossible to determine when this process of substitution has progressed sufficiently to allow the resumption of function. It is probable that in many cases it never does occur and that years after unquestionable bony union has taken place between the neck and the necrotic head trophic changes with complete disintegra-



Fig 6 (case 2)—Section showing characteristic aseptic necrosis of the head with early replacement changes. Normal marrow cells have disappeared being replaced here and there by early fibrous tissue with some new blood vessels. The bony trabeculae are necrotic.

tion of the head may occur. This is illustrated by the following two cases.

Two and one-half years after a fracture of the femoral neck unquestionably united, the patient returned because of pain in the hip. She had been walking without support for two years. Roentgenograms showed the old fracture united in good position but with degenerative changes throughout the head and beginning disintegration.

Another patient, Mrs. C. C. J., had a fracture of the femoral neck, which apparently united normally except for a persistent

contrast in density between the head and the trochanter. She resumed walking and, except for occasional pain in the hip, was free from symptoms for four years, at the end of this period she returned because of disability in the hip. Roentgenograms at that time showed complete disintegration and fragmentation of the head. The union in the neck remained solid.

Union with a necrotic head is of relatively infrequent occurrence, being present in only 4 per cent of this series. In these cases the x-rays showed persistent con-



Fig 7 (case 3)—Mrs. T. L. D. illustrating impacted or incomplete fracture eventually resulting in nonunion with a necrotic head. *A*, original appearance at time of fracture showing incomplete fracture without displacement. *B*, four months later showing definite contrast in density between atrophic trochanter and the necrotic head which has retained its original density. Normal position of the fragments has been maintained. *C*, sixteen months after injury showing typical nonunion with displacement of the fragments and a necrotic head.

trast in density between the head and the trochanteric region. Later irregular areas of decreased density appear in the head indicating beginning substitution. This may progress throughout the head or disintegrative changes with fragmentation may supervene, destroying all or part of the head.

#### NONUNION ASSOCIATED WITH NECROTIC HEADS

It is usually possible at the end of the three months period of cast immobilization to determine by the roentgenographic appearance whether the head is necrotic or viable. In this series of 100 acute fractures the contrast in density between the head and the trochanter was sufficiently clear in twenty-four cases after three months to warrant the conclusion that the head was necrotic. The contrast in density is first evidenced as an absorption of the lime salts in the distal portion of the neck and the trochanteric region. Having an adequate blood supply this portion of the bone undergoes the normal physiologic atrophy of disuse. The head, deprived of its blood supply, does not show in this atrophy, retaining approximately the same density that it presented at the time of fracture. Subsequent roentgenograms showed that all but two of these cases resulted in nonunion.

In eleven cases a definite conclusion could not be drawn from the roentgenogram at three months. Eight of these subsequently proved to be necrotic, six resulting in nonunions.

In a number of cases in the nonunion group the normal anatomic relations between the fragments was maintained for months after immobilization had been removed. The apparent union disintegrated only when direct weight bearing was begun.

Relying solely on the maintenance of position, one would have been greatly deceived as regards the prog-

nosis in such cases. However, a careful study of the roentgenograms invariably revealed an increasing contrast in density and usually beginning substitutive changes in the heads. In no case did the lines of force reform across the fracture line.

It has been stated by Santos that the process of revascularization and substitution of the necrotic heads begins within the first month and is usually evident in the roentgenogram at three months, but in some cases the process is much delayed and may not occur for years.

Studies of the heads in this series are entirely in accord with this statement. The majority did not show definite substitution as shown by the x-rays, under six months; in many it was not present until one year. In some old cases seen because of disability from nonunion heads have been observed which maintained their original density for four or five years.

The period of time that the necrotic head retains its appearance of uniform density depends on the rapidity of secondary revascularization and replacement of the necrotic bone elements by newly formed fibrous tissue and living bony trabeculae.

When the head is detached from the distal fragment the first evidence of replacement usually appears around the focus and is produced by an ingrowth of blood vessels and young connective tissue, either from the vessels of the ligamentum teres or from a pannus-like growth of connective tissue which covers the outer surface of the articular cartilage and enters the head by way of the focus. The same pannus covers the fractured surface of the neck and begins an invasion of the necrotic head from this location.

Revascularization and replacement of a necrotic head is shown in the roentgenogram by irregular areas of decreased density which increase in size as the process continues until the greater portion of the head may be replaced by living tissue which differs little in density from the living atrophic head. It can usually be dis-



Fig 8 (case 4)—Mrs. C. C. J. had a complete central fracture of the neck of the femur adequately treated resulting in solid bony union with a necrotic head which later completely disintegrated on resumption of weight bearing. This case shows that even though union may be obtained with a necrotic head, subsequent degenerative changes may occur unless the head is completely revascularized and replaced. *A*, complete central fracture of the neck of the femur with the usual displacement of the fragments. *B*, one year after injury solid bony union with normal relation of the head and neck fragments; also atrophic changes in the trochanter and neck with retention of the original density in the head indicating union with a necrotic head. *C*, six years after fracture complete disintegration and fragmentation of the head.

tinguished from the living head, however, by the fact that the structure of the living head is much more regular, but in some old cases this distinction is impossible.

Microscopic sections have been made on nine femoral heads removed at operation, some of which are cases included in this series. Eight of the heads were necrotic and one was viable. The changes seen in these heads corresponded accurately to the roentgenographic appearance and in each case corroborated the preoperative diagnosis as regards the viability of the head. The pathologic changes were the same as those described by Santos and will not be repeated here. With the roentgenologic evidence as a basis for conclusions, it is possible to state from this series that one may expect approximately 35 per cent of the femoral heads to become necrotic following central fracture of the neck of the femur. Thirty per cent will result in nonunion.

Assuming that failures in the average reported cases are 40 per cent, it is possible to explain 30 per cent, or 75 per cent of the nonunions, on the basis of aseptic necrosis of the head. This is a factor over which one has no control with present methods of treatment and must remain as an irreducible minimum unless some method is discovered of reestablishing or improving the blood supply to the head.

It is possible that some of the recent methods of open reduction and internal fixation used in the acute fractures may accomplish this by a more accurate and constant coaptation of the fragments, a reestablishment of circulation being permitted before necrosis of the head occurs. Knowledge gained in the treatment of the acute fractures is a valuable guide in determining the type of operation to be employed in cases of definitely established nonunion.

If the head is viable, union may be induced and a satisfactory functional result obtained in many cases by a bone graft or some other method of internal fixation, even years after the fracture.

Smith-Petersen reports a remarkable case in which union was obtained by means of a nail ten years after the injury.

Practical experience has shown that in the presence of a necrotic head it is difficult to restore union by bone grafts or any other method of internal fixation. Such operations result in failures almost as a routine, either because of failure to induce union or because of degenerative changes appearing later in the head.

It is apparent, then, in cases of nonunion with necrotic head, that a reconstruction operation offers the patient the best prognosis.

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**Flying in the Face of Nature**—The point of view that plants and animals including our own bodies are nature's wholes which have evolved in relation to each other can help us in grasping two important facts. One is that we are 'flying in the face of nature' and shutting our eyes to one of the plainest implications of the evolutionary point of view when we take our nourishment too largely in artificially refined forms—in forms from which we have rejected parts of those wholes to which we are attuned by evolution. And the other of these facts is that if we plan our dietaries to meet all our known nutritional needs and meet these by the use of reasonably natural foods these, as nature's wholes of the kinds to which our own bodies have been adjusting themselves throughout our evolutionary history, will almost certainly furnish any substances which may be essential to our nutritional well being though still scientifically unknown to us. This is not to suggest a return to nature but only an intelligent application to the problem of food and health of one of the simplest and most fundamental implications of the general evolutionary and scientific point of view of today.—Sherman H. C. *Food and Health*, New York: Macmillan Company, 1934.

## CORONARY THROMBOSIS

### FOLLOW-UP STUDIES WITH ESPECIAL REFERENCE TO PROGNOSIS

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DETROIT

A more convincing physiologic experiment could scarcely be devised as illustrative of the recuperative power of the human heart than the restoration of cardiac function following acute coronary occlusion. That it is possible for the human heart to reestablish its intrinsic blood flow, both through collateral vessels and through channels other than the coronary tree, is now well established and undoubtedly is an important factor in aiding recovery in cases of cardiac infarction. Allbutt,<sup>1</sup> Wearn,<sup>2</sup> Scott<sup>3</sup> and others have reported cases of complete occlusion of the coronary orifices from syphilitic aortitis in which no serious myocardial change was present. In these cases a gradual occlusion of one or both coronary orifices over a period of months was so completely compensated for that the patients were able to continue their daily work with comparative ease. It is quite apparent, therefore, that if the initial shock of acute cardiac infarction is not too great and the first few weeks are survived, many patients will recover so completely and the coronary circulation will so thor-

TABLE 1—Duration of Condition in Thirty-Two Living Patients (61.4 Per Cent of Total)

Average age at onset of all living cases 54.2 years			
Time Since Initial Attack	Number of Cases	Total Living	per Cent
13 years	1	31	3.1
6 years	10	31.3	
5 years	2	6.2	
4 years	5	15.6	
3 years	5	15.6	
2 years	2	6.2	
1 year	7	21.9	

oughly reestablish itself in time that many useful years will remain to the individual. Such an optimistic outlook for cardiac infarction is, however, not very general among the medical profession and, it seems to me, is badly in need of emphasis.

The basis for this study and for the preceding note of optimism is a series of private cases seen over a period of seven years. No case has been used which did not show positive evidence of infarction, with clinical and electrocardiographic data to substantiate amply the diagnosis. Very mild or questionable cases have been rejected. In all, fifty-three cases have been studied.

In table 1 are shown the living patients grouped according to the time that has elapsed since the initial attack. A few details warrant further elaboration. In the thirteen year group, one case is listed. This man, a real estate operator, suffered a most severe infarction at the age of 61 and during the past four years has had occasional mild attacks of acute pulmonary edema following moderately strenuous exertion. However, in the thirteen years elapsed, he has continued steadily to earn his livelihood, drives his own car and goes up and down stairs without discomfort.

From the Freund Clinic.  
Read before the Central Society for Clinical Research, Chicago, Nov. 3, 1934.  
<sup>1</sup> Allbutt, T. C. *Diseases of the Heart Including Angina Pectoris*. London: Macmillan Company, 2, 21, 1915.  
<sup>2</sup> Leary, Timothy, and Wearn, J. T. *Two Cases of Complete Occlusion of Both Coronary Orifices*, *Am. Heart J.* 5: 412 (April) 1930.  
<sup>3</sup> Scott, R. W. *Syphilitic Aortic Insufficiency*, *Arch. Int. Med.* 34: 645 (Nov.) 1924.

In the six year group, ten patients are living. Of these, seven are well and have been restored to their previous occupation. Of the three not working, one is a man, aged 75, who has diabetes and tabes but absolutely no cardiac difficulties. The second is a retired physician, aged 70, who is able to walk long distances and who, two weeks ago, was sufficiently well to remove an old stump from the grounds of his summer cottage. It is of interest that he worked for nearly three hours

TABLE 2—Status of Living Patients

Status	Number	Per Cent
Living patients who have retired	7	21.0
Living patients restored to previous occupation	25	78.1
Living patients without symptoms	24	75
Living patients with symptoms	8	25

TABLE 3—Final Electrocardiographic Changes in Living Patients

Condition	Number	Per Cent
No evidence of coronary disease	3	10
Evidence of coronary disease	27	90
Definite R <sub>T</sub> changes	17	50.6
Cove negative T <sub>1</sub> or T <sub>2</sub>	13	43.3
Diphase T <sub>1</sub> or T <sub>2</sub>	12	40
Very prominent Q <sub>s</sub>	5	16.6
Low voltage	2	6.6
Notched QRS	3	10
QS 0.12 second	1	3.3

with a pick and spade, and in his own words was wringing wet with sweat but hadn't a single symptom referable to his heart. The third of the inactive patients in this six year group has become a chronic invalid at 55, more functionally ill than otherwise. During the six years she has had a thyroidectomy for adenoma, a cholecystectomy for common duct obstruction and numerous hospital entries for various minor complaints. She walks stairs as desired, however and does not suffer significantly from her heart. I will not detail further the patients in this group, but the foregoing four cases are representative and illustrate very well how much a restoration may be expected in some cases.

In table 2 is enumerated the number of living patients who have been restored to their previous occupation. Only seven, or 21.9 per cent, have not been so restored, and of this group three are able to drive their own cars at the ages of 52, 67 and 70. Of the four who are less active, one includes the neurotic patient already discussed, while three are aged 75, 74 and 74. It would seem, therefore, that there is even some basis for optimism in this inactive group. As noted, 75 per cent of all living patients are free from symptoms. Of the eight patients who have mild symptoms of stenocardia or dyspnea, four are working and four are inactive.

Table 3 covers the electrocardiographic changes in these cases at the present time. Only three cases in this group do not show evidence of coronary disease, and it is instructive that in not one of these three cases were there attacks associated with shock or marked by the more usually severe reaction on the pulse and blood pressure. The high incidence of persistent changes in the electrocardiogram for many years following cardiac infarction is an important finding and is just beginning to be recognized. As has been previously reported, the more common persistent changes are R<sub>T</sub> alteration, cove negative T<sub>1</sub> or T<sub>2</sub>, or diphase T<sub>1</sub> or T<sub>2</sub>. While a prominent Q<sub>s</sub> was present in 16.6 per cent of this group, it was not present alone in any case. From these data I feel justified in concluding that for the remainder of these patients' lives following coro-

nary thrombosis approximately 90 per cent may be expected to have electrocardiographic evidence of coronary disease. This should prove of distinct value in the evaluation of etiologic factors in individual cases of heart disease.

In table 4 are listed the occupations of the active group who have survived a coronary thrombosis. This list I have included merely to illustrate that such patients are able to carry responsible positions, entailing not a little physical and mental strain, with no apparent harm to themselves.

Table 5 is of interest chiefly because of the age groupings. It will be noted that the average age of this fatal group is 63.4 years, while the average age of the living group is only 54.2 years. It has often been contended by students of this subject that individuals above 60 years of age tolerate acute coronary occlusions better than those below 60 years of age. This study does not bear out such a contention and would seem much more in harmony with clinical experience in which other circulatory insult is tolerated less well by such elderly patients. As indicated by the chart, only two patients died two months after the occlusion, the greater majority succumbing within a relatively few days. Several cases in this fatal group warrant some elaboration.

CASE 1—A man, aged 35, was stricken with a most severe attack in which auricular flutter quickly resulted. He was hospitalized and the flutter and decompensation were controlled. After two months his condition was quite satisfactory and he was allowed to work a few hours each day managing his butcher shop. Two years elapsed and the depression came, so that he began to do all his own work, lifting heavy loads and making trips up and down stairs. He soon began to have attacks of precordial pain which he would not heed, and a few weeks later was found dead in his bed.

CASE 2—A salesman, aged 44, had a moderately severe attack, but after the third day he refused absolutely to say in bed. On the tenth day he attempted to go to the bathroom, where he collapsed and died immediately.

TABLE 4—Occupations of Active Group

Merchant	8	Attorney	1
Housewife	4	Printer	1
Physician	2	Engineer	1
Broker	3	General agent for life insurance	1
Sales manager	2	Accountant	1
Bill collector	1		

TABLE 5—Analysis of Twenty One Fatal Cases (39.6 per Cent Mortality)

Average age of all patients at death 63.4 years			
Age Group	Number	Fatal Cases per Cent	
60-70 years	15	71.5	
50-60 years	4	19	
35-50 years	2	9.5	
Patients dying few hours to 2 months	19	90.5	
Patients dying after 2 months	2	9.5	

CASE 3—A housewife, aged 70, had a very severe attack and for six days was unconscious. On the thirtieth day after the attack, although she was still mildly decompensated, she refused to stay in bed any longer. Orthopnea and edema developed within a few weeks and she was again persuaded to stay in bed for a time. She was never entirely free of decompensation, however, and died eight months after the infarction.

Such histories as these, I believe, are most significant, for they indicate that many patients with coronary occlusion might be saved who are now succumbing. Of recent years I have adopted the policy of very early enlisting the patient's full cooperation in remaining

absolutely at rest in bed for a minimum of six weeks following the attack. After this, another six weeks elapses before any resumption of activity is permitted, and careful supervision of the patient's activities is continued for a full year. If a sensible explanation of the exact mechanism of coronary occlusion, with the necessity for healing of damaged tissue, establishment of collateral circulation and the opening up of the thebesian channels is given in understandable terms, I believe that few patients will refuse to obey orders. I fear a great deal more any overactivity in the early weeks than the possibility of a later cardiac neurosis.

#### CONCLUSIONS

Fifty-three cases of acute coronary thrombosis, with a mortality of 39.6 per cent, have been studied from private practice. Of the thirty-two living patients, 78.1 per cent have been restored to their previous occupation, with one patient living thirteen years after acute infarction and ten patients living six years after the onset of infarction. The electrocardiogram is positive for coronary disease at the present time in 90 per cent of these cases. The mortality of the patients suffering occlusion at the age of 60 and above is distinctly higher than is the case at ages below 60. A much more hopeful prognosis seems justified on the basis of these studies than is generally prevalent. Of great importance is a period of many weeks' convalescence, with appropriate restrictions for a full year following acute coronary occlusion.

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### MYASTHENIA GRAVIS

#### EFFECT OF TREATMENT WITH ANTERIOR PITUITARY EXTRACT. PRELIMINARY REPORT

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Myasthenia gravis is a rare disease characterized by excessive fatigability of muscles, especially marked in certain characteristic groups. The ocular muscles are usually first involved and there is unilateral or bilateral ptosis of the eyelids, diplopia, occasionally strabismus and a fixed eyeball, which makes it necessary for the patient to turn the body rather than the eyes in order to see objects at one side. The muscles of mastication and deglutition are frequently involved early, and the jaw sags soon after the patient starts to chew. There is strangling and difficulty in swallowing. The voice weakens rapidly, the muscles of expression tire and a masklike expression results. In more severe cases there are attacks of rapid, shallow breathing when the accessory respiratory muscles or the diaphragm are involved, and weakness of the cardiac muscle may result in palpitation and tachycardia. The involvement of the muscles of the trunk and upper and lower limbs later and in more severe cases may produce weakness and helplessness so marked in some instances that the patient is unable even to turn over in bed.

The onset of myasthenia gravis is usually gradual and the course is progressive over a period of from several to twenty or more years. Remissions are so frequent that they are regarded as a part of the disease, especially in the milder and more prolonged cases. More rarely the onset may be acute and the course rapid, resulting in death within a few weeks. Untreated, the outlook is grave, death resulting from strangulation, inanition and dehydration or secondary complications.

Spessard<sup>1</sup> reported twenty-six deaths in thirty-eight cases while under observation.

Constant or significant pathologic changes have not been observed either clinically or at necropsy. There is wasting of the muscles from poor nutrition, but no constant or marked changes are demonstrable in the neuromuscular mechanism. Weigert demonstrated lymphocytic infiltrations in the muscles. Abnormalities in the thymus gland in patients who have died from myasthenia gravis have been noted in some instances. The constancy or significance of neither of these changes has been shown.

Since the first descriptions of the disease by Wilks, Erb, Goldflam, and others in 1877, 1878 and 1891 respectively, some 300 cases have, according to Keschner and Strauss,<sup>2</sup> been reported in the literature up to 1927. Boothby<sup>3</sup> in 1934 reported the largest individual series, which consisted of forty-seven cases observed in the Mayo Clinic over a period of twenty-six months.

Previous to 1930 no treatment of any value was known. The importance of rest and the necessity for the maintenance of nutrition were recognized. Strychnine has been given for many years and in large doses was thought to be beneficial. Arsenic, thyroid extract, parathyroid preparations, calcium, thorium and roentgen exposure over the thymus gland have all been employed with indifferent results.

In the last four years two significant discoveries have been made in the treatment of myasthenia gravis. Harriet Edgeworth<sup>4</sup> in 1930 reported the beneficial effects of large doses of ephedrine in her own personal case of myasthenia gravis. She used three-eighths grain (0.025 Gm.) doses of the drug twice daily. This results in prompt alleviation of symptoms in many instances, but the improvement is not always constant and, according to Boothby, excessive amounts may not only cease to allay the symptoms but even appear to aggravate the weakness and produce intense nervousness.

In 1932 Remen in Germany and Boothby<sup>5</sup> in this country reported beneficial effects from the ingestion of aminoacetic acid (glycine or glycolyl), which is the simplest of the series of amino acids and is present in gelatin. This suggestion was based on the work of Milhorat and others, who first noted disturbed creatine metabolism in progressive muscular dystrophy, and on the observation that of all the amino acids aminoacetic acid produces the greatest increase in creatine excretion in the urine. The results of treatment with aminoacetic acid have been encouraging. Boothby contrasts the twenty-six deaths in thirty-eight cases reported without details by Oppenheim, with the results in forty-seven cases treated with aminoacetic acid and ephedrine at the Mayo Clinic over a period of twenty-six months. In the latter series thirteen of the patients were able to work practically at full time, nine were greatly benefited, seventeen were moderately improved, one was not heard from, and seven died. Of the seven patients who died, two abandoned treatment, one died within

1 Spessard T. N. Myasthenia Gravis. With Report of a Case. *Virginia M. Monthly* 60: 418-420 (Oct.) 1933.

2 Keschner Moses and Strauss Israel. Myasthenia Gravis. *Arch. Neurol. & Psychiat.* 17: 337-376 (March) 1927.

3 Boothby W. M. Myasthenia Gravis. Effect of Treatment with Glycine and Ephedrine. (Fifth Report). *Proc. Staff Meet. Mayo Clin.* 9: 593-597 (Oct. 3) 1934.

4 Edgeworth Harriet. A Report of Progress on the Use of Ephedrine in a Case of Myasthenia Gravis. *J. A. M. A.* 94: 1136 (April 12) 1930.

5 Boothby W. M. Myasthenia Gravis. A Preliminary Report on the Effect of Treatment with Glycine. *Proc. Staff Meet. Mayo Clin.* 7: 557-560 (Sept. 28) 1932.



forty-eight hours after coming under observation one died from pneumonia one committed suicide, and two had failed to show any improvement under treatment.

The results of treatment with aminoacetic acid, in some instances combined with ephedrine, are definitely encouraging and are vastly superior to the results of any previous method of treatment, they fall short, however of being entirely satisfactory. There is still a large group of cases in which recovery is incomplete and a small group in which this treatment is entirely without avail. For these cases there has hitherto been no therapeutic alternative.

Since July 2, 1934 I have used injections of anterior pituitary extract<sup>6</sup> in treating two cases of myasthenia gravis, the results have been surprisingly good.

**CASE 1**—A woman aged 31 had a negative past history except for diphtheria at the age of 5 years. The onset of the present illness was in 1923 while she was three months pregnant, headache double vision ptosis of the left eyelid and slight dizziness appeared. Later there was bilateral ptosis and general weakness. When she played the piano the fingers and hands became powerless after a few minutes when she ate the jaws tired quickly and had to be assisted with the hand. The face felt stiff. The condition became progressively worse with slight remissions. In 1927 she was confined to bed and the diagnosis of myasthenia gravis was made by Dr. G. C. Anderson of New Orleans. Another remission occurred and she was nearly normal until 1933 when the symptoms recurred. At this time there was considerable respiratory difficulty on occasions with rapid shallow breathing and palpitation. Muscular aching was noted especially in the chest and shoulders. She was confined to bed except for a few hours each day and wore a patch over one eye to avoid the double vision. Difficulty in swallowing was noted the voice rapidly weakened and she stuttered. She had lost weight and was unable to eat much on account of weakness of the jaw muscles.

On examination she appeared slightly undernourished and very weak. A patch was worn over one eye the face was somewhat expressionless, the left eyelid drooped. When she walked she supported herself along the wall and on furniture and on several occasions she had to be assisted about the room. The reflexes were normal. The blood pressure was 115 systolic 75 diastolic. The urine appeared normal the blood Wassermann reaction was negative and the basal metabolic rate was minus 14.

Ephedrine, even in small doses produced such marked nervousness that she refused to take it. Aminoacetic acid was not given. July 2, 1934 daily subcutaneous injections of 1 cc of anterior pituitary extract were started. After the second day all muscular discomfort disappeared. After the third or fourth day she was able to remain up out of bed nearly all day, and after the tenth day no symptoms whatever remained. Treatment was stopped for eight days and all symptoms returned. July 28 the injections were again started and continued at daily intervals for about ten days and then every two or three days until November 15. The symptoms promptly cleared up as they had done at first. She stated that she felt better than at any time since 1923, she pursued all her activities normally without unusual fatigue and the weight increased from 105 to 118 pounds (47.6 to 53.5 Kg.). From Nov. 15 1934 to Jan. 15 1935 she received no further treatment without recurrence of symptoms. During the entire period of treatment she has eaten her usual mixed diet and has not taken any ephedrine or aminoacetic acid or been permitted to eat any gelatin preparations.

**CASE 2**—A man, aged 50 while walking to the office July 8 1933 experienced a sudden weakness of the legs and he fell to the ground. Eversion of any kind produced markedly abnormal weakness and he was obliged to remain in bed. Double vision, ptosis of the right eyelid weakness of the jaw difficulty in swallowing and weakness of the voice developed. At times the muscles cramped and pained him severely. Difficult breathing occurred on some occasions. There was a weight

loss from 149 to 105 pounds (67.6 to 47.6 Kg.) and he was confined to bed on a number of occasions for long periods. On one occasion for five months he was so helpless that he had to be turned in bed. There were several remissions, but for two months previous to the present examination he had been getting progressively worse and he was confined to bed almost continuously. Ephedrine had been given previously with slight transitory benefit, aminoacetic acid had not been used.

On examination he appeared poorly nourished and excessively fatigued. The face was expressionless the eyelids drooped slightly and the movements of the eyeball were slow and absent at times. The reflexes were normal. The urine appeared normal the blood Wassermann reaction was negative and the hemoglobin estimation was 80 per cent.

The patient was hospitalized and placed on a 2,000 calorie balanced diet. Aug. 20 1934, daily subcutaneous injections of 1 cc of anterior pituitary extract were started. After the second day all pain and discomfort had disappeared, after the fifth day he was able to be up out of bed for several hours at a time with out marked fatigue and by the tenth day he was able to walk at least half a mile without undue fatigue. Treatments were then continued at intervals of from two to three days, after three weeks he was able to perform hard work daily in the employ of a railroad company without undue fatigue. He stated that he had never felt better in his life. From October 13 to 23 treatment was omitted and he worked in the cold and rain on several occasions for sixteen hours at a time all symptoms returned and he was again confined to bed. After resumption of treatment improvement again resulted. During cold weather it was necessary to continue the injections at daily intervals and on occasions two injections were given each day. No untoward effects have been noted from the injections at any time no other treatment was given. Jan. 15 1935, he was doing full time work. An attack of influenza in December 1934 confined him to bed for about one week, but he convalesced from this without unusual difficulty.

#### SUMMARY

This report of the effect of subcutaneous injections of anterior pituitary extract in the treatment of myasthenia gravis is a preliminary study. The number of cases available is too small and the period of time over which they have been observed is too short to permit general conclusions, but the results so far are very encouraging. Both of these patients presented undoubted clinical evidence of myasthenia gravis. In both instances the response to treatment with anterior pituitary extract was prompt and complete, and a relapse promptly followed when the injections were omitted. On the resumption of treatment the symptoms again promptly disappeared in both cases. Since no other treatment was employed it would seem justifiable to conclude that this preparation had a marked beneficial effect on all the clinical manifestations of myasthenia gravis in these two cases.

In case 1 it was possible to discontinue the treatment after four and one-half months without recurrence of symptoms. It is impossible to determine whether this was the result of the fortuitous occurrence of a remission or whether a remission was induced by the treatment. In the second case it has been necessary to continue the treatment and during cold weather to increase the frequency of the injections in order to keep the patient clinically well. Whether a remission will be induced or not remains to be seen. In no instance have any untoward effects either local or general, been observed as a result of the injections.

The oral administration of the extract would be preferable to its hypodermic use if it should prove as efficient. It is planned to try the relative merits of the two methods of administration.

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<sup>6</sup> The preparation used was an acid aqueous extract of the anterior lobe of the pituitary (Antuitrin) prepared by Parke Davis & Co.

## ANORECTAL TUBERCULOSIS

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By anorectal tuberculosis is understood a chronic inflammatory process of the terminal region of the bowel, caused by the tubercle bacillus, occurring commonly as a secondary involvement in pulmonary tuberculosis. It is characterized pathologically by swelling, induration, caseation, abscess, sinus and fistula formation, and clinically by a variety of symptoms including itching, sense of irritation, localized pain, painful defecation and the presence of a purulent discharge.

The literature on anorectal tuberculosis, or tuberculosis fistula in ano as it is commonly called, is large and voluminous. Up to a few years ago considerable thought was given to the question whether or not all anorectal fistulas were tuberculous in character, and proponents of each view were easily found. Likewise, the questions of incidence, pathology, diagnosis and treatment have been the subject of many an acrimonious discussion. In addition to the modern literature, the ancient writings of Celsus, Hippocrates, the Old Testament, and even the Code of Hammurabi, probably the oldest known code of laws, contain references to fistula or related problems, so small wonder that the subject seems a bit bewildering at first glance.

It is our purpose in this paper to discuss our experiences with anorectal tuberculosis as we have encountered the problem in sanatorium and private practice in Denver. Our study is based on an analysis of seventy-one cases of proved or probable anorectal tuberculosis and 106 cases of nontuberculous supportive lesions of the terminal end of the bowel taken for comparative purposes.

## INCIDENCE

The incidence of anorectal tuberculosis seems to be one of the disputed problems. In 1920 Thoss<sup>1</sup> reviewed the current German literature. He cited Richard Volkmann and Franz Koenig as believing that rectal fistulas were of tuberculous origin in the majority of cases, that de Quervain considered at least half of all rectal fistulas to be tuberculous, and that Melchior<sup>2</sup> found an incidence of 61 per cent at Breslau while Gös found rectal fistulas to be tuberculous in 45 per cent of cases at Munich. However, opposed to this view are the opinions of Lanz, who considers tuberculosis to be of little significance, and Frey, who found only 69 per cent of seventy-two surgical cases to be tuberculous by macroscopic and microscopic methods. Frey maintains that the criterion for the diagnosis is the nature of the pathologic alterations at the site of the lesion, while tuberculosis elsewhere in the body does not constitute sufficient evidence to justify the diagnosis. Melchior, however, contends that even negative microscopic examinations do not exclude the presence of tuberculosis in the fistulous tract. Thoss concludes that the reported incidence of from 50 to 60 per cent is entirely too high.

Martin<sup>3</sup> states that 7 per cent of the patients at the Chicago Municipal Sanitarium have anal fistula.

Lockhart-Mummery<sup>4</sup> states that 4 per cent of the tuberculous patients admitted to the Brompton Hospital were suffering from fistulas. Rickmann<sup>5</sup> found that 26 per cent of the patients in a German private sanatorium had fistula in ano, and he believed that the percentage was higher in sanatoriums for the poor. Lawrason Brown<sup>6</sup> states that fistula is a rather frequent complication of pulmonary tuberculosis, occurring in about 3 per cent of all cases.

In 1926 Clarke<sup>7</sup> of Belfast reported his observations in 109 cases of fistula occurring in persons with pulmonary tuberculosis and observed that about 5 per cent of male patients have at some time ischiorectal abscess or chronic fistula, that about 5 per cent of fistula in ano can be proved tuberculous by histologic methods, while 20 per cent can be proved tuberculous by inoculation methods, further, that it is not always possible to distinguish by inspection the difference between a tuberculous and a nontuberculous fistulous tract, and that fistula in ano is thirteen times commoner in tuberculous patients than in nontuberculous patients.

In 1926 Leslie<sup>8</sup> reviewed the literature and concluded that there was no uniformity of opinion regarding the incidence of tuberculosis of the terminal end of the bowel, he suggested that the following criteria be used to determine the pathologic nature of fistulous tracts: (a) guinea-pig inoculation of material from all specimens, (b) a histologic study of sections from all cases, (c) a comparative study, following definite diagnosis, of the history of all cases treated, and (d) more complete examination for tuberculous foci elsewhere in the body.

In 1925 Fansler<sup>9</sup> stated that the diagnosis of tuberculous fistula is not justified except by definite microscopic picture or in cases in which the lesion has a typical appearance, further considering all cases of fistula in ano, it is doubtful whether more than 2 or 3 per cent are tuberculous in character.

In 1921 Gabriel<sup>10</sup> made a detailed bacteriologic and histologic study to determine the percentage of rectal fistulas that are tuberculous, the required proof being the definite demonstration of the tubercle bacillus. The material examined was taken from seventy-five unselected cases coming to operation at the St. Marks Hospital. In thirty of seventy-five cases, guinea-pigs were inoculated. Pus, scrapings and granulation tissue taken from the lesions were properly prepared and inoculated into guinea-pigs. Histologic study was made on the tissues removed from all seventy-five patients. Of the thirty cases studied by guinea-pig inoculation six, or 20 per cent, proved positive for tuberculosis. Of these six patients, five were males. In age they ranged from 21 to 62 years. In the twenty-four cases that were negative by the guinea-pig test, only one pre-

3 Martin, C. L. Tuberculous Fistula in Ano. *J. A. M. A.* 101: 201 (July 15) 1933.

4 Lockhart-Mummery, Percy. *Disease of Rectum and Colon and Their Surgical Treatment*. London: Baillière, Tindall & Cox, 1923.

5 Rickmann, L. Zur Entstehung und Behandlung der Mastdarmfisteln. *Klin. Wchnschr.* 1: 1208 (June 10) 1922.

6 Brown, Lawrason. In Osler, William. *Modern Medicine*. Philadelphia: Lea & Febiger, 1: 412, 1925.

7 Clarke, B. R. The Relationship of Ischiorectal Abscess and Fistula in Ano to Pulmonary Tuberculosis. *Tubercle* 7: 277 (March) 1926.

8 Leslie, G. L. The Importance of the Tubercle Bacillus in the Etiology of Ischiorectal Abscess and Fistula in Ano. *Canad. M. A. J.* 16: 1215 (Oct.) 1926.

9 Fansler, W. A. The Relationship of Tuberculosis to Fistula in Ano. *J. A. M. A.* 85: 671 (Aug. 29) 1925.

10 Gabriel, W. B. Results of an Experimental and Histological Investigation into Seventy-Five Cases of Rectal Fistulae. *Proc. Roy. Soc. Med. (Sec. Proctology)* 14: 156-161 (June) 1921.

From the National Jewish Hospital  
Read before the Rocky Mountain Tuberculosis Conference, Colorado  
Springs, Colo., Sept. 19, 1934.

1 Thoss, Ueber die Ursache der Mastdarmfistel. *München med. Wchnschr.* 67: 1440 (Dec. 10) 1920.

2 Melchior, Eduard. Ueber die Rolle der Tuberkulose als Ursache der Mastdarmfistel. *Berl. klin. Wchnschr.* 54: 621, 1917.

sented evidence of pulmonary tuberculosis, while in two cases giant cells were found on microscopic section. In the forty-five cases examined by histologic methods only, tubercle bacilli were found in the stained sections of four cases (9 per cent), and these also revealed characteristic giant cells. Of these four cases, two showed evidence of pulmonary tuberculosis and two presented no evidence of pulmonary tuberculosis. Nine others showed giant cells but no tubercle bacilli, while the remaining thirty-two presented no suggestion of tuberculosis.

In 1933 a more detailed study was made in which the pus, scrapings and tissue removed from fistula in ano at operation were examined, every precaution being used to avoid extraneous contamination.<sup>11</sup> Only standardized histologic and bacteriologic methods were employed, and precautions were taken to obtain accurate clinical records regarding the tuberculous status of the patient. The guinea-pigs used were specially raised and safeguarded against spontaneous tuberculosis infection. The culture methods employed were those described by Corper and Uyei.<sup>12</sup>

A total of 155 cases were studied. 106 were clinically and roentgenologically negative for tuberculosis, eighteen presented evidence of arrested pulmonary tuberculosis, in thirty-one presenting active tuberculosis, tubercle bacilli were isolated in the specimens from twenty-four patients by the guinea-pig and culture methods, while one case showed tubercle formation or giant cells, another specimen showed granulation tissue reaction, while in none were tubercle bacilli found by any of the simple staining methods. Of the eighteen cases of inactive tuberculosis there were ten specimens in which tubercle bacilli were found by the guinea-pig or culture methods, and only three of these showed tubercle formation or giant cells. Of the 106 cases in which the patients were clinically free from tuberculosis, tubercle bacilli were not found by any of the methods.

These experiments lead to the observation that it is futile to place too much reliance on histologic methods alone, that the guinea-pig and culture method such as described by Corper are far more reliable tests, and that ischio-rectal abscess and rectal fistula in persons clinically free from tuberculosis are seldom tuberculous, since tubercle bacilli were not isolated in any of the 106 patients who were clinically free from tuberculosis. On the other hand, when the patient has clinical tuberculosis either active or quiescent, the process is very likely to be tuberculous, since 77 per cent of these patients with active tuberculosis and 55 per cent of those with inactive tuberculosis were positive for tubercle bacilli.

The conclusion reached from a study of the literature and of the foregoing experiments regarding the incidence of anorectal tuberculosis is that from 3 to 5 per cent of all persons with pulmonary tuberculosis develop anorectal complications at one time or another and that these are generally tuberculous in character, whereas, similar lesions in persons who are clinically free from tuberculosis are likely to be nontuberculous in character.

#### AGE AND SEX

Powell and Hartley<sup>13</sup> say that rectal fistula is almost entirely confined to males. Melchior found 92 per cent in males in a study of 192 cases of fistula. Von Kozuchowski found that 87 per cent of his 203 patients were males. Clarke found that ischio-rectal abscess and fistula occur in males about eight times more commonly than in females. Our series of seventy-one patients with anorectal tuberculosis shows fifty-three males and eighteen females, a ratio of 3 to 1.

All ages are involved. Gabriel reports an age incidence of from 21 to 62 years. Our series shows the ages to range from 16 to 52 years. Since anorectal tuberculosis is a complication of pulmonary tuberculosis, the age incidence will follow the general age incidence of tuberculosis, as shown in the accompanying table.

#### PATHOLOGY

Anorectal tuberculosis generally occurs as a complication to pulmonary tuberculosis. It rarely occurs as a primary lesion. Fansler emphatically states that tuberculosis is but rarely primary in fistula in ano and that, if it occurs at all, the incidence is not more than a small fraction of 1 per cent. This view is entirely consistent with our own observations. In the examination of specimens removed at operation from 106 patients with ischio-rectal abscess or fistula who were clinically free from pulmonary tuberculosis, tubercle bacilli were not

*Age Incidence of Anorectal Tuberculosis Analysis of Seventy One Cases*

Age	Number of Cases
16-20 years	4
21-30 years	30
31-40 years	24
41-50 years	12
51-60 years	1

demonstrated in a single specimen by the guinea-pig test or culture method, and histologic section showed giant cells in only two instances. It has been repeatedly argued that giant cells are suggestive but not pathognomonic of tuberculosis. On the other hand, in 77 per cent of thirty-one active cases of pulmonary tuberculosis and in 55 per cent of eighteen arrested cases the tubercle bacilli were recovered from the rectal lesions. It is quite likely that the actual incidence of anorectal tuberculosis was even higher than these figures indicate, since even the guinea-pig requires a minimum dose of from ten to 100 bacilli of a virulent strain to produce infection. Fansler<sup>14</sup> states that in tuberculous patients more than 90 per cent of perirectal abscesses and fistulas can be proved tuberculous by laboratory methods.

Anorectal tuberculosis probably begins as an infection of a crypt at the junction of the skin and mucosa. When an infection has set in, certain forces operate to favor the spread of the inflammatory process. The first of these forces is the normal physiologic activity of the rectum and anus, wherein the periodic contractions and dilatations due to the passage of gases and fecal material prevent the infected parts from resting or adhering to one another. The second factor is the constant contact of the lesion with bacteria and fecal matter, which tends to maintain the septic process and favors reinoculation and secondary infection.

11 Chisholm, A. J. The Relation of Pulmonary Tuberculosis to Anorectal Fistulae. *Surg. Gynec. & Obst.* 66: 610 (March) 1933.  
Surgical Management of Fistula in Ano in the Tuberculous. *Tr. Am. Soc. Surg.* 1937.  
12 Corper, H. J. and Uyei, Nao. Further Observations with a New Method for Cultivating Tubercle Bacilli: A Comparison with Guinea Pig Inoculation and Petroff's Method. *J. Lab. & Clin. Med.* 14: 393 (Feb.) 1929. *Ibid.* 15: 348 (Jan.) 1930. *Arch. Path. & Lab. Med.* 7: 835 (May) 1929.

13 Powell, R. and Hartley, P. H. S. *Diseases of the Lungs and Pleurae*. Philadelphia: P. Blakiston's Son & Co. 1921.  
14 Fansler, W. A. Rectal Care of the Tuberculous. *Am. Med.* 77: 8: 1931.

Once a tuberculous infection has set in at the anorectal region, there is a strong probability of the process spreading and giving rise to infiltration, caseation, abscess, sinus and fistula formation.

Regarding the gross appearance of the lesion, we do not believe that the gross pathology is diagnostic of tuberculosis. Of course it would be absurd to say that any tuberculous process does not produce characteristic changes but a study of the literature certainly indicates that there is no agreement as to what these gross evidences are. If there is any group or school that has a strong heritage of anatomic pathology, it is the disciples of Virchow. There are numerous German writers, such as Volkmann, Koenig, Melchior and Gös, who regard the majority of all rectal fistulas as being tuberculous in character, yet they are not supported by experimental studies which have shown that the majority of all rectal fistulas are definitely not tuberculous whereas it is only in those patients who have pulmonary tuberculosis that the rectal lesion is apt to be tuberculous. So the description of the gross appearance of the lesion must be left for further study.

In the past, most of the emphasis of anorectal tuberculosis has been paid to the fistula stage of the disease. One even finds efforts to drag the term "fistula" into the clinical picture. References to "closed fistula" are abundant in the literature, whereas the term is a contradiction, since there is no such thing as a closed fistula; the lesion rather is a "sinus." Between fistula and ischiorectal abscess there seems to be a literary gap when actually all fistulas are terminal stages of abscesses. From a therapeutic point of view there is little difference between sinus, abscess and fistula. The indications and procedure of treatment is about the same in all.

Nevertheless, anorectal tuberculosis begins with a tubercle, a productive inflammatory reaction consisting of monocytes, lymphocytes, epithelioid cells and giant cells. The lesion begins in a crypt, which also harbors other pathogenic organisms, hence secondary infection takes place early. Induration, caseation and necrosis follow, giving rise to the anorectal abscess. Once formed, the abscess continues to enlarge and the pus burrows in the direction of least resistance. It may invade the ischiorectal fossa, producing an ischiorectal abscess, or it may burrow through the skin or mucosa forming a sinus, which becomes internal or external depending on its location, or it may form an artificial communication between the mucosa and any other neighboring surface, producing a fistula, which in turn may assume any of several forms and becomes designated as simple, multiple, complex, horseshoe or by any other descriptive term used to indicate its shape, position, complexity or multiplicity, or it may communicate with any of the neighboring organs, such as the bladder or the vagina.

#### SYMPTOMS

The symptoms of anorectal tuberculosis are extremely variable and depend on the extent and character of the pathologic process. The symptoms may consist of nothing more than a rectal consciousness, or there may be present intense pain markedly aggravated by defecation. Obviously, in the early stages of the disease the symptoms will be mild or even absent. Then as induration develops there will be a sense of fullness, discomfort on defecation, or itching, and on examination a lump may be palpated. As the induration stage passes on to caseation and abscess formation, the symp-

toms become markedly aggravated. The rectal consciousness develops into a sensation of discomfort, which progresses into pain commonly of a throbbing character, which tends to localize in one segment of the anorectal region. Constitutional symptoms may appear as chills, fever, leukocytosis, headache, backache, languor, and loss of appetite. Defecation becomes painful, sometimes micturition also becomes painful accompanied by a tendency toward inhibition, and the patient may become toxic. On examination a soft, tender, red mass is evident. Sometimes the symptoms of the abscess stage are much milder. In untreated cases the abscess will probably rupture into some outlet surface, producing either a sinus or a fistula, depending on the number of openings. At this stage the acute symptoms tend to subside and are followed by more chronic and less violent manifestations. From the opening of the sinus or fistula, a seropurulent exudate is discharged. The symptoms are rectal discomfort, burning, itching, and sometimes pain on defecation. Examination shows an adventitious opening into the rectum, anus or skin into which a probe may be passed. Sometimes the opening is difficult to locate, sometimes it is raised, or indurated, reddened and surrounded by an irritated or even by an eroded area while sometimes there is present fibrous tissue about the opening indicating an attempt at repair. Manifestations of skin tuberculosis may be present as milium cutaneous tuberculosis, lupus vulgaris, or scrofuloderma. When the opening is located, the contour of the fistulous tract may be evaluated by injecting methylene blue or, still better, an opaque substance that casts a shadow on an x-ray plate, which may then be studied leisurely for proper evaluation.

Secondary colon symptoms are quite common. Elsewhere we pointed out that rectal diseases, such as cryptitis, proctitis, hemorrhoids, fissures, fistulas and abscesses, commonly result in increased irritability, and this gives rise to spastic or irritable colon, which becomes manifested by spastic constipation in which the stools are unsatisfactory to the patient, infrequent, difficult to evacuate, and of small caliber. Many patients acquire the cathartic habit as a result of prolonged colon irritability. Abdominal consciousness is common, also abdominal distress and pain are likely to occur in those cases in which there is already a centering of interest in the abdomen. Gastric symptoms sometimes occur as epigastric distress, hyperacidity and pylorospasm, and the differential diagnosis between peptic ulcer and rectal disorder with secondary gastric symptoms is by no means always a simple procedure. Flatulence and gas distress are of common occurrence. Sometimes certain constitutional symptoms develop, such as chronic fatigue, chronic indigestion, underweight, nausea, vomiting, introspection, insomnia and mental depression.

#### DIAGNOSIS

In the diagnosis of anorectal tuberculosis we are governed by the guinea-pig and culture studies in which anorectal material such as pus, scrapings or tissue removed from 106 patients who were clinically free from pulmonary disease failed to yield the tubercle bacillus, whereas similar material from thirty-one active cases and eighteen cases of arrested pulmonary tuberculosis yielded the tubercle bacillus in 77 and 55 per cent of the cases, respectively, and it is our impression that the actual incidence in these cases was even higher. In the case of intestinal tuberculosis, we have already expressed the opinion that in adults we would hesitate

to diagnose anorectal tuberculosis in the absence of pulmonary disease. In advanced anorectal tuberculosis, in which there is appreciable excoriation, fibrosis or skin involvement, the signs are very suggestive, but in the early case we hesitate to diagnose anorectal tuberculosis in the absence of pulmonary disease.

As to the type of anorectal lesion, whether it is a fissure, an infected crypt, a hemorrhoid, an abscess or a fistula, the diagnosis is readily made from the signs and symptoms. The differential diagnosis between these lesions has been amply covered in numerous standard textbooks on proctology and need not be repeated here.

It does not follow that all rectal lesions in patients with pulmonary tuberculosis are also tuberculous in character. In the case of intestinal tuberculosis, we<sup>15</sup> reported elsewhere a study of 125 patients who were residents in a tuberculosis sanatorium and who presented gastro-intestinal problems. In this series, intestinal tuberculosis was diagnosed in only twenty-nine cases, or 23 per cent of the series. The remainder, or 77 per cent of the cases, presented nontuberculous ailments. Likewise, there are undoubtedly numerous anorectal lesions in the tuberculous that are nontuberculous, but they are of the type that are less likely to become involved in a tuberculous process by reason of not presenting an easy portal of entry, such as hemorrhoids, polyps and other lesions of a noninflammatory character, or open lesions in the early stage of development. The reason that fissures, sinuses, fistulas and other open lesions tend to become tuberculous, even if they are not tuberculous in the beginning, is the constant passage of tubercle bacilli at their openings, which, of course, favors tuberculous infection if it has not already set in. Thus Nussel<sup>16</sup> in 1923 showed that, in 120 patients who had pulmonary tuberculosis, tubercle bacilli were found in the feces of 110 patients, which he explained as being swallowed organisms. Certainly since tubercle bacilli occur in the intestinal contents of so high a percentage of patients it becomes evident that any open lesion readily favors inoculation with the tubercle bacillus, in addition to those already infected.

The diagnosis of anorectal tuberculosis is another phase of the subject that is a matter of controversy. Sweany<sup>17</sup> states that the diagnosis of tuberculosis in fistula of the anus and rectum depends entirely on the histopathologic changes, because the gross, clinical and bacteriologic changes are indefinite or of no value. The histopathologic diagnosis, he states, depends on the time honored presence of tuberculous granulation tissue with Langhans' type of giant cell characteristic tubercle formation and necrotic center, fibroblastic capsule and monocyctic and lymphocytic infiltration, however, he admits that granulation tissue of any chronic nature may simulate tuberculosis, even to the presence of giant cell formation. Nevertheless he maintains that with careful study more than 75 per cent of fistulas in the tuberculous should be found to be tuberculous, and he believes that all of them but an insignificant minority are tuberculous in character.

Our own experience, interestingly enough, arrives at the same conclusion as that of Sweany but by different diagnostic methods. In our hands histologic methods have proved disappointing, whereas the cul-

ture methods of Corper and the guinea-pig test have given high results comparable to that found by Sweany.

The diagnostic conclusion that we have arrived at is that in nontuberculous persons open anorectal lesions such as sinus and fistula are rarely tuberculous in character, whereas in patients with pulmonary tuberculosis such lesions are nearly always tuberculous.

#### INDICATIONS FOR TREATMENT

Tuberculous sinus and fistula are notoriously chronic in character. This holds true of all forms, whether they are located in the cervical region, bones, chest, anorectal region or elsewhere. Metcalf<sup>18</sup> has pointed out that, of all forms of tuberculosis, ulcerating and fistulous tracts are the most difficult and least favorable for treatment, further, secondary infection is usually present, and if a cicatrix starts to form before the source of the discharge has cleared up, it soon breaks down again, reestablishing the fistula. In all forms of tuberculous fistula or sinus, there are present at least two factors that promote chronicity, namely, the tuberculous infection, and, second, the superimposed secondary infection. In lesions of the anorectal region there are present in addition to these the periodic contractions and dilatations, which interfere with the opportunities of the infected parts for rest and recuperation. In tuberculous fistula of the anorectal region it is true that healing sometimes begins, as manifested by the presence of scar tissue, but it is seldom completed. The statement that tuberculous fistulas are notoriously chronic is especially true in the anorectal region.

The following indications are present for treatment. The symptoms of rectal discomfort, pain, swelling or discharge demand attention as much in the rectal region as they do elsewhere. Further, a person who is burdened with a general disease should have the burden mitigated to any extent that it is possible to do so. In the general management of tuberculosis, the program calls for long periods of rest. This has its advantages, but it also has its disadvantages, one of which is giving the patient excessive opportunity for introspection, self analysis and self pity. The presence of a rectal lesion gives the patient one more opportunity in this direction. Another indication for treatment is the casual relationship existing between rectal pathologic changes and spastic or irritable bowel. A pathologic condition of the rectum is a direct etiologic factor of irritable colon and irritable bowel can make a hypochondriac of any person who has time for self analysis combined with a tendency in that direction, and many sanatorium patients are candidates for this additional burden.

Another indication for the treatment is the menace of focal infection. The infected rectum can become a primary focus of infection for lesions elsewhere in the body. The role of infected teeth, tonsils and sinuses as sources of focal infection is well recognized, infections about the rectum as a primary focus of infection is slowly being established. It is no longer an unusual experience to have some systemic infection such as arthritis persist after the teeth, tonsils, sinuses, gall-bladder and other viscera have been removed and then yield to treatment on the clearing up of a rectal infection. It has been our experience that many tuberculous patients who had an arthritis as well as fistula improved markedly after fistulectomy, as far as the arthritis was concerned in addition to some improvement in the pulmonary lesion.

<sup>15</sup> Gauss, Harry, Singerman, Isidor and Black, L. T. The Differential Diagnosis of Intestinal Tuberculosis. *Am. Rev. Tuberc.* 28: 684 (Nov.) 1933. The Spastic Colon. *Ann. Int. Med.* 3: 1128 (May) 1930.  
<sup>16</sup> Nussel, K. Ueber Tuberkelbacillenbefund in Stuhl. *München med. Wchschr.* 70: 357 (March 23) 1923.  
<sup>17</sup> Sweany, cited by Martin.<sup>2</sup>

<sup>18</sup> Metcalf, W. B. *Tuberculosis of the Lymphatic System*. New York, Macmillan Company, 1919.

## TREATMENT

Treatment can be divided into three classes (a) therapeutic nihilism, (b) medical management and (c) surgical therapy

Therapeutic nihilism, a relic of a past age, is still extant today. There still remain therapeutic nihilists in existence. One encounters them here and there. The therapeutic nihilist has faith in nothing, sees no virtue in any procedure, does nothing, lets nature take its course and follows the path of least resistance.

Medical management consists of the general care of the tuberculous and secondly, local treatment of the lesion. Local treatment consists of various types of applications, injections, instillations and irrigations. Local therapy can be disposed of by simply stating that it is not effective. The general care for the tuberculous has its place in the therapy.

The third class is surgical therapy. Up to a few years ago surgical treatment was strongly condemned. It was generally considered merely a procedure for substituting one fistula for another. In 1926 Clarke wrote "Pulmonary tuberculosis should be rigorously excluded in every case of fistula before surgical treatment is considered." In 1927 we undertook to ascertain the existing attitude of internists in Colorado toward surgical treatment of anorectal tuberculosis. Questionnaires were sent to twenty-eight physicians who had had experience in the treatment of tuberculosis in sanatorium or private practice. Out of the twenty-eight replies only two favored the operation, four approved of it in selected cases and twenty-two opposed it.

In the light of existing experience with the knife operation performed under general anesthesia, this adverse reaction was justified. Too often the operation accomplished only an extension of the tuberculous process rather than a cure. The failure of operated lesions to heal after the knife operation probably resulted from an extension of the tuberculous infection along new channels that were opened up by the incision. The operation simply opened up new channels for the tubercle bacillus to infect, and, like similar lesions in the neck, chest, bones or elsewhere, the clinical results were unsatisfactory. Furthermore, the general anesthetic was regarded as having a deleterious effect on the pulmonary lesions.

However, important progress was made when the cautery was introduced and sacral anesthesia was substituted for the general inhalation anesthesia. Wood<sup>19</sup> showed experimentally that in treating localized tuberculosis with the cautery there is a rewarding influence on the tuberculous infection, both in the immediate area and in the area adjacent to the operated tissue. The tissue treated with direct heat seems to be stimulated to fibrous tissue formation, which is a desirable result, also the use of the cautery seems to induce a type of inflammation that results in the formation of new blood vessels, which aids in the nutrition of the local tissues. Cauterization seals the lymphatics and blood vessels, thereby preventing a spread of the disease either locally through the lymphatics or generally through the blood vessels.

In the surgical treatment of anorectal tuberculosis, the matter of anesthesia occupies an important place in the therapy. The inhalation method of general anesthesia was found objectionable because of its deleterious effects on the pulmonary lesion. Too often

an aggravation of the pulmonary tuberculosis was noted after a general anesthesia. In the caudal anesthesia administered sacrally, the objections to the general anesthesia are eliminated, yet complete anesthesia is obtained in the rectum, anus, perineum and buttocks, with complete relaxation of the sphincter muscles.

## RESULTS OF SURGICAL TREATMENT

Within the past few years one of us (A. J. C.) employing the cautery and sacral anesthesia has operated on seventy-one tuberculous patients presenting various types of anorectal lesions such as abscess, sinus and fistula. Of these seventy-one patients fifty-one had active tuberculosis, while twenty had arrested tuberculosis. In one case only the clinical results after operation were unsatisfactory. In seventy cases, or 98 per cent the clinical results were very gratifying. Beyond a temporary discomfort and a slight increase in the pulse and temperature in some cases, the patients showed a marked improvement. Healing generally took place in from six weeks to three months. There was no spread of the tuberculous process at the rectum. There have been no recurrences in any of the patients, some of whom have been under observation for more than five years. Most of the patients made a slight gain in weight following the operation, and they showed a general improvement. In a few of the patients who had had some evidence of focal infection such as arthritis and rheumatism the improvement in these syndromes was most gratifying due to the removal of the foci of infection.

## SUMMARY

1 This study is based on seventy-one cases of proved or probable instances of anorectal tuberculosis and 106 cases of nontuberculous suppurative lesions of the terminal end of the bowel, taken for comparative purposes.

2 In from 3 to 5 per cent of patients with pulmonary tuberculosis anorectal complications develop and these are generally tuberculous in character.

3 The age incidence of the patients with anorectal tuberculosis follows the general age incidence of tuberculosis.

4 Anorectal tuberculosis generally occurs as a complication of pulmonary tuberculosis. Primary anorectal tuberculosis is extremely rare.

5 The symptoms are variable and depend on the extent and character of the lesion. There may be present itching, irritation, localized pain, painful defecation, purulent discharge, induration, abscess, sinus, fistula or cutaneous tuberculosis.

6 In the diagnosis of anorectal tuberculosis, we have found that the injection of emulsions prepared from pus, scrapings or tissue injected into guinea-pigs or inoculated into suitable culture mediums is the most reliable test.

7 Experimentally we have found that such material from thirty-one active cases and eighteen arrested cases of pulmonary tuberculosis yielded the tubercle bacillus in 77 and 55 per cent of the cases, respectively. It is our opinion however, that the vast majority, over 90 per cent, of open suppurative lesions of the rectum in patients with pulmonary tuberculosis are or become tuberculous in character, thus figure agrees with the opinions of Fansler and Sweany.

8 Treatment can be divided into (a) therapeutic nihilism, (b) medical management and (c) surgical care.

<sup>19</sup> Wood G. B. The Use of the Electric Cautery in Laryngeal Tuberculosis. *Am J M Sc* 103: 854 (June) 1922.



9 Therapeutic nihilism and medical management of the anorectal lesions in the tuberculous are impotent in removing either the lesions or the symptoms arising from them

10 Surgical treatment employing the cautery and sacral anesthesia eliminates the older objections that were raised against the deleterious effects of the general anesthetic on the pulmonary lesion, and the dissemination of the local tuberculosis by the openings of new channels for further infection by the tubercle bacillus

11 One of us (A J C) has operated on seventy-one patients with proved and probable anorectal tuberculosis, including sinus, abscess and fistula. In seventy patients the clinical results were most gratifying. There occurred a complete healing of the local wound in from six to twelve weeks, there resulted in most patients a slight gain in weight, some improvement systemically, complete relief from the anorectal symptoms and in the case of those with manifestations of focal infection, a marked improvement from these syndromes

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## GOUT

CHANGES IN SYMPTOMS AND PURINE METABOLISM  
PRODUCED BY HIGH FAT DIETS IN FOUR  
GOUTY PATIENTS

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It has been known for many years that there is some relationship between gout and uric acid, and many investigations of the uric acid metabolism of gouty patients have been carried out<sup>1</sup>. Because the number of cases of gout reported throughout the country is increasing, such studies are of especial interest at the present time. Some of the recent studies have shown that the methods of diagnosing the disease are apparently not wholly satisfactory, for in 100 cases an average period of fifteen years elapsed between the first appearance of symptoms and the establishment of the correct diagnosis<sup>2</sup>. The differentiation of gout from chronic arthritis, when joints other than the big toes are involved, seems to be particularly difficult. We feel that the experiments reported here may serve as a basis of a useful test in helping to establish a correct diagnosis.

A number of workers have found that there is an increase in the blood uric acid and a decrease in the amount of that compound in the urine when normal subjects fast or ingest diets high in fat. In 1924, as the result of long and careful study, Lennox described such observations during twenty-two fasting periods, each at least eight days long, in two normal subjects and twenty-two patients with epilepsy<sup>3</sup>. When diets

high in fat were fed at the end of these fasts, no changes in the blood uric acid were observed, but when diets high in protein or carbohydrate were used there was a prompt return to the prestarvation level in the blood within twenty-four or forty-eight hours. As the blood uric acid fell, there was an increase in the amount of uric acid in the urine. Hoeffel and Moriarty<sup>4</sup> in 1924 noted an increase in the blood uric acid of two fasting children. Harding and his co-workers<sup>5</sup> in 1925 produced a marked increase in the blood uric acid concentration by giving high fat diets to women in the various stages of pregnancy. In these experiments a prompt return to normal values occurred as soon as high carbohydrate or high protein diets were fed.

It seemed logical to determine the effect of similar diets in gout, and therefore diets high in fat were fed to four gouty patients who came under our observation. The studies were carried out in the first medical service of the Buffalo General Hospital. To Dr Nelson G Russell, the attending physician, we are indebted for advice and encouragement extended during the experiments. The diagnoses were made according to the criteria of Hench<sup>2</sup>. The details of the diets were arranged by the dietitians of the hospital, based on McLester's<sup>6</sup> tables. The purine content of each diet was approximately equivalent to 0.042 Gm of uric acid daily, and the other constituents were varied to suit the needs of the individual patients and the experimental conditions that we wished to produce. The urinary uric acid was determined by the method of Benedict and Franke<sup>7</sup> and the blood uric acid by Folin's direct uric acid method<sup>8</sup>.

Much to our surprise, striking changes in symptoms occurred when these diets were ingested. These clinical changes, which formed the most interesting part of the study, are described in the protocols of the separate experiments.

**CASE 1<sup>0</sup>—History**—E H, a man, aged 52, admitted to the hospital in July 1930, complained of persistent headaches. During his stay he had an attack of gout in the left knee, characterized by increased warmth, pain and swelling, which lasted for about one week. Further questioning at this time revealed the fact that he had had periodic attacks of gout during the preceding eighteen years and that each of these incapacitated him for a period of from one to two weeks. During the intervals between the attacks he was completely free from joint symptoms. The joints most frequently involved were those of the knee and big toe. On two occasions tophi containing sodium urate crystals had been removed from the lobe of the right ear. In July 1932 many of the joints of the body were involved. There was marked swelling of the joints of the hands and feet. Both knees were swollen, warm and painful. It was necessary to give large doses of salicylates and opiates to control the pain. Small doses of colchicum did not help, large doses had not been tried.

**Physical Examination**—The patient was well nourished and well developed. The afternoon temperature was 101 F and the pulse 110 per minute. He appeared to be suffering intense pain. The pharynx was reddened and a few cervical lymph nodes were enlarged. No rales were heard in the lungs, and

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<sup>1</sup> Peters J. P. and Van Slyke, D. D. Quantitative Clinical Chemistry. Interpretation. Baltimore: Williams and Wilkins Company, chapter viii, 1: 408-454, 1932.

<sup>2</sup> Hench, P. S., Vanzant, F. R. and Nomland, Ruben. Basis for the Early Differential Diagnosis of Gout. A Clinical Comparison of 100 Cases Each of Rheumatic Fever, Infectious Arthritis and Gout. Collected Papers of the Mayo Clinic of Mayo Foundation, 20: 790, 1928.

<sup>3</sup> Lennox, W. G. Increase of Uric Acid in the Blood During Prolonged Starvation. J. A. M. A. 82: 602 (Feb. 23) 1924. A Study of the Retention of Uric Acid During Fasting. J. Biol. Chem. 66: 521 (Dec.) 1925.

<sup>4</sup> Hoeffel, Gerald and Moriarty, Margaret. The Effect of Fasting on the Metabolism of Epileptic Children. Am. J. Dis. Child. 28: 16 (July) 1924.

<sup>5</sup> Harding, V. J., Allin, K. D., Eagles, B. A. and Van Wyck, H. B. The Effect of High Fat Diets on the Content of Uric Acid in the Blood. J. Biol. Chem. 83: 37 (Feb.) 1925.

<sup>6</sup> McLester, J. S. Nutrition and Diet in Health and Disease, ed. J. Philadelphia: W. B. Saunders Company, 1929.

<sup>7</sup> Benedict, S. R. and Franke, E. A. Method for the Direct Determination of Uric Acid in Urine. J. Biol. Chem. 52: 387 (June) 1922.

<sup>8</sup> Folin, Otto. A System of Blood Analysis. Supplement IV. A Revision of the Method for Determining Uric Acid. J. Biol. Chem. 54: 153 (Oct.) 1922.

<sup>9</sup> A preliminary report of the results obtained on this patient was given in the Proceedings of the Buffalo Academy of Medicine (Lockie, L. M. and Hubbard, R. S. Presentation of a Case of Gout. Bull. M. Soc. County of Erie and Buffalo Acad. Med. 11: 10 [Feb.] 1934).



the breath sounds were not changed. The left border of the heart was 11 cm from the midsternal line in the sixth interspace. The aortic second sound was accentuated. No murmurs were heard. The blood pressure was 175 mm of mercury systolic and 100 mm diastolic. The liver was not tender but the edge was palpable. No masses were felt in the abdomen. The hands, wrists, knees and ankles were swollen, warm, tender on pressure, and very painful on motion.

The urine was cloudy, with a specific gravity ranging from 1.010 to 1.020. The albumin content was 2 plus. The sediment contained from 30 to 40 white blood cells per high power field. The phenolsulphonphthalein excretion was 40 per cent in two hours. There was 80 per cent of hemoglobin present (Tallqvist). The red cell count was 4,800,000 and the white count 9,300 with 63 per cent polymorphonuclear leukocyte cells. The blood Wassermann reaction was negative. The blood uric acid was 6, the urea nitrogen 14, and the dextrose 130 mg per hundred cubic centimeters.

On roentgen examination the distal ends of the first phalangeal joints of the great toes had a punched out appearance that suggested gout.

**Course**—At a time when the patient had been practically free from symptoms for two weeks he was put on a high fat diet consisting of 50 Gm of carbohydrate, 50 Gm of protein and 220 Gm of fat. When he had been on this diet seven days, pain, swelling and tenderness in the joints of the feet and ankles developed. During this period the blood uric acid increased. The initial value was 5.5 mg per hundred cubic centimeters, and after eleven days on the diet it reached 8 mg per hundred cubic centimeters. There was also during this period a diminution of the amount of uric acid in the urine.<sup>10</sup> No medication of any kind was given but the diet was changed to one consisting of 380 Gm of carbohydrate, 60 Gm of protein and 130 Gm of fat. Within two days a marked improvement in the symptoms took place. The carbohydrate was then reduced to 200 Gm because the patient could not eat the larger amount. Pain did not return, but the blood uric acid remained high for fourteen days. After that period of time 250 Gm of liver was fed. This did not cause an exacerbation of symptoms or a significant further increase in the blood uric acid. The blood uric acid remained high (between 7.2 and 7.8 mg per hundred cubic centimeters) for the next eleven days. Five days later, just before the patient left the hospital it fell to 5.7 mg; the value found before the dietary experiments were begun. Throughout this twenty-five day period the basal diet was 200 Gm of carbohydrate, 60 Gm of protein and 130 Gm of fat.

The patient has been seen every two or three weeks in the outpatient department up to the present time (October 1934). He has had a few twinges of pain in the small joints of the hands and feet, which have lasted for two or three hours at a time. His general health has been good.

**CASE 2—History**—W. R., a man, seen for the first time in February 1934, had been well until January 1930, at which time he had an excruciating pain in the left ankle. This disappeared in a few days, but shortly afterward the right knee became swollen and very painful. A diagnosis of rheumatism was made in another hospital, and the tonsils were removed one month later.

Each year after that time he had several attacks, presumably of gout, which involved the weight-bearing joints. One of these in 1932 also involved the small joints of the hands. He found that strenuous exercise, an alcoholic debauch or thorough chilling provoked attacks. Each episode followed the same course. There was marked swelling, pain, tenderness and limitation of motion. Within from ten to fourteen days there was complete recovery from joint symptoms.

<sup>10</sup> Marked temporary fluctuations in the rate of excretion of uric acid are common in gouty patients (His, W. Die Ausscheidung von Harnsäure im Urin der Gichtkranken mit besonderer Berücksichtigung der Anfallszeiten und bestimmter Behandlungsmethoden. Deutsches Arch. f. klin. Med. 65: 156, 1900) and were found during our experiments. These made interpretation of the urine changes difficult, for it was necessary to follow the general trend of changes in values and to ignore occasional large variations in them. The interpretation was further complicated by failure to collect accurate twenty-four hour specimens in all instances. To minimize the effect of such failures the creatinine content of each urine was determined, the ratio between creatinine and uric acid calculated and variations in the values of this ratio studied.

Albuminuria was found in 1926. A molar tooth was extracted and the antrum washed in 1933 without producing a flare up of symptoms.

**Physical Examination**—The patient was fairly well nourished. The temperature was 99.6 F. No tophus was found. The heart was slightly enlarged. No heart murmurs were heard. The blood pressure was 130 systolic and 80 diastolic. Several joints were involved. Those showing the most pronounced symptoms were the left knee and ankle. There was marked swelling, tenderness and limitation of motion. No urethral discharge was present.

Analyses of the urine showed that the specific gravity varied between 1.013 and 1.020 and that it contained 3 plus albumin and a few hyaline casts. The hemoglobin was 68 per cent (Sahli). The red blood cells numbered 4,400,000 and the white cells 14,000 with 75 per cent polymorphonuclear cells. The blood sedimentation rate was greatly increased. The uric acid concentration was 6.2, the urea nitrogen 35, the nonprotein nitrogen 71 and the creatinine 2 mg per hundred cubic centimeters of blood.

**Course**—He recovered from the joint symptoms in a few days and stated that, judging from past experience, he would not have another attack for some months. After one week he consented to ingest a diet containing 60 Gm of carbohydrate, 60 Gm of protein and 230 Gm of fat. Within three days he felt poorly. The left hand and knee were swollen and painful. The joints in the left hand were especially sore. He felt so ill that he stayed in bed although previously he had been ambulatory for five days. No medication of any kind was given and the diet was changed to one consisting of 400 Gm of carbohydrate, 70 Gm of protein and 60 Gm of fat. There was marked improvement in the symptoms within forty-eight hours. No significant variations in the blood uric acid were found at any time during the experiment. In three determinations on different days the values lay between 5.5 and 5.8 mg per hundred cubic centimeters of blood. The explanation of this constancy of the blood uric acid seems obvious. The diet high in fat was taken for only three days, and demonstrable changes probably should not have been expected.

During the five months that have elapsed since the experiment there has been no recurrence of joint symptoms.

**CASE 3—History**—A. A., a white man aged 74, Jewish, admitted to the first medical service in October 1933, during the preceding twenty-three years had had at least twelve attacks of gout. Each time there was pain, redness and swelling of the joints of the lower extremities, particularly of the big toe joints, the right knee and the right ankle. Between attacks he felt entirely well. Two weeks before he entered the hospital pain developed in the right foot. This was followed a day later by swelling of the subcutaneous tissue. During this period he felt poorly.

For ten years dyspnea on exercise and occasional edema of the ankles had been present. He had had nocturia for three or four years and had lost 30 pounds (13.6 Kg) during the two years preceding admission.

**Physical Examination**—He seemed well nourished. No tophus was seen. The area of precordial dullness was slightly enlarged. No murmurs were heard on auscultation of the heart. The blood pressure was 128 systolic and 90 diastolic. The liver edge was palpable. The right foot was warm and painful to touch and could be moved very little without causing great pain. No other joints were involved.

The specific gravity of the urine varied from 1.015 to 1.018 in various specimens, and 3 plus albumin was present. The hemoglobin was 78 per cent (Sahli) and the red cells numbered 4,200,000. There were 12,000 white cells, 75 per cent of these were polymorphonuclear cells. The blood Wassermann reaction was negative. The basal metabolic rate was minus 3 per cent. The concentration of uric acid was 6.8, of urea nitrogen 34 and of dextrose 130 mg per hundred cubic centimeters of blood.

On roentgen examination the feet showed a decreased density in the distal ends of the first metatarsal bones and two small areas that had a punched out appearance.

*Course*—The patient had entered the hospital at approximately the end of an attack of gout. After he had been without signs or symptoms for one week he predicted that, judging from past experience, he would not have another exacerbation for at least ten months. A diet of 20 Gm of carbohydrate, 30 Gm of protein and 300 Gm of fat was then given. Within forty-eight hours pain developed in the right foot. Shortly afterward the foot became swollen and tender. No medication was given, but the diet was changed to one consisting of 350 Gm of carbohydrate, 60 Gm of protein and 8 Gm of fat. Within seventy-two hours all the signs and symptoms had disappeared. After he had been free from pain for one week he agreed to take the high fat diet again. Within two days he noticed the same symptoms and signs that he had felt during the previous test. The diet was changed to 440 Gm of carbohydrate, 80 Gm of protein and 120 Gm of fat and the symptoms disappeared within three days. At no time during the experiment were significant changes in the blood uric acid found. Seven of eight determinations gave values between 6.5 and 7.0 mg per hundred cubic centimeters, and the eighth was only slightly lower than the others 5.8 mg. The lowest value was present on the second day of the second period on a high fat diet.

The patient left the hospital thirteen days after the last bout had subsided. He was seen two months later in the outpatient department and reported that he had been free from symptoms during the intervening period.

*CASE 4—History*—N. G., a white youth, aged 16 years, admitted to the first medical service Feb. 22, 1934, stated that in 1932, following a respiratory infection, hematuria, albuminuria, edema of the face and legs, and an increase in blood pressure had developed. It was noticed that tophi were present in the lobes of the ears at that time. The family physician advised the boy to be very moderate in exercising and to eat very little meat. He had rarely tasted liver and other internal organs. He had never used alcohol. During the latter part of December 1933 he suffered his first joint pains, which began in the right ankle. It was red, swollen and very painful. He could not allow the bedclothes to touch his foot. The attack lasted ten days and was followed by complete recovery. He was well for five weeks, and then the left wrist became swollen, tender and painful for one week. Following this there was no residual deformity or loss of function. He entered the hospital at the end of his third attack which had begun one month after the previous one. This time the left ankle and big toe joint were involved. There was some pain and tenderness with limitation of motion.

His father and four males on his father's side had died of kidney trouble. No family history of gout was obtained.

*Physical Examination*—He was well nourished and not acutely ill. Tophi were present in both pinnae. The pharynx was reddened. The heart sounds were regular, but the first sound at the mitral area was roughened, and the pulmonary second sound was greater than the aortic second sound. The blood pressure was 142 systolic and 100 diastolic. The left knee was red and swollen. It was warm and extremely painful when touched. There was no evidence that other joints were actively involved or that they had been affected by his previous bouts.

The specific gravity of the urine varied from 1.007 to 1.022 and no albumin or dextrose was found. The hemoglobin was 90 per cent (Sahli). The red blood cells numbered 4,250,000 and the white cells 9,050, with 67 per cent polymorphonuclear cells. The two hour urine concentration test showed a variation in specific gravity from 1.003 to 1.015. The night output of urine was about one third of the day output. The blood sedimentation rate was greatly increased when he was admitted and normal when he was discharged. The basal metabolic rate varied with therapy from minus 29 per cent to plus 3 per cent. No agglutinins for *Streptococcus haemolyticus* (A B 13) were found in the blood serum. The blood chemical examinations on admission revealed dextrose 143, calcium 11.9, inorganic phosphorus 4.4, cholesterol 153 and uric acid 7.6 mg per hundred cubic centimeters of blood.

On roentgen examination the left wrist and the feet did not reveal punched out areas or signs of decalcification. No renal or bladder calculi were seen.

*Course*—With few signs of the active attack remaining he was placed on a diet of 225 Gm of carbohydrate, 60 Gm of protein and 70 Gm of fat. Sodium salicylate and colchicine were given for one day. He felt better for a few days, but then several joints became involved. After six days the symptoms disappeared and he felt very well. During this period he was taking 2 mg of colchicine daily.

After he had been clinically free from symptoms for one week the diet was changed to 50 Gm of carbohydrate, 50 Gm of protein and 250 Gm of fat. The colchicine, 2 mg daily, was continued during one week of this experimental period. The amount of fat was raised to 300 Gm, and six days later he had pain in the wrists and metacarpal joints. There was no swelling at this time. On the following day the pain increased and he felt poorly. The third day after the onset of the attack pain appeared in the right shoulder, and after another twenty-four hours there was swelling in the left wrist and hand. Then the joints of the right hand became involved, and within another day the joints of the left foot were sore. The pain persisted in all the joints that had already been affected. An injection of 50 cc of 50 per cent dextrose intravenously gave a little relief, but this lasted only for an hour. The pain now was almost unbearable when he touched the bed. The diet was changed to one consisting of 350 Gm of carbohydrate, 50 Gm of protein and 50 Gm of fat. Within two days he felt much better although no medication of any kind was given.

During the time he was on the high fat diet the concentration of uric acid in the blood increased from a value of 8.6 to one of 16.0 mg per hundred cubic centimeters, and there was a significant decrease in the rate at which uric acid was excreted in the urine.<sup>10</sup> There was no drop in the level of uric acid in the blood during the first eight days when he was taking the high carbohydrate diet. Determinations on four occasions gave values between 13.5 and 15.0 mg per hundred cubic centimeters. Again it should be pointed out that the patient was free from symptoms during this period. Because of the persistent hyperuricacidemia, he was given sodium salicylate in doses of 2 Gm every two hours. The blood uric acid dropped to 10 mg per hundred cubic centimeters after this drug had been used for three days and eight days later, with continuation of the therapy, it reached 6.5 mg, a value slightly lower than the one found on admission.

Five days after the conclusion of the experiment just described, while the patient was still on a diet low in fat (50 Gm) and high in carbohydrate (350 Gm) there was a recurrence of symptoms that lasted for five days. At this time the basal metabolic rate was minus 29 per cent. Thyroid extract (Parke Davis & Co.) was given in doses of 0.03 Gm three times a day to raise the basal metabolism and to aid in the excretion of uric acid. No other medication was used. During the remainder of his stay in the hospital he was free from symptoms except for occasional fleeting pains in the hands. Ingestion of 500 Gm of liver did not aggravate his condition. The diet was kept at 500 Gm of carbohydrate, 50 Gm of protein and 50 Gm of fat.

During three months of observation in the outpatient department, he has had only two or three days of mild pain.

#### COMMENT

The ingestion of high fat diets by these patients with gout resulted in certain metabolic and clinical changes that merit detailed discussion. The metabolic changes will be discussed first. Two of the patients took the diets high in fat for fairly long periods. In the blood of each of them the amount of uric acid at the end of the experiment was markedly higher than it had been at first. Patient 1 showed a uric acid concentration of 8 mg per hundred cubic centimeters after he had been on the diet for eight days. This value was 60 per cent higher than the one found when he first presented himself at the clinic. Patient 4 took the diet for eleven days. On the last day of the test, 16 mg of uric acid was present in each hundred cubic centimeters of his blood. This was double the concentration present at the beginning of the test. In two

other patients such extreme pain developed when they took the diet that it was necessary to discontinue the diet after three days. Neither of them showed any significant change in the blood uric acid. The results closely resemble those found in various investigations of persons not suffering from gout, high fat diets fed for a week or more regularly cause increases in the blood uric acid comparable to those observed in the experiments first described, while similar diets fed for shorter periods do not cause such changes. Patients with gout and normal subjects therefore show the same metabolic response to diets high in fat.

When, however, attention is centered on the rate at which the blood uric acid values decreased after the diets high in fat were replaced by those high in carbohydrate, a striking difference between patients with gout and those with other conditions is seen. In all previous articles dealing with such metabolic studies in nongouty subjects it has been stated that the blood uric acid returned promptly to normal when the high fat diets were discontinued. Neither of our subjects who ingested the diet for a long period showed a prompt change of this kind after the diet had been stopped. It was not until a diet high in carbohydrate had been fed to patient 1 for twenty-four days that the blood uric acid fell to the level present before the high fat diet was begun and such high values were still present eight days after the diet in case 4 had been changed that we felt it desirable to use salicylates to hasten the excretion of uric acid. It seems to us that there is some resemblance between this marked persistence of increased blood uric acid values after the ingestion of high fat diets and the delay in the excretion of uric acid after feeding diets rich in purines,<sup>11</sup> or after injecting uric acid,<sup>12</sup> which patients with gout regularly show. It seems probable that all three changes result from the same underlying cause.

The most interesting observations in this study were the changes in the clinical symptoms of the patients. There was an exacerbation of the signs and symptoms when these patients were fed diets high in fat, and in a majority of the experiments the attacks developed within a few days after the patients had been placed on the diet. It should be stated explicitly that these clinical changes were fairly independent of changes in the uric acid content of the blood, for (1) they were noticed in experiments that were too short in duration to cause variations in the blood uric acid, and (2) in two cases with marked increases in the blood uric acid the symptoms decreased or disappeared while the blood uric acid was still high. These changes in symptoms might have been due to changes in the amount of uric acid in the tissues around the joints, but no evidence is available to prove such a theory.

The regularity with which this clinical response was observed led us to investigate the relationship between the ingestion of a high fat diet and the occurrence of joint symptoms in other conditions. No mention of the development of such symptoms is contained in the physiologic papers to which reference has already been made. Wright and Hubbard,<sup>13</sup> who fed diets high in fat to fifteen patients with chronic arthritis, did not encounter any noticeable exacerbation of the signs of

the disease.<sup>14</sup> The results of a few experiments of our own were similar to those of the authors just mentioned. Four patients with chronic arthritis were fed diets high in fat for at least seven days, and there was no change in the clinical manifestations of the disease in any instance.

Since patients with gout appear regularly to experience an exacerbation of joint symptoms when they are fed diets high in fat and since other groups of patients do not do so, we propose the following test for differentiating gout from various forms of chronic arthritis. Feed a diet consisting of from 250 to 350 Gm of fat, 50 Gm of protein and from 30 to 50 Gm of carbohydrate for a period of from five to seven days. If within that time pain in the joints has developed, or if existing mild joint pains have markedly increased in severity, a diagnosis of gout must be carefully considered. The symptoms that may develop can be promptly relieved by feeding a diet high in carbohydrate and low in fat.

#### SUMMARY AND CONCLUSIONS

When diets high in fat and low in carbohydrate and protein were fed to patients with gout, the following effects were observed:

- 1 The concentration of uric acid in the blood increased and the amount excreted in the urine decreased if the diets were ingested for reasonably long periods. These results were approximately the same as those which have been found in the study of normal subjects.

- 2 When diets high in fat were withdrawn and replaced by diets low in fat and high in carbohydrate the blood uric acid returned very slowly to the initial level. This result differs from experience with normal subjects who under similar conditions show a prompt return of the uric acid in the blood to normal values.

- 3 Each time a patient was given a diet very high in fat, an attack of gout occurred within a few days. The joint symptoms subsided shortly after the patients were placed on a low fat-high carbohydrate diet.

- 4 These variations in the clinical symptoms were not directly dependent on changes in the uric acid concentration in the blood. Attacks were noted before increases in the blood uric acid occurred in some instances and disappeared while the blood uric acid was still high in others.

- 5 Similar diets did not cause exacerbations in the symptoms of patients suffering from chronic arthritis.

We feel justified in making the following recommendations as the result of these experiments:

- 1 The development or exacerbation of joint symptoms following the ingestion of a diet high in fat and low in carbohydrate and protein for several days may serve as a useful test in the differential diagnosis of gout.

- 2 Diets high in fat and low in carbohydrate should be avoided in the treatment of patients with gout.

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14 Wright F R. Personal communication to the authors.

11 McClure C W and Pratt J H. A Study of Uric Acid in Gout. *Arch Int Med* 20: 481 (Oct.) 1917.  
12 Folin, Otto, Berglund H and Derick C. The Uric Acid Problem. An Experimental Study on Animals and Man Including Gouty Subjects. *J Biol Chem* 60: 361 (June) 1924.  
13 Wright F R and Hubbard R S. Dietetic Treatment of Arthritis with Special Reference to Maximum Fat Feeding. *New York State J Med* 21: 403 (Nov.) 1921.

**The Mentally Ill**—From the year 1880 to the year 1920 the general population increased, in round numbers, 110 per cent, and the population of the mentally ill in our public institutions 468 per cent.—White, W A. The Social Significance of Psychiatry, Thomas W Salmon Memorial Lecture, read before the New York Academy of Medicine, April 19, 1935.

## THE QUESTION OF HOMOPLASTIC SKIN GRAFTING

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The homoplastic transplantation of skin, in other words, the transference of skin from one individual to another, is a procedure about which there is much controversy. The subject receives such apparently favorable publicity that most laymen and likewise many physicians assume that the homoplastic transplanting of skin is a successful procedure, another accomplishment of modern science. The fact is that practically all recent scientific observation has proved that the homoplastic skin graft is unsuccessful.

These rather disconcerting statements deserve an explanation which we hope to give after reviewing a few salient facts. Practically speaking, skin grafting of any type was first accepted as a surgical procedure in 1869 after Reverdin<sup>1</sup> had reported his success with "pinch grafts." Following this, the various types of split skin and whole thickness skin grafts were described by Ollier, Thiersch, Wolfe and Krause. Along with the numerous reports of success with autoplasmic transplants of skin, various efforts at homoplastic grafting were likewise reported.

Girdner<sup>2</sup> in 1881 reported a case in which skin was taken from a body six hours post mortem and placed on a granulating area on a boy aged 10 years. He reported that most of this graft sloughed because of infection. Bartens,<sup>3</sup> however, in 1888 reported a similar case, which he stated was successful.

Gatch<sup>4</sup> in 1911 reported the case of a Negro who received grafts from two donors. These homoplastic grafts all sloughed, while autoplasmic grafts were highly successful on the same patient.

With the advent of knowledge concerning blood groups and the success of blood transfusion, interest arose in the thought that blood compatibility might be a factor in homoplastic skin grafting. The transference of skin between individuals of the same blood group was termed iso-skin grafting, and Davis<sup>5</sup> has given several reports of success with isodermal grafts. In accounting for the failure observed in many of his cases he was inclined to assign infection as the cause, although he observed that infection was much less frequent in his autoplasmic grafts. Neuhof,<sup>6</sup> Underwood,<sup>7</sup> Hoguet,<sup>8</sup> Masson<sup>9</sup> and Shawan<sup>10</sup> also expressed the view that satisfactory results in homoplastic skin grafting could be obtained when donor and recipient were in compatible blood groups.

Loeb,<sup>11</sup> however, considered it very improbable that the blood group of donor and host could be of any great significance. Blair and Brown,<sup>12</sup> who followed their cases very closely, stated that homoplastic grafts could be made to take but that in all cases after a few weeks the grafts sloughed away.

Faced by such conflicting reports, the average physician naturally has felt inclined to look on the homoplastic skin graft as a "noble experiment" worthy of trial when indicated. On several occasions we have faced a situation with relatives and friends eager to sacrifice small areas of skin to an unfortunate victim of a third degree burn. In most instances we have not accepted these offers, stating that the procedure probably would not be successful and might even be dangerous. Underwood<sup>7</sup> and Holman<sup>13</sup> both have reported what appeared to be serious allergic reactions following the application of isodermic grafts.

### PERSONAL OBSERVATIONS

In five cases we have felt justified in attempting the homoplastic transplantation of skin. In brief, the results were as follows:

1 In most instances the grafts took, that is, they adhered and remained in place for a variable number of weeks. In no case, however, was a homoplastic graft permanently successful.

2 In one case a child was burned over such an extensive area that her survival for a period of approximately a month seemed miraculous. At that time a few small Thiersch grafts were taken from her mother, who was of the same blood group, and placed on the granulating surfaces of the child, together with several grafts cut from accessible areas of her own skin. The grafts took, homoplastic and autoplasmic alike, but after several days the child became toxic with chills and septic temperature and died.

3 The other four patients all survived and eventually the wounds healed, but certainly the healing could not be taken as proof of successful iso-grafting. We observed definitely that these grafts sloughed away, usually in a gradual fashion over a period of days or weeks, while autografts in adjacent areas remained viable. Furthermore, it was quite apparent that the ultimate healing by cicatrization was markedly delayed in the areas which had received the homoplastic grafts.

4 We can readily understand why infection might be assigned as the cause of failure in such grafts. It is common knowledge that infection and slough may complicate any skin grafting procedure, though with proper technic the autoplasmic skin graft is highly successful. In our experience the appearance of the gradually sloughing homoplastic graft is not unlike that of indolent infection, but infection probably is not the basic cause. More will be said of this.

5 In one instance a child presented extensive granulating areas three months following a burn on the back. Together with a few Thiersch grafts cut from her own skin, several similar grafts were transferred from the father, whose blood was compatible. All these grafts adhered completely and appeared to grow for six weeks, during which time the child's general condition remained good. The father's grafts then began slowly to melt away, while her own skin grafts remained

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1 Reverdin J L. Greffe epidermique. Bull. de la Soc. imperiale de chir. de Paris Dec 8 and 15 1869 pages 493 and 511.

2 Girdner J H. Skin Grafting with the Grafts Taken from the Dead Subject. M. Rec. 2 119 (July 30) 1881.

3 Bartens. Transplantation von einer Leiche, Berl. klin. Wchnschr. 1888 No. 32.

4 Gatch W D. Report of a Case of Extensive Thiersch Skin Graft, Bull. Johns Hopkins Hosp. 22 84 1911.

5 Davis J S. Skin Transplantation. Johns Hopkins Hosp. Rep. 15 307 1910. Some Problems of Plastic Surgery. Ann. Surg. 66 89 (July) 1917.

6 Neuhof H. The Transplantation of Tissues. New York, D. Appleton & Co. 1923.

7 Underwood H L. Anaphylaxis Following Skin Grafting for Burns. J. A. M. A. 63:775 (Aug. 29) 1914.

8 Hoguet J P. Skin Grafting. Ann. Surg. 71 220 1920.

9 Masson J C. Skin Grafting. J. A. M. A. 70:1581 (June 1) 1918.

10 Shawan H K. Principle of Blood Grouping Applied to Skin Grafting. Am. J. M. Sc. 157 503 (April) 1919.

11 Loeb Leo. Transplantation and Individuality. Physiol. Rev. 10 547 (Oct.) 1930.

12 Blair V P and Brown J B. The Use and Uses of Large Split Skin Grafts of Intermediate Thickness. Surg. Gynec. & Obst. 49:82 (July) 1929.

13 Holman E. Protein Sensitization in Iso-Skin Grafting. Surg., Gynec. & Obst. 38 100 (Jan.) 1924.

health. After two more weeks it was apparent that the grafts from the father were undergoing progressive necrosis, mere fragments of the basal layers remaining. At this time a different area of granulation tissue received Thiersch grafts from the mother, whose blood was not compatible, and also several small grafts from the child's own skin. None of the mother's grafts grew. At the end of two weeks those which had first shown a tendency to take were undergoing rapid necrosis. During this interval the child's temperature, which previously had been normal, became septic and toxic symptoms developed. Following this all granulations became unhealthy and healing progressed very slowly, even though the areas were given radical debridement to remove all remnants of the homoplastic grafts. With the aid of small Thiersch grafts from the remaining areas of her own available skin healing eventually was sufficient to permit release from the James Whitcomb Riley Hospital four months following the initial graft.

## COMMENT

From our own experience and a critical survey of the literature we are led to believe that most reports of success with homo-skin grafts arise from the fact that these grafts can and often do adhere and appear to grow for several weeks. In our cases, however, such grafts have not remained viable their ultimate fate being a more or less delayed slough. Healing by cicatrization eventually occurs. These observations are in agreement with recent reports of others. Padgett,<sup>14</sup> however, although in general his observations agree with ours, has reported successful growth in skin transplants between identical twins. The grafts in one such instance were healthy and growing after three months. Gillies<sup>15</sup> states that at the present time homolografting in general is successful when the transplants involve vascular tissues, notably cartilage and cornea. He admits that homografts of skin, as commonly transplanted are for all practical purposes unsuccessful. Certainly this is in accord with our experience. It does appear that blood compatibility may tend to favor the initial take of the graft. We have found, however, that ultimately these grafts not only are futile but are detrimental to healing or even dangerous to the life of the host.

It would seem that homotransplanting of tissues in man, for the most part, fails because of biologic incompatibility, the necrosis that occurs being due primarily to antagonism between the host and the foreign protein of the graft. The infection that may be observed is probably secondary and not the basic cause of the slough. We note with interest the report of Stone, Owings and Gey<sup>16</sup> concerning the successful homoplastic transplantation of glandular tissue by a technic in which the donor's tissue is first transferred to culture in vitro with the recipient's serum as a medium. This work is as yet in the experimental stage, but the reports are encouraging.

The fact remains that, as commonly practiced, homografting of skin is useless, deleterious and unnecessary. Massive destruction of skin is usually due to a burn, and the individual who survives such an injury will have sufficient intact surface to make healing possible with the aid of grafts from the patient's own skin.

In passing, we wish to emphasize the importance of early skin grafting in the management of such burns.

By this procedure much deformity, disfiguration and suffering will be prevented and lives will be saved. Many severe burns are seen unhealed and septic after many months. In the management of such cases we wish to emphasize the value of ultraviolet therapy as reported by Gatch and Trusler.<sup>17</sup>

We do not deny the obvious fact that in many cases the homoplastic grafting of skin would be a great help if a practical solution of the problem could be discovered.

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## THE TREATMENT OF VARICOSE VEINS

IS SYSTEMIC DISEASE A CONTRAINDICATION?

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This paper is based on a study of 1,000 consecutive patients treated for varicose veins in the circulatory clinic of the Boston City Hospital from late in 1930 to the close of 1933. It includes many patients suffering from coexisting systemic diseases such as diabetes and syphilis, and diseases of the heart, lungs and kidneys. The study was undertaken to determine whether it is dangerous or unwise to treat such patients by the injection of sclerosing agents or by this injection plus the operation of ligation.

The literature is controversial on this subject. Of those taking a cautious attitude may be quoted de Takats,<sup>1</sup> Kilbourne,<sup>2</sup> Beckman<sup>3</sup> and McKimstry.<sup>4</sup> The conditions that they list as contraindications to treatment are old age, simple debility added to old age, nephritis, heart disease, hypertension, diabetes, tuberculosis, hyperthyroidism, severe focal infection, and the common cold. De Takats believes that the treatment may bring on angina in a patient who is subject to this disease. He has also seen a case of military tuberculosis which he infers was caused or precipitated by the injection.<sup>5</sup> Kilbourne includes focal infection because of the danger of a metastatic phlebitis in the treated vein and for the same reason advises against injection immediately after the extraction of a tooth or during an acute cold or pharyngitis. A midway position is maintained by Forestier,<sup>6</sup> O'Neil<sup>7</sup> and Schussler.<sup>8</sup> Forestier says: "Old persons with enfeebled health should not be given injections." A previous medical examination is necessary, particularly as to the condition of the heart, the function of the kidneys (albuminuria) and the possibility of diabetes." O'Neil

17 Gatch W. D. and Trusler H. M. Uses of Ultraviolet Light in the Preparation of Infected Granulation Tissue for Skin Grafting. The Value of Very Thick Thiersch Grafts. *Surg. Gynec. & Obst.* 60: 478-482 (Feb.) 1930.

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1 de Takats, Géza. Causes of Failure in the Treatment of Varicose Veins. *J. A. M. A.* 96: 1111 (April 4) 1931.

2 Kilbourne, N. J. Varicose Veins. Indications and Contraindications to Injections. *Ann. Surg.* 93: 691 (March) 1931.

3 Beckman, Harry. Treatment in General Practice. Philadelphia, W. B. Saunders Company 1931. p. 578.

4 McKimstry, G. C. Review of Work on Varicose Veins for the Year 1933. *Surg. Gynec. & Obst.* 59: 489 (Dec.) 1934.

5 The case of a young girl, who with slight evening rises in her temperature received a few injections in her veins and died six weeks later of military tuberculosis shows too well that a latent tuberculosis can be activated not only by foreign protein but by a mild irritative process such as the injection treatment.

6 Forestier, Jacques. Varices of the Lower Limbs. Treatment by Obliterating Injections Based on Experience with More Than Four Thousand Injections. *J. A. M. A.* 90: 1932 (June 16) 1928.

7 O'Neil, E. E. The Injection Treatment of Varicose Veins. *New England J. Med.* 200: 972 (May 9) 1929.

8 Schussler, Hermann Jr. The Chemical Obliteration of Varicose Veins. *J. A. M. A.* 80: 1358 (April 28) 1928.

14 Padgett, E. C. Is Iso-Skin Grafting Practicable? *South. M. J.* 25: 895-900 (Sept.) 1932.

15 Gillies, Sir Harold. Personal communication to the authors.

16 Stone, H. B., Owings, J. C., and Gey, G. O. Living Grafts of Endocrine Glands. *Am. J. Surg.* 24: 386-395 (May) 1934.

says "Every patient is (first) to be examined to determine whether there exists any contraindication to the treatment"

Genevri<sup>9</sup>, who introduced quinine and urethane as a sclerosing agent, makes no mention of any contraindication to its use McPheeters<sup>10</sup> takes a positive and optimistic stand He has summed up his attitude as follows

Neither a high nor a low blood pressure is a contraindication per se If the patient has diabetes and bad varicose veins, he should be treated, but avoid the sugar solutions If the patient has nephritis, avoid any solution which is irritant to the kidney In cardiac conditions the patient's general condition is improved by the treatment of his varicose veins, but in no case should treatment be given when the patient is decompensated or bed-fast for any reason

The latter caution is to avoid the danger of embolism from a propagating stagnation thrombus, which may form if a patient goes to bed after the injection

THE STUDY<sup>11</sup>

At the inception of the circulatory clinic of the Boston City Hospital in 1929, the rule was made that no patient was to be treated unless he was first examined by the medical department "to rule out any disease that might contraindicate treatment" However, the injection treatment was early shown to be quite innocuous through the efforts of Dr E E O Neil of the circulatory clinic It seemingly came about that the internists and the surgeons were equally puzzled as to what constituted a systemic contraindication to the

treatment of the varices It was therefore very soon that patients were treated whether or not they had other concomitant diseases like those previously mentioned The only condition that has remained a contraindication in the clinic is pregnancy which condition I shall discuss later

The records of these 1000 treated patients are therefore rich in instances of coexisting systemic disease The patients were examined by either the house officers or the visiting physicians, and, since

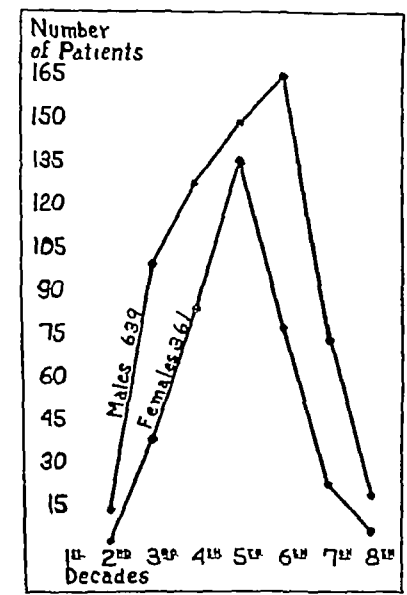


Chart 1—One thousand consecutive patients with varicose veins Age in decades at which patients appeared for treatment.

the house officers in the medical clinic change every three months and the visiting physicians every month there was a considerable number of men who handled these patients The thoroughness of the examinations varied all had at least their hearts and lungs examined

9 Genevri<sup>9</sup> Le traitement des varices et ulcères variqueux par les injections coagulantes concentrées de sels de quinine Soc. de méd mil franç 15:169 1921 Monde med 32 624 1922  
10 McPheeters H O Varicose Veins Philadelphia F A Davis Company 1931  
11 I am indebted to Dr Cadis Phipps, professor of medicine at Tufts College Medical School director of the First and Third Medical Services and physician in chief Third Medical Service of the Boston City Hospital for advice concerning the medical problems involved

Almost every patient had the urine examined and the blood pressure taken But frequently the history was brief One may therefore presuppose that if these records are in error, they are more apt to leave out systemic disease when it existed than otherwise

The age of the patients at the time of first application for treatment was such as to make likely the frequent existence of conditions such as senility, arthritis, constipation, obesity, cholecystitis and, in the women, the menopause (chart 1) I feel that whether or not these diagnoses were placed in the record depended largely on the extent of the history, and the

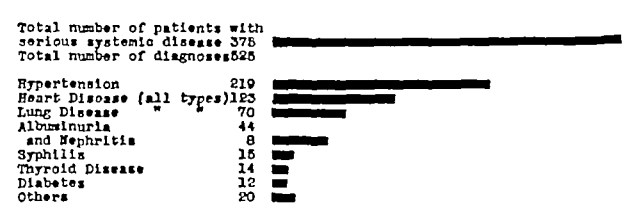


Chart 2—One thousand consecutive patients with varicose veins Incidence of serious systemic disease

individuality of the examiner I therefore merely note that a great number of the patients suffered from these conditions

Considering the more serious diseases with more objective changes we found an incidence of 375, or 37.5 per cent of the 1,000 patients (chart 2) Of this number 219 patients were suffering from hypertension<sup>12</sup> There were 123 patients with some disease of the heart, many of whom had hypertension with arteriosclerotic and hypertensive heart disease, while others were merely diagnosed as having myocarditis, auricular fibrillation or cardiac hypertrophy There were but few cases diagnosed as angina pectoris, though heart pain was described in many of the histories of the patients with the other heart diseases There were only eight cases labeled nephritis, with many more probably implied in the hypertensive or arteriosclerotic heart patients An additional forty-four patients had albuminuria There were seventy cases of respiratory disease, including chronic bronchitis, bronchiectasis, emphysema and tuberculosis, and one case of pneumoconiosis There were four cases of extrapulmonary tuberculosis There were three cases of alcoholic cirrhosis of the liver Diabetes was diagnosed twelve times, syphilis fifteen times (The blood was examined for syphilis in only 149 patients) Diseases of the thyroid were diagnosed fourteen times and included toxic and nontoxic goiters colloid goiters and hypothyroidism Peptic ulcer was diagnosed five times There were only five patients diagnosed as suffering from malnutrition or anemia or both This figure is of course too low, as approximately from one third to one half of our patients are destitute and receive aid from the city welfare department For the same reason the stated presence of carious teeth and other foci of infection may be passed over as altogether too low, they are actually very frequent in our patients It is worthy of note that many of these patients were in middle or old age (chart 1)

As to the type of treatment and the substances used, every one of these 1,000 patients had received at least one injection of quinine and urethane, and, in some cases as many as ninety-five injections were given

12 The criterion used was a systolic blood pressure above 145 mm of mercury In most of the patients diagnosed as hypertensive the blood pressure was tested several times



The solution used contained 0.091 Gm of quinine hydrochloride and 0.052 Gm of urethane in each cubic centimeter of water.<sup>13</sup> The dose used by most of the surgeons was 0.5 cc at the first visit and 2 cc thereafter, although I have been using 5 cc of this solution as a routine dose for the past two years. In addition to the quinine urethane, we have used 5 per cent sodium morrhuate in some cases<sup>14</sup> and less frequently sodium chloride (20 per cent) or sodium chloride (15 per cent) with dextrose (25 per cent) or varisol (invert sugar and sodium chloride). Also since early in 1932 we have used the ligation of the saphenous vein as a preliminary to the injections in some cases. This operation of ligation of the great saphenous vein was carried out seventy-five times in this series.<sup>15</sup>

In considering the possible systemic effect of the various sclerosing agents their pharmacology might perhaps be discussed briefly. In the combination of quinine and urethane, one has to consider the action only of the former, as urethane (ethyl carbamic ester) is too weak and inconstant in the dosage used to be of any possible danger, especially as it is easily oxidized to urea. Aside from the possible idiosyncrasy for quinine, I realize that large doses, given intravenously, may result in a fall in blood pressure and cardiac depression as well as in a depressing effect on the central nervous system but in the dosage used for the treatment of varicose veins (from 0.182 to 0.455 Gm) there is no reason to expect any general or systemic results, and apparently no definite ones have been reported. There seems no valid objection to the use of quinine in an individual suffering from nephritis, as the drug is not stored to any appreciable extent within the kidney and only one third is recovered in the urine. Heart disease is of course a very inclusive diagnosis and obviously there are cardiac conditions in which the injection treatment of veins would be contraindicated aside from any possible systemic effect from the agent used. In regard to hypertension and hypertensive heart disease, my feeling is that, if there should be any systemic results from quinine, it would be of benefit in vasodilatation and lowering of blood pressure. The experience of Tunick and Nach,<sup>16</sup> and of Cooper<sup>17</sup> indicates that sodium morrhuate is entirely nontoxic. I usually use up to 15 cc, given at multiple points, but I have used 30 cc at one sitting in one individual, with no untoward result. The use of sodium chloride in 15 or 20 per cent solution, invert sugar and the like would have a negligible systemic effect in the amounts administered with the exception of the obvious contraindication to the use of sugar solutions in diabetes.

#### RESULTS AND COMMENT

From what has been stated it may be noted that 375, or 37.5 per cent, of our 1,000 patients might have been labeled "treatment contraindicated." They were, nevertheless, treated. There were no deaths in the entire 1,000 cases. We have, of course observed an occasional case of vomiting, dizziness or moderate allergic shock after the injection of quinine, but in this particular series, aside from occasional simple syncope,

untoward general reactions were noted in only three patients, all women. The reactions consisted of vomiting and dizziness in one patient, uterine bleeding in one pregnant woman, and uterine bleeding in one non-pregnant woman.

CASE 1—A woman aged 47, with normal physical examination aside from varices had one injection of 0.75 cc of the quinine urethane solution and a second injection of 2 cc eleven days later. Vomiting and dizziness followed the second injection and the treatment was discontinued.

CASE 2—A woman aged 42 with compensated rheumatic heart disease had injections of 2 cc of quinine urethane solution at weekly intervals. After the ninth injection she complained of vaginal bleeding. On questioning, she stated that she had had a few minutes of painless vaginal bleeding after each injection. During this time her menses came at regular intervals as they had always done. She was a multipara who had been married for twenty-five years. Pelvic examination was normal.

CASE 3—A woman aged 43 had her last period four days before starting a series of injections for her veins. Quinine urethane was used at intervals of three weeks. A slight amount of vaginal bleeding occurred immediately after her fourth injection, when she was three months pregnant, and again after her fifth injection when she was three and one-half months pregnant. She told of this five weeks later and the treatment was discontinued. She went on to a normal completion of her pregnancy.

None of the other 997 patients showed any general or remote effect important enough to be noted in the records. Of course many patients with hypertension later suffered from the usual accidents of this disease, such as cerebral hemorrhage or cardiac decompensation. Likewise many of the patients known to have heart disease showed decompensation at some later time, as such patients generally do, but there was no single instance in which there seemed to be any relationship of the decompensation to the treatment. Many of the cardiac patients were undergoing treatment for slight or moderate decompensation during their injection treatment, and their course did not seem altered by the injections. The same can be said of the patients afflicted with pulmonary or kidney disease. No one patient seemed to be made worse by the injection. The few cases of pulmonary or extrapulmonary tuberculosis were not made worse by the injections, nor were those with thyroid disease affected. Likewise no general or unusual local effect was noted in the diabetic patients.

From these results one may take a positive stand, and that is that severe systemic disease is not a contraindication to the injection treatment of varicose veins. McPheeters' exception to the rule (already quoted) is pertinent, viz, the avoidance of sugar solutions (dextrose or invert sugar) in diabetic patients, and kidney irritants (mercuric chloride or metaphen) in nephritic patients.

The general point may further be made that when a patient has one or more of these considered diseases it would benefit his general condition to be rid of varicose veins or their complications, ulcer and phlebitis. This is important for two reasons: first, the presence of discomfort or pain incident to varices and their complications and second, the presence of infection. It is probable that infection is constantly present in the varicose ulcer and in the entire limb that is the seat of such an ulcer, and it may be present in many cases of phlebitis. In injecting varices, one occasionally sees a serious phlebitis or cellulitis follow a technically perfect injection when neither ulcer nor phlebitis has been previously present. This resulting phlebitis or cellulitis

<sup>13</sup> This is weaker than Genevieve's solution.<sup>9</sup> The formula for that solution which is identical with the solution on the market in this country consists of quinine hydrochloride 0.133 Gm and urethane 0.067 Gm in each cubic centimeter.

<sup>14</sup> The sodium morrhuate used was supplied by Searle & Co. Edwards E. A. The Treatment of Varicose Veins. Anatomical Factors of Ligation of the Great Saphenous Vein. Surg. Gynec. & Obst. 59:916 (Dec.) 1934.

<sup>16</sup> Tunick, I. S. and Nach, Robert. Sodium Morrhuate as a Sclerosing Agent in the Treatment of Varicose Veins. Ann. Surg. 95:734 (May) 1932.

<sup>17</sup> Cooper, W. M. Use of Sodium Morrhuate in Injection Treatment of Varicose Veins. Am. J. Surg. 21:408 (Sept.) 1933.



has all the earmarks of a bacterial infection, and I believe they may be explained by the presence in varicose veins of what de Takats calls "resting infection", i. e., the presence of bacteria in the vein walls of large varices.<sup>18</sup> More obvious is the infection in the limb affected with varicose ulcer. It is frequent to observe large inguinal nodes on the affected side, which disappear as the ulcer heals. Considering the length of time a varicose ulcer may exist, the effect of its infection may be considerable. It may be profitable to add to the list of common foci of infection large varicose veins, ulcers and phlebitis.

When one applies this reasoning to decide whether or not to treat a diabetic patient, it becomes obvious that if the diabetic patient, of all people, is to avoid infection he should be treated for varices and their complications. From my practical experience, I can reiterate that I have never seen any harmful effect from treating the diabetic patient for varices.

McPheeters<sup>19</sup> of this country was the first to overthrow the notion that varices are not to be treated during pregnancy. He uses a solution of sodium chloride. Recently also Ritchie<sup>20</sup> of Edinburgh reported a group of pregnant patients treated with sodium morrhuate without ill effect. In this hospital we have neatly side-stepped the question by adhering to the rule that no pregnant woman is to receive injections for varicose veins. I admit that after the pregnancy is over the engorged veins of the lower extremities or vulva may entirely disappear, or at least diminish in size. For this reason alone it is certainly not proper to attempt a complete sclerosis of the varices during pregnancy. Frequently, however, the woman may suffer from severe pain in some individual segment of the varices, especially in the vulva or upper part of the thigh. Occasionally, too, these varices may be so huge and thin walled as to rupture and give rise to dangerous or even fatal hemorrhage during labor. In private practice I regularly inject such isolated segments of varices during pregnancy. I do not use quinine and urethane because of its oxytocic effect. I use 5 per cent sodium morrhuate, and I have never seen any bleeding or untoward effect, the patients going through their pregnancies as usual.

#### CONCLUSIONS

A study was made of 1,000 consecutive patients with varicose veins treated in the outpatient department of the Boston City Hospital. Seventy-five of the patients had a preliminary ligation. All were treated by the injection of quinine and urethane, or sodium morrhuate, and a few by solutions of sodium chloride and dextrose, or invert sugar.

Three hundred and seventy-five, or 37.5 per cent, of these patients suffered from at least one complicating serious systemic disease, and, according to previously noted criteria, treatment would have been contraindicated in them. There were no deaths. Aside from syncope there were only three reactions, all in women, consisting of vomiting and dizziness once and uterine bleeding twice.

A consideration of the pharmacology of the substances injected suggests no contraindication to their use in the presence of systemic disease. The removal of pain incident to varices, and ulcers and phlebitis, and the infection present at least in ulcers would seem of

very definite value in the treatment of heart disease, hyperthyroidism, tuberculosis and especially diabetes.

The results obtained from this series of cases would suggest that the injection treatment of varicose veins may be safely employed even in the presence of conditions in which it was previously considered as contraindicated. I agree with the rule that no bedfast patient should be injected for varices.

During pregnancy, the treatment of individual segments of varices that are large or painful is desirable and safe, provided oxytocic substances, such as quinine, are avoided. Sodium morrhuate would seem to be the solution of choice.

1571 Beacon Street

### Clinical Notes, Suggestions and New Instruments

#### AXIAL TORSION OF A FULL TERM PREGNANT UTERUS

RALPH A. REIS, M.D. AND ARTHUR J. CHALOUKKA, M.D. CHICAGO

The pregnant uterus usually shows some degree of torsion during the latter half of pregnancy. Such torsion is merely an exaggeration of the physiologic rotation of the pregnant uterus. This usual type of rotation is readily seen at laparotomy, especially at term. It consists of a longitudinal twist of a few degrees. The twist is to the right in 80 per cent of patients and to the left in only 20 per cent. Torsion of this type has no major clinical significance.

True axial rotation of the pregnant uterus is rare and serious. Sudden rotation of the uterus on its long axis through more than 90 degrees may result in premature separation of the placenta, hemorrhage, profound shock and the symptoms of acute peritonitis. When it occurs, it is usually in association with uterine tumors or malformations.

Robinson and Duvall<sup>1</sup> have stated that "without uterine abnormalities there can be no torsion." They believe that extreme torsion, or axial rotation, in the absence of tumors or malformations is due to a developmental asymmetry of the uterine musculature. The following instance of axial torsion of the uterus bears out this statement.

#### REPORT OF CASE

Mrs. M. S., aged 22, a primipara admitted to the service of Dr. Irving Stein, Aug. 21, 1934, had a previous normal menstrial history. Her last menses began Nov. 16, 1933. Prenatal examinations showed no abnormalities of the uterus. Pelvic measurements showed a typical justo minor pelvis. She had had labor pains for eight hours before admission, at which time she was having moderately severe contractions every five minutes lasting from thirty to forty seconds. Examination at this time revealed that the fetal head was still unengaged.

Two hours after admission the uterine contractions became more frequent, much more severe and lasted from sixty to ninety seconds. After three hours of severe pains, the patient was given one-fourth grain (0.016 Gm.) of morphine sulphate together with  $\frac{1}{160}$  grain (0.0004 Gm.) of scopolamine hypodermically. She obtained no relief and one hour later was complaining of constant and almost unbearable pain.

Abdominal examination at this time showed the uterus to be tense and firmly contracted with almost no periods of relaxation. The left round ligament was tense, easily palpable and plainly recognizable through the thin abdominal wall. At this time the left uterine horn and its round ligament insertion appeared to be rotated to the right and anteriorly, so that the uterine horn was almost in the midline. Rectal examination showed the cervix to be effaced, 1 cm. dilated. The membranes were intact and the fetal head was still unengaged.

During the next two hours the uterine contractions gradually became continuous. The patient complained bitterly of pain and of an inability to urinate in spite of an intense desire to do

<sup>18</sup> de Takats, Géza. Resting Infection in Varicose Veins. Its Diagnosis and Treatment. *Am. J. M. Sc.* 184: 57 (July) 1932.  
<sup>19</sup> Ritchie, Alison. The Treatment of Varicose Veins During Pregnancy. *Edinburgh M. J.* 40: 157 (Nov.) 1933.

From the Department of Obstetrics and Gynecology, Michael Reese Hospital.  
<sup>1</sup> Robinson, A. L. and Duvall, H. M. *J. Obst. & Gynec. Brit. Emp.* 38: 55 1931.

so. Close observation of the uterus during this period showed the left round ligament gradually shifting to the right until it had crossed the midline just above the level of the umbilicus, and the left uterine horn had rotated to the right until it had come to lie under the right costal arch. The cervix was still undilated and the fetal head was still unengaged. The uterus now became tonic and remained so. There was no evidence of peritoneal reaction or shock. The pulse and temperature were normal. A diagnosis of axial torsion of the uterus was made. All external attempts at rotating the uterus to the left failed, even after the patient was given surgical anesthesia (ethylen).

The abdomen was incised in the midline and when the peritoneal cavity was opened the uterus was found to be rotated on its long axis. The point of rotation was at the junction between the cervix and the lower uterine segment; the direction was to the right that is clockwise viewed from below, and the degree of rotation was approximately 135 degrees. The right round ligament was posterior and somewhat relaxed, whereas the left one was tense and crossed the midline just above the umbilicus. The left horn of the uterus had come to lie under the anterior

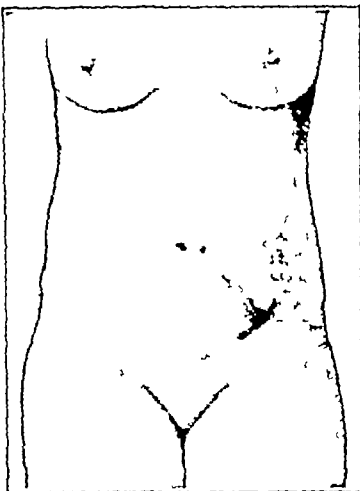


Fig. 1—Axial torsion of a full term pregnant uterus in labor. The tense left round ligament can be seen crossing the midline of the abdomen above the level of the umbilicus. Its cornual insertion has been carried under the right costal margin by a clockwise rotation of 135 degrees.

liver margin. This axial twist had dragged the vesical peritoneum and bladder to the right producing marked bladder distortion and thus explaining the inability of the patient to urinate.

All attempts to untwist the uterus failed. A low cervical cesarean section was done and immediately after the fetus and placenta had been removed the uterus rotated spontaneously to the left and assumed its normal relations. Examination of the uterine wall and placenta revealed no evidence of placental separation or hemorrhage. The uterus was then brought out through the abdominal incision and carefully inspected, but no abnormalities could be found. After suture of the uterine incision and replacement of the vesical reflection of the peritoneum, the uterus appeared perfectly normal in its position, axis and relations.

The patient made an uneventful recovery except for a slight wound infection and was discharged from the hospital on the sixteenth day. Involution of the uterus proceeded normally during this time, except for the fact that the uterus seemed markedly displaced to the right. Examination six weeks after delivery showed some dextroversion of the uterus. No other abnormalities could be detected. Involution was complete.

#### COMMENT

Axial torsion of the pregnant uterus has been known and described by veterinarians since 1662, this condition being rather common in domestic animals, especially cattle. It was first described in the human being by Virchow<sup>2</sup> who found this condition at autopsy in 1863. Since then there have been many instances (more than a hundred) reported in which the axial torsion of the pregnant uterus occurred in association with fibroid tumors of the uterus or with uterine malformations.

Careful search of the available medical literature reveals only fifteen reports of axial torsion of the uterus at or near term not in association with uterine tumors or malformations. Litten<sup>3</sup> collected nine such reports in 1930 and added one of his own. Three other reports have been found prior to 1930 and two others have been published since Litten's publication. The present report is therefore the sixteenth to be published.

An analysis of these sixteen reports shows that age and parity apparently play no role. The patients ranged from 20 to 40 years in age and had had from none to four pregnancies previous to the one during which the axial torsion occurred. One pregnancy was of six months', one of seven months', and two of eight months' duration. Two patients were in the last month of pregnancy and the remaining ten were at term.

The onset of the uterine torsion was sudden in six. None of these had reached term. In all of these, the symptoms were acute in onset and fulminating in character. The symptoms present in this group were those of shock and collapse following immediately on the onset of severe abdominal pain and vomiting. The clinical picture in each of these was that of an acute intraperitoneal crisis. In two of these the development was so rapid that death occurred within three hours, and the diagnosis was established only by postmortem examination. Two other patients died within a few hours after hysterectomy was performed, the remaining two in this group recovered following cesarean section.

The onset was gradual in five others and was not mentioned in the remaining five reports. In none of these ten were the symptoms either acute or fulminating. All of these ten patients recovered.

It would seem that axial torsion of the pregnant uterus is serious only when the torsion is rapid enough to produce acute circulatory disturbances in the uterus which result in peritoneal insult. In all ten of these patients the axial torsion developed during long and difficult labors, many of which were characterized as "obstructive" in nature.

The axial torsion was undiagnosed in fourteen, being found either at autopsy (in two) or on laparotomy (in twelve). Litten made the diagnosis in his patient from the abdominal manifestations alone. His patient was very thin, and the round ligament could be seen and felt as it passed from its inguinal canal insertion to the opposite side of the abdomen. There was a marked hydramnios present in association with an anencephalic monster. After a number of hours of hard and ineffectual labor, he ruptured the membranes artificially to relieve the uterine distention. The uterine torsion promptly disappeared and the patient delivered spontaneously. Subsequent postinvolutional roentgenographic examination of the uterus with the aid of iodized oil showed the uterus to be sinistraverted. This was undoubtedly an instance of gradual axial torsion of the pregnant uterus but unfortunately was not proved by direct visualization. As far as can be determined the present example is the first in which a preoperative diagnosis of axial torsion of the pregnant uterus was confirmed by the finding of this condition during laparotomy.

The degree of rotation of the uterus ranged from 90 degrees to 360 degrees. Here again a differentiation must be made between the "fulminating" group and the group in which the onset was "gradual."

In the former, the rotation was 180 degrees or more in every instance, whereas in the latter group it was 180 degrees or more in only four of the ten patients. The direction of rotation was clockwise in twelve and counterclockwise in four. The level of rotation in the seven reports in which mention was made of this point was at the uterocervical junction in two, the midcervix in three and the cervicovaginal junction in two.

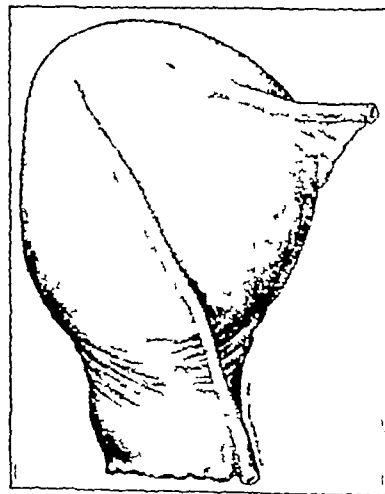


Fig. 2—Axial torsion of a full term pregnant uterus in labor. The drawing indicates the clockwise rotation with displacement of the path of the left round ligament and the torsion traction to which the bladder was subjected.

<sup>2</sup> Virchow Rudolf. Die Krankhaften Geschwulste. Berlin 3. 1863.  
<sup>3</sup> Litten L. Zentralbl. f. Gynak. 54: 2009 (Aug. 9) 1930.

Two patients in the "fulminating" group died before treatment could be instituted. Two others were treated by hysterectomy and died within a few hours, the remaining two recovered following cesarean section. Nine of the ten patients in the "gradual" group were treated by cesarean section, all recovered except one patient, in whom there had been previous attempts at version and extraction. This patient died three days later of septicemia. These attempts at version and extraction must be held at least partially responsible for this fatality. The development of a "gradual" axial torsion of the uterus would seem to be comparatively harmless to the patient if this condition is not permitted to continue over too long a period of

that uterine asymmetry must be present to permit of axial torsion of the uterus explains the production of this condition in those patients in whom there are neither tumors nor malformations of the uterus nor gross lateral uterine deviations. However, Vogt,<sup>4</sup> Ghnshki<sup>5</sup> and Lohlein give such accurate descriptions of the uterus in their reports that it must be conceded that these uteri were normal.

## SUMMARY

1 The instance of axial torsion of a pregnant uterus at term here reported is the first in which the correct diagnosis was made from physical examination and confirmed by laparotomy.

*Axial Torsion of the Uterus*

Case Purity Age	Author	Length of Pregnancy Onset	Symptoms	Labor	Diagnosis by	Treatment	Degree of Rotation	Point of Rotation	Direction	Outcome	Possible Etiological Factors
1 III 26	Syme L. Lancet 1:516 1906	6 mos sudden	Pain shock collapse	0	Laparot omy	Hysterectomy	360	Cervico vaginal junction	Clock wise	Death in a few hours	
2 III 23	Ghlnshki K. Monat schr f Geburtsh u Gynäk 31: 431 1910	9 mos sudden	Vomiting collapse convulsions	0	Autopsy		270	Midcervi cal	Clock wise	Death in 3 hours	Diastasis and um bilical hernia very long cervix irregular body movements
3 II 20	Olow N. Monat schr f Geburtsh u Gynäk 32: 53 1910	9 mos sudden	Pain shock collapse	0	Autopsy		240	Midcervi cal	Clock wise	Death in 8 hours	Mechanical fol lowing hanging washing
4 III 33	Fowler G. Long Jeland M J 5: 228 1911	7 mos sudden	Pain vomit ing diarrhea	0	Laparot omy	Cesarean	90		Clock wise	Recovery	Previous uterine fixation rachitic pelvis
5 II 27	Weinzerl, K. Monatschr f Ge burtsh u Gynäk 53:29 1922	Term sudden	Shock pain vomiting	0	Laparot omy	Hysterectomy	180	Cervico- uterine junction	Counter clock wise	Death in few hours	Pendulous abdo men and excessive uterine mobility
6 II 34	Weinzerl K. Zentralbl f Gynäk 51:2050 1922	Term	None	Long hard	Laparot omy	Cesarean	200		Clock wise	Recovery	Rachitic pelvis and long obstruc tive labor
7 I 1	Vogt Zentralbl f Gynäk 47: 188 1922	Term	None	Long hard	Laparot omy	Cesarean	90		Counter clock wise	Recovery	Pendulous abdo men and weak ab dominal muscles
8 I 21	Bretz Monatschr f Geburtsh u Gynäk 50:69 1923	Term gradual	Slight abdom inal pain	Long	Laparot omy	Cesarean	180	Cervico- vaginal junction	Clock wise	Recovery	Kyphosis and rickets
9 III 31	Stork F. Zen tralbl f Gynäk 49:641 1925	Term gradual	Severe pain for 12 days	Long hard	Laparot omy	Cesarean	180		Clock wise	Recovery	Irregular uterine contractions due to fetal move ments
10 IV 44	Kelffer Bruxelles méd 6:314 1926	Term gradual	Bleeding and intestinal obstruction	Hard 15 hrs	Laparot omy	Cesarean fol lowing attempted version	180	Cervix	Clock wise	Death 3 days later	Placenta praevia long obstructive labor and postoperative adhesions
11 I 23	Kohler Zentralbl f Gynäk 61:1927	8 mos gradual	Pain and tenderness for 9 days	Hard ob structed	Laparot omy	Cesarean	100		Clock wise	Recovery	Resistance due to rigid cervix
12 I 22	Koerner Monat schr f Geburtsh u Gynäk 82:1620	Term	None	Long	Laparot omy	Cesarean	90		Clock wise	Recovery	Mechanical fol lowing hanging washing
13 II 24	Litten L. Zen tralbl f Gynäk 14:2000 1930	Term	None	Long	Abdom inal exam ination	Rupture of membranes	180		Counter clock wise	Recovery	Polyhydramnio
14 I 38	Felner D. and Kaldor J. Am J Obst & Gynec 20:88 1930	Term	None	Long hard	Laparot omy	Cesarean	160		Counter clock wise		Transverse position
15 II 23	Anderodias M. and Mahon M. Bull Soc d obst et de gynéc 22: 490 1933	8 mos sudden	Pain and bleeding	0	Laparot omy	Porto	90			Recovery	Premature separation of placenta
16 I 22	Reis and Chaloup ka 1934	Term gradual	Pain and dysuria	Long hard	Abdomi nal exam ination	Cesarean	135	Cervico uterine junction	Clock wise	Recovery	Primary dextro version

time. The axial torsion was unsuspected in eight of the ten in the "gradual" group.

The various factors that have been described as being causative of axial torsion are postoperative adhesions, irregular fetal movements, weak abdominal muscles, umbilical hernia, manual labor and the like. Analysis of these sixteen reports seems to indicate that the cause of the "fulminating" type is unknown at present.

The one factor present in every one of the ten patients in the "gradual" group was a long hard labor without progress. This common factor should not be overlooked in searching for the etiology of this condition. There must also be some predisposing factor such as a malfunction of the uterine musculature. At least some type of uterine asymmetry must be present. Such asymmetry was present in several cases including the one here reported. The dictum of Robinson and Duvall

2 A study of the sixteen reports gathered together leads to a division of this condition into two definite clinical groups.

3 The "fulminating" type is characterized by a sudden onset with severe pain and the symptoms of shock and intraperitoneal insult. The degree of torsion is 180 degrees or more. The etiology is unknown. This type is rapidly fatal in most instances.

4 The "gradual" type is characterized by a gradual development. It frequently presents no symptoms or changes and is discovered only by accident at laparotomy. The degree of rotation varies from 90 to 200 degrees. This type follows long severe obstructive labor. The predisposing cause is probably an asymmetry of the uterine musculature.

104 South Michigan Avenue

4 Vogt, Zentralbl f Gynäk 47:188 1922

5 Ghnshki, K. Monatschr f Geburtsh u Gynäk 31:431 1910

## Special Articles

### THE EVALUATION OF SERODIAGNOSTIC TESTS FOR SYPHILIS IN THE UNITED STATES

#### REPORT OF RESULTS

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Plans for a study of the several serologic tests and modifications of preexisting methods developed in this country for the diagnosis of syphilis have already been published<sup>1</sup>. The purpose of this study was to determine the reliability of the several serodiagnostic methods used in the United States. The project has been

nary practice. Twelve hundred specimens of blood and spinal fluid were collected in the different clinical groups in sufficient quantity to furnish each participating serologist with a comparable sample. Samples of blood and spinal fluid were collected from donors in various categories and distributed from central points of collection to the laboratories of participating serologists. A general invitation was extended to serologists in this country who had described an original serologic test or a modification of a preexisting test. Those who had described more than one serologic test delegated the performance of the second test to another laboratory in a different city.

The donors were carefully chosen and accurate records were made of the pertinent facts in the history and physical examination. Reasonable care was taken to insure that donors would be available for clinical reexamination in the event that discrepancies existed in the reports of the participants. Whole blood specimens were collected in dry sterile glass syringes under aseptic conditions, transferred to uniform glass tubes, and stoppered with sterile corks. Spinal fluid specimens were collected under aseptic conditions directly into uniform glass tubes.

Specimens were collected daily over a period of three months, carefully packed, and shipped in double metal mailing containers conforming to U S Postal Regulations. All specimens were transported either by special delivery mail or by special delivery air mail, the mailing time being so arranged as to assure simultaneous delivery at all points. There were 1,017 blood

TABLE 1—Sensitivity of Tests Based on Their Ability to Detect Syphilis in Blood Specimens from Primary, Secondary and Late Cases of Syphilis

Serologists	Untreated Primary Syphilis Group 1 (43 Cases)				Untreated Secondary Syphilis Group 2 (60 Cases)				Late Syphilis with Varying Treatment Group 3 (397 Cases)				Total Cases of Syphilis Groups 1, 2 and 3* (415 Cases)				Specimens Hemolyzed or Physically Damaged	Anticomplementary Specimens
	Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports		
Brem	41	6	32	53.7	61		61	100.0	303	43	263	60.6	410	49	269	70.5	5	
Eagle	43	1	31	72.1	65		65	100.0	307	2	253	82.4	415	3	349	81.1		
Hinton	42	2	34	81.0	04	04	04	100.0	303	15	256	84.5	409	17	354	86.6	6	
Johns...	43		23	53.1	63	62	62	98.4	307		193	64.5	413		283	69.0	2	
Kahn	43	1	33	76.7	63		65	100.0	307	16	236	76.9	415	17	334	80.5		
Kline...	43		32	74.4	63	63	63	100.0	303	25	218	71.5	413	23	315	76.3	2	
Kolmer*	41	2	27	66.0	63	63	63	100.0	303	11	220	72.1	411	13	312	75.9	4	
Kurtz†	41	1	34	82.9	65	65	65	100.0	303	3	257	84.8	411	4	336	86.6	4	
Lutkin and Rytz	43		31	72.1	65	04	04	98.5	304		254	83.6	412		349	84.7	3	
Rela†	41	4	33	80.5	63	63	63	100.0	306	10	264	83.0	410	20	350	85.4	5	
Ruediger*	40	1	33	82.5	63	63	63	100.0	302	4	261	86.4	407	5	350	83.2	8	
Williams (Army)*	43	2	20	69.9	63	63	63	100.0	307	43	178	58.0	415	43	273	65.8		3
Weiss	41		20	70.7	63	62	62	98.4	293	5	183	63.1	402	5	279	69.4	13	

\* Performed modification of complement fixation tests

† Performed Kahn presumptive test

‡ Performed Kline exclusion test

sponsored by the U S Public Health Service at the request of the American Society of Clinical Pathologists. A committee consisting of two syphilologists, two clinical pathologists and one officer of the Public Health Service was appointed by the Surgeon General of the Public Health Service to organize and conduct the evaluation study. This work has been completed.

In general, the results achieved are a great credit to the participating serologists. The investigation has followed, as far as possible, the conditions met in ordi-

specimens each divided into fourteen comparable samples, and 220 spinal fluid specimens each divided into thirteen comparable samples. Dr William A Hinton of Boston did not participate in the examination of spinal fluids. A total of 14,238 comparable blood samples and 2,860 comparable spinal fluid samples were collected exclusive of those taken for serologic retesting. One of the samples of blood or spinal fluid from each donor was shipped as a control to a station of the Public Health Service to determine the physical condition on delivery. An important point in the evaluation plan was the assignment of a code letter as a substitute for the name of each participating serologist. The identity of the serologists performing the tests was,

Read at a round table conference of the American Society of Clinical Pathologists in Atlantic City N J June 7 1935  
1 Cumming H S Hazen H H Sanford A H Senear F E Simpson W M and Vonderlehr R A. The Evaluation of Serodiagnostic Tests for Syphilis in the United States J A M A 103 1705 (Dec 1) 1934

therefore, unknown to the members of the committee until after the evaluation had been completed

Samples were sent to the following serologists

Walter V Brem, Los Angeles  
Harry Eagle, Philadelphia  
William A Hinton, Boston  
F M Johns New Orleans  
Reuben L. Kahn (performing Kahn standard diagnostic test),  
Ann Arbor, Mich  
B S Kline (performing Kline diagnostic test), Cleveland  
John A Kolmer, Philadelphia  
M B Kurtz (performing Kahn presumptive test), Lansing,  
Mich  
N H Lufkin and F Rytz, Minneapolis  
Charles R Rein (performing Kline exclusion test), New  
York  
E Henry Ruediger, San Diego, Calif  
Capt W C Williams (U S Army), Washington, D C  
Emil Weiss, Chicago

Drs Brem, Kolmer and Ruediger, and Captain Williams performed complement fixation tests. All others performed flocculation tests. All of these workers are to be complimented for the spirit of

TABLE 2—Specificity of Tests Based on Their Ability to Exclude Syphilis in Blood Specimens from Normal Presumably Nonsyphilitic Individuals

Serologists	Normal Presumably Nonsyphilitic Individuals (152 Cases)					Specimens Hemo- lyzed or Physi- cally Damaged	Anticomplementary Specimens
	Total Specimens Examined	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports		
Brem*	147				100.0	5	
Eagle	151	2	3	2.0	98.0	1	
Hinton	150	1	1	0.7	99.3	12	
Johns	151			3.3	96.7	1	
Kahn	149	1			100.0	3	
Kline	146				100.0	6	
Kolmer*	150				100.0	2	
Kurtz†	152	2	5	3.3	96.7		
Lufkin and Rytz	151		2	1.3	98.7	1	
Rein‡	151	10	1	0.7	99.3	1	
Ruediger*	148	3	1	0.7	99.3	4	
Williams (Army)*	151	1			100.0	1	
Weiss	147	1	1	0.7	99.3	5	

\* Performed modification of complement fixation tests

† Performed Kahn presumptive test

‡ Performed Kline exclusion test

cooperation and the interest shown by them during the entire study. In some instances the work was done at great sacrifice of individual time and effort.

The fifteen clinical groups from which donors were selected and the number of donors included in each were as follows:

#### Blood Specimens

- 43 untreated patients with primary syphilis
- 65 untreated patients with early secondary syphilis in the eruptive stage.
- 307 patients with late syphilis: with varying amounts and kinds of treatment.
- 152 normal presumably nonsyphilitic individuals
- 25 normal presumably nonsyphilitic women, both during menstruation and in the intermenstrual interval
- 46 presumably nonsyphilitic patients with acute febrile diseases (temperature above 38 C, or 100 F) or physically induced artificial fever above 40.5 C (105 F)

2 For purposes of this study the term late syphilis is used to designate syphilis of two or more years duration. This follows the generally accepted arbitrary classification.

51 presumably nonsyphilitic patients with jaundice due to various causes

50 presumably nonsyphilitic patients with leprosy

36 presumably nonsyphilitic patients with malaria.

62 presumably nonsyphilitic patients with malignant neoplastic disease

53 presumably nonsyphilitic patients with tuberculosis

54 presumably normal pregnant women

10 syphilitic or nonsyphilitic patients, from each of whom a larger volume of blood was collected and divided into forty-two samples. Three of these were submitted simultaneously to each serologist, each sample under a different key number

#### Spinal Fluid Specimens

110 patients with syphilis of the central nervous system

110 patients with nonsyphilitic psychoses and other mental abnormalities

TABLE 3—Sensitivity of Blood Tests Based on Ability to Detect Syphilis Contrasted with the Specificity of Blood Tests Based on Ability to Exclude Syphilis

Serologists	Percentage of Negative Reports in Normal Individuals (152 Cases)	Percentage of Positive Reports in Syphilitic Patients			
		Untreated Primary Syphilis (43 Cases)	Secondary Syphilis (65 Cases)	Late Syphilis with Varying Amounts of Treatment (307 Cases)	Total Syphilis (415 Cases)
Brem*	100.0	53.7	100.0	60.6	70.3
Eagle	98.0	72.1	100.0	82.4	84.1
Hinton	99.3	81.0	100.0	84.5	89.0
Johns	96.7	58.1	98.4	64.5	69.0
Kahn (presumptive)†	96.7	82.9	100.0	84.3	86.6
Kahn (standard diagnostic)	100.0	70.7	100.0	70.9	80.5
Kline (exclusion)‡	99.3	80.5	100.0	88.0	89.4
Kline (diagnostic)	100.0	74.4	100.0	71.5	83.3
Kolmer*	100.0	65.9	100.0	72.1	75.9
Lufkin and Rytz	98.7	72.1	98.5	83.0	84.7
Ruediger*	99.3	82.5	100.0	80.4	88.3
Williams (Army)*	100.0	69.8	100.0	68.0	75.8
Weiss	99.3	70.7	98.4	69.1	79.4

\* Performed modification of complement fixation tests

† Performed by Dr M B Kurtz, Lansing, Mich

‡ Performed by Dr Charles R. Rein, New York

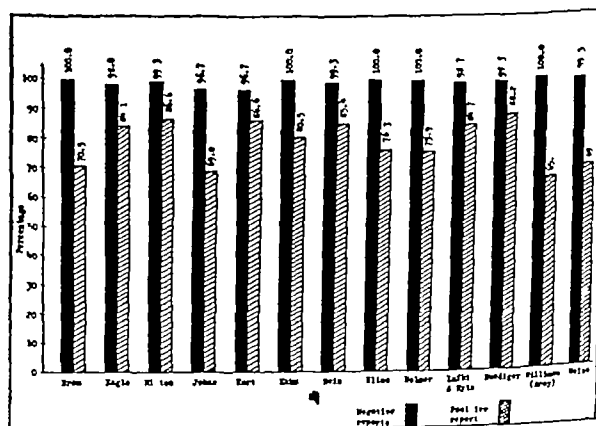


Chart 1—Sensitivity of blood tests based on the percentage of positive reports in a group of 415 patients with syphilis contrasted with the specificity of blood tests based on the percentage of negative reports in a group of 152 normal presumably nonsyphilitic individuals

#### EVALUATION OF SENSITIVITY

The three groups of syphilitic donors of blood specimens permit an estimation of the degree of sensitivity of the thirteen serologic procedures. The early primary and the late syphilis groups are especially suitable for

this purpose. As would be expected, almost all the tests were positive in the group of donors with untreated secondary syphilis. The percentage of positive reports of the thirteen tests in each of these three groups together with the percentage of positive reports of the serologic tests for all syphilitic blood specimens will be found in table 1. The percentage of positive reports was obtained by dividing the number of positive reports by the total number of specimens examined. The specimens examined by each serologist represent the total number submitted in each group of syphilitic donors less the number reported as hemolyzed, as physically damaged or as not received.

The committee has found the evaluation of doubtful reports impracticable. A logical method is lacking for determining the amount of credit to be assigned or the deduction to be made in respect to such reports. There was no general agreement in the proposals offered by the participating serologists for the evaluation of this group of reports. Throughout this study specimens giving doubtful reactions are included in the columns headed "specimens examined" but are not counted as positive or partially positive reports in determining percentages of positive reports or percentages of negative reports. Although in this study the doubtful reports have been given a negative rating, the committee recognizes that in clinical practice a doubtful report may often be of value.

When more than half of the serologic reports on a specimen of blood from a patient suspected of having syphilis were negative, the patient, with a few exceptions, was subjected to a thorough clinical reexamination and to any indicated special examinations.

The result of this is a slight lowering of the general rate of sensitivity, affecting all participating serologists equally.

#### EVALUATION OF SPECIFICITY

The specificity of the various serologic tests has been estimated from the group of blood specimens from normal presumably nonsyphilitic individuals. All of these

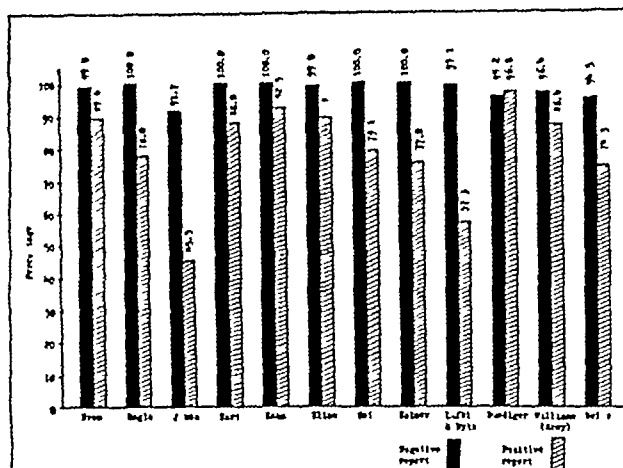


Chart 2—Sensitivity of spinal fluid tests based on the percentage of positive reports in a group of 110 neurosyphilitic patients contrasted with the specificity of spinal fluid tests based on the percentage of negative reports in a group of 110 nonsyphilitic patients with other mental diseases.

donors were included in a selected group in which the prevalence of syphilis was believed to be lower than the average for the whole population. The group con-

TABLE 4—Sensitivity and Specificity of Tests Based on Their Ability to Detect or Exclude Syphilis in Spinal Fluid Specimens from Neurosyphilitic Patients and from Presumably Nonsyphilitic Patients with Other Mental Diseases

Serologists	Sensitivity of Spinal Fluid Tests (110 Neurosyphilitic Patients)					Specificity of Spinal Fluid Tests (110 Nonsyphilitic Patients)				
	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Damaged	Total Specimens Examined	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports
Brem*	96	1	86	89.6	14	96		1	1.0	99.0
Eagle...	100	4	85	78.0	1	110				100.0
Johns	110		50	45.5		109	2	0	0.3	91.7
Kahn	107	2	99	92.5	3	110	3			100.0
Kline	104	12	93	89.4	6	100		1	1.0	99.0
Kolmer*	108	3	84	77.8	2	107				100.0
Kurtz...	108	7	95	88.0	2	108				100.0
Lofkin and Rytz.	110	4	63	57.3		110	1	1	0.9	99.1
Reint	110	11	87	79.1		109				100.0
Ruediger*	94	2	91	96.8	16	83	3	4	4.8	95.2
Williams (Army)*	110	7	90	81.8		110	4	4	3.6	96.4
Weiss...	109	2	81	74.3	1	100	1	0	0.0	94.5

\* Performed modification of complement fixation tests.

† Performed Kahn presumptive test.

‡ Performed Kline exclusion test.

Patients with untreated primary syphilis were not reexamined, because treatment had been instituted immediately after the blood specimen had been taken for the evaluation study. The original diagnosis of primary syphilis, based on the dark field examination, was considered as final.

In the cases of late syphilis, there were fifteen instances in which the serologists uniformly reported negative results. The committee realizes that some of these negative results are due to the effects of treatment and represent correctly the serologic status of the

sisted entirely of medical students and members of the staff of a medical school and hospital. The total number of specimens examined, the number of false positives reported by the thirteen serologists, the percentage of false positive tests, and the percentage of negative reports are given in table 2.

The donors in the normal presumably nonsyphilitic group on whom more than one positive or more than two doubtful results were reported were serologically reexamined by the participating serologists and given a clinical reexamination by one or more syphilologists.

TABLE 5—Results of Serologic Tests for Syphilis on Blood Specimens from Presumably Nonsyphilitic Patients with Leprosy, Tuberculosis, Malignant Neoplastic Disease, Acute Febrile Diseases or Physically Induced Artificial Fever, Malaria Jaundice and Pregnancy

Serologists	Leprosy (50 Cases)					Tuberculosis (53 Cases)					Malignant Neoplastic Disease (63 Cases)					Fever Natural or Induced (46 Cases)					Malaria (38 Cases)					Jaundice (51 Cases)					Pregnancy (54 Cases)				
	Percentage of Positive Tests in Control Group (Table 2)	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Hemolyzed or Physically Damaged	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Hemolyzed or Physically Damaged	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Hemolyzed or Physically Damaged	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Hemolyzed or Physically Damaged	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Specimens Hemolyzed or Physically Damaged	Total Specimens Examined	Doubtful Reports	Positive Reports	Percentage of Positive Reports					
Brem*	0.0	50	6	44	88	52	60	1	59	100	1	60	1	59	100	1	60	1	59	100	1	60	1	59	100	1	60	1	59	100					
Eagle	0.0	50	8	42	84	53	60	3	57	94	1	59	2	57	91	2	58	3	55	91	2	59	3	56	93	2	59	3	56	93					
Hinton	0.7	50	8	42	84	53	61	3	58	95	1	60	2	58	96	1	61	4	57	93	1	62	4	58	93	1	63	4	59	94					
Johns	3.3	50	9	41	82	54	62	3	59	95	2	61	3	58	96	2	62	4	58	93	2	63	4	59	93	2	64	4	60	93					
Kahn	1.0	50	1	49	98	62	62	0	62	100	1	61	0	61	100	1	62	4	58	93	1	63	4	59	93	1	64	4	60	93					
Kline	0.0	50	1	49	98	62	62	0	62	100	1	61	0	61	100	1	62	4	58	93	1	63	4	59	93	1	64	4	60	93					
Kolmer*	0.0	50	1	49	98	62	62	0	62	100	1	61	0	61	100	1	62	4	58	93	1	63	4	59	93	1	64	4	60	93					
Kurtz	3.3	50	4	46	92	61	62	0	62	100	1	61	0	61	100	1	62	4	58	93	1	63	4	59	93	1	64	4	60	93					
Lutkins and Rytz	1.3	50	4	46	92	61	62	0	62	100	1	61	0	61	100	1	62	4	58	93	1	63	4	59	93	1	64	4	60	93					
Reddy	0.7	50	0	50	100	63	63	3	60	95	4	64	2	62	97	6	65	7	58	92	6	66	7	59	92	6	67	7	60	92					
Ruediger*	0.7	50	0	50	100	63	63	7	56	89	4	64	2	62	97	6	65	7	58	92	6	66	7	59	92	6	67	7	60	92					
Williams (Army)	0.7	50	9	41	82	53	61	1	60	98	1	62	2	60	96	1	63	3	60	96	1	64	3	61	96	1	65	3	62	96					
Wells	0.7	50	5	45	90	54	61	1	60	98	1	62	1	61	100	1	63	3	60	96	2	64	3	61	97	2	65	3	62	97					

\* Performed modification of complement fixation tests

† Performed Kahn presumptive test

‡ Performed Kline exclusion test

Only the original serologic report was considered in computing the percentage of negative reports

In table 3 and chart 1 will be found a summary showing the sensitivity of blood tests based on ability to detect syphilis contrasted with the specificity of blood tests based on ability to exclude syphilis

#### EVALUATION OF THE REPORTS ON SPINAL FLUID SPECIMENS

In table 4 and chart 2 may be found the total number of specimens of spinal fluid examined by the twelve participating serologists who examined spinal fluid specimens, the number of positive reports in syphilitic patients, the number of false positive reports, and the percentage of positive and negative results

Clinical and serologic reexaminations were made on all presumably nonsyphilitic patients with psychoses or other mental abnormalities having more than one positive or more than two doubtful reports. Only a clinical confirmatory reexamination was made on patients with syphilis of the central nervous system whose serologic reports were predominately negative

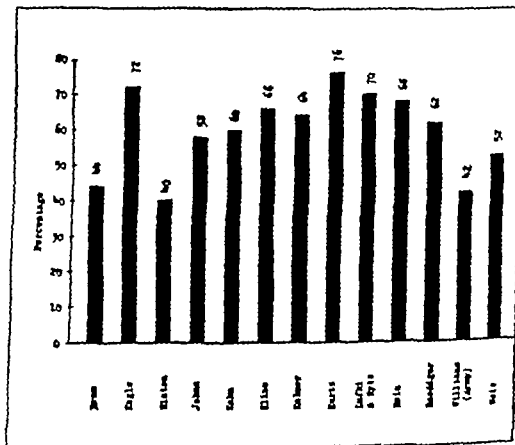


Chart 3—Percentage of positive serologic tests for syphilis found in blood specimens from presumably nonsyphilitic patients with leprosy

#### SPECIAL SEROLOGIC PROBLEMS

In addition to an evaluation of the various serodiagnostic methods as applied to normal presumably nonsyphilitic and to syphilitic individuals, the members of the committee have thought it desirable to obtain data on the results of tests on blood specimens from groups of patients suffering from certain clinical conditions other than syphilis. The presence of syphilis in the donors of these groups has been excluded with reasonable certainty, although this could not be absolutely assured in every case. Because of the meagerness of the data obtained from these special studies, the results have not been included in the serologic evaluation. For this reason the results of the serologic examinations in these special groups are reported separately in table 5. The committee is impressed with the need for further serologic studies in certain of the groups with a view to determining the possibility of nonspecific positive serologic reactions or an increased proportion of positive reactions in syphilitic individuals. The percentages of false positive reports in presumably nonsyphilitic normal donors, as shown in table 2, are compared in table 5 with the percentages of positive results reported for the special disease conditions studied. Attention is particularly directed to the



great difference in these percentages in the leprosy group (chart 3). This difference was greatest in the leprosy patients and considerably less in the malaria group. The patients on whom discrepant reports had been made except the lepers were with few exceptions reexamined serologically and clinically in the same manner as the normal presumably nonsyphilitic donors on whom discrepant reports had been made. The presumably nonsyphilitic donors with leprosy were not reexamined serologically but were reexamined clinically. Special histories were also taken in order to eliminate frambesia as a factor in leprosy patients who had previously dwelt in the tropics.

Another of the special studies was concerned with the possible influence of menstruation on serologic reactions. The serologic observations are contained in table 6.

#### DAMAGE TO SPECIMENS

There were very few instances of hemolyzed or anticomplementary specimens or leakage due to broken tubes. The leakage of spinal fluid specimens occurred chiefly in those sent to California by air mail. It has

The studies of the committee, based solely on the information derived from the evaluation of these reports, show that if two tests are to be performed it is immaterial whether two complement fixation tests, two flocculation tests or a combination of one flocculation test and one complement fixation test are selected.

As a secondary consideration, in the choice of one or more tests for general use, due regard should be given to the cost, rapidity and ease of performance. No consideration was given to these factors in this evaluation project. Certain tests that may be performed rapidly on blood specimens appeared to yield results comparable to those obtained with tests requiring a longer period for their performance.

There is some evidence that a properly performed, highly sensitive flocculation test might be used as a routine for the purpose of excluding the likelihood of syphilis. If a negative result is obtained by such a method it is quite likely that it will be negative by any other method. If the test yields a positive result it should be repeated and compared with one or more highly specific flocculation or complement fixation tests.

TABLE 6.—Results of Serologic Tests for Syphilis on Blood Specimens from Normal Presumably Nonsyphilitic Women During Menstruation and in Intermenstrual Interval

Serologists	During Menstruation (% Cases)						Intermenstrual Interval (% Cases)							
	Total Specimens Examined	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Specimens Hemolyzed or Physically Damaged	Anticomplementary Specimens	Total Specimens Examined	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Specimens Hemolyzed or Physically Damaged	Anticomplementary Specimens
Brenn	23				100.0			23	1			100.0	1	
Eagle	23				100.0			23				100.0		
Hinton	24	1			100.0	1		23	2			100.0		
Johns.	25				100.0			25				100.0		
Kahn	25				100.0			24				100.0	1	
Kline	25				100.0			25				100.0		
Kolmer*	25				100.0			25				100.0		
Kurtz†	25		1	4.4	96.0			25				100.0		
Lofkio and Rytz	25		3	12.0	88.0			25				100.0		
Reint	24	1			100.0	1		25	2			100.0		
Ruediger*	25				100.0			25				100.0		
Williams (Army)*	25	1			100.0			25	1			100.0		
Weiss.	25				100.0			25		1	4.0	96.0		

\* Performed modification of complement fixation tests.

† Performed Kahn presumptive test.

‡ Performed Kline exclusion test.

been suggested that this leakage was due to changes in atmospheric pressure in the high altitudes (14,000 to 18,000 feet) to which these specimens were subjected.

#### CONCLUSIONS

The ideal serodiagnostic tests for syphilis should possess both specificity and sensitivity. They should be adaptable to the diverse and at times unfavorable conditions existing in ordinary practice. Tests that are reliable when performed with hemolyzed, anticomplementary or contaminated serums or spinal fluid specimens are obviously of more value to the clinician than those which cannot be used under such conditions.

This study indicates relatively equal value to the clinician of efficient complement fixation tests and efficient flocculation tests as applied to either blood or spinal fluid specimens. This study further reveals that, while most flocculation tests are approximately equal in value to complement fixation tests when applied to spinal fluid specimens, it is apparent that certain of the flocculation methods are relatively inadequate.

The results of this study indicate that, in spite of the difference in symbols that are customarily used in reporting the results of various tests, it is satisfactory to report results as merely "positive," "doubtful" or "negative." The committee recommends this simple method of reporting qualitative tests to all serologists. Its adoption should be of great help to the clinician.

The committee appreciates that the actual serologic testing performed in this study has been done under relatively ideal conditions and that the results do not necessarily compare with those obtained from serologic methods as generally employed.

All the material contained in this report, together with the charts and tables from which these data were derived and abstracts of the serologic methods employed, will appear in a forthcoming publication of the United States Public Health Service. For further information the reader should write to the Surgeon General, U. S. Public Health Service, Washington, D. C.

## GLANDULAR PHYSIOLOGY AND THERAPY

## THE ADRENAL MEDULLA

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NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed, the series will be published in book form.—Ed

Glandular therapy is based chiefly on the capacity of hormones or other products, obtained from endocrine glands, to substitute for deficiency or absence of function of those organs in the body. Although the adrenal medulla has been studied extensively, both experimentally and clinically, its function has not been explained satisfactorily. Yet its hormone, epinephrine, is one of the most commonly used drugs in the practice of medicine and surgery. The present purpose, therefore, can best be accomplished by discussing available physiologic and pharmacologic information in the light of or with special emphasis on its therapeutic application. In view of the vast literature on the subject, no attempt will be made to include a comprehensive review or to quote original references for all the sources of information. These can be found in readily accessible reference books.<sup>1</sup> For detailed anatomic and other information the reader is referred to Biedl,<sup>2</sup> and for cytologic description to the chapter on the suprarenal bodies in *Special Cytology*.<sup>3</sup>

The mammalian adrenal gland represents an anatomic union of two glands, different in origin, structure and physiologic significance. In certain lower forms (e g, elasmobranchi) these two glands exist as separate structures. The interrenal body corresponds to the cortex of the mammalian adrenal and the paired chromaffin bodies, in intimate anatomic relation with the sympathetic ganglions, correspond to the medulla. So little is definitely known concerning the function of either that, from a clinical standpoint, the suprarenal body has been regarded as a single gland. Whether or not there is a functional correlation between the medulla and the cortex which surrounds it is not known. A hormone (epinephrine) has been isolated in crystalline form from the medulla and the presence of a hormone (interrenalin) in the interrenal gland substance or cortex has been demonstrated by the late Professor G N Stewart and myself since 1925, and this has been confirmed more recently by a number of other workers, although it is not yet possible to obtain it in pure form.

The cells of the adrenal cortex are of mesoblastic origin. The rounded or polygonal cells of the adrenal medulla are derived from the neural ectoderm, in common with cells of origin of the peripheral part of the sympathetic nervous system. They are arranged irregularly in groups or anastomosing columns, between which are networks of blood capillaries. These capillaries become dilated in areas, forming relatively large blood sinuses. In the medulla is found an abundance of sympathetic nerve fibers. These facts are significant

in view of the knowledge that the rate of blood flow through the adrenal glands is greater than that of any other organ in the body (with the possible exception of the thyroid) and that the internal secretion of the medulla (epinephrine) is regulated through the influence of the sympathetic nervous system.

Some writers support the view that there is more than a mere anatomic relationship between the cortex and medulla of the adrenal gland. It has been held that histophysiologic transitions exist between the cortical and medullary portions of the gland. Others believe that material, which is to become epinephrine, passes through initial stages of preparation in the cortex, the final process being completed in the medulla. The suggestion has been made that the cortical cells manufacture epinephrine from tryptophane. Certain authors have stressed the presence of epinephrine in the cortical layers of the adrenal. Apart from interpenetration of the cortical structure by medullary cells, however, there is no good evidence that the cortical cells elaborate or store epinephrine. Further, in the interrenal body of lower forms chromaffin material does not exist.

The suggestion may be made that a certain degree of functional interdependence between cortex and medulla evolves as we advance from lower to higher biologic forms and that this leads to a more intimate anatomic relationship. In the adrenal of birds, the cells of the interrenal gland substance are interspersed with the chromaffin cells. Whatever may be the significance of the various anatomic relations between the chromaffin and the interrenal gland cells in the different forms, it is not likely that the functional explanation rests on a capacity of the interrenal tissue to elaborate epinephrine for the medulla. It seems more probable that, if a functional interrelationship exists between the cortex and the medulla of the adrenal gland, the indispensable function of the cells of the cortex, or of the hormone elaborated by them, is in some manner aided by the less vitally essential product of the cells of the medulla. Indeed, this possibility is suggested by some unpublished observations that I made in the course of investigations on the adrenal cortex. It was found that the action of extracts made from the medulla, by the same process as those obtained from the cortex, sometimes were effective in resuscitating adrenalectomized animals from coma and that when employed together with cortical extract seemed to increase its potency. Whether such action, if genuine, is due to epinephrine or to some other product of the medulla is not known. These incidental observations require further investigation.

The presence of epinephrine in the cells of the adrenal medulla imparts to them a special affinity for chromic stains, hence the terms "chromaffin" and "chromophil" tissue as commonly applied to these cells. Chromic stains produce a brownish color with epinephrine. With ferric chloride, epinephrine yields a green color, which turns reddish on the addition of alkali. The ferric chloride reaction was employed by Vulpian as early as in 1856 to demonstrate that the substance elaborated in the cells of the adrenal medulla is found in the adrenal vein blood. A rose color is produced with epinephrine on addition of corrosive mercuric chloride and sodium acetate or by the action of iodine. These color reactions are too feeble to be useful for detecting epinephrine in high dilutions.

For dilutions up to about 1:3,000,000, the blue color produced by Folin's phosphotungstic acid reagent is a

From the Physiological Laboratory, the University of Chicago.  
1 Sharpey Schafer, Edward. The Endocrine Organs. New York: Longmans Green & Co. 1924.  
2 Biedl, A. Innere Sekretion. Berlin 1913.  
3 Rogoff, J M. The Suprarenal Bodies in *Special Cytology*. E. V. Cowdry, editor. New York: Paul B. Hoeber, 1932.

reliable reaction for epinephrine. This reagent, however, yields the same color with uric acid and other substances, which limits its usefulness as a test for epinephrine in blood. Nevertheless, it is quite satisfactory for quantitative determinations of epinephrine in commercial solutions or in the adrenal glands. For assaying the concentration of epinephrine in blood the much more sensitive biologic reactions must be employed. The method employed by Stewart and Rogoff in their studies on the rate of epinephrine secretion from the adrenals will be briefly described later.

Epinephrine is a simple amine and in its chemical reactions it resembles the alkaloids. Its structure is related to tyrosine and it can be prepared synthetically from catechol. The synthetic, racemic salt when acted on by methyl alcohol is converted into *d*- and *l*-epinephrine. The natural epinephrine is *l*-methylaminoethanol-catechol, which is identical with the levorotatory synthetic product. This has about fifteen to twenty times the physiologic potency of the dextrorotatory product, and the racemic compound possesses about one-half the physiologic value of the natural base. Solutions of epinephrine are readily oxidized on exposure to air, yielding a pink color. This color reaction has been utilized in devising a method for quantitative determinations of epinephrine in solution.

Oliver and Schaefer were the first to observe that the adrenal medulla stores a product which is capable of remarkably elevating the blood pressure. Saline or watery extracts of the medulla, when introduced into the circulation, caused a marked rise in blood pressure, while similar extracts made from the cortex of the gland failed to produce this effect. Later, the active material from the medulla, epinephrine, was isolated in pure form and its identification led to its synthesis. The property of elevating the blood pressure has been utilized as a means of determining the quantity of epinephrine in the glands, in the adrenal vein blood and in commercial solutions.

To determine the rate of secretion of epinephrine, a method should permit estimation of the blood flow through the gland and the concentration of epinephrine in the blood. This fulfils the elementary essentials for measurement of a velocity, i. e., measurement of a time and a mass. The most satisfactory method for quantitative determination of the concentration of epinephrine in blood is that employed extensively by Stewart and Rogoff in studies on the rate of liberation of epinephrine from the adrenal glands. The procedure for determining epinephrine output is as follows. Veins entering the vena cava, excepting the adrenal veins are ligated or clamped so that a pocket can be formed by occluding the cava beneath the diaphragm and below the entrance of the adrenal veins. Into the "cava pocket" only blood from the adrenal veins can enter. The blood can be released into the circulation (for auto-assay with the aid of denervated organs) by releasing the clamp at the diaphragm or it can be collected through a cannula inserted in the lower end of the pocket by releasing the lower clamp (the upper clamp remaining). Collection of blood through the cannula is timed, the quantity of blood measured and the rate of blood flow during the collection thus determined. The epinephrine concentration in the adrenal blood is then determined by its action on a segment of rabbit's intestine and, when necessary, this is confirmed on a segment of nonpregnant rabbit's uterus. The tone and contractions of the intestinal segment are inhibited by epinephrine, while the opposite effect is caused on the uterus. These

effects, within limits, are proportional to the concentration of epinephrine. The concentration of epinephrine in the blood and the rate of blood flow through the adrenal glands having been determined, it is a simple matter to calculate the rate of epinephrine secretion. There are, of course, many important details that must be observed and the method has its limitations. When properly employed, however, it is remarkable how well repeated results agree and reliable information is obtained. Results obtained by this or by any other method in which anesthesia is employed should not be interpreted, without further consideration, as applying to the non-anesthetized animal or man. But different kinds of anesthetics or varying depths of narcosis do not appear significantly to alter the rate of epinephrine output.

By this method, the rate of epinephrine secretion from the adrenal glands, under ordinary experimental conditions, has been determined in a large series of cats and dogs and in a number of monkeys. Employing volatile (ether, chloroform) and nonvolatile (urethane, amytal, chlorbutanol) anesthetics for the surgical procedures in the method, Stewart and Rogoff determined the average epinephrine output, in these animals as about 0.00025 mg. per minute per kilogram of body weight. This can be increased by stimulation or diminished by section of the nerve supply to the adrenals. The rate of epinephrine secretion can be influenced, in either direction, by the action of certain drugs (e. g., strychnine, nicotine, physostigmine, curare). The alleged increase of epinephrine output in traumatic and in anaphylactic shock has been found not to occur in anesthetized animals.

It seems strange that an important role in the body cannot be attributed to the epinephrine secretion. This hormone yields definite reactions, quantitative information on its rate of secretion under different conditions is available, and control of the secretion through nervous mechanisms has been well established. Yet, though it lends itself readily to experimental study, no specific function for epinephrine has been proved. Indeed, it has been well established that, if it has a function in the body, it is not indispensable for life and health, for it is possible to suppress the secretion of epinephrine (by excision of one adrenal and complete denervation of the opposite gland with or without destruction of its medulla) without apparent influence on the life and health of the animal.

The theory of an "emergency function" of the adrenals is based on the concept that epinephrine is not secreted under ordinary conditions and that outbursts of epinephrine enter the blood stream at times of special stress.<sup>4</sup> The experimental support for this theory is an attempt to prove a significant liberation of epinephrine from the adrenals under the influence of asphyxia or of stimulation of sensory nerves.<sup>5</sup> However, the quantitative studies, made by Stewart and Rogoff,<sup>6</sup> on the liberation of epinephrine indicate that the secretion is continuous, and they failed to demonstrate any significant alteration in the rate of output.

<sup>4</sup> Cannon W. B., and de la Paz D. Emotional Stimulation of Adrenal Secretion. *Am. J. Physiol.* 28: 64. 1911. Cannon W. B. Studies on the Conditions of Activity in Endocrine Organs. *XXVII* Evidence that Medullary Secretion Is Not Continuous. *Am. J. Physiol.* 98: 447 (Oct.) 1931.

<sup>5</sup> Cannon, W. B., and Hoskins R. G. The Effects of Asphyxia, Hyperpnea and Sensory Stimulation on Adrenal Secretion, *Am. J. Physiol.* 29: 274. 1911.

<sup>6</sup> Stewart G. N. and Rogoff J. M. The Influence of Asphyxia upon the Rate of Liberation of Epinephrine from the Adrenals. *J. Pharmacol. & Exper. Therap.* 10: 49 (July) 1917. Effect of Stimulation of Sensory Nerves upon the Rate of Liberation of Epinephrine from the Adrenals. *J. Exper. Med.* 26: 637 (Nov.) 1917.

under these conditions. Of course, their experiments were performed on anesthetized animals, as were those on which the "emergency" theory is based. The original studies, by Cannon and his collaborators, were made with a method which was later discarded in favor of the so-called denervated heart as an indicator for changes in the epinephrine output.<sup>7</sup> Repeating their experiments with this method, we found that the reactions obtained by them, on which the emergency theory rests, could be obtained with the "denervated heart" after epinephrine secretion was abolished or the adrenal glands excised.<sup>8</sup> Cannon at first maintained that acceleration of the denervated heart did not occur in the absence of epinephrine secretion but later he also got positive results. He explained the acceleration in absence of the adrenals as the result of action of other substances, viz., products of the thyroid, liver, and so on. More recently he has reported the cardio-accelerator action of a substance, designated "sympathin".<sup>9</sup> It is maintained that these substances account for the acceleration of the denervated heart in the absence of epinephrine but it is not clear why the reaction failed, in the absence of the adrenals, in Cannon's earlier experiments. Whatever may be the significance of these cardio-accelerating substances, it is evident that if they account for acceleration of the denervated heart in the absence of the adrenal glands, the denervated heart as employed should not be relied on for "quantitative" measurements of changes in the epinephrine output from the adrenals.

Other theories of function of epinephrine have been submerged by the extensive literature on the emergency theory. It seems that some of the older theories offer better explanations for the function of this hormone. There is no good evidence that epinephrine plays a role in the maintenance of normal blood pressure. Suppression of epinephrine secretion causes no significant change in the blood pressure. It has been shown that epinephrine can exert an action on the heart when secreted at the ordinary rate. We have observed some reactions also that indicate the possibility of an effect as an adjuvant to the action of sympathetic nerves. Older observations supporting the view that the adrenal medulla plays an important part in carbohydrate metabolism were based largely on the effects of pharmacologic quantities of epinephrine, which are much larger than the adrenals have been found capable of secreting. Zuelzer's theory of an antagonism between epinephrine secretion of the adrenal medulla and the internal secretion of the pancreas lacks substantial experimental support. Stewart and Rogoff<sup>10</sup> found that experimental pancreatic diabetes can be readily produced in the absence of epinephrine secretion from the adrenals. Hyperglycemia and glycosuria were as quickly developed and reached as high a level as in depancreatized animals without interference with the adrenals, if the animals made a satisfactory recovery from the surgical procedures. More recent studies by various investigators have failed, thus far to establish

a definite relationship between the adrenal medulla and pancreatic diabetes. Existing experimental evidence of an influence of calcium salts on epinephrine action is interesting in the light of the hypercalcemia that occurs in adrenalectomized animals. The probable interrelationship between the parathyroid and adrenal glands recently reported,<sup>11</sup> may be concerned with the adrenal medulla, although the evidence at present relates it to the cortex.

The concept that epinephrine aids in maintaining normal blood pressure originated from the observation that low blood pressure is one of the characteristic symptoms of severe adrenal disease (Addison's disease). It also follows from the fact that extracts of the medulla, when introduced into the circulation, cause a marked rise in pressure. The idea has been maintained that epinephrine plays an important role in conditions associated with hypertension. Recent unpublished experiments that are still in progress, in which actual measurements of epinephrine concentration in the general blood of patients with hypertension were attempted, failed to demonstrate detectable quantities. In hypertension experimentally created by renal ischemia, it was found by Goldblatt and his co-workers<sup>12</sup> that epinephrine secretion was not a factor. Hypert thyroidism and a number of other conditions are often believed to be due to or associated with an excess of epinephrine secretion from the adrenals. On this assumption surgeons have recommended excision of an adrenal gland or denervation of one or both glands. Notwithstanding the benefit supposed to be derived, the practice of these operations should be deprecated. The experiences of those who have performed many experiments with the adrenals, involving surgical procedures, show that these operations involve great risk to life. It seems, therefore, that the meager basis for assuming hypersecretion of epinephrine in certain diseases does not warrant the risk of such operations on human beings as a therapeutic measure. Even if the existence of hyperepinephremia were proved, denervation as practiced could not be expected to afford permanent relief, since it is well known that nerve regeneration can occur within a few weeks. Nor can it be hoped that excision of one adrenal would prove beneficial since compensatory hypertrophy or functional compensation of a remaining organ may be expected when its mate is excised. This, of course, does not apply in cases of unilateral tumor of the adrenal medulla, e. g., paraganglioma.

Unlike well known products of other endocrine glands, the therapeutic value of epinephrine does not depend on capacity to substitute for lack of physiologic endocrine function of the gland from which it is derived. For, as already mentioned, the function of the adrenal medulla is still quite obscure and its secretion of epinephrine is not indispensable for life and health. The value of epinephrine as a therapeutic agent depends primarily on its pharmacologic actions on the circulatory apparatus. A brief summary of the therapeutic uses of epinephrine in surgery and in internal medicine has been published by Richardson<sup>13</sup> and by Christian.<sup>14</sup>

7 Cannon W B. Studies on the Conditions of Activity in Endocrine Glands. V. The Isolated Heart as an Indicator of Adrenal Secretion Induced by Pain Asphyxia and Excitement. *Am J Physiol* 50: 399 (Dec.) 1919.

8 Stewart G N and Rogoff J M. The Relation of the Epinephrine Output of the Adrenals to Changes in the Rate of the Denervated Heart. *Am J Physiol* 52: 304 (June) 1920. Essentials in Measuring Epinephrine Output with Further Observations on Its Relation to the Rate of the Denervated Heart. *ibid* 52: 521 (July) 1920.

9 Cannon W B., and Bach Z M. Studies on the Conditions of Activity in Endocrine Organs. VIII. A Hormone Produced by Sympathetic Action on Smooth Muscle. *Am J Physiol* 96: 392 (Feb.) 1931.

10 Stewart G N and Rogoff J M. The Adrenals and Pancreatic Diabetes. *Am J Physiol* 63: 319 (July) 1923.

11 Rogoff J M. Observations on Functional Interrelationship Between the Adrenal and Parathyroid Glands. *Science* 80: 319 (Oct.) 1934.

12 Goldblatt Harry, Lynch James, Hanzal R F and Summer ville W W. The Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia. *J Exper Med* 59: 347 (March) 1934.

13 Richardson E. P. Glandular Therapy. The Surgical Application of Epinephrine. *J A M A* 83: 1587 (Nov. 15) 1924.

14 Christian H A. Glandular Therapy. Epinephrine and Supra renal Gland in Internal Medicine. *J A M A* 83: 1588 (Nov. 15) 1924.

Epinephrine is most effective in its action on the circulation when administered intravenously. Oral administration cannot be said to yield physiologic effects and it may result in distressing gastric irritation. Intramuscular injection permits better absorption of the drug than subcutaneous administration, especially when followed by local massage. Subcutaneous introduction of epinephrine results in local vasoconstriction, which retards its absorption. But it has been found by Luckhardt and Koppányi<sup>15</sup> that massage of the area of an epinephrine injection gives a hemodynamic effect some hours after the injection, if deep anesthesia is avoided. Barbour and Rapoport<sup>16</sup> found that epinephrine is more readily absorbed from the rectum than from the colon. Rectal absorption yielded a greater rise in blood pressure, though glycosuria was more readily obtained when the drug was absorbed from the colon. Glycosuria is also more readily obtained by subcutaneous than by intravenous administration, while the reverse is true of the blood pressure effect. Supposed differences in susceptibility to epinephrine may be explained by differences in rate of absorption of the drug when administered by subcutaneous or intramuscular injections. Local application of epinephrine, as a styptic, depends on its capacity to constrict arterioles and capillaries. Vasoconstriction may be followed by dilatation and in local application to the nasal mucous membrane, e. g., in hay fever temporary benefit may be followed by aggravation of symptoms. This may apply to other conditions in which epinephrine is employed locally.

The predominant action of epinephrine is produced on tissues that are supplied with nerves from the sympathetic system. Its effect on an organ is the same as that which is obtained on stimulation of the sympathetic innervation of the organ. This action has been termed "sympathomimetic" by Barger and Dale. When the sympathetic nerve supply to an organ is sectioned and the nerve endings are allowed to degenerate, the organ becomes more sensitive to the action of epinephrine. This indicates that the effect of the drug is exerted on the myoneural junction and not on the nerves or their endings. Langley has suggested that a "receptive substance" in the cell protoplasm, which is affected by epinephrine becomes more sensitive when the cell is deprived of the influence of its nerve supply. The increased sensitivity of denervated organs to epinephrine renders them useful as indicators for epinephrine, when employed under proper conditions. The usual effect of epinephrine on smooth muscle is abolished or reversed by the action of ergotamine or apocodeine. Thus, a dose of epinephrine that causes vasoconstriction and an elevation of blood pressure will fail to elevate the pressure or may cause a fall following the action of these drugs. In some animals a fall is produced by very small doses of epinephrine, while larger doses cause a rise. Dragstedt,<sup>17</sup> however found that, in the unanesthetized animal doses comparable with and administered at the ordinary rate of epinephrine secretion are capable of causing a rise in blood pressure.

The vasomotor action of epinephrine renders it exceedingly valuable in combating acute circulatory col-

lapse especially in traumatic shock or accidents of anesthesia. Its effect, however, is of short duration and its use should be supplemented by measures that give more lasting benefit. Epinephrine is easily oxidized and when introduced into the circulation it is so rapidly destroyed that an effective concentration in the blood is maintained for only a brief period, hence its evanescent effect on the circulation. As an emergency measure, therefore, it is usually necessary to administer the drug in more than one dose, until improved blood flow through the circulatory mechanism leads to recovery or until other effective treatment has been substituted. For such treatment, 2 or 3 minims (0.1 or 0.2 cc) of 1:1,000 solution of epinephrine hydrochloride well diluted with physiologic solution of sodium chloride, usually suffices for intravenous administration. It should be borne in mind that, while epinephrine elevates the blood pressure, its vasoconstrictor action retards capillary circulation. Thus, the blood flow through important structures may be diminished at a time when increased circulation is desired. It is generally advantageous, therefore, to increase the volume of circulating fluids by intravenous injection of saline solution. The addition of epinephrine at intervals, in such amounts as to permit a sustained rise in blood pressure, combines the immediate brief effect of the drug with the more lasting value of the added physiologic fluid until the augmented circulation through the cardiac centers facilitates recovery.

Administration of larger quantities of epinephrine than the dose required to elevate the blood pressure effectively may lead to dangerous consequences. The heart, in shock, may not be able to withstand a sudden, high elevation of pressure resulting from powerful vasoconstriction, and acute dilatation may be fatal. Stimulation of the vagus center, as a result of sudden increase in blood pressure may lead to serious cardiac inhibition. 'Delirium cordis' may result from excessive action of epinephrine on the heart. Other possible, untoward effects may occur. There is some question whether ventricular fibrillation is more readily caused by larger doses of epinephrine than by small ones. The weight of opinion, however, is that larger doses cause this toxic effect, although it is conceivable that under certain conditions or in susceptible individuals the smaller dose may do this. Thus the desired therapeutic effect may easily be defeated by indiscreet use of the drug. Especially is this the case when epinephrine is injected directly into the heart as an extreme measure in cardiac standstill. An excellent editorial<sup>18</sup> on intracardiac injection of epinephrine was published in THE JOURNAL in 1923. With appropriate dosage, this procedure has proved valuable in causing the heart to resume beating if arrest of heart action has not existed more than ten minutes. Stewart, Guthrie and Pike have shown that the medullary centers cannot be resuscitated if cerebral anemia has been induced for more than about fifteen minutes.

Since epinephrine secreted at the ordinary rate can exert an influence on the heart, to produce a physiologic effect it should be necessary only to raise the concentration of epinephrine in the blood to an effective level above the ordinary concentration. Calculating from the rate of output of epinephrine from the adrenal glands, even if none were destroyed in the pulmonary circulation the average epinephrine concentration in the general circulation would be approximately from

<sup>15</sup> Luckhardt, A. B. and Koppányi, T. Conditions Under Which Subcutaneously Injected Epinephrine Gives a Hemodynamic Effect. *Proc. Soc. Exper. Biol. & Med.* 23: 774 (May) 1926.

<sup>16</sup> Barbour, H. G. and Rapoport, F. H. A Comparison of Rectal with Colon Injections of Epinephrine with Reference to Pressor Effects and to Glycosuria. *J. A. M. A.* 76: 492 (Feb. 19) 1921.

<sup>17</sup> Dragstedt, C. A. Observations on the Hemodynamic Action of Epinephrine. *J. A. M. A.* 81: 1035 (Oct. 6) 1928.

<sup>18</sup> The Intracardiac Injection of Epinephrine editorial. *J. A. M. A.* 80: 1314 (May 5) 1923.

1 2,000,000,000 to 1 1,000,000,000 If this concentration can exert an influence on the heart, it is conceivable that the introduction of epinephrine in larger doses, capable of raising the concentration to from 1 5,000,000 to 1 1,000,000 or more, could be decidedly injurious if not extremely dangerous

I am cognizant of reports in the literature indicating that such large doses of epinephrine have sometimes been administered without serious consequences I have often observed this in experimental (anesthetized) animals However, it may be supposed that clinical reports on fatal consequences of overdosage may less likely find their way into the literature Clinicians are familiar with the alarming symptoms often observed following subcutaneous administration of from 5 to 10 minims of 1 1,000 epinephrine as a diagnostic test and we have frequently seen undesirable results of excessive dosage in experimental animals as well as in clinical cases Prominent among the toxic symptoms are sweating, muscle tremors, cardiac palpitation or distress and sometimes collapse It is much safer to rely on epinephrine to produce a response in a small dose, the dose being repeated or increased if necessary, until the desired reaction is obtained

It may appear that undue stress has been placed on the matter of dosage, but it is my conviction that it is not out of proportion to the importance of the subject, since the use of epinephrine has become widespread as a remedy in many branches of the practice of medicine Its use in asthma and other conditions that are related to allergy has been found of great value Here also experienced allergists have observed that effective doses are much smaller than is sometimes supposed to be necessary to obtain the desired effects In serum sickness, angioneurotic edema and urticaria, epinephrine has proved very useful The continued use of epinephrine in asthma has sometimes led to indications of habit formation, but the cases reported are not convincing on this point Supposed addiction, especially following self medication, can probably be better explained as a psychic condition

In hypotension, especially in Addison's disease, administration of epinephrine has not proved beneficial The so-called Muirhead treatment has not proved very effective in any case in which the diagnosis of Addison's disease could not be questioned Indeed, distressing effects from epinephrine, in patients with this disease, is a common observation As the indispensable function of the adrenal is performed by the cortex and not the medulla, it is not surprising that epinephrine is ineffective as a remedy in a disease that is now recognized as due primarily to cortical insufficiency On the other hand, while the cortical hormone is not available in pure form, beneficial effects have been obtained in Addison's disease by oral administration of an extract representing the hormone (interrenalin), made from the adrenal cortex and preserved in glycerin<sup>19</sup> Parenteral administration of cortical extracts thus far has not proved as valuable in this condition as was at first supposed It is possible that the presence of undesirable substances in some such extracts (e g, histamine, choline, protein) may defeat the beneficial action of cortical hormone present in the extracts A pertinent discussion concerning the cortical hormone is given in a recent paper<sup>20</sup>

It is not possible to review all the therapeutic uses to which epinephrine has been subjected Its value in ophthalmology and in dental surgery is too well known to require comment In this connection may be mentioned the synergistic action of epinephrine when combined with certain other drugs used as local anesthetics Such drugs become more effective either through an influence of epinephrine or because of its local vasoconstrictor effect permitting slower absorption and more prolonged action Mere mention of some of the therapeutic applications of epinephrine will suffice to illustrate its widespread use as a drug It has been employed for relief of internal hemorrhage, but a criticism of this procedure has been suggested in that the sudden elevation of systemic blood pressure, following administration of epinephrine especially in larger doses, may result in aggravation instead of suppression of such hemorrhages In Stokes-Adams syndrome, subcutaneous injection of from 0.3 to 0.6 cc of 1 1,000 solution has been recommended as a safe and effective dose, but intravenous administration may lead to grave reactions<sup>21</sup> The therapeutic use of epinephrine in angina pectoris has been discouraged by Cottrell and Wood,<sup>22</sup> who reported serious consequences following subcutaneous injection of 1 cc of 1 1,000 solution as a diagnostic test in a case The action of epinephrine on the coronary arteries has not been satisfactorily determined There is evidence that it constricts these vessels in man and monkey but dilates those of other animals

A German writer has claimed curative effects from the use of epinephrine in chorea minor, while an American reported negative results It has been used, subcutaneously, to relieve the pain of herpes zoster Improvement or cure of rickets, in children from 1 to 3 years old, by oral administration of epinephrine for from four to six weeks has been claimed, but it should be pointed out that calcium was administered three times daily during this period The use of epinephrine by mouth has been recommended in vertigo on the assumption that it excites the sympathetic nerve endings, regulates the blood pressure and is further "antitoxic" In ocular hypertension, favorable results have been obtained by local application of epinephrine Subcutaneous injection of the drug has been employed for relief and cure of eczema Local injections into hemorrhoids have been stated to be curative Injection of epinephrine fifteen minutes before splenectomy, if the spleen is not sclerotic, is said to reduce chances of excessive hemorrhage because the spleen is rendered bloodless by contraction This effect on the spleen has been utilized as a diagnostic procedure, to distinguish between an enlarged spleen and other tumors Osteomalacia, rodent ulcer, gastric ulcer, psychoses, psychoneuroses, various so-called endocrinopathies and even sea-sickness are among the many conditions for which epinephrine has been recommended In the light of the existing contradictions in the literature, it will not be possible in this article to discuss its use and abuse in so great a variety of diseases At any rate, its alleged benefit in all these conditions is sufficient support for the suggestion that the use of epinephrine in medicine does not represent endocrine therapy in the sense of substituting for lack of function of the adrenal medulla<sup>23</sup>

19 Rogoff, J. M. Addison's Disease. Further Report on Treatment with Interrenalin (Adrenal Cortical Extract) J. A. M. A. 99 1309 (Oct. 15) 1932  
20 Rogoff, J. M. On the Adrenal Cortical Hormone. Experiments with a Commercial Adrenal Extract (Eschatin) J. A. M. A. 103 1764 (Dec. 8) 1934

21 Feil, Harold. Epinephrine in the Stokes-Adams Syndrome J. A. M. A. 80 26 (Jan. 6) 1923

22 Cottrell, J. E. and Wood, F. C. Effect of Epinephrine in Angina Pectoris Am. J. M. Sc. 181: 36 (Jan.) 1931

23 A list of at least forty-eight supplementary references has been omitted from THE JOURNAL but will appear with this article when the series is published in book form.—ED



TYPHOID IN THE LARGE CITIES OF  
THE UNITED STATES IN 1934

## TWENTY-THIRD ANNUAL REPORT

This report deals with the same ninety-three cities that have been discussed in the corresponding articles for the years beginning with 1930. The number of deaths from typhoid during 1934 in each city (except Scranton and Chattanooga, as explained in notes to tables 2 and 5) has been supplied by the respective health department. As the United States Bureau of the Census is convinced that the use of 1933 population estimates in calculating 1934 rates will at least prevent further distortions such as would occur if additional increments were added to population figures that are already too large, the rates in the present article are based on estimates of the population of the cities as of July 1, 1933, made by the Bureau of the Census. This is similar to our procedure of last year, when the 1932 midyear population figures were used to calculate the rates for 1933. It should be pointed out, however, that the 1933 population estimates used here are smaller

TABLE 1—*Death Rates of Fourteen Cities in New England States from Typhoid per Hundred Thousand of Population*

	1934	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Bridgeport	0.0	0.7	0.0	0.7	0.5	2.2	4.8	5.0	10.3
Fall River	0.0*	0.0	0.0	0.0	2.2	2.3	8.5	13.4	11.5
Lowell	0.0	1.0	2.0	1.0	2.6	2.4	5.2	10.2	17.0
Lynn	0.0	0.0	0.0	0.0	1.5	1.6	3.9	7.2	14.1
New Haven	0.0	1.2	1.2	1.2	0.6	4.4	6.8	14.2	7.8
Somerville	0.0	1.0	0.0	0.0	1.3	1.6	2.8	7.0	12.1
Springfield	0.0	0.0	1.5	2.6	0.4	2.0	4.4	17.0	10.0
Waterbury	0.0	0.0	0.0	0.0	1.2	1.0	8.0	18.8	
Worcester	0.0	0.5	1.5	0.1	1.0	2.3	3.5	7.0	11.8
Hartford	0.0	0.0	0.0	3.0	1.3	2.5	0.0	15.0	10.0
Boston	0.0	0.2	0.5	0.9	1.2	2.2	2.5	0.0	16.0
Cambridge	0.0	1.8	1.7	0.0	2.1	4.3	2.5	4.0	9.8
Providence	1.2	1.2	0.8	1.6	1.3	1.8	3.8	6.7	21.0
New Bedford	1.8*	1.8	0.0	1.8	1.0	1.7	6.0	16.0	16.1

\* Rate computed from population as of April 1 1930 as no estimate for July 1 1933 was made by the Census Bureau

(with only seven exceptions) than the 1932 estimates formerly furnished us by the Bureau of the Census (see, for example, table 11). This is due to the fact that the bureau has changed its method of estimating city populations. Whereas formerly the method of arithmetical progression was used for each city, the present method is based on the estimated increase in the United States as a whole (figured from birth, death, immigration and emigration figures), distributed to the states according to the percentage that each state's increase between 1920 and 1930 was of the national increase, and the state increase distributed to the counties, and the county increase to the cities.

The problem of including in the rates for each city the typhoid deaths of nonresidents is as conspicuous as it has been for some years. In thirty-one of the ninety-three cities we are informed that one third or more of the typhoid deaths were in nonresidents, in ten of these thirty-one cities all the typhoid deaths were in nonresidents. These are indicated in table 9,

The preceding articles in this series were published in THE JOURNAL May 31 1913 p 1702 May 9 1914 p 1473 April 17 1915 p 1322 April 22 1916 p 1305 March 17 1917 p 845 March 16 1918 p 777 April 5 1919 p 997 March 6 1920 p 845 March 16 1921 p 860 March 25 1922 p 890 March 10 1923 p 691 Feb 2 1924 p 389 March 14 1925 p 813 March 27 1926 p 948 April 9 1927 p 1148 May 19 1928 p 1624 April 18 1929 p 1674 May 17 1930 p 1574 May 9 1931 p 1576 April 30 1932 p 1550 May 13 1933 p 1491 and May 19 1934, p 1677

which should be referred to also in studying tables 1-8. Particulars as to the data that are unavailable for certain cities (noted in tables 2-8 as "incomplete data") are given in the report covering the year 1932 and in the footnotes to these tables in all earlier articles.

Nine of the fourteen large New England cities had no typhoid deaths in 1934 (table 1), and a tenth (Hartford) states that the only typhoid death occurring in 1934 was in a nonresident (table 9). Three cities (Fall River, Lynn and Waterbury) have had no typhoid

TABLE 2—*Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population*

	1934	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Elizabeth	0.0	0.0	0.0	4.3	1.6	2.1	3.2	8.0	16.6
Jersey City	0.0	0.3	0.6	0.3	0.0	2.7	4.5	7.2	12.6
Reading	0.0	0.0	0.0	0.0	1.6	6.0	10.0	31.0	42.0
Rochester	0.0	0.7	0.3	0.0	1.7	2.1	2.9	0.6	12.8
Scranton	0.0†	7.4	1.4	2.1	1.8	2.4	3.8	9.3	31.5
Utica	0.0	0.0	1.0	0.0	1.1	0.0			
Yonkers	0.0	0.0	0.7	1.4	0.5	1.7	4.8	5.0	10.3
Newark	0.2	0.4	0.9	0.2	0.0	2.3	3.3	6.8	14.6
Buffalo	0.3	0.3	1.2	0.7	2.7	3.9	8.1	15.4	22.8
Syracuse	0.5	1.8	0.5	0.5	0.8	2.3	7.7	12.3	15.0
New York	0.6	0.9	0.8	1.1	1.3	2.6	3.2	8.0	13.5
Paterson	0.7	0.0	0.7	2.0	1.0	3.1	4.1	9.1	19.3
Albany	0.8	0.8	0.8	2.3	1.8	5.6	8.0	18.6	17.4
Trenton	0.8	2.4	0.8	1.6	2.1	8.2	8.6	22.3	28.1
Philadelphia	0.0	0.0	1.1	0.0	1.1	2.2	4.0	11.2	41.7
Pittsburgh	1.5	0.1	1.3	1.2	2.4	3.9	7.7	15.0	6.0
Camden	1.7	1.3	2.5	4.2	4.4	5.0	4.9	4.5	4.0
Erie	1.7	0.0	1.7	0.8	0.0	2.3	0.9	49.0	46.6

Incomplete data  
† Typhoid death rates for Scranton furnished by Pennsylvania Department of Health Harrisburg

deaths for four consecutive years—a remarkable record unequalled heretofore by any of the large cities in this country. Only two cities in the group had 1934 rates of 1.0 or over as against six in 1933, five in 1932 and six in 1931. In the past four years all but three cities (Boston, Hartford and Providence) have had at least one year with no typhoid deaths. Boston has a higher rate (0.9) in 1934 than its noteworthy low mark for 1933 (0.2). The New England cities as a whole have in 1934 the lowest group rate in the country (table

TABLE 3—*Death Rates of Nine Cities in South Atlantic States from Typhoid per Hundred Thousand of Population*

	1934	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Tampa	0.0	1.8	2.8	3.8	3.8	10.1	43.9		
Baltimore	1.3	0.4	0.6	3.1	3.2	4.0	11.8	23.7	35.1
Jacksonville	1.4	1.4	2.8	3.0	4.4				
Washington	1.6	3.6	1.4	3.9	2.8	5.4	0.5	17.2	36.7
Miami	1.8	2.7	1.8	1.3	3.5				
Wilmington	1.9†	1.0	0.9	1.0	3.1	4.7	21.9	21.2*	31.0
Richmond	3.8	1.6	2.7	1.6	1.9	5.7	9.7	15.7	34.0
Atlanta	3.9	0.0	8.8	12.6	11.1	14.5	14.2	31.4	59.4
Norfolk	5.4*	3.8	0.8	5.4	2.2	2.8	8.8	21.7	42.1

\* Incomplete data  
† Rate computed from population as of April 1 1930 as no estimate for July 1 1933 was made by the Census Bureau

12), this rate (0.53) is a shade better than any previous group rate, the next best being that of the East North Central cities in 1933 (0.55). This is the sixth year of progressive decline in the group rate for the New England cities and the third successive year when the rate has been below 1.0.

The Middle Atlantic cities (table 2) likewise for the past three years have had group rates under 1.0, with a progressive decline (table 12). Seven of the eighteen

1 The problem of the nonresident has been discussed at some length in our previous reports for example J A M A 100 1491 (May 13) 1933 and 98 1550 (April 30) 1932



cities report the complete absence of typhoid deaths during 1934, Elizabeth for the third successive year, Reading, Utica and Yonkers for the second. Elizabeth's record is particularly striking after its high rates in 1930 and 1931 (4.4 and 4.3). Scranton, which had the highest rate of the group in 1933, had no typhoid death in 1934, its only previous clear record having been in 1925. The clear records for Jersey City and Rochester are the first in the histories of these cities. Pittsburgh's 1934 rate (1.5) is ten times higher than its conspicuously low rate for 1933, four of the ten deaths in 1934, however, were stated to be in nonresidents. The present rate is still well below the city's average

TABLE 4—Death Rates of Eighteen Cities in East North Central States from Typhoid per Hundred Thousand of Population

	1934	1933	1932	1931	1920-1930	1921-1925	1916-1920	1911-1915	1906-1910
Grand Rapids	0.0	0.0	0.0	1.2	1.0	1.9	0.1	2.5	29.7
Peoria	0.0	0.0	1.6	1.8	0.2	3.7	5.7	16.4	15.7*
Milwaukee	0.2	0.3	0.0	0.3	0.8	1.6	6.5	13.0	2.0
Akron	0.4	1.1	0.4	1.5	1.5	2.4	10.6	21.0	2.7
Chicago	0.0	0.8	0.4	0.4	0.6	1.4	2.4	8.2	15.5
Youngstown	0.6	2.3	1.1	1.7	1.1	7.2	19.2	29.5	3.1
Cleveland	0.8	0.5	0.2	3.4	1.0	2.0	4.0	10.0	1.7
Canton	0.0	0.0	0.9	1.9	1.4	3.3	8.9		
Dayton	1.0	0.5	1.0	0.4	1.9	3.3	9.3	14.8	22.0
Detroit	1.1	0.6	0.5	0.7	1.3	4.1	8.1	16.4	22.8
Indianapolis	1.1	0.5	1.0	1.6	2.7	4.6	10.8	20.5	30.4
Flint	1.2	0.0	1.8	0.0	1.0	4.6	22.7	18.8	40.9
Toledo	1.3	1.8	0.7	2.0	3.0	5.8	10.6	31.4	37.5
Cincinnati	1.5	0.9	3.0	0.4	2.5	3.2	3.4	7.8	30.1
South Bend	1.8	1.0	0.0	0.0					
Evansville	1.9	0.0	1.9	0.9	6.2	7.0	17.5	32.0	3.0
Columbus	2.0	1.7	1.7	2.4	2.1	3.5	7.1	15.8	40.0
Fort Wayne	0.7	0.0	2.5	1.7	4.2	12.9	7.3		

\* Incomplete data

for 1926-1930. The three cities besides Pittsburgh with a population of over half a million all had rates under 1.0, New York for the third successive year, Philadelphia and Buffalo for the second. Camden has its lowest rate since 1927.

One of the South Atlantic cities (Tampa) reports no typhoid death in 1934 (table 3). Atlanta continues to show remarkable improvement; its 1934 rate (3.9) being about one third of its rate for 1931 and its average for 1926-1930. For the first time since 1919, Atlanta relinquishes the lowest place in its group and,

TABLE 5—Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population

	1934	1933	1932	1931	1920-1930	1921-1925	1916-1920	1911-1915	1906-1910
Knoxville	0.0	7.1	8.0	7.3	10.7	20.8	25.3		
Louisville	2.5	1.0	2.9	2.6	3.7	4.9	9.7	19.7	52.7
Nashville	2.6	7.6	7.6	3.2	18.2	17.8	20.7	40.2	61.2
Birmingham	5.8	4.0	2.5	3.0	8.0	10.8	31.5	41.3	41.7
Chattanooga	8.1†	3.2	8.0	1.6	8.0	18.6	27.2	36.8*	
Memphis	8.4	7.6	11.4	7.3	9.3	18.9	27.7	42.5	3.3

\* Incomplete data

† Typhoid deaths for Chattanooga furnished by the Tennessee Department of Health, Nashville

having a rate under 5.0 moves to the second rank among the cities of the country (table 9). Norfolk, which brings up the foot of the list in 1934, used to stand quite consistently at the head but has had relatively high rates for four of the past five years. Baltimore had almost four times as many typhoid deaths in 1934 as in 1933.<sup>2</sup> The group rate for the South Atlantic cities (2.11) is slightly lower than for the

two preceding years and is less than half of the corresponding rate for 1931 and for 1926-1930, it is better than the best group rate in the country in 1925.

A decided increase in typhoid mortality occurred in the cities of the East North Central group (table 4), with eighty-eight typhoid deaths as against fifty-four in 1933. For the first time in the past five years the

TABLE 6—Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population

	1934	1933	1932	1931	1920-1930	1921-1925	1916-1920	1911-1915	1906-1910
St. Paul	0.0	1.4	0.7	1.1	1.4	3.4	3.1	9.2	12.8
Wichita	0.0	1.7	1.7	0.0	1.2	6.3			
Omaha	0.9	0.5	1.4	1.8	1.3	3.3	5.7	14.9	40.7
Duluth	1.0	1.0	1.0	1.0	1.1	1.7	4.4	28.8	4.5
Minneapolis	1.2	0.2	0.8	0.6	0.8	1.9	5.0	10.6	32.1
Kansas City, Mo.	1.4	2.4	1.4	1.5	2.8	5.7	10.6	16.9	35.6
Kansas City, Kan.	1.6	0.8	0.0	1.6	1.7	5.0	9.4	31.1	14.5
St. Louis	1.7	2.2	1.2	2.0	2.1	3.9	6.5	19.1	14.7
Des Moines	6.2	2.0	0.0	0.0	2.4	2.2	6.4	15.9	23.7

Incomplete data

progressive decline of the group rate has been interrupted and, instead of having as usual the best group rate in the country, the East North Central cities in 1934 have fourth place. Even so, their rate is still under 1.0. Only two cities had clear typhoid records in 1934, as against five in 1933, and whereas thirteen of the eighteen cities had rates under 1.0 in 1933 there were only eight with such low rates in 1934. Twelve cities had higher typhoid rates in 1934 than in 1933—slight increases to be sure except in the case of Fort Wayne which after a clear record in 1933, has a rate of 6.7 for 1934. This is the highest rate in the group since

TABLE 7—Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population

	1934	1933	1932	1931	1920-1930	1921-1925	1916-1920	1911-1915	1906-1910
Tulsa	2.7	0.0	0.0	2.0	8.8	16.2*			
Houston	2.8	4.0	3.7	3.2	4.8	7.0	14.2	38.1	49.5*
El Paso	3.8	2.6	5.6	4.8	9.1	10.8	30.7	42.5	
Dallas	4.8	5.8	7.4	7.3	7.3	11.2	17.2		
San Antonio	4.9	4.9	3.6	4.2	4.6	9.3	23.3	28.5	3.0
Fort Worth	5.9	7.0	2.9	5.4	5.9	6.1	16.3*	11.9	27.8
Oklahoma City	1.9	3.4	3.9	5.6	4*				
New Orleans	8.9	9.1	8.6	18.9	9.9	11.6	17.5	20.9	35.6

\* Incomplete data

1930 and the highest for Fort Wayne since 1925. Six of the twelve cities with increases in 1934 state that one third or more of the typhoid deaths were in nonresidents. Detroit in 1934 had eighteen typhoid deaths, nine of them being in nonresidents, six of whom were performers in a traveling circus and had probably contracted the infection in some community which they had visited before coming to Detroit.<sup>3</sup> The Chicago increase from 0.3 in 1933 to 0.6 in 1934 is doubtless influenced by the great fire in the Union Stock Yards on May 19, 1934, when people drank water from contaminated sources.<sup>4</sup>

The six East South Central cities (table 5) had exactly the same number of typhoid deaths (sixty-one) in 1934 as in 1933. Only two cities (Knoxville and Nashville) showed decreases in 1934 but these were notably encouraging. Knoxville's rate being the lowest

<sup>3</sup> Freund, H. A. Acute Outbreak of Typhoid. J. A. M. A. 103: 622 (Aug. 25) 1934.

<sup>4</sup> Typhoid Outbreak Among Firemen. J. A. M. A. 103: 116 (July 14) 1934.

<sup>2</sup> An outbreak of typhoid with twenty-eight cases following a benefit supper was reported in THE JOURNAL, Sept. 1, 1934, p. 686.

in the city's records (which began in 1920) and Nashville's the lowest in its history. Of the increases in the other four cities, that of Chattanooga is conspicuous, being more than double its 1933 rate and about the same as its 1926-1930 average. For the past four years Memphis seems to have assumed the place at the foot of the list formerly occupied by Nashville.

Similarly, in the West North Central cities (table 6) in 1934 there was practically the same typhoid mortality as in 1933 (forty as against forty-one deaths), thirteen of the deaths, however, were reported as in nonresidents. Two of the nine cities (St. Paul and Wichita) report no typhoid deaths in 1934 and in two other cities (Omaha and Duluth) all the reported typhoid deaths were stated to be in nonresidents. It is the first clear typhoid year ever recorded for St. Paul but Wichita has had a similar record three times before (1926, 1929, 1931). The only striking change among the cities of this group is the sudden explosion in Des Moines to a 1934 rate of 6.2, its highest rate since 1919.

Like the two preceding groups, the West South Central cities (table 7) had practically the same mortality in 1934 as in 1933 (105 typhoid deaths in 1934 and 106 in 1933). Tulsa continues to have the lowest rate in the group, as it has had for every year beginning

TABLE 8—Death Rates of Eleven Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population

	1934	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Seattle	0.0	0.8	1.1	0.5	2.2	2.0	2.9	5.7	23.2
Tacoma	0.0	0.9	1.8	0.0	1.8	3.7	2.9	10.4	19.0
San Francisco	0.1	0.1	1.6	1.4	2.0	2.8	4.0	13.0	26.3
Long Beach	0.6	0.6	0.0	0.0	1.1	2.1*			
Portland	0.6	0.0	0.6	1.0	2.3	3.5	4.5	10.8	23.2
Oakland	0.7	0.7	1.0	1.0	1.2	2.0	3.8	8.7	21.5
Los Angeles	1.0	0.6	0.6	0.7	1.5	3.0	3.6	10.7	19.0
San Diego	1.2	4.3	0.6	0.6	1.0	1.6	7.9	17.0	10.8
Denver	1.4	2.7	0.7	3.4	2.6	5.1	5.8	12.0	37.5
Salt Lake City	1.4	0.0	0.7	1.4	1.9	6.0	9.3	13.2	41.1
Spokane	2.6	0.9	1.7	0.8	2.2	4.4	4.0	17.1	50.3

\* Incomplete data

with 1930, but instead of a clear record such as it had in 1932 and 1933, Tulsa in 1934 has a rate of 2.7. New Orleans continues to have the highest rate in the group, as it has had since 1931, its rate was also the highest in the country in 1931, 1933 and 1934 (table 9). The rate for this group of cities as a whole has been the highest in the country for the past three years.

The cities in the Mountain and Pacific states (table 8) average slightly less for 1934 than for 1933. There are in 1934, as in 1933, two cities without typhoid deaths. Seattle has never had such a record before and Tacoma only once (1928). San Diego's rate, which rose suddenly in 1933, is about two-thirds lower in 1934, though still higher than the 1926-1930 average for that city. Denver while still near the foot of the table, has almost halved its 1933 rate. Spokane, on the other hand, has its highest rate since 1926. San Francisco repeats its 1933 rate of 0.1—a remarkably low rate for a city of more than 500,000 population, equaled only once before by any of the twelve other cities of its size in the country (Pittsburgh in 1933). The nearest approaches in 1934 are Milwaukee (0.2) and Buffalo (0.3).

Of the thirteen cities in the country with more than 500,000 population, eight had 1934 typhoid rates below 1.0, and all thirteen had rates below 2.0, thus appearing in the first rank of table 9. All thirteen appeared together in the first rank for the first time in 1932

and again, with the exception of St. Louis, in 1933. Ten years ago, in 1924, however, only three of these very large cities had rates under 2.0.

In 1934 for the second successive year none of the ninety-three cities registered a typhoid mortality rate greater than 10 per hundred thousand (tables 9 and 10). Twenty-three cities had no typhoid deaths at all

TABLE 9—Death Rates from Typhoid in 1934

Honor Roll		No Typhoid Death (Twenty Three Cities)			
Bridgeport	1 ynn	Scranton	Utica		
Elizabeth	New Haven	Seattle	Waterbury		
Fall River	Peoria	Somerville	Wichita		
Grand Rapids	Reading	Springfield	Worcester		
Jersey City	Rochester	Tacoma	Yonkers		
Lowell	St. Paul	Tampa			
First Rank from 0.1 to 1.0 Deaths per Hundred Thousand (Fifty Cities)					
San Francisco	0.1	Boston	0.9†	Denver	1.4
Milwaukee	0.2	Cambridge	0.9	Jacksonville	1.4
Newark	0.2	Canton	0.9*	Kansas City Mo	1.4†
Buffalo	0.3†	Knoxville	0.9	Salt Lake City	1.4
Alton	0.4	Omaha	0.9*	Cincinnati	1.5†
Syracuse	0.5	Philadelphia	0.9	Pittsburgh	1.5†
Chicago	0.6	Dayton	1.0†	Kansas City Kan	1.5
Hartford	0.6*	Duluth	1.0	Washington	1.6†
Long Beach	0.6	Los Angeles	1.0†	Camden	1.7
New York	0.6	Detroit	1.1†	Erie	1.7
Portland	0.6	Indianapolis	1.1†	St. Louis	1.7†
Youngstown	0.6	Flint	1.2	Miami	1.8
Oakland	0.7	Minneapolis	1.2	New Bedford	1.8
Pateron	0.7	Providence	1.2	South Bend	1.8
Albany	0.8	San Diego	1.2†	Franksville	1.9
Cleveland	0.8	Baltimore	1.3	Wilmington	1.9
Trenton	0.8	Toledo	1.3†		
Second Rank from 2.0 to 4.0 (Eleven Cities)					
Columbus	2.0†	Tulsa	2.7	Atlanta	3.9†
Louisville	2.5	Houston	2.8	Dallas	4.3
Nashville	2.6†	El Paso	3.8	San Antonio	4.9
Spokane	2.6†	Richmond	3.8†		
Third Rank from 5.0 to 8.0 (Nine Cities)					
Norfolk	5.4	Oklahoma City	5.9	Chattanooga	8.1
Birmingham	5.8†	Des Moines	6.2	Memphis	8.4†
Fort Worth	5.9	Fort Wayne	6.7	New Orleans	8.9†

\* All the typhoid deaths reported were stated to be in nonresidents

† One third or more of the reported typhoid deaths were stated to be in nonresidents

in 1934, the largest number yet reported with a perfect score. Nine of these were New England cities and seven Middle Atlantic. Eight of the twenty-three cities had had no typhoid deaths in 1933, five of these having had a clear record also in 1932 and three of them (all in New England) having had no typhoid death in the past four years. Eighteen of the twenty-three cities

TABLE 10—Number of Cities with Various Typhoid Death Rates

	No. of Cities	100 and Over	50 to 99	20 to 49	10 to 19	0.1 to 0.9	0.0
1916-1910	77	75	2	0	0	0	0
1911-1915	79	68	19	2	0	0	0
1916-1920	84	22	32	30	0	0	0
1921-1925	89	12	17	48	12	0	0
1926-1930	92	3	10	80	37	12	0
1930	93	2	6	30	23	22	10
1931	93	2	6	23	28	23	12
1932	93	1	7	13	29	29	14
1933	93	0	7	18	19	33	16
1934	93	0	9	11	27	23	23

had had clear records at least once before, for two (Peoria and Yonkers) 1934 was the seventh year in their history without a typhoid death, while in Waterbury it was the ninth.

Five cities had no death from either typhoid or diphtheria during 1934. Elizabeth, Grand Rapids, New Haven, Seattle, Utica. It is the second successive year that Elizabeth has had a clear record for both diseases.

There are twenty cities in 1934 with rates of 20 and over (table 9, second and third ranks), as against twenty-five in 1933, but in 1934 nine have rates over 50, whereas in 1933 there were only seven with such high rates (table 10). The highest rate for both years is about the same (89 for 1934 and 91 for 1933).

TABLE 11—Total Typhoid Rate for Seventy-Eight Cities, 1910-1934\*

	Population	Typhoid Deaths	Typhoid Death Rate per 100 000
1910	22,578,435	4 637	20.54
1911	23,211 841	3 950	17.02
1912	23,835 309	3,132	13.14
1913	24 457,989	3,285	13.43
1914	25 091 112	2 781	11.08
1915	25 713,346	2,434	9.47
1916	26,257 550	2 191	8.34
1917	26 865 408	2,016	7.50
1918	27 086 696†	1,824†	6.73
1919	27 735 083†	1,151†	4.15
1920	28,244,678	1,088	3.85
1921	28,850 062	1,141	3.95
1922	29 478,246	963	3.26
1923	30 087 430	950	3.16
1924	30 701,614	943	3.07
1925	31,815 698	1 070	3.44
1926	31,929 782	907	2.84
1927	32,648 906	648	1.99
1928	33 158 150	628	1.89
1929	33 772,334	537	1.59
1930	34 380 717	554	1.61
1931	35 137 915	503	1.40
1932	35,691,815	442	1.24
1933	35 691,815	423	1.18
1934	35 401 715	413	1.17‡

\* The following fifteen cities are omitted from this table because data for the full period are not available: Canton Chattanooga Dallas, Fort Wayne Jacksonville Knoxville Long Beach Miami Oklahoma City South Bend Tampa Tulsa Utica, Wichita Wilmington.

† Data for Fort Worth lacking.

‡ The rate for the ninety-three cities in 1934 is 1.25 (total population 37 437,612 typhoid deaths 470) whereas the corresponding rates for 1930 1931 1932 and 1933 were respectively 1.64 1.63, 1.34 and 1.24.

Of the twenty cities with 1934 rates of 20 and over, only four are Northern cities (Columbus, Des Moines, Fort Wayne and Spokane).

The total of typhoid deaths for the ninety-three cities is exactly the same in 1934 as in 1933 (470), but owing to the new method of estimating the city populations, mentioned earlier in this article, the rate for 1934 appears a shade higher (1.25) than the 1933 rate (1.24). For the seventy-eight cities for which we have complete data since 1910 (table 11), the 1934 total of

TABLE 12—Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	(1933) Population	Typhoid Deaths		Typhoid Death Rates						
		1934	1933	1934	1933	1932	1931	1930	1929	1925
New England	2,624 605	14	18	0.53	0.68	0.72	1.07	1.31	2.48	
Middle Atlantic	12,962,900	82	102	0.63	0.78	0.97	1.06	1.40	2.97	
South Atlantic	2,367 807	50	55	2.11	2.31	2.23	4.22	4.50	7.01*	
East North Central	9,643 100	88	64	0.91	0.55	0.70	1.00	1.29†	2.32†	
East South Central	1 242,000	61	61	4.91	4.91	6.20	4.09	8.31	19.00	
West North Central	2 704 500	40	41	1.48	1.51	1.03	1.34	1.53	8.43	
West South Central	1 934 900	105	106	5.43	5.40	5.20	6.97	7.32‡	18.08‡	
Mountain and Pacific	3 968 400	30	23	0.75	0.52	0.57	1.07	1.80	2.53	

\* Lacks data for Jacksonville and Miami.

† Data for South Bend for 1925-1929 are not available.

‡ Lacks data for Oklahoma City in 1926.

§ Lacks data for Oklahoma City.

typhoid deaths is ten less than the 1933 total, and the 1934 rate is 1.17, compared to 1.18 in 1933.

In four of the eight geographic divisions of the country (table 12) there were fewer typhoid deaths in 1934 than in 1933, and in three other divisions there were either exactly the same number as in 1933 or one

less. The 63 per cent increase in typhoid deaths in the East North Central cities exactly offsets the decreases recorded for the other divisions. Even so, the different divisions have about the same relative typhoid rates in 1934 as in previous years. The cities of four divisions—New England, Middle Atlantic, East North Central and Mountain and Pacific—record very little typhoid, all having had rates below 10 for the past three years and all (except for the 1934 check in the East North Central group) having had a continuous decline in rate during the same period. The West North Central group (table 6) stands alone with consistent rates between 10 and 15. The three Southern groups have their usual order in 1934: South Atlantic (rate 2.11), East South Central (4.91) and West South Central (5.43). The rates of the South Atlantic and West South Central cities have remained about level for the past three years, the level in both groups being well below their rates for 1931 and for 1926-1930. The East South Central group rates, on the other hand, have been higher in the past three years than in 1930 and 1931.

While the total number of typhoid deaths in the ninety-three large cities of the United States was the same in 1934 as in 1933, two points in the 1934 typhoid history are encouraging as to the possibility of further reduction in the urban deaths from this disease: three cities finished their fourth consecutive year without a single typhoid death, and Atlanta, whose rate had continued through 1931 at its 1916-1920 level, has consistently lowered its typhoid mortality by 30 or 35 per cent for each of the past three years.

## Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

RAYMOND HERTWIG Secretary

### NOT ACCEPTABLE

#### SCHOTT'S BUTTER KRUST BREAD SLICED SCHOTT'S BUTTER KRUST FAMILY LOAF

The Schott's Bakery, Inc., Houston, Texas, submitted to the Committee on Foods a white bread prepared from patent flour, water, sucrose, powdered skim milk, shortening (hydrogenated cottonseed oil), salt, malt extract and a yeast food containing monocalcium phosphate, sodium chloride and potassium bromate, called Schott's Butter Krust Bread and Schott's Butter Krust Family Loaf. The sides of the pans in which the bread is baked are oiled with butter. Other than this, no butter is used. The top crust of the bread is not treated with butter. Approximately 0.02 ounce of butter is added to each pound loaf pan.

*Discussion of Name and Label*—The name "Butter Krust" indicates either that the baking formula contains considerable milk-fat or butter or that the entire bread crust has been specially treated with sufficient butter to impart a distinctive butter flavor. Butter, however, is not an ingredient of the bread. Powdered skim milk rather than whole milk is used in the baking formula. The buttered portion of the crust has no characteristic butter flavor. The name implies the entire crust is buttered, which is not the case; gives undue prominence to an ingredient, butter, which is present in insignificant quantity, and is therefore inappropriate, misinformative and misleading. Foods should be truthfully and appropriately named with regard to ingredients.

The manufacturer was given the recommendations and criticisms of the Committee but has not taken action to correct the name. This product will therefore not be listed among the Committee's accepted foods.

## ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE OF FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary

### HEINZ STRAINED APRICOTS

*Manufacturer*—H J Heinz Company, Pittsburgh

*Description*—Strained cooked apricots retaining in high degree the natural vitamin and mineral content

*Manufacture*—Selected ripe un sulphured apricots are sorted pitted, trimmed, slightly cooked in steam-jacketed kettles strained in an atmosphere of steam vacuumized to remove air filled into lacquer-lined cans sealed under vacuum and processed. Canned, unsweetened solid pack product may be used instead of fresh fruit, this is heated before being strained, canned and processed as described

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	84.2
Total solids	15.8
Ash	0.7
Fat (ether extract)	1.0
Protein (N $\times$ 6.25)	1.2
Reducing sugars as invert sugar	10.8
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	12.1
Calcium (Ca)	0.02
Phosphorus (P)	0.03
Iron (Fe)	0.002

*Calories*—0.6 per gram 17 per ounce

*Micro Organisms*—Bacteriologic and incubation tests show the product to be sterile.

*Vitamins*—Vitamin biologic assay shows

- 125 Sherman units of vitamin A per ounce
- 4 Sherman units of vitamin B per ounce
- 10 Sherman Bourquin units of vitamin G per ounce

*Chemical assay shows*

- 45 International units of vitamin C per ounce

*Claims of Manufacturer*—Specially intended for infants children and convalescents and for special smooth diets. Only warming is required for serving

HAWAIIAN CROSS BRAND HAWAIIAN PINEAPPLE (FANCY QUALITY) SLICED AND TIDBITS

KING OF HAWAII HAWAIIAN PINEAPPLE (FANCY QUALITY) SLICED AND TIDBITS

HAWAIIAN PINEAPPLE TIDBITS (FANCY QUALITY)

FLOWER LAND HAWAIIAN PINEAPPLE—BROKEN SLICES

MOUNTAIN TOP HAWAIIAN PINEAPPLE—BROKEN SLICES

HAWAIIAN STAR HAWAIIAN PINEAPPLE (STANDARD QUALITY) SLICED AND TIDBITS

SURE HIT BRAND HAWAIIAN PINEAPPLE (STANDARD QUALITY) SLICED AND TIDBITS

*Distributor*—Alexander & Baldwin, Ltd, Honolulu, Hawaii  
*Packers*—Kauai Pineapple Company, Kalaheo, Kauai, Baldwin Packers, Ltd., Lahaina, Maui and the Maui Pineapple Company, Kahului, Maui (subsidiaries)

*Description*—Grades of sliced and broken sliced pineapple and pineapple tidbits, packed in pineapple juice with added sucrose

*Manufacture*—Ripe pineapples are peeled and cored, and the ends cut off by "Ginaca" machines. The fruit cylinders produced are trimmed of imperfections, washed and mechanically sliced. The slices are packed by hand in cans and covered with pineapple juice containing added sucrose. The pineapple is graded, according to physical appearance and amount of sugar added to the juice, as "fancy" (the most perfect fruit and the highest concentration of sugar in the juice) "standard"

and "broken slices". The filled cans are heated to about 75 C, are sealed, processed at 88 C and cooled. The broken slices are not as perfect in form as the whole and half slices

*Analyses* (submitted by distributor) —

*Fancy finest quality* —

	per cent
Moisture	74.7
Ash	0.4
Fat (ether extract)	0.02
Protein (N $\times$ 6.25)	0.4
Reducing sugar as invert sugar	18.6
Sucrose	2.8
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	23.3
Titratable acidity as citric acid	0.9
Alkalinity of ash (cc normal acid required to neutralize ash of 100 Gm sample)	5.2

*Standard quality* —

	per cent
Moisture	79.0
Ash	0.4
Fat (ether extract)	0.02
Protein (N $\times$ 6.25)	0.3
Reducing sugar as invert sugar	15.4
Sucrose	1.1
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	19.0
Titratable acidity as citric acid	1.0
Alkalinity of ash (cc normal acid required to neutralize ash of 100 Gm sample)	4.0

*Broken slices* —

	per cent
Moisture	80.6
Ash	0.4
Fat (ether extract)	0.02
Protein (N $\times$ 6.25)	0.4
Reducing sugar as invert sugar	12.6
Sucrose	2.7
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	17.4
Titratable acidity as citric acid	0.9
Alkalinity of ash (cc normal acid required to neutralize ash of 100 Gm sample)	4.4

*Calories*—Fancy finest quality 10 per gram 28 per ounce

*Standard quality* 0.8 per gram 23 per ounce

*Broken slices* 0.7 per gram, 20 per ounce

*Vitamins*—Biologic assay shows the products to be a good source of vitamins A, B and C containing only slightly less than fresh pineapple

### ZIMS BETTER WHEAT BREAD

MADE FROM WHITE AND WHOLE WHEAT FLOURS

*Manufacturer*—The Zim Bread Company, Colorado Springs, Colo

*Description*—White flour and whole wheat flour bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p 889), prepared from water, clear flour, whole wheat flour, sucrose, yeast, shortening, salt, malt syrup sugar, refiners' syrup and a yeast food containing calcium sulphate, ammonium chloride sodium chloride and potassium bromate

*Analysis* (submitted by manufacturer) —

	per cent
Moisture	34.0
Ash	1.3
Fat	3.7
Protein (N $\times$ 6.25)	11.3
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	49.0

*Calories*—2.8 per gram 80 per ounce

### VAN CAMPS STERILIZED EVAPORATED MILK

*Manufacturer*—Van Camp Milk Company, Indianapolis

*Description*—Sterilized, unsweetened evaporated milk.

*Manufacture*—Milk is received from state and company inspected farms and is tested daily for odor, acidity and temperature. The milk is preheated to 97-99 C, partially evaporated under vacuum, homogenized, cooled to 38 C, standardized to 7.8 per cent milk fat and 26 per cent total solids content canned and sterilized at minimum of 116 C for fifteen minutes

*Analysis* (submitted by manufacturer) —

	per cent
Total solids	27.3
Ash	1.6
Milk fat	7.8
Protein (N $\times$ 6.38)	7.6
Lactose (by difference)	9.1

*Calories*—1.4 per gram 40 per ounce

*Claims of Manufacturer*—See announcement on the advertising of the Evaporated Milk Association (THE JOURNAL, Dec. 19, 1931, p 1890)

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 8, 1935

## SOY BEAN MILK IN INFANT NUTRITION

Although the use of the soy bean for human consumption is comparatively new in this country, it has for many centuries occupied a prominent position in the dietary of the Orient. In China, Japan and Manchukuo the soy bean aids in supplying the population with nitrogenous food. This product is also employed extensively as food in the Philippines, Siam, Korea, the Dutch Indies and India. More recently much interest in the investigation and use of soy bean preparations has been evident throughout the world.<sup>1</sup> The nutritive efficiency of the soy bean was demonstrated by the extensive investigations of Osborne and Mendel.<sup>2</sup> These results were in striking contrast to those obtained by the same investigators with kidney beans and garden peas. The presence of both the water-soluble and fat-soluble vitamins in the soy bean was also established by the New Haven investigators.

The use of the soy bean, incorporated in a synthetic milk as an infant food, was early studied in the United States by Ruhräh.<sup>3</sup> He was able to produce improvement in infants with summer diarrheas and certain forms of intestinal disturbances. Ruhräh also mentioned the value of soy bean milk as a diluent for cow's milk and stated that the product permits normal development in successful feeding. Despite this pioneer work, soy bean milk has not until recent years received serious consideration in this country as a definite food for babies. This vegetable milk has been employed quite extensively in China, as economic stress and the relatively small consumption of dairy products in China are important factors in the promotion of the soy bean as a food substitute for cow's milk. The studies of Chang and Tso<sup>4</sup> at Peiping University have served to stimulate interest in the use of the soy bean in infant feeding. The Chinese investigators prepared a synthetic vegetable milk the proteins of which were sup-

plied by the soy bean. Six infants, one from birth and the others a few weeks old, were successfully fed for from six to nine months on this diet. Their weight curves followed closely the average weight curves of healthy nursing infants in the United States as well as the average weights of several hundred Chinese breast-fed infants who visited the college dispensary for minor complaints.

Recent reports of the use of soy bean milk in this country have substantiated the value of this product in infant feeding. Although the synthetic preparations used have differed somewhat in their formulas, the results have been uniformly favorable. Thus Rittinger and Dembo<sup>5</sup> fed soy bean milk to fifty physically normal or average infants over a period of a year. The progress in weight and state of nutrition indicated that the soy bean, with the addition of sugars and various mineral salts, can be made an adequate food for infants. The stool was somewhat more bulky than that observed in infants fed cow's milk, but the flora resembled that of the normal, breast-fed baby. Supplementary experiments by these investigators, conducted with rats, demonstrated the presence of adequate amounts of necessary vitamins in the preparation employed.

The economic features (mass production and low cost) of soy bean milk as an infant food share importance with the utilization of this material for the feeding of infants with milk idiosyncrasy. Furthermore, it is evident that the development of a food, free from milk protein which is capable of maintaining infant nutrition, should furnish definite proof of the allergic nature of infant eczema. Studies of this question have been conducted in the department of pediatrics of the Harvard Medical School.<sup>6</sup> Experimenting with powders of varying composition, the Boston investigators evolved a dried preparation in which the protein was furnished by the soy bean and which on reliquefaction constituted a milk well tolerated by the digestive tract of infants and capable of maintaining their nutrition. Although the results were not favorable in every case, this method of feeding allergic infants has helped in a large enough number of cases to recommend it as worthy of trial. Further laboratory data are accumulating to support the early evidence concerning the adequacy of soy bean flour in nutrition. Stearns<sup>7</sup> has recently investigated the relation of the intakes of nitrogen, calcium and phosphorus on the excretion and retention of these elements by infants on milk diets in comparison to the results obtained with the same infants given soy bean feedings. The detailed analytic reports indicate that the modified soy bean food appears to be a satisfactory product for infants. Other experiments

1 Howarth A. A. *J. Indust. & Engin. Chem.* **9**: 136 (May 10) 1931.

2 Osborne, T. B. and Mendel L. B. *J. Biol. Chem.* **20**: 351 1915.

3 Ruhräh John. *Arch. Pediat.* **26**: 496 1909.

4 Tso Ernest. *Chinese J. Physiol.* **2**: 33 (Jan.) 1928. Chang K. C. and Tso Ernest. *ibid.* **5**: 199 (May 15) 1931.

5 Rittinger F. R. and Dembo L. H. *Arch. Pediat.* **44**: 1221 (Dec.) 1932.

6 Hill L. W. and Stuart H. C. *A Soy Bean Preparation for Feeding Infants with Milk Idiosyncrasy*. *J. A. M. A.* **93**: 985 (Sept. 28) 1929.

7 Stearns Genevieve. *Soy Bean Flour in Infant Feeding*. *Am. J. Dis. Child.* **46**: 7 (July) 1933.

on laboratory animals \* have demonstrated the adequacy of soy bean powders in nutrition particularly with respect to supporting normal growth hemoglobin formation and the production of normal bones There appears to be considerable evidence, therefore, to warrant the conclusion that the soy bean is destined to assume a role of importance in infant nutrition

#### REFORM IN RADIO ADVERTISING

At last these United States seem to be en route to reform in the type of advertising promoted over the radio For some time the National Broadcasting Company has been quietly and consistently elevating the standards of material permitted to be broadcast over its network The Columbia Broadcasting System has just made available an announcement by its president setting forth the new policies which will guide that network for the future

Briefly the new policies involve purification in the type of material broadcast to children both as entertainment and as advertising The Columbia Broadcasting System will not permit broadcasting for any product that describes graphically or repellently any internal functions, symptomatic results of internal disturbances or matters that are generally not considered acceptable in social groups This policy will specifically exclude from advertising not only all laxatives as such but the advertising of any laxative properties in any other product It will further exclude the discussion of depilatories, deodorants and other broadcasting which by its nature represents questions of good taste in connection with radio listening Among other basic advertising policies will be the barring of testimonials that cannot be authenticated and an attempt to bar claims that are false and unwarranted

This new trend in the control of radio advertising must logically be associated with several evidences of endeavors by the government to control in various ways the evil of exaggerated and fraudulent advertising which has been gradually pyramided during the last thirty years into a structure that would inevitably sooner or later have toppled of its own weight Among the handwritings on the wall are the passage by the Senate of the new Copeland bill, which, though utterly inadequate, is nevertheless a beginning in the direction of legislation to control advertising, and also hearings recently held by the Federal Communications Commission on the subject of education by radio

The House of Delegates of the American Medical Association at its sessions in 1933 and again in 1934 adopted resolutions opposing misleading radio broadcasting In pursuance of this action of the House of Delegates, two representatives of the headquarters office of the American Medical Association appeared before the hearings conducted by the Federal Communications Commission in Washington on May 15

Dr W W Bauer, director of the Bureau of Health and Public Instruction, emphasized the interest of the American Medical Association in proper education in the field of health and indicated the manner in which radio education is involved in its program He also recounted some of the experiences of the medical profession in attempting to secure adequate broadcasting in the field of health not only over the national chains but also over various local outlets Dr Arthur J Cramp director of the Bureau of Investigation, presented a statement with respect to 'patent medicine' advertising on the radio, supplementing his presentation with typewritten copies of phonographic records that had been made of five "patent medicine" announcements His statement covered particularly broadcasts recently made for Peruna Willard's Tablets, Ex-Lax, Alka-Seltzer and Crazy Crystals, and he provided the Federal Communications Commission with details regarding these 'patent medicines'

Great nations move slowly in their efforts for reform, but eventually an annoyed and deceived but too tolerant public rises in its wrath and reacts against those who abuse its tolerance

#### THE EFFICIENCY OF SERODIAGNOSTIC TESTS FOR SYPHILIS

The report of the committee on the evaluation of serodiagnostic tests for syphilis in the United States appears in this issue of *THE JOURNAL*<sup>1</sup> Facts pertaining to the serologic tests or modifications of such tests as have been described in the United States are given in detail The committee has avoided entirely any comment on the method of any one serologist The relative efficiency of the several tests is evident, however, if one cares to analyze the report The study was comprehensive and the results are comparable with those attained in the conferences held some years ago under the auspices of the League of Nations in Copenhagen and Montevideo

In the actual performance of the tests, the participating serologists were not gathered in one place to examine specimens over a short period of time The advantage was given them of performing these examinations in their own laboratories The evaluation study in this country differed from the former conferences also in the selection of presumably nonsyphilitic donors In Copenhagen and Montevideo, such donors were selected from general hospital patients who were believed not to be infected with syphilis In the evaluation study as conducted in this country, the nonsyphilitic donors were made up of a specially selected group in which there was reason to believe that the incidence of syphilis would be considerably lower than in a general hospital population

\* Reid E. *Chinese J Physiol* 9:27 1935

<sup>1</sup> Cumming H S Hazen H H Sanford A H Sencar F E Simpson W M and Vonderlehr, R A The Evaluation of Serodiagnostic Tests for Syphilis in the United States this issue p 2083

Of much interest is the relative efficiency of flocculation tests as compared with complement fixation tests for syphilis. Generally speaking, the former compared most favorably with the more complex serologic procedures both in specificity and in sensitivity. This was true especially when such tests were applied in the examination of blood serum. It was not true to the same extent, however, when the application was made to spinal fluid. The variation in specificity and in sensitivity from the highest to the lowest percentage was more definite in the spinal fluid examinations than in the blood specimens, and the percentage of positive reports in known neurosyphilitic spinal fluids was low in the case of several of the flocculation procedures. This indicates that the flocculation tests for spinal fluid examination should be given further study.

One of the most interesting conclusions of the evaluation committee is that a highly sensitive flocculation test alone might be employed as a routine procedure to exclude syphilis. The evidence available indicates that when such a test is employed a negative result would practically eliminate the presence of syphilis as demonstrable by any other serologic method. However, because of the highly sensitive character of the flocculation procedure a positive test would not be indisputable evidence of syphilitic infection. A further recommendation therefore is made that, when a positive result is reported with the routine highly sensitive flocculation test, the serum should be reexamined by one or more specific complement fixation or flocculation tests. The majority of serologic tests for syphilis performed in the laboratories of the country are negative. The routine adoption of such a highly sensitive flocculation test in comparison with the routine performance of a combination of two or more serologic tests would be an important factor in reducing the cost of the serodiagnosis of syphilis. Such a method of serologic testing seems to be worth a trial and may offer a solution for the present high cost of this work in laboratories.

Information was not obtained with regard to the practical application of the individual serologic procedures as employed in laboratories throughout the country, nor is a specific statement made with regard to the cost of the several procedures evaluated. Such factors are of the utmost importance, especially the practical application of serologic tests in private and public health laboratories.

The recommendation was made that the reporting of the qualitative results in the serodiagnosis of syphilis be simplified. A similar recommendation was made by the League of Nations after the Copenhagen conference. The adoption of a different set of symbols to express the degree of positivity by every serologist who describes a new method or modification has been most confusing to the physician in the past. The committee is to be commended for its insistence on a simplified method of reporting in which all qualitative results are reported as positive, doubtful or negative.

## Current Comment

### THE MONUMENT FOR JANE TODD CRAWFORD

Memorial Day for 1935 was marked by an unusual feature from the point of view of the medical profession. In Danville, Ky., the Kentucky State Medical Association dedicated a monument to the memory of Jane Todd Crawford, who, 126 years ago, voluntarily submitted herself to the first ovariectomy. This monument is perhaps the second ever dedicated anywhere in the world to a heroic patient, the first being that of Jean Baptiste Jupille, the shepherd boy who fifty years ago was given the Pasteur treatment after he had courageously fought a mad dog and saved the lives of six children. Already a monument stands for Ephraim McDowell, the noted physician who performed the operation on Mrs. Crawford. Today his name is high among those who have contributed largely to the advancement of abdominal surgery. At a time when anesthesia and asepsis were as yet unknown, these two—Ephraim McDowell and Jane Todd Crawford—wrote large their names in the history of medicine. Today, through the advancement of medical science, it is possible to perform the most difficult operations almost anywhere in the world. In 1809 such an operation involved on the part of the surgeon the sureness of scientific skill, the courage of his convictions, and the willingness to hazard personal reputation for the life and health of his patient, for the patient, the ability to bear inexpressible agony, the courage to risk an unestablished medical procedure, and a comprehension of the hazards involved. It is well that monuments should stand side by side to both physician and patient who cooperated in this memorable action and that the medical profession of the state of Kentucky should have assumed the responsibility for the erection and dedication of these two memorials.

### BACTERIA IN KANSAS DUST

The recent dust storms in certain districts of the western part of the United States have been accompanied apparently by unusual numbers of cases of "dust pneumonia." Such a coincidence might well excite interest in the comparative numbers and types of bacteria in the air during a dust storm as compared with those present on an average quiet day. A study of this type has been reported recently.<sup>1</sup> Petri dishes containing sterile nutrient agar culture mediums were exposed for varying periods during a severe dust storm. The plates were incubated for twenty-four hours and the colonies then counted. Control plates were exposed in a similar manner on a clear, calm day. A striking difference between the numbers of colonies on the two plates was found. The plates exposed for one minute on a calm day contained only twelve colonies, whereas those exposed for only half this time during a dust storm showed 1,100 bacterial colonies. Microscopic

<sup>1</sup> Rutter, C. Bacterial Content of the Kansas Dust Storm on March 20, 1935. Pub. Health Rep. 50:622 (May 3) 1935.



examinations of a number of the colonies from the latter plates have indicated that the organisms carried by the dust were largely resistant soil types, usually large, spore-forming, gram-positive bacilli. No coccus forms were found. The latter observation may be of particular importance for, unless the presence of increased numbers of pathogenic bacteria can be established, there is no reason to associate the occurrence of "dust pneumonia" with a mere increase in the number of bacteria in the air. The effect of the dust may be entirely mechanical, inducing changes in the mucous membrane of the trachea and bronchi, which permit the passage of pathogenic organisms usually present in the upper respiratory tract to the bronchi and lungs.

### REREGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians registered under the Harrison Narcotic Act must reregister on or before July 1. Each such physician must register with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to register within the time allowed by law makes a physician liable to a fine or to imprisonment, or to both, and compels him to pay a penalty of 25 per cent on his annual tax when he does register.

## Association News

### THE ATLANTIC CITY SESSION

#### Fraternity and Club Dinners

The Ohio State Medical Alumni will hold their dinner at the Ambassador Hotel, Atlantic City, June 12, 6:30 p. m.

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 central standard time). The next three broadcasts will be as follows:

- June 13 Summer Camps C. C. Bean
- June 20 Burns W. W. Bauer, M.D.
- June 27 Blood and Fire W. W. Bauer, M.D.

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 o'clock central standard time). The next three broadcasts will be as follows:

- June 11 See announcement of broadcasts from annual session
- June 18 Only One Pair of Eyes W. W. Bauer, M.D.
- June 25 The Nation's Birthday, W. W. Bauer, M.D.

#### Radio Broadcasts from Atlantic City and Philadelphia

Through the courtesy of the National Broadcasting Company and the Columbia Broadcasting System, the American Medical Association will broadcast health talks to the public in connection with the annual meeting at Atlantic City, June 10 to 14.

The talks over a network of the National Broadcasting Company will originate in the studios of Station WFIL at Phila-

delphia, according to the following schedule (eastern daylight saving time):

- June 11, 5-5:15 p. m. The Polio Situation by Dr. J. P. Leake
- June 13, 6-6:15 p. m. News Features from the Convention, W. W. Bauer, M.D.
- June 14, 5-5:30 p. m. Medicine in North America
- Nutrition and the Health of the Race by Dr. James S. McLester
- Truth in Therapeutics, by Dr. Jonathan C. Wenkins
- Speakers to be introduced by Dr. Morris Fishbein

The talks over a network of the Columbia Broadcasting System will originate in the studios of Station WPG, Atlantic City, according to the following schedule:

- June 10, 5-5:15 p. m. Sidelights on Sleep by Dr. Glenville Giddings, Jr.
- June 14, 3:15-3:30 p. m. Problems of the Hard of Hearing by Dr. Austin A. Hayden

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Bills Introduced**—H. 496, seeking to amend the workmen's compensation act, among other things, proposes to require an employer to furnish medical and surgical treatment to a worker disabled in an industrial accident during the first ninety days (rather than sixty days) of disability and to raise the employer's liability for such services to \$300, rather than \$100, as the present law provides. H. 479, to amend the workmen's compensation act, proposes to require an employer to furnish medical and surgical treatment to a worker disabled in an industrial accident, during the first four months of disability, and to raise the employer's liability for such services to \$300. H. 448 proposes to create a board of chiropody examiners and to regulate the practice of chiropody, which the bill defines as the medical, surgical, electrical, mechanical and manipulative treatment of ailments of the human foot.

### ARKANSAS

**District Meetings**—The Third Councilor District Medical Society was addressed at DeValls Bluff, April 5, among others by Dr. Eugene M. Holder, Memphis, on acute surgical conditions of the abdomen. Speakers before the Fifth Councilor District Medical Society at Magnolia, April 9, included Dr. Royal J. Calcote, Little Rock, on "Corneal Ulcer"; Dr. Ray M. Balyeat, Oklahoma City, addressed the Fourth Councilor District Medical Society in joint session with the Jefferson County Medical Society at Pine Bluff in April on asthma. At a joint meeting of the Second Councilor District Medical Society with the woman's auxiliary at Batesville, April 8, speakers were Drs. Silas C. Fulmer, Little Rock, on "Diagnosis of Heart Failure", Ernest H. White, Little Rock, "Prophylaxis of Pyelitis of Pregnancy" and Frederick H. Krock, Fort Smith, "Occlusive Arterial Disease of the Extremities". Speakers before the First Councilor District Medical Society of Arkansas, May 8, in Monette, included Drs. Jones H. Lamb, Paragould, on "Pernicious Anemia", William C. Colbert, Memphis, "Systemic Manifestations of Focal Sepsis", Elmer H. Rainwater, Walnut Ridge, "How to Treat Rectal Patients", William W. Walker, Memphis, "Obstetrical Complications of the Last Trimester of Pregnancy", Herbert Fay H. Jones, Little Rock, "Urologic Backache", and Herbert H. McAdams, Jonesboro, "Surgical Management of Goiter".

### CALIFORNIA

**Personal**—The twentieth anniversary of Dr. John L. Pomeroy as the first full time county health officer of Los Angeles was observed with a dinner dance at the Oakmont Country Club in Montrose, April 25.

**Regulations on Cream Custard Fillings**—At a meeting of the California State Board of Public Health, April 20, a resolution was adopted that will increase the protection of the public against food poisoning from contaminated cream custard fillings. According to the new regulations, only efficiently pasteurized milk may be used. The temperature and time of

heating the mixture shall be, as a minimum, the equivalent of a temperature of 140 F for one hour, provided however that other temperatures and times may be used when specifically approved by the director of public health. When finished cooking, the custard must be immediately transferred into previously sterilized containers, properly covered, and chilled without delay to 50 F, and must be kept in a cooling room until used in making pastries. The resolution further regulates the display of these products, the cleansing of the cooking apparatus and the selling and delivery. In the resolution, the board acknowledges that poisoning with the toxins of staphylococci present in foods is becoming more common.

### CONNECTICUT

**Society News**—Dr Nathan B Van Etten, New York, addressed the Hartford County Medical Association, Hartford April 2, on medical economics.

**Bills Enacted**—The following bills have become laws: H 1264, to permit chiropractors to render the "medical treatment" which an employer must furnish a workman injured in the course of his employment, and H 1270, amending the chiropractic practice act so as to require the secretary-treasurer of the board of chiropractor examiners to furnish a bond in the sum of \$1,000 with such sureties as are acceptable to the state treasurer.

### DISTRICT OF COLUMBIA

**Medical Bills in Congress**—S 2939, introduced by Senator Copeland, New York, proposes to require the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art in the District of Columbia to Dr Ronald A Cox, Washington, without examination.

**University News**—Karl F Meyer, Ph D, director of the Hooper Foundation and professor of bacteriology, University of California Medical School, San Francisco, gave the sixth and last lecture of the Smith-Reed-Russell series for this year at George Washington University School of Medicine, May 14. He spoke on "Selvatic Plague," with illustrations. In the afternoon Dr Meyer addressed the medical faculty and guests on psittacosis. Col Percy M Ashburn, superintendent of Columbia Hospital, Washington, gave the fifth lecture in the series, April 25, on "The Medical History of the Conquest of America in the Sixteenth and Seventeenth Centuries."

### FLORIDA

**Bill Enacted**—H 29 has become a law, providing for a system of compensating workmen for injuries arising out of and in the course of their employments and for such diseases or infections as naturally or unavoidably result from such industrial injuries. The employer is to furnish medical, surgical and other remedial treatment, nursing and hospital service, medicines, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. Only in the event that the employer fails to furnish the services, after request by the workman, is the workman to be allowed the privilege of selecting his own physician at the employer's expense.

### ILLINOIS

**State Medical Election**—Dr Rolland L Green, Peoria, was chosen president-elect of the Illinois State Medical Society at its annual meeting in Rockford, May 23, and Dr Charles B Reed, Chicago, was installed as president. Vice presidents elected are Drs Thomas H Culhane, Rockford, and Fred H Muller, Chicago. Dr Harold M Camp, Monmouth, was reelected secretary for the twelfth time and Dr A J Markley, Belvidere, treasurer for his twenty-third term.

**Bill Introduced**—S 515, to amend the laws regulating the practice of medicine, proposes to enumerate specific causes for which the department of registration and education may revoke or suspend licenses and to designate the procedure to be followed by the department in revoking or suspending licenses. This bill is apparently designed to obviate certain constitutional objections to the present Illinois medical practice act pointed out in *Schireson v Walsh* 187 N E 921 THE JOURNAL, Aug 4, 1934, p 367.

### Chicago

**Personal**—Dr Ludvig Hektoen, director of the John McCormick Institute for Infectious Diseases and chairman of the Committee on Scientific Research of the American Medical Association has been appointed a member of the board of trustees of Science Service, representing the National Research Council.

**Society News**—Speakers before the Chicago Society of Internal Medicine, May 27, included Dr Anton J Carlson on "The Problem of Control of the Endocrine Glands"—Dr Edward W Alton Ochsner, professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, gave the sixth annual Stephen Walter Ranson Lecture, sponsored by Theta chapter of Phi Beta Pi Fraternity, May 31, at Northwestern University Medical School, his subject was "Postoperative Treatment Based on Physiological Principles."

**Dr Grinker to Head New Department**—Dr Roy R. Grinker, associate professor of neurology, Graduate School of Medicine, Division of Biological Sciences, University of Chicago, will be in charge of the new department of psychiatry, the establishment of which was recently made possible by a grant of \$168,000 from the Rockefeller Foundation (THE JOURNAL, May 25, p 1914). Dr Grinker will return to the university, July 1, after two years abroad spent in research and study in psychiatry under a fellowship from the foundation. Research into the causes and cure of mental diseases will be carried on in the new division, which will be organized within the department of medicine. It will be opened July 1.

### IOWA

**Conference on Child Development**—The ninth annual Iowa Conference on Child Development and Parent Education will be held in Iowa City, June 17-19. The health of the young child will be the theme of the lectures and round tables of the meeting, which is held in conjunction with the eighth health education conference of the American Child Health Association in Iowa City, June 19-22. In addition to members of the faculty of State University of Iowa College of Medicine, the following will participate:

Dr Frederick H Allen, director, child guidance clinic, Philadelphia.  
Vivian T Thayer, educational director of the Ethical Culture School, New York.

Miriam Van Waters, superintendent, Reformatory for Women, Framingham, Mass.

Charles Edward A Winslow, Dr P.H. professor of public health, Yale University School of Medicine, New Haven, Conn.

John E Anderson, Ph D, director, Institute of Child Welfare, University of Minnesota, Minneapolis.

Dr Joseph H Kinnaman, director, child health and health education, Iowa State Department of Health, Des Moines.

### LOUISIANA

**Personal**—Dr Amédée Granger, New Orleans, received the honorary degree of doctor of science at the diamond jubilee celebration of Tulane University recently.

**State Medical Election**—Dr Hiram W Kostmayer, New Orleans, was chosen president-elect of the Louisiana State Medical Society at its annual meeting in New Orleans, April 29-May 1. Dr Courtland P Gray, Monroe, was installed as president and the following vice presidents were elected: Drs Louis B Long, Lafayette, Henry L Gardner, Crowley, and Rhett G McMahon, Baton Rouge. The next annual session of the association will be held in Lake Charles.

### MAINE

**State Medical Meeting at York Harbor, June 23-25**—The eighty-third annual session of the Maine Medical Association will be held at York Harbor, June 23-25, with headquarters at the Marshall House. The morning sessions will be given over to round table conferences, while at the afternoon sessions the following program will be presented:

Dr Edward H Risley, Waterville, Acute Pancreatitis.

Dr Thomas A Foster, Portland, The Tonsil Problem.

Dr Harold M Goodwin, Bangor, Modern Treatment of Pelvic Inflammation.

Dr Harry Archibald Nissen, Boston, Significance of the Life Course, or Level of Functional Activity of the Arthritic. A Study Based on Comparison of a Hundred Dead and Four Hundred Living.

Dr William Holt, Portland, Radium Therapy for Carcinoma of the Uterus.

Drs Harris P Mosher and Alexander S MacMillan, Boston, The Esophagus from a Clinical and Roentgenologic Viewpoint.

Dr Charles B Popplestone, Rockland, The Role of the Pituitary Gland in Endocrine Dysfunction.

Drs Eugene H Drake, Richard S Hawkes and Mortimer Warren, all of Portland, Maine's First Epidemic of Trichinosis.

At this meeting, fifty year service medals will be presented to the following eligible physicians: Edward S Abbott, Bridgton, George F Bates, Yarmouth, Herbert J Patterson, Portland, J Frederick Hill, Waterville, and Horace J Binford, Mexico. These medals will be presented at the annual banquet, Tuesday evening, when the principal speaker will be Dr Walter L Bierring, Des Moines, President, American Medical Association; his subject will be "American Medical Association and Plans for Economic Security."

## MASSACHUSETTS

**Celebration in Honor of Dr Morse**—The seventieth birthday of Dr John Lovett Morse, professor emeritus of pediatrics, Harvard Medical School, Boston, was observed at a dinner, April 22, given by former house officers and pupils. A charcoal portrait of Dr Morse was presented to him, the artist was Mr Dwight Shepler. Dr Richard M Smith was toastmaster.

**Society News**—Dr John H Stokes, Philadelphia, addressed the annual meeting of the Massachusetts Society for Mental Hygiene, April 23, on "The Doctor, the Public and the Syphilis Problem."—Dr Elliott C Cutler Moseley professor of surgery, Harvard University Medical School, Boston, was elected president of the Associated Harvard Clubs at its annual meeting recently.

**Bill Introduced**—H 2147 to supplement the workmen's compensation act, proposes that whenever an employee claims compensation for an industrial disease his claim is to be submitted by the industrial accident board to three referees, selected by the board from a list, submitted by the board of registration in medicine, of licensed physicians skilled in the diagnosis and treatment of industrial diseases. After investigation, the referees are to report their findings of medical fact to the industrial accident board.

**Dr Rosenau to Retire**—The retirement this year of Dr Milton J Rosenau, since 1909 Charles Wilder professor of preventive medicine and hygiene has been announced. Aged 66, Dr Rosenau graduated from the University of Pennsylvania School of Medicine in 1889 and pursued graduate work at the Institute of Hygiene Berlin, Pasteur Institute, Paris, and Institute of Pathology, Vienna. He was a surgeon in the U S Public Health and Marine Hospital Service from 1890 to 1909, and director of the hygienic laboratory of the Marine Hospital from 1899 to 1909. In that year he was named professor of preventive medicine at Harvard and in 1922 was made professor of epidemiology in the Harvard School of Public Health. A portrait of Dr Rosenau was presented to the medical school, May 14, by a committee of Dr Rosenau's colleagues, including Drs Elliott P Joslin, Boston, chairman, Harvey Cushing New Haven, Conn, Henry D Chadwick, Newton, Reid Hunt, Boston, Samuel C Prescott, Brookline, Edwin B Wilson, Boston, Joseph W Schereschewsky, Boston, and Lloyd D Felton. The work of Jacob Binder, Boston, the portrait will be hung in the faculty room of the administration building of the school.

## MICHIGAN

**University News**—The Sternberg Memorial Medal has been awarded by the executive faculty of the University of Michigan Medical School to William George Gordon, this is an annual prize given to the medical student who has the best record in preventive medicine. The Wee Kim Lim scholastic key was awarded to student Robert Toru Masuhara for his work in roentgenology. This key was established by the Michigan Alpha chapter of Alpha Lambda, the international Chinese fraternity, to be presented to a distinguished senior medical student each year.

**Society News**—Dr Thomas K. Gruber, Eloise, was chosen president-elect of the Wayne County Medical Society at its annual meeting in Detroit, May 20. Dr Robert C Jamieson, Detroit, was installed as president. Dr Martin H Hoffmann, Detroit, was elected secretary. Dr Arthur T McCormack, Louisville, secretary, Kentucky State Medical Association, discussed "Medical Service in a Changing World" at this meeting. The society was addressed by Dr Douglas W Owen at its meeting, April 15, his subject was "Vienna, the Mecca of Medicine in the Europe of Today." At a recent meeting the society adopted a resolution commending the action of the House of Delegates of the American Medical Association at the special session in Chicago, February 15-16. The resolution was introduced by Drs Henry A Luce and John R Boland, Detroit.—Dr George C. Burr, Detroit, discussed common urinary infections before the Livingston County Medical Society, May 3.—Dr Wingate Todd addressed the Detroit Pediatric Society, May 6, on "X-Ray Studies of Mineralization in Children."—At a meeting of the Bay County Medical Society in Bay City May 15, Dr Walter J Wilson, Detroit, spoke on "Low Blood Pressure."—Dr Clarence H Crego Jr., St. Louis, discussed "The Operative Correction of Lower Extremity Length Inequality" at the Grace Hospital, Detroit, May 10.—Dr George S Bond, Indianapolis, discussed "Hypertension and Coronary Artery Diseases" before the Calhoun County Medical Society in Battle Creek, May 7.

## MISSOURI

**State Medical Election**—Dr Edwin Lee Miller, Kansas City, was inducted into the presidency of the Missouri State Medical Association at its annual meeting in Excelsior Springs, May 8, and Dr Ross A Woolsey, St. Louis, was chosen president-elect. The next annual session will be held at Columbia in 1936.

**Society News**—The woman's auxiliary to the St. Louis County Medical Society sponsored a public relations program, March 29. Drs Hyman I Spector, assistant health commissioner, and Richard S Weiss, assistant professor of clinical dermatology, Washington University School of Medicine, discussed tuberculosis and cancer, respectively. Also a motion picture on malaria was shown.—Dr Grandison D Royston, St. Louis, discussed "Trauma During Labor" before the Cape Girardeau County Medical Society, April 8.—Speakers before the Cass County Medical Society in Harrisonville, March 14, included Dr Lotis V Murray, Pleasant Hill on "Carcinoma of the Cervix."—The Greene County Medical Society was addressed, March 22, by Drs Frank R Teachnor, Kansas City, and Meyer Wiener, St. Louis, on "Brain Injury" and "Plastic Surgery of the Eye," respectively.—At a meeting of the Pettis County Medical Society in Sedalia, March 18, Drs Leroy A Calkins, Kansas City, and Harold L Gamey, Kansas City, Kan, spoke on "Treatment of Menorrhagia" and "Use and Abuse of Cesarean Section," respectively.

## NEBRASKA

**Bill Enacted**—H 587 has become a law, prohibiting the retail distribution or sale of barbital, sulphoethylmethane (Trional), sulphonmethane (Sulphonol), diethylsulphon diethylmethane (Tetronal), carbonal, paraldehyde and chloral or chloral hydrate or chlorbutanol, except on the prescription of a licensed physician, dentist or veterinarian.

## NEW JERSEY

**State Medical Election**—Dr Francis R Haussling, Newark, was chosen president-elect of the Medical Society of New Jersey at its annual meeting in Atlantic City, May 2. Dr Marcus W Newcomb, Browns Mills, was inducted into the presidency of the association and Drs Spencer T Snedecor, Hackensack, and William G Herrman, Asbury Park, were elected vice presidents.

## NEW YORK

**State Medical Election**—Dr Floyd S Winslow, Rochester, was chosen president-elect of the Medical Society of the State of New York and Dr Frederic E Sondern, New York, installed as president, at the annual meeting, May 14. Dr Daniel S Dougherty, New York, was reelected secretary. The next annual meeting will be held in New York.

## New York City

**Death from Radium Poisoning**—A young woman died of radium poisoning, March 18, after several years' illness, according to the *New York Times*. She had worked for six years in several plants painting luminous faces of watches and clocks with a brush, pointed by wetting on the lips and tongue.

**Hospitals Report Increased Costs**—Twenty-four general and special Catholic hospitals in New York with a bed capacity of 4,178, reported a total operating cost of \$3,605,176 in 1934, an increase over 1933 of \$249,036. They gave 350,000 days of free care to more than 12,000 patients at a cost of \$1,759,530. Inpatients during the year numbered 54,650, of whom only 32 per cent paid regular hospital rates. The city paid for about a third, a little more than 14 per cent paid something and 21 per cent paid nothing, it was said. Seven hospitals operated clinics in which 39,459 were treated, an increase of almost 2,000 over 1933. The hospitals had an operating deficit of \$188,681.

**Data on Health Center Plan**—The New York City Department of Health recently published a "Handbook of Statistical Reference Data," prepared by the committee on neighborhood health development. It contains information concerning the seven health center districts already established under the newly created bureau of district health administration, with information on population and causes of sickness and death in all the thirty districts that will be eventually included in the plan. The statistics are selected and arranged by districts in order to allow the health administration to plan for the special problems of each. Such information as nationality, rentals of homes, birth rates, infant and maternal mortality and facts that have a bearing on the type of health program needed are included.

**Personal**—The Richmond County Medical Society gave a dinner in honor of Dr Walker Washington, Staten Island, April 9, celebrating his fiftieth anniversary in the practice of medicine. Dr Washington, a native of Virginia, now 74 years old, is president of the Tottenville National Bank.—Dr Victor Miltenberg, director of the bureau of preventable diseases, New York City Department of Health, was guest of honor at a banquet recently at the Hotel Granada, marking thirty years of service with the department. Speakers were Drs Robert Olesen of the U S Public Health Service and John H. R. Barry.—Dr John L. Rice, health commissioner, has been designated official representative of the American Public Health Association to the congress of the Royal Sanitary Institute of England, to be held in Bournemouth, July 15-20

### NORTH CAROLINA

**Society News**—Drs Charles R. Bugg and Adlai S. Oliver, Raleigh addressed the Wake County Medical Society, March 12, on "Unusual Pneumonias in Children" and "Chronic Cervicitis," respectively.—Speakers at a meeting of the Iredell-Alexander Counties Medical Society, Taylorsville, March 12, were Drs James W. Davis, Statesville, on "Surgery of the Prostate," Joseph S. Holbrook, "The Electrocardiogram in Cardiovascular Disease," and Milton B. Clayton, "Eye Findings Associated with Cardiovascular Disease"—Dr Laurence J. Rhea, Montreal, addressed the Buncombe County Medical Society, April 1 on "Development and Course of Peptic Ulcer"—Dr John S. Lundy Rochester, Minn., addressed the Forsyth County Medical Society, Winston-Salem, March 6, on anesthesia.—Dr Francis Bayard Carter, Durham, gave a paper on "Nonconvulsive Toxemias of Pregnancy" before the Eighth District Medical Society at Asheboro, April 9

### OHIO

**Physician Honored**—Dr Benjamin S. Kline, Cleveland, received the 1935 Charles Eisenman Award of the Jewish Welfare Federation of Cleveland, March 31, in recognition of his contributions to medical science. Dr Kline immediately presented the award, a check for \$1,000, to Mount Sinai Hospital, where he is director of laboratories, for further research. Among contributions cited were Dr Kline's research on pneumonia and discovery of a precipitation test for diagnosis and exclusion of syphilis. Dr Kline is assistant professor of pathology at Western Reserve University School of Medicine.

**Fifth District Annual Meeting**—The fifth district of the Ohio State Medical Association held its annual meeting in Cleveland at the Allen Memorial Medical Library, May 17. Dr Francis M. Rackemann, Boston, addressed an evening session combined with a meeting of the Academy of Medicine of Cleveland, on "The Role of Allergy in General Medicine." Among speakers at the day sessions were the following Cleveland physicians:

Dr Vernon C. Rowland, Treatment of the Chronic Dyspeptic  
Dr Russell L. Haden, Agranulocytosis: Its Prevention and Treatment  
Dr James L. Reycraft, Management of Hypertension  
Dr Robert S. Dinsmore, Jr, Management of Peritonitis  
Dr Abraham Strauss, Treatment of Cancer of the Breast.

### PENNSYLVANIA

**Memorial to Woman Physician Proposed**—The class of 1918 at Bryn Mawr College, Bryn Mawr, plans to raise \$50,000 to establish a library of chemistry and physics in a new science building at the college as a memorial to the late Dr Marjorie Sharps Jefferies Wagoner, a member of the class. Dr Wagoner was the college physician for twelve years. She died, June 22, 1934.

**Bills Passed**—H. 2742 has passed the house, proposing to prohibit the sale of barbital, sulphonethylmethane (trional), sulphonmethane (sulphonol), diethylsulphone, diethylmethane (tetronal), bromdiethylacetylcarbamide (carbromal), chloral or chloralhydrate, chlorbutanol, phenylmethanonic acid (cinchofen), atophan, atquinol, dinitrophenol, dinitrophenol sodium and dinitrocresol sodium, except on the written prescription of a licensed physician, dentist or veterinarian.

### Philadelphia

**Dr Frazier Honored**—The *Annals of Surgery* devoted a recent issue to papers contributed by students and associates of Dr Charles H. Frazier, John Rhea Barton professor of surgery at the University of Pennsylvania School of Medicine. An appreciation of Dr Frazier was contributed by Dr Alfred Stengel, vice president of the university in charge of medical affairs. Dr Frazier, who is also professor of neurosurgery in the graduate school of medicine, has been a member of the faculty since 1895, having served as dean from 1901 to 1910.

**Society News**—The meeting of the Philadelphia County Medical Society, May 8, was devoted to addresses on anemia. Speakers were Walter J. Crocker, V.M.D., on "Architecture of the White Cells with Reference to the Schilling Count," Drs Max M. Strumia, Bryn Mawr, "The Blood as a Tissue with Special Reference to the Red Cell," and William Egbert Robertson, "The Anemias from the Clinical Standpoint."—Drs Richard P. Custer and Edward B. Krumbhaar, among others, addressed the Pathological Society of Philadelphia, May 9, on "The Histopathology of the Hemopoietic Tissues in Hemophilia."

**Student Prizes Awarded**—Three prizes in the annual student research competition at the University of Pennsylvania School of Medicine were awarded at a meeting of the Undergraduate Medical Association, April 25. Thomas E. Machella, Eckley, a senior, won the first prize, the Mary Ellis Bell award, for a technic for clocking the speed of blood flow in dogs. The John G. Clarke Prize went to Tzee N. Harris, Philadelphia, a junior, for a study on immunizing factors in horse and human blood serum. The third prize, the Grayhe Simpson Priestley award, was given to Julian A. Sterling, Philadelphia, a junior, for a study on the presence and formation of antibodies in bile.

### RHODE ISLAND

**Dr Kraus Awarded Gibbs Medal**—The presentation of the Willard Gibbs Medal of the Chicago Section of the American Chemical Society to Charles August Kraus, Ph.D., Providence, R. I., took place, May 24, at the Stevens Hotel, Chicago, in recognition of his "outstanding work in the field of chemistry." Dr Kraus, since 1924 professor of chemistry and director of research in chemistry, Brown University, has been field secretary of the Fellowship Board in Physics, Chemistry and Mathematics of the National Research Council since 1933 and from 1931 to 1932 was vice chairman of the division of chemistry and chemical technology of the National Research Council. He was awarded the Nichols medal in 1923.

### TENNESSEE

**University News**—A collection of seventy-four books, fifty pamphlets and monographs and 159 magazines dealing with malaria has been given to the University of Tennessee College of Medicine, Memphis, by Dr William H. Deaderick, Hot Springs National Park, Ark. The gift was made in recognition of work done on malaria by Dr James B. McElroy, professor of medicine at the university, and chief of staff of Memphis General Hospital, according to newspaper reports.

**Faculty Promotions at State University**—The following physicians on the faculty of the University of Tennessee College of Medicine, Memphis, received promotions, March 28, among others:

Drs William W. Riggs, Jerome P. Long Jr. and James M. Brockman to be assistant professors of obstetrics  
Dr Matthew W. Searight, associate professor of gynecology  
Dr Isaac G. Duncan, assistant professor of urology  
Dr Joseph I. Mitchell, assistant professor in orthopedic surgery  
Dr Frank W. Smythe, associate professor in surgery

**Birth and Death Rates Increased in 1934**—Provisional figures issued by the state department of public health indicate that the number of recorded deaths in the state for 1934 was 29,771, with a rate of 10.9 per thousand of population, as compared with 27,599, with a rate of 10.2 in 1933. The birth rate increased from 17.8 in 1933 to 18.4 in 1934. The death rates in the principal causes of death were diseases of the heart, 146.8 per hundred thousand of population, an increase from 132.1 the previous year, pneumonia, 96.2, also an increase, tuberculosis, 88.4, a decrease from 93.8, cerebral hemorrhage, embolism and thrombosis, 78.3. Accidents and unspecified external causes increased from 66.6 to 74.3, largely because of 131 more deaths from automobile accidents. A measles epidemic resulted in a death rate of 16.3 for measles.

**Health at Memphis**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended May 25, indicate that the highest mortality rate (18.3) appears for Memphis and the rate for the group of cities as a whole (18.3). For the corresponding period last year the mortality rate was 17.1 for Memphis and 11.5 for the group of cities. The annual rate for eighty-six cities for the twenty-one weeks of 1935 was 12.5 as against a rate of 12.4 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

## WEST VIRGINIA

**State Medical Election**—Dr Charles G Morgan, Moundsville, was chosen president of the West Virginia State Medical Association at its annual meeting in Wheeling, May 7. The next annual session will be held at Fairmont.

**Society News**—Dr James Morrison Hutcheson, Richmond, addressed the Kanawha County Medical Society in a joint meeting with the Fayette County Society at Charleston, April 9, on "Atypical Features of Coronary Occlusion."—Dr Charles R. Austrian, Baltimore, was the speaker at a meeting of the Cabell County Medical Society, Huntington, April 11, on management of lobar pneumonia.—Drs Fred B. Quincy and George W. Easley, Williamson, addressed the Logan County Medical Society, Logan, April 10, on pyloric stenosis and infection of the hands, respectively.

## WISCONSIN

**Personal**—Dr Robert G. Sayle, Milwaukee, recently observed the fiftieth anniversary of his medical practice.—Dr Bruno Schallern, Ripon, celebrated the fiftieth anniversary of his entrance into medical practice in March.

**Radiology Meeting**—The section of radiology of the State Medical Society of Wisconsin held its midyear meeting in Milwaukee, May 17-18. Guest speakers included Dr Leo G. Rigler, Minneapolis, who gave addresses on "Roentgen Observations on the Normal and Pathologic Interlobar Pleura" and "Roentgen Study of Leukemia of the Stomach and Its Relationship to Chronic Hypertrophic Gastritis." Dr Edward L. Jenkinson, Chicago, also spoke at the banquet on economics.

**Society News**—Drs Edwin J. Kepler and Howard K. Gray, Rochester, Minn., addressed the Brown-Kewaunee-Door Counties Medical Society at a meeting with the societies of Outagamie, Winnebago and Fond du Lac counties, April 25, on diabetes.—The annual meeting of the seventh district of the State Medical Society of Wisconsin was held in La Crosse, April 24, clinics were held at St. Francis, Lutheran, Grandview and La Crosse hospitals and addresses were made by Drs Frederic E. B. Foley, St. Paul, Minn., and Louis M. Warfield, Milwaukee, among others, on "Importance of Early Diagnosis in Management of Ureteral Stone" and "So-Called Heart Failure in Acute Infections," respectively.—Dr Alice Hamilton, Boston, and Carl R. Moore, Ph.D., Chicago, addressed the Medical Society of Milwaukee County, May 10, on "Industrial Medicine—A Stepchild" and "The Endocrines and Reproductive Function," respectively. The Milwaukee Professional Men's Orchestra presented a program.—Dr Bernard Fantus, Chicago, addressed the Milwaukee Academy of Medicine, May 21, on "Some Important New and Nonofficial Remedies."

## HAWAII

**Territorial Election**—Dr Guy C. Milnor, Honolulu, was installed as president of the Hawaii Territorial Medical Association at its annual meeting, April 29, and Dr Lyle C. Phillips, Honolulu, was reelected secretary.

## GENERAL

**Changes in Status of Licensure**—The Massachusetts Board of Registration in Medicine reported the following action:

Dr James P. A. Nolan, Brookline, reregistered as a physician, April 11. His registration had been revoked July 23, 1923.

The State Board of Medical Education and Licensure of Pennsylvania recently reported the following action:

Dr Edmund B. Ilyus, Lancaster, license suspended indefinitely, March 6, because of conviction on a narcotic charge. He was fined \$100 and placed on probation for five years.

**Society News**—Dr Walter C. Alvarez, Rochester, Minn., was chosen president-elect of the American Association of the History of Medicine at its annual meeting, May 6, and Dr William S. Middleton, Madison, Wis., was installed as president. The next annual session will be held in Atlantic City.—At a meeting of the American Association on Mental Deficiency, April 25, Edgar A. Doll, Ph.D., Vineland, N. J., was installed as president and Dr Benjamin O. Whitten, Clinton, S. C., was chosen president-elect.—The American Dermatological Association elected Dr Clarence Guy Lane, Boston, president at its meeting, May 3.—Dr Merrill C. Sesman, Boston, was elected president of the Harvey Cushing Society at its fourth annual meeting in New Haven, May 2-4. Dr Kenneth G. McKenzie, Toronto, Ont., was made vice president, and Dr Louise C. Eisenhardt, New Haven, secretary-treasurer. The next annual session will be held in Rochester, Minn.

**Association of Medical Milk Commissions**—The annual meeting of the American Association of Medical Milk Commissions at the Chalfonte Haddon Hall Hotel, Atlantic City, N. J., June 11, will open with a symposium on "the next step in the progress of certified milk." Included among the many speakers on the program will be Dr John L. Rice, commissioner of health of New York City, Dr Thomas Parran Jr., state health commissioner of New York, Dr William W. Bruer, director, Bureau of Health and Public Instruction, American Medical Association, Dr Samuel J. Crumbine of the American Child Health Association, New York, Dr Reginald M. Atwater, executive secretary, American Public Health Association, New York, Ira V. Hiscock, C.P.H., Yale University School of Medicine, New Haven, and James A. Tobey, Dr P.H. New York. On Monday, June 10, the Certified Milk Producers' Association of America will hold its annual meeting.

**Salmon Memorial Medal**—The Salmon Memorial Committee for Psychiatry and Mental Hygiene has donated to the American Psychiatric Association an award to be known as the "Salmon Memorial Medal." It will be presented from time to time by the association "to the person distinguishing himself in the field of psychiatry, by original contributions to that specialty or for outstanding accomplishment." The Salmon Committee on Psychiatry and Mental Hygiene was organized several years ago to perpetuate the memory of Dr Thomas W. Salmon, former president of the American Psychiatric Association. The council of the association voted to accept the medal during the annual meeting in Washington, D. C., May 13-17. During this session Dr C. Macfie Campbell, Boston, was named president-elect of the association and Dr Clarence O. Cheney, New York, was installed as president. Dr William C. Sandy, Harrisburg, was reelected secretary-treasurer. It was also voted to establish permanent headquarters at the New York Academy of Medicine, 2 East 103d Street, New York.

**Report on Eye Defects in School Children**—The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, with the cooperation of the National Society for the Prevention of Blindness, has published a revised edition of its bulletin "Conserving the Sight of School Children." Recent surveys indicate that about 12 per cent of all school children have defects in vision. Farsightedness is found to be first in frequency of the common defects, astigmatism second and nearsightedness third. The report recommends that schools take the responsibility for detecting eye defects and seeing that they are corrected. It is not necessary that the school furnish the services required, they may be obtained from family physicians, professional health organizations, community health centers or elsewhere, it points out. The technic of vision testing is described in some detail, and there is a chapter on lighting. Special provision for those seriously handicapped should be made, including arranging for such children to use the typewriter, teaching them to gather information through the sense of hearing, and providing books with large type for them and sight saving classes as part of regular school systems. At present about 6,000 children are enrolled in 458 sight saving classes maintained by 145 communities, but facilities are needed for about 44,000 other children, according to the National Society for the Prevention of Blindness.

**Medical Bills in Congress**—Changes in Status. S. 5, after being amended in several respects, has passed the Senate, proposing to prevent the manufacture, shipment and sale of adulterated or misbranded food, drink, drugs and cosmetics and to prevent the false advertisement thereof. S. 2472 has passed the Senate proposing to pay an annuity to Frances Agramonte, the widow of Dr. Aristides Agramonte, a member of the yellow fever commission. S. 2584 has been favorably reported to the Senate, proposing to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever," by including therein the name of Gustaf E. Lambert (S. Rept. No. 733). S. 2625 has passed the Senate, extending the facilities of the United States Public Health Service to seamen on government vessels not in the military or naval status. H. R. 6995 has been reported to the Senate, proposing to reenact all laws in effect March 19, 1933, granting pensions to veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, their widows and dependents (H. Rept. No. 974). The bill provides no pension for contract surgeons of the Spanish-American War. H. R. 7260, the Doughton social security bill, has been reported to the Senate, with amendments (S. Rept. No. 628). Bills Introduced. S. 2793, introduced by Senator Wagner, New York, proposes to enact a workmen's compensation act for the benefit of employees.

engaged in interstate commerce. If an employer fails to provide the necessary medical, hospital and other services for an injured employee, after a request therefor, the employee may obtain them at the expense of the employer. H R 8109, introduced by Representative Chapman, Kentucky, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Lexington, Kentucky. H R 8169, introduced by Representative Monaghan, Montana, proposes to erect additional facilities to the existing veterans' facility at Fort Harrison, Montana. H R 8249, introduced (by request) by Representative Rankin, Mississippi, and H R 8294, introduced by Representative Robson, Kentucky, propose to reenact all public laws repealed March 20, 1933, granting medical or hospital treatment, domiciliary care, compensation and other allowances to veterans of the World War and their dependents for disabilities or deaths incurred or aggravated or presumed to have been incurred or aggravated in service.

### CANADA

**Hospital News**—Dr Joseph S Stewart, superintendent of the Ontario Hospital, Toronto, has been appointed head of the Ontario Hospital at Hamilton, succeeding Dr Joseph J Williams, who has retired.—Sir Herbert Holt, president of the board of governors of the Royal Victoria Hospital, Montreal, has made a gift to the hospital of \$200,000, to be known as the "Herbert S Holt Foundation."

**Society News**—The annual meetings of the Canadian Public Health Association, the Ontario Health Officers' Association, the Canadian Tuberculosis Association and the Canadian Social Hygiene Council will be held in Toronto, June 3-5.—Dr Frederick T Campbell was elected president of the Calgary Medical Society at the annual meeting, April 2.—The College of Physicians and Surgeons of Alberta has recently begun publication of the *Alberta Medical Bulletin*.

### FOREIGN

**Bus Drivers and First Aid**—The Danish ministry of public works recently decreed that buses not operated exclusively in towns carry a first aid kit containing standard equipment for first aid. Bus drivers are required to have taken courses in emergency aid from the Danish Red Cross or the Workers' First Aid Association.

**Sixtieth Anniversary of Health Institute**—The Institute of Public Health of the University of Budapest recently celebrated the sixtieth anniversary of its founding. The institute was established in 1874 under the direction of Prof Joseph Fodor, a student under Pettenkofer, according to an announcement. Prof Leon Liebermann succeeded Professor Fodor and the present director is Prof Julius Darányi.

**International Congress on Mental Hygiene**—An announcement of plans for the second International Congress on Mental Hygiene to be held in Paris, July 27-31, 1936, states that typewritten texts of reports and communications must be sent to the chairman of the program committee before November 1. Applications to take part in the communications and discussions should be sent in advance to the chairman, Dr Rene Charpentier, 119, rue Perronet, Neuilly-sur-Seine, Seine, France. It is recommended that such application be made before Jan. 1, 1936.

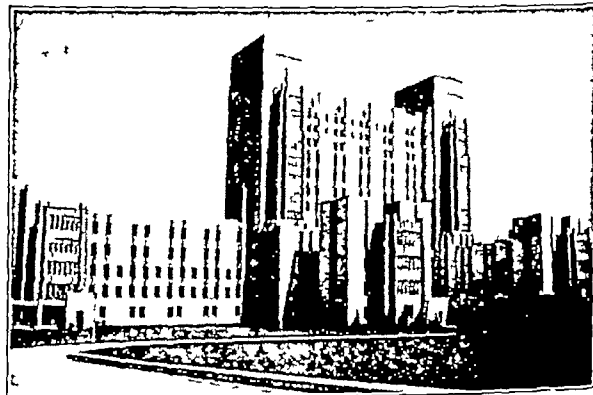
**Personal**—Col. Alfred H Proctor of the Indian Medical Service has been appointed dean of the British Postgraduate Medical School to succeed Dr Malcolm H MacKeith who resigned for reasons of health.—Dr Howard W Florey, professor of pathology in the University of Sheffield, has been appointed professor of pathology at the University of Oxford.—Dr Victor G Heiser, who since 1915 has been connected with the Rockefeller Foundation, of which he was director for the Far East, was to retire January 1, according to the *International Journal of Leprosy*, and devote himself to furthering the work of the International Leprosy Association, of which he is president.

**Society News**—The International Organization of the Campaign Against Trachoma held its annual meeting in London, April 3 in conjunction with the meeting of the International Association for the Prevention of Blindness as guests of the Ophthalmological Society of the United Kingdom. Dr Emile de Grosz, Budapest, resigned as president of the organization against trachoma after serving since 1929. Dr Arthur F MacCallan, London was elected to succeed him.—The Tsinan Ophthalmological Society was recently organized and held its first meeting at Cheeloo University School of Medicine Tsinan. Dr Eugene Chan head of the department of ophthalmology was chairman, Dr Chan was formerly a member of the staff of the Wilmer Ophthalmological Institute Baltimore.

## Government Services

### New Naval Hospital at Philadelphia

A new \$3,200,000 building for the U S Naval Hospital Philadelphia, with a capacity of 650 beds, was dedicated April 12. Speakers at ceremonies were Rear Admiral William C Watts, commandant of the Philadelphia Navy Yard, Congressman George P Darrow, Philadelphia, who was instrumental in procuring the federal appropriation for the hospital, Mayor Hampton L Moore, Brig Gen Frank T Hines, Washington, D C, veterans' administrator, Rear Admiral Perceval S Rossiter, surgeon general of the navy, Rear Admiral N M Smith of the navy civil engineers corps, Col Vincent A Carroll representing the American Legion, Harry J Crossen regional manager, Veterans' Administration, and Dr J Evans Scheehle, state secretary of welfare, representing the governor of Pennsylvania. The buildings comprise a fourteen story main hospital, nurses' quarters, hospital corps quarters, four sets of officers' quarters and a garage situated in a twenty-two acre plot in League Island Park near the Navy Yard. They replace an old building originally built in 1868, modernized from time to time and enlarged during the World War by the addition of temporary barracks. The old quarters will be razed immediately. Though not the largest, it is said to be the best.



U S Naval Hospital Philadelphia

appointed of all naval hospitals. In addition to navy personnel it will care for the sick of the army, the Civil Conservation Corps, U S Employees Compensation Commission and the Veterans' Administration and will also provide an outpatient clinic for the Veterans' Administration for the entire Philadelphia area. Capt John D Manchester is the commanding officer, with a staff of thirty-two medical and dental officers and pharmacists, twenty-five nurses and 118 corpsmen, and seventy-five civilian employees.

### Colonel Keller Honored

Colonel William L Keller, medical corps U S Army, was honored, May 16, when President Roosevelt signed an act of Congress to give him full active pay for the rest of his life regardless of retirement in appreciation of his valuable service, according to the *Washington Evening Star*. The bill also creates a new office to be known as consultant in surgery of the Army Medical Center, located at Walter Reed General Hospital. Dr Keller will be appointed to this position, but he may retire from active duty at his pleasure and continue to receive the full pay and allowances of a colonel, it was stated. Colonel Keller, who has been chief of the surgical service at Walter Reed for sixteen years and commanding officer of the hospital for the past five years, is director of surgery in the Army Medical School. He was graduated from the Medical College of Virginia in 1899 and served as active assistant surgeon of the U S Public Health Service for one year, when he entered the military service as a contract surgeon. He was commissioned a first lieutenant in the medical corps in 1902 and reached the rank of colonel in 1928.

### Changes in the Public Health Service

Passed Asst. Surg. Austin V Deibert, relieved at Atlanta and assigned at Quarantine Station, San Pedro, Calif.  
Asst. Surg. Arthur B Price, relieved at Marine Hospital Seattle and assigned at Marine Hospital, San Francisco.  
Passed Asst. Surg. Samuel J Hall, relieved at San Francisco and assigned at Marine Hospital, Seattle.  
Passed Asst. Surg. William W Nesbit, relieved at Bryson City, N C., and assigned at Marine Hospital, Detroit.



## Foreign Letters

### LONDON

(From Our Regular Correspondent)

May 11, 1935

#### The Selenide Treatment of Metastases in Cancer of the Breast

The medical treatment of cancer has proved uniformly disappointing but the recent work of Dr A T Todd with selenium compounds seems to be of some promise and at present holds the field in this country. In a paper on The Selenide Treatment of Mammary Metastases read at the Section of Radiology of the Royal Society of Medicine he argued that there was a defense mechanism in cancer resembling that in chronic infectious diseases. This mechanism was controlled by endothelial cells, which appeared to secrete substances that activated the rest of the tissue. These cells would take up any electro-negative colloid that came their way. If the colloid was of such a chemical nature that its breakdown simulated the metabolism of the cell, a greater defense would result. Some selenium colloids had this property in the correct dosage. His method of treating cancer is to impregnate the defense tissues with this colloid and activate it by repeated small doses of x rays.

The treatment of mammary metastases by this method varies according to the condition present. In an inoperable case with neglected primary growth, removal of this especially if there is septic or hemorrhagic fungation, is desirable. The main mass and any enlarged gland easy of access are removed, but no attempt is made at radical removal. While healing of the incision is taking place, radium selenide is given weekly. Then 2 cc. of sulphur selenide is injected intravenously. If no reaction appears after four hours, the dose should be increased by 1 cc. the next week and so on until reaction occurs. The reactive dose is maintained until the reaction alters. A local reaction is shown by pain, stiffness or drawing sensations at the site of the growth and by increase of edema in connection with gland involvement, a general reaction is shown by malaise, nausea and occasionally a little pyrexia. The x-ray reaction usually comes on after four hours. It should be just perceptible and at most give the patient a poorish night. The average dose is 75 roentgens at 180, 30 cm distance, and screen 0.3 mm. of zinc.

Metastases after the usual incisional surgery should be treated by the routine method after a clinical and roentgen examination of the liver, lungs and skeleton. Any metastases found should be irradiated and any suspected site also treated. Hepatic metastases are very sensitive and the liver should not receive an x ray dose exceeding 25 roentgens. Metastases after radium surgery (the radium dose calculated to cause necrosis) are usually nonreactive and the prognosis is not so good. Radium appears to break down all defenses, and metastases seem to appear more quickly and at unusual sites, the patients usually fail to react to selenide treatment.

Dr Todd thought that in the prophylactic treatment of supposed surgical cure the selenide treatment was likely to do most good. He recommends that every patient regarded as being surgically cured should have the full treatment for a year. Here reaction will be no guide. Colloid should be about 4 cc., x-rays about 75 roentgens. Dr Todd has not treated such patients, as his time is fully occupied in trying to improve the system and in working on cases otherwise untreatable. Although no special precautions are taken, recurrence is never seen in the incision notwithstanding that it is so frequent otherwise.

#### RESULTS

The results were given in twenty-seven cases of mammary metastases, quite inoperable and refused further treatment by

surgeon and radiologist, few were likely to have survived for more than a few months. Five patients are still under treatment. One of these has had continuous treatment for five years, another for four years, both are reasonably well. Two are doing well. One is doing badly. Two patients died from pneumonia, one year and eighteen months respectively after apparent cure. The necropsy in one failed to show any signs of carcinoma. Twelve patients are dead, most of them exceeded their expectation of life and about half had prolonged periods of relief from symptoms. Eight patients have been discharged as apparently cured. In four cases apparent cure has persisted for one year, in the other four for two years.

#### Drug Addiction Replaced by Tea Addiction in Egypt

Russell Pasha, chief of police in Cairo, in the report for 1934 of the Central Narcotics Intelligence Bureau, has given interesting details on drug addiction in Egypt. Statistics show how the work of the bureau has progressed in consequence of the growth of the international conscience as to the drug traffic. There is a steady decline in the number of addicts and the quantity of drugs seized at the frontiers. Unfortunately, drug addiction has taken another, though less injurious, form. A rapid growth of tea drinking has occurred among the Egyptian fellahen. Strong tea dust is boiled and reboiled and the beverage is taking the place of cannabis and diacetylmorphine, with disastrous results. Some of the fellahen spend almost all their daily wage on tea and now cannot work without it, with the result that their physique is deteriorating. A village headman has made the statement that where formerly four men hoed an acre daily now eight are needed. Russell Pasha says that it is a sociomedical problem of vital importance to Egypt to discover how to wean these people from the use of stimulants. Narcotics would have been a more accurate term.

#### Heavy Oxygen Water Isolated

After two years of research a young Manchester physicist, J B M Hervet, lecturer on physical chemistry at Manchester University, and Dr M Polyani, also of that university, have succeeded in isolating heavy oxygen water, i.e., water composed of hydrogen and the heavy isotope of oxygen. This is believed to be the first time heavy oxygen water has been obtained in this country, but two years ago it was obtained by Professor Hertz in Berlin. Heavy oxygen water must be distinguished from heavy hydrogen water (composed of heavy hydrogen and oxygen), which was discovered a few years ago in the United States. The chief advantage of heavy oxygen is that it will facilitate research in advanced organic chemical reactions. In ordinary water, heavy oxygen water is present to the extent of about one part in 500.

#### Deaths Due to House Fumigation

Two children have lost their lives from a cause unprecedented in this country—the fumigation of infested houses. Cyanide fumigation of a row of four houses was performed one evening and the occupants were allowed to return on the following day. They noticed the smell of the fumigating gas and an unpleasant taste in the mouth. They went to bed as usual. At 3 a. m. physicians were called. A girl, aged 5 years, was dead and another, aged 1 year, was found unconscious in another house. She was taken to a hospital and oxygen was administered but she also died. Three women, one man and a boy, aged 8 years, were also taken ill but recovered. At the inquest, evidence was given that the fumigation was done by a firm that specialized in the process and under the instructions of the health authorities. The man who performed it had six years' experience and had fumigated 1,000 houses without a mishap. He explained the process. The house was sealed up and then he put on a gas mask and conducted the fumigation.



At 9 30 p m, when he finished, he saw that every cupboard was open and also the doors and windows, so as to get full ventilation. He was satisfied that everything was all right and did not leave until 11 30 p m. He then placed a notice on the doors and delivered the keys to the health inspector. On being questioned he agreed that hydrogen cyanide was slower in getting away from padded furniture and bedding. He tested the atmosphere and bedding before leaving. When he left there might be some trace of gas in the house, as there would be for some days. The coroner did not think that there was anything in the evidence showing wilful negligence, which would justify a verdict of manslaughter. The jury returned a verdict of "death from misadventure" but added a rider that "in future, owing to the dangerous nature of the gas, more competent supervision should be given and two men should be employed, and the final certificate for reentry of the house should be given by the health officer."

## PARIS

(From Our Regular Correspondent)

May 3, 1935

### Defects of the Social Insurance Law in France

Dr Pibrie, a practitioner in the southwestern portion of France, published an article in the March 9 issue of the *Journal des praticiens* on defects of the social insurance law in France. To facilitate the comprehension of certain portions of the article, explanatory notes will be added.

Dr Pibrie states that the law has now been in operation for more than four years and that he has come in contact with a sufficiently large number of the assured to be able to form a judgment as to its merits and defects. He takes up the latter first.

#### PREMIUMS

According to the social insurance law, any employee who earns less than 15,000 francs (about \$1,000) is obliged to be insured. The premium varies according to the wages, calculated on an annual basis. The employer is obliged to pay one half of the monthly premium and the employee the other half.

Pibrie states that at the period (1930) when the law went into effect the employer did not object to paying his portion of the premium. It was considered as an extra tax but was not felt to be a burden until the economic crisis struck France, a little later than in other countries. The employer now feels that these premiums are a source of expenditures without any corresponding financial return, and recourse has been taken in one of two ways by some at least of the employers. They have either raised the price of their products, which of course has been passed on to the consumer with resultant augmentation of the cost of living, or they have adopted a simpler plan, consisting in discharging employees, thus adding to the government's burden of aiding the unemployed, with the result that increased taxes make living more costly for those who are employed.

On the side of the employee, many have found that the obligatory monthly premium is a burden. Workers in non-agricultural pursuits feel that the amount they are obliged to contribute is out of proportion to that paid by those engaged in agriculture, which is only one fifth of that paid by those not working on farms.

#### UNNECESSARY FORMALITIES IN PAPER WORK

According to Pibrie, the formalities in paper work are excessive. Perhaps, as he jokingly asserts they are made so to discourage the sick worker from asking recompense for a single medical consultation and prescription. The assured, after having been examined and prescribed for by the physician, must go to the nearest city hall to ask for a blank to be filled out by the employer. The latter must then be requested to

state that the employee has paid his share of the premiums regularly. (The employer is obliged to send in a monthly statement with his half of the premium, giving the names and amounts paid by each employee according to the wages earned in the corresponding month.) Then the sick assured must return to the city hall to be given the blanks to be filled out by the physician and the pharmacist. The latter two must next be visited to have the sickness blanks filled out, which are to be sent to the local combined examining and disbursing governmental office, termed the Caisse. Altogether, for a single illness, there are about seven calls to be made to comply with the regulations regarding reimbursements.

#### REIMBURSEMENTS

According to the social insurance law, no indemnity can be claimed for the first four days of any illness. In France, the assured worker has the privilege of choosing his own physician, whom he pays directly without waiting for the Caisse to reimburse him. There are two methods, one according to which payment for each medical visit is made immediately by the Caisse and a second, at the termination of a long illness. In the former case the fee schedule established by the joint action of the Caisse and the representatives of the medical profession vary according to different "departments" (counties) of France. Pibrie states that in his locality a physician charges 18 francs (\$1.25) for a house and 15 francs (\$1) for an office visit. The Caisse reimburses the assured to the extent of 9.5 francs for either without discrimination. According to the law, the assured should receive from 80 to 85 per cent of his medical expenses, but the figures quoted show that only 50 per cent is paid for house calls and 64 per cent for office consultations.

In the case of "lump sum" reimbursement, a curious situation has arisen, which has been the subject of legal procedures against the Caisse. The assured cannot claim indemnity for any single illness for a period longer than six months. He can then claim a "lump sum" for any medical outlays made during such period. After the lapse of the six months, two months must elapse without reimbursement before another six months period can begin. In such illnesses as syphilis, tuberculosis, malaria or diabetes, which are of longer duration than six months, the position of the assured, who must pay his own medical expenses during the two months interval, is not an enviable one, especially when he has paid his premiums regularly for years. This six months limit of indemnity was inserted in the original law to avoid fraud, but it has led to much misery hence a modification is now being discussed to suppress the two months interval.

Pibrie states that the amount allowed by the Caisse for illness, operations and confinements is far below the actual expenses incurred by the assured.

#### SUPERVISION OF THE SICK ASSURED

The supervision of the sick assured is twofold, viz., by the Caisse and by the medical man who represents it. Unless the latter is broadminded and keeps abreast of the progress constantly being made by his nongovernmental paid colleagues, there is constant friction as to the amounts to be allowed the assured for medical outlays. Pibrie also maintains that some of the nonmedical officials of the Caisse conduct themselves toward the assured in an unnecessarily arbitrary manner. To avoid unnecessary medical visits, the medical supervisor possesses the power of appealing to the departmental (county) medical association, who can expel a member convicted of collusion with a sick insured worker. The law still allows too many opportunities for friction between the nonmedical officials of the Caisse or local collecting and disbursing agencies and their own medical control representative, not only as to the diagnosis and treatment of ailments but also as to the reimbursements to be given for certain maladies.

## HOW TO CORRECT THE DEFECTS

As to premiums, Pibrie believes that the employer should not be called on to pay more than half the amount paid by the employee, since the former derives absolutely no benefit from the law. As to the paper work, a simple medical certificate, without diagnosis, stating that X is suffering from an illness of slight, moderate or severe degree, given to the employer should suffice. This certificate can be sent to the city hall, as in the case of industrial accidents, by the employer, who also sends his own certificate at the same time. As to reimbursing the assured, they ought to receive nearly as much as they are obliged to pay out for house and office visits of their medical attendants. The fees allowed for operations are also inadequate, so that the assured must make up the difference. A limit of six months for chronic ailments is also a hardship on such patients and overlooks the fact that the law was made to aid the sick worker and not to exhaust his savings. If control is needed in a given case, it should be the task of the medical supervisor of the Caisse, and this visit should take place in the presence of the attending physician, so that the latter can justify the number of visits made and help to verify the diagnosis. Control by civilian officials of the Caisse should be made, say, within one month after the filing of the sickness blank. Altogether the law in France at least is far from ideal. It has been modified a number of times and still needs to have important changes made.

## BERLIN

*(From Our Regular Correspondent)*

April 1, 1935

## New Decisions on Sterilization and Castration

The Berlin Medical Society took recently as the theme of its session the subject "A Year of the Sterilization Law." A jurist emphasized that, as far as possible, a petition requesting sterilization should be filed by the patient with the hereditary defect. The decision of the eugenics court may often be rendered without the person affected appearing, which saves the patient the pain of an unpleasant hearing. In many cases (for example, in cases of epilepsy) an examination of members of a family is necessary.

According to Professor Gohrbandt, sterilization of the man should be confined to a so-called blocking operation, in which one may choose between vasoligation, vasofissure, vasoresection and destruction of the epithelium. The intervention may be carried out without pain. Gohrbandt himself prefers resection, he resects a portion 6 cm long, in order that no patient, after the operation has been performed, may conceive the notion of having the severed portions of the spermatic cord reunited. Whether the seminal vesicles contain spermatozoa is not definitely known, but, according to experiments on animals and cadavers that he has carried out, they frequently do contain spermatozoa. Hence Gohrbandt takes the precaution, following resection, to destroy any spermatozoa that may be present.

The clinical aspects of the legal sterilization of the woman were treated by Professor Ottow, at whose school of midwifery 311 women have been sterilized. It is necessary that, before the intervention, a woman be carefully examined to determine whether an operation is indicated and, if so, how the operation should be performed. The examination should be made on admission to the hospital and should be repeated under anesthesia. Finally, a third examination must be made on opening the abdominal cavity, which is to be regarded as an exploratory laparotomy. In two of his cases, following the opening of the abdominal cavity, it was decided to desist from the operation for sterilization. In another case, a woman who had been ordered by the eugenics court to be sterilized was already sterile owing to the absence of uterus and vagina. In further cases sterilization was not resorted to, because of

the discovery of cancer, aplasia of the uterus, and the like. The sterilizing operation may be performed by means of laparotomy or by the vaginal route. The abdominal operation is contraindicated in severe cases of idiocy and psychosis. The cosmetic aspects especially point to the vaginal operation, but this method should not be used if there are changes in the adnexa. The chief principle involved is, of course, to utilize a reliable blocking method to keep the sperm away from the ovum. This is best accomplished by removal of the tube, since no other method offers 100 per cent of security. In adnexa complications the sterilizing operation should not be carried out. In schizophrenic subjects there is an increased danger of infection. In his series of cases, Ottow found fifty-one instances of organic complications, in thirteen of which the adnexa were involved, in thirteen cases myomas and in thirteen cases ovarian cysts were discovered. The sterilization law does not provide for secondary operations that are justified by secondary observations, thus the operator finds himself in a difficult position, since at times an urgently indicated intervention must be carried out at his own risk, without the legally necessary permission of the patient. In 258 cases Ottow applied sterilization to women by the abdominal incision and in forty-two cases by the vaginal route. No grave complications as the result of the operations were observed, in five cases, severe hematomas developed, caused by the restlessness of the patients. No marked psychic effects of the intervention on the patients could be observed.

Professor Stoeckel, director of the Frauenklinik of the University of Berlin, stated that 100 per cent of efficiency in the sterilization of women can be demanded of no method. A few cases are bound to result fatally, since emboli occur following much less grave interventions. He regards the Madlener method as the best operation for sterilization. Of 4,000 operations in which this method was followed, only four were failures, which may be considered an optimal result. The alleged failure of this method in roentgenologic postoperative examinations is due to the fact that the roentgen contrast agent was injected under much higher pressure than was contemplated. The sterilization law provides that the tubes must be operated on and thus prescribes, in some cases, wrong operative interventions, for instance, if one must detach the tubes from a myomatous uterus and must leave the diseased uterus in the organism.

The director of the second Frauenklinik of the University of Berlin, Prof G. A. Wagner, holds that failures after the Medlener operation are not so rare, particularly tubal pregnancies are apt to occur, in fact, they are facilitated by the intervention. Wagner does not share Ottow's hesitation about removing the tubal corners. He considers it a serious defect in the sterilization law that it insists on ligation of the tubes. In weak-minded women Wagner recommends extirpation of the uterus, because such persons, after their dismissal, frequently attract undue attention from the opposite sex and may easily become victims of gonorrheal infection. Gonorrhea of the cervix is most resistant to treatment, and, in a roundabout way, the sterilization of a woman with healthy hereditary qualities might result if her husband transmitted to her gonorrhea acquired in this manner. It is evident that some valuable observations have been collected. This is apparent also from the previously published figures on the activities of various eugenics courts. In the eugenics court of Wuppertal (Rhine-land), during the first year of its existence, approximately 1,000 petitions for sterilization were filed. In about 800 cases the petitions were granted, and about 600 interventions have been carried out. In the eighteen eugenics courts in Thuringia (central Germany) 3,178 petitions for sterilization have been filed, 2,472 of which have been heard before these courts. In 2,303 cases the petition was granted, and in 1,395 cases sterilization has been carried out.

The following decision tends to establish a precedent. The body having jurisdiction opposed in one instance the enrolling of a peasant family in the so-called *Erbhofrolle* (whereby a farm becomes indivisible and is always handed down to the oldest child), because for generations tuberculosis had been widely prevalent in this family, and advised that the farm be divided. The eugenics court, however, refused to render such a decision because of tuberculosis, for, according to present-day medical knowledge, tuberculosis is not a disease that is always transmitted to offspring. In another instance the eugenics court refused a petition for the sterilization of a student of music, the reason assigned being that in this case (by exception) sterilization should not be performed, because of the exceptional mental qualities of the patient, although indeed, he presented a type of melancholy, or of manic-depressive insanity, which falls within the scope of the sterilization law. In all three instances of such a disorder in the student's family the precipitating cause took effect only on the appearance of external, nonhereditary factors. This was therefore a pathologic hereditary tendency of much less potency than the essential group of hereditary mental diseases which develop of themselves without any external precipitating cause. Hence the court assumed that the offspring of this student, under normal living conditions, would probably escape an attack of the disorder. The court's second reason for its decision also establishes an important precedent. The petition involves an artist possessing unusual gifts, who is likely to transmit his gifts to his offspring. Likewise Professor Bonhoeffer, psychiatrist of Berlin takes the attitude that the sterilization law should not be applied to persons of the type mentioned. In a family many members of which possess unusual qualities the chances of a descendant having serious hereditary defects may reasonably be risked by society if, on the other hand, valuable hereditary qualities are likely to be inherited. There are, to be sure, some jurists who object to this "exceptional treatment of persons with talents."

With reference to the expense arising from the application of the sterilization law, ministerial decisions have become necessary. If neither a *Krankenkasse* nor a welfare organization can be expected to assume the costs, and the patient is unable to pay them, the central government must assume them.

Prof Fritz Lenz, of the University of Berlin called attention, in an address before the Emperor William Society for the Advancement of Science, to the danger arising out of the fact that hereditary defects are transmitted to offspring not only by persons with evident hereditary defects but also by persons who are apparently healthy. Hence it appears to him advisable to sterilize also healthy persons who might produce offspring with hereditary defects. This would apply, for example, to persons who present only slight signs of mental disease. On the other hand, from a practical point of view, a radical application of this principle is not advisable, for, according to his computation, it would affect 20 per cent of the population. Hence it is not likely that these far-reaching demands will be taken seriously by the centers having jurisdiction in the matter.

Lenz called attention to the need of combating the tendency, manifest in recent years, for the proletariat to gain possession of the intellectual professions. The danger of an increasing lowering of racial qualities—of the average intellectual level—is greater than is generally realized.

In Saarbrücken Lenz instituted a research on children that had attended school four years with a view to ascertaining what connection there might be between the scholarship of the pupils and the number of children in their respective families. According to this research the average scholarship of the pupils grows less as the number of children in their respective families increases. It is evident therefore, that the promotion of the population alone is not all that is needed. There must

be also a selection of the competent pupils, or those with more than average endowments.

While such questions as this are receiving considerable attention in Germany, no special eugenics bureaus are to be created in the larger cities and districts for the solution of these problems, which, in point of fact, belong to the field of the public health services. On the other hand, an endeavor is being made to give the teachings of racial hygiene the widest publicity for example, in the *Staatsmedizinische Akademie* in Berlin, a special three-day course of instruction in racial hygiene and the theories of heredity was recently organized for the benefit of the pastors.

For all the questions that have to do with racial hygiene the authorities are seeking to extend the basic knowledge. In Bavaria a card index of injuries of a hereditary and an environmental origin, as observed in clients of welfare departments has been created in order to determine what are hereditary and what are environmental injuries. On the basis of this material, one will seek to discover what kind of treatment and care are the best for the various types.

The same purpose is served by the published observations of the *Erbbiologische Bestandsaufnahme* of the hereditobiologic central of the League of the *Krankenkassen* in Berlin, concerning which the director Dr W Tourné, has issued a report. About 2,000,000 "sickness cards" of the insured are being scrutinized. Approximately 400 cases are studied each month and 2,200 cases have been studied thus far, 1,311 of which have been completed. Thus far, 606 patients have been reported to the health officer of the district as subject to the application of the sterilization law—which amounts to 46.9 per cent of the completed cases.

Of the 2,200 cases scrutinized thus far, it was found that 456 showed no evidence of serious hereditary defects; forty-one patients were too old for sterilization to be of value, and thirty-three had already been sterilized.

## VIENNA

(From Our Regular Correspondent)

May 2, 1935

### The New Social Insurance Law

A new law pertaining to industrial social insurance was promulgated April 1. In keeping with the reorganization of the Austrian federal state, such a law had long been promised. The details of the drafting of the law were kept secret until the revision had been completed. By reason of the authoritarian form of government in force in Austria, no further changes in the law may now be made. It is probable that the selected representatives of the medical profession were not asked to sit in at the deliberations or, if so, were not called on to express their views. The results for the physicians have been calamitous as has been emphasized in several medical journals. The law consists of seven principal sections, only two of which concern the medical profession directly, namely (1) the administration of the *Krankenkassen* for workmen and for employees and (2) the provisions for the transition period. With regard to the latter it is important to note that during a transition period of three months dating from the promulgation of the law the previous arrangements will remain in force, until the public and the authorities have become familiar with the new provisions. The new law is to be effective for a period of five years. At the end of this period it will be seen what changes in the law are needed. As the law is designed to effect economies in social welfare the previous performances for the benefit of insured members must be materially reduced. Allowances for medical aid, hospital aid, convalescence aid and vacations, cash benefits and pensions will be diminished, so that the effects on the public health will certainly not be especially favorable. Here only the provisions affecting the medical profession can

be mentioned. For the performance of common tasks, in the field of health insurance, all the *krankenkassen* of the workmen and all the *krankenkassen* of the employees will be combined to form a main league. These two groups together, along with the still existing pension-insurance organizations, will form a federal league of social insurance institutes. In every district working mergers of the *krankenkassen* will be formed, on these will rest the obligation of supplying medical aid (including obstetric aid, dental aid and sick benefits). They will also have charge of financial arrangements with the physicians, and the creation and management of pharmacies and therapeutic institutions to be used in common. For the assurance of medical aid for the members and for the amicable solution of all questions that arise in that connection, every working merger will appoint a physicians' committee, to be composed equally of representatives of the working merger and the corresponding professional organization of physicians. The chairman will not be a member of the medical profession. The treatment of the members of the *krankenkassen* will be solely in charge of approved physicians, dentists and dental mechanics, who will be compensated on the basis of the work performed and will no longer receive a fixed monthly compensation, as has been the rule of late in the *krankenkassen*. In accordance with the rules of panel practice, the physicians who apply are engaged to furnish medical aid to the insured members of the social insurance system (that is, members of the various main leagues or of the federal league), if they can fulfil the following conditions: 1. Candidates must be citizens of Austria and must have a doctor's degree from the medical department of an Austrian university. 2. Practicing physicians must have had at least four years of medical activity, with a minimum of three years' experience in a public sanatorium or hospital, and training in surgery, internal medicine and obstetrics, furthermore at least three months service as locum tenens of a practitioner. 3. Specialists must have had such training as entitles them to assume the title of specialist. The same rule applies to dentists, and, in addition dentists must have had two years experience in dental practice. 4. Every physician seeking admission to panel practice must furnish evidence of exemplary citizenship and of good professional behavior. 5. A candidate may have no further fixed income from other permanent medical employment amounting to 12,000 shillings (\$2,280) a year. (This provision is designed to prevent any person from deriving a double income from public funds—a provision of questionable value.) The last mentioned provision does not apply, however, to specialists. The admission of a candidate to panel service under the social insurance act, even though he has fulfilled all these conditions is left to the discretion of the physicians' committee, a fact that will constitute an exceedingly severe test of the uprightness of character of the persons serving on this committee. With regard to the compensation of physicians who are engaged in the social insurance service, the following principles obtain. As a rule, no fixed salaries are paid but the services of physicians are compensated according to a point system which is supposed to have been worked out accurately. Every physician will be compensated according to his individual performances. Every prescription or visit or other performance (operations, examinations, application of bandages, consultations, and the like) entitles him to a certain number of points. The value of the point will fluctuate, but always with the condition that the amount of money or the percentage allowed for medical aid must always be made to suffice. The compensation allowed for medical aid will thus vary from year to year. But the complications extend further. The point value for the workmen's *krankenkassen* may be different from the point value for the employees' *krankenkassen*, being dependent on the funds available in the respective treasuries. Moreover, the physicians' committee may for special reasons depart from the

principle of compensation according to individual performances—not only in a given district or in parts of a district but also with respect to individual physicians, and instead may establish a fixed salary. Thus, the way lies open not only for arbitrary decisions but also for differentiation and discrimination among the panel physicians, which would be directly opposed to the previous regulations and which will likely furnish occasion for complaints. The regulation of the provisions applicable to the transition period is likewise important. When *krankenkassen* are dissolved or when their physicians are no longer permitted to serve on the social insurance panel, the following provisions come into effect. A physician who has not yet served ten years may be notified and dismissed within a year after the beginning of the operation of the new law. In that event he will be entitled to an indemnifying sum, or dismissal wage the amount of which will depend on his length of service. If he is nevertheless admitted later to the panel he must return such sum—in monthly payments if desired. If however, a dismissed panel physician has served more than ten years he may be given a pension. Any agreements previously entered into by and between the panel physicians and the *krankenkassen* to the effect that such panel physicians may not be dismissed from service without cause have been declared invalid. If a pensioned physician is again admitted to the panel he will receive no pension during the time of such activity. In all these matters the physicians' committee renders a decision as it sees fit. It will be seen, therefore, what great power the committee exercises and how wretched the lot of the medical profession has become, now that private practice has almost entirely disappeared. In line with other economic measures, a regulation has been adopted that only certain medicines may be prescribed. Such restrictions in the past have often given rise to complaints on the part of patients because the panel physicians objected to prescribing certain specialties. Now such complaints will doubtless become even more frequent.

In the whole law there is at least one feature that meets the desires of a large number of physicians, namely, the provision that the patient shall not be bound to accept a certain physician but may select in his home town any physician on the panel in whom he has confidence. But there is a certain danger associated with the free choice of physician, for not all physicians are admitted to the panel. It is feared that too strong an influence will be exerted by political, religious, national and economic factors. The impression that the whole law makes on the medical profession is unfavorable, and its revision will be made an urgent demand of all competent representative physicians.

In the foregoing the impairment of the previously recognized rights of the members of the *krankenkassen* has not been discussed. Of course, the members are not satisfied with the law, medical considerations are not the chief reason, although the reductions in the performances will doubtless exert considerable influence on the general public health. There will be fewer opportunities for recovery of health, fewer therapeutic aids, less support in case of illness, and fewer persons adequately insured against disease—that is, fewer persons well cared for.

#### Decrease in the Number of Medical Graduates

For the first time since the close of the war, the number of students in Vienna securing the degree of doctor of medicine shows a decrease. During the school year immediately preceding the outbreak of the war (1913-1914), 385 men and women obtained their doctor's degree in medicine. In 1924-1925 the number had risen to 743 and for a number of years then it did not vary greatly from this figure. In 1932-1933 the number dropped to 521, and in 1933-1934 to 442. The decrease is an evident expression of the poor economic situation of the medical profession.

## Marriages

GEORGE WILLIAM CROFT, Jacksonville, Fla., to Miss Anne Capers Haselden of Charleston, S. C., May 16

DONION RANDOLPH MARTIN, Raleigh, N. C., to Miss Mary Elizabeth Roof of Paducah, Ky., May 16

MAURICE BAINTON THOMPSON, Bloomfield, Conn., to Mrs. Mary Waite Thomas of Hartford, May 9

EDWARD M. HOLMES JR., Richmond, Va., to Miss Sarah Daily Walsh of Norfolk, April 27

CLARENCE E. QUARF, Galesburg, Ill., to Miss Florence Hefte of Spokane, Wash., May 3

CHARLES SUMMEY BRITT to Miss Margaret Todd, both of Charlotte, N. C., May 15

JOHN M. KARCH, Cincinnati, to Miss Rosemarie Brinck of Dayton, Ohio, recently

ULFERT R. ULFERTS to Miss Mary Edwina Smith, both of Mena, Ark., May 3

CHARLES HOLMES BOYD to Miss Emily Gould West, both of Baltimore, May 24

HENRY R. MCCARROLL, St. Louis, to Miss Nina Snyder, recently

## Deaths

Junius Claiborne Gregory ♂ Colonel, U. S. Army, retired Evanston, Ill., Medical College of Virginia, Richmond, 1900, fellow of the American College of Surgeons, in 1907 entered the medical corps of the army as a captain and rose through the various grades to that of lieutenant colonel in 1917, served during the World War, retired in 1922, returned to active duty in 1922 and in 1930 retired for disability in line of duty, with rank of colonel, at one time assistant clinical professor of military medicine, Rush Medical College, Chicago, aged 59, died, April 26, of thrombophlebitis with right pulmonary and coronary embolism

Georgia Adell Filley ♂ Battle Creek, Mich., University of Illinois College of Medicine, Chicago, 1913, member of the Medical Society of the State of New York and the American Psychiatric Association, formerly a medical missionary in China, aged 64, at one time on the staffs of the Toledo (Ohio) State Hospital and the Battle Creek Sanitarium, where he died, April 16, of atrophic cirrhosis of the liver

Kenneth Millan, Brooklyn, Queen's University of Medicine, Kingston, Ont., Canada, 1920, member of the Medical Society of the State of New York, served with the British Army during the World War, on the staffs of the Caledonian Hospital and Brooklyn Hospital, Brooklyn, and the South Nassau Communities Hospital, Rockwell Center, aged 43, died, April 21, of meningitis

William Ropes May ♂ New York, Harvard University Medical School, Boston, 1898, associate in diseases of children, Columbia University College of Physicians and Surgeons, served during the World War, on the staffs of the Willard Parker Hospital, Hospital for Ruptured and Crippled and the City Hospital, aged 61, was found dead in bed, May 3

Edward Lambert Twombly, Boston, Harvard University Medical School, Boston, 1886, an Affiliate Fellow of the American Medical Association, formerly instructor in gynecology at the Tufts College Medical School, for many years on the staff of St. Elizabeth's Hospital, aged 75, died, May 10, of coronary thrombosis and carcinoma of the nose

Harry B. Walter, Harrisburg, Pa., Jefferson Medical College of Philadelphia 1881, member of the Medical Society of the State of Pennsylvania, past president of the Dauphin County Medical Society, at one time member of the board of education, for many years on the staff of the Harrisburg Hospital, aged 80, died April 25, of intestinal obstruction

Adelard Eugene Gendron ♂ River Falls, Wis., School of Medicine and Surgery of Montreal, Que., Canada, 1893, past president of the Pierce-St. Croix County Medical Society, city health officer, served during the World War, on the staff of the River Falls City Hospital, aged 64, died, April 20, of carcinoma of the intestine

Neil Sutherland MacDonald Fort Snelling, Minn., University of Michigan Department of Medicine and Surgery, Ann Arbor 1895, fellow of the American College of Surgeons, served during the World War, connected with the Veterans Administration Facility, aged 63, died May 3, of angina pectoris

James Lyman Whitney ♂ San Francisco, Harvard University Medical School, Boston, 1905, at one time instructor, assistant clinical professor and assistant professor of medicine, University of California Medical School, served during the World War, aged 53, died, March 12, of coronary thrombosis

Clarence Kelley Gilder, Carbon Hill, Ala., University of Alabama School of Medicine, Mobile, 1918, member of the Medical Association of the State of Alabama, past president of the Walker County Medical Society, member of the state board of health, aged 42, died, April 26, of streptococcal pneumonia

William Edward Miller, Colwyn, Pa., Medico-Chirurgical College of Philadelphia, 1899, member of the Medical Society of the State of Pennsylvania, member of the local board of health, aged 64, died, April 12, in the Lankenau Hospital, Philadelphia, of pneumonia and acute nephritis

Benjamin Carey Geeslin, Arkansas City, Kan., Chicago Physio-Medical Institute, 1890, member of the Kansas Medical Society, for sixteen years a member of the board of education, aged 72, died, March 22, of coronary thrombosis, while attending a basketball game in Topeka

John William Lee, Waterloo, Ala., Kentucky School of Medicine, Louisville, 1890, member of the Medical Association of the State of Alabama, also a minister, aged 83, died, April 23, in the Eliza Coffee Memorial Hospital, Florence, of bronchopneumonia, following influenza

Leslie Ambrose Kuhn, Wyatt, Ind., Jenner Medical College Chicago, 1906, member of the Indiana State Medical Association, veteran of the Spanish-American and World wars, aged 56, died, March 13, in St. Joseph Hospital, Mishawaka, of cerebral hemorrhage

Peter William Fox ♂ New Britain, Conn., University of Vermont College of Medicine Burlington, 1911, on the courtesy staff of the New Britain General Hospital, aged 49, died, April 15, of brain tumor, chronic myocarditis and hypostatic pneumonia

Charles Gresham McEachern, Biloxi, Miss., University of Nashville (Tenn.) Medical Department, 1900, member of the Mississippi State Medical Association, aged 60, was killed, April 25, when the automobile in which he was driving overturned

John Joseph Mangan, Lynn, Mass., College of Physicians and Surgeons, Boston 1891, Harvard University Medical School, Boston, 1904, member of the Massachusetts Medical Society, aged 77, died, March 29, of cerebral hemorrhage

Jerry Walter Gwin, Bessemer, Ala., University of Alabama Medical Department, Mobile 1917, member of the Medical Association of the State of Alabama, aged 44, died, March 28, in a hospital at Birmingham, of gastric ulcer and uremia

Clarence Edward Kylander, Pittsburgh, University of Pittsburgh School of Medicine, 1931, member of the Medical Society of the State of Pennsylvania, on the staff of the South side Hospital, aged 34, died, April 24, of pneumonia

Osman Franklin Kinloch, Troy, N. Y., Albany (N. Y.) Medical College 1879, member of the Medical Society of the State of New York, served during the World War, aged 82, died, March 31, of myocarditis and arteriosclerosis

James Wilson Miller ♂ Cincinnati, Medical College of Ohio Cincinnati, 1899, at various times on the staffs of the Cincinnati General, Good Samaritan and Children's hospitals, aged 64, died, April 28, of cerebral hemorrhage

Rushmore Lape, Fair Haven, Vt., Albany (N. Y.) Medical College 1877, an Affiliate Fellow of the American Medical Association, town health officer, member of the school board, aged 80, died, May 3, of coronary thrombosis

Ernest Lowrey, Excelsior Springs, Mo., Marion Sims College of Medicine, St. Louis, 1892, member of the Missouri State Medical Association, aged 64, died, April 1, in St. Joseph Hospital, Kansas City, of cerebral hemorrhage

William Nelson Giles, Wataga, Ill., Keokuk (Ia.) Medical College, 1898, member of the Illinois State Medical Society, at one time mayor of Wataga, aged 77, died April 25, of diabetes mellitus and coronary thrombosis

Frank Rudisill Bealer, New York, Emory University School of Medicine, Atlanta, Ga., 1917, member of the Medical Association of Georgia, fellow of the American College of Physicians, aged 42, died, April 19

Elerly Nichols Morgan, South New Berlin, N. Y., Baltimore Medical College, 1897, member of the Medical Society of the State of New York, aged 65, died March 11, of chronic myocarditis and coronary embolism

Dwight Shumway Moore, South Pasadena, Calif., University of Nebraska College of Medicine Lincoln, 1887, member of the California Medical Association, aged 68, died, March 16, of myocarditis

Henry Dewey Ribble, Blacksburg, Va (licensed in Virginia under the exemption law of 1885), member of the Medical Society of Virginia, aged 82, died suddenly, March 1, of cerebral hemorrhage

Thomas Walker, Wynne Wood, Okla, Vanderbilt University School of Medicine, Nashville Tenn 1891 member of the Oklahoma State Medical Association, aged 68 died April 27, of endocarditis

Abraham Groves, Fergus, Ont Canada University of Toronto Faculty of Medicine 1871, medical superintendent and owner of the Royal Alexandra Hospital, aged 87 died May 12, of pneumonia

George Kasper Baier @ Washington, D C, Columbian University Medical Department, Washington, 1898 served during the World War, aged 59, died, April 22, of pulmonary tuberculosis

John Mauls Ferrell, El Dorado, Ark Bennett College of Eclectic Medicine and Surgery, Chicago, 1906, aged 52, died, recently, in the Henry C Rosamond Memorial Hospital of pneumonia.

Herbert Walter Longworth, Kingsport, Tenn, University of Tennessee College of Medicine, Memphis, 1930 city health officer aged 27, died, May 1, in a local hospital of spinal meningitis

Isaac Marion Gravlee @ Mobile, Ala, Tulane University of Louisiana School of Medicine, New Orleans, 1920, member of the Radiological Society of North America, aged 38, died March 27

Edward William Gahan, San Diego, Calif Indiana College of Medicine and Midwifery, Indianapolis 1885 aged 72 died March 28, of coronary thrombosis, arteriosclerosis and diabetes mellitus

William H Popplewell @ Lamar, Mo, Barnes Medical College, St Louis, 1898 secretary of the Barton County Medical Society, aged 60, died, April 21, of cardiovascular renal disease.

William A. Campbell, Pyriton, Ala (licensed in Alabama in 1903), member of the Medical Association of the State of Alabama, aged 81, died, April 9, of influenza and pneumonia

Albert Jabesh Harris @ Buffalo, University of Buffalo School of Medicine, 1903 aged 63, died, May 10 in the Deaconess Hospital, of cerebral hemorrhage and myocarditis

Charles W Austin, Mangum, Okla, Memphis (Tenn.) Hospital Medical College, 1895, member of the Oklahoma State Medical Association, aged 74, died, April 3, of uremia

Philip C Marquart, Springfield, Ohio, University of Louisville (Ky) Medical Department, 1894, member of the Ohio State Medical Association, aged 63, died, April 9

John Ray M Frawley @ Wausau, Wis, Milwaukee Medical College, 1910 county coroner, on the staff of St Mary's Hospital, aged 52 died May 6, of pulmonary fibrosis

Henry S Morris, Mammoth Spring, Ark (licensed in Arkansas in 1903), bank president, aged 61, died, April 17, in the Baptist Hospital, Springfield, Mo, of cholecystitis

Joseph Graham, Washington, D C, University of Pennsylvania Department of Medicine, Philadelphia, 1901, aged 56, died, April 29, of arteriosclerotic heart disease.

Albert Washington Lane, Gadsden, Ala, Atlanta (Ga) School of Medicine, 1906, member of the Medical Association of the State of Alabama, aged 52, died, April 5

Ernest Christian Fisher, Richmond, Va., University College of Medicine, Richmond, 1900, member of the Medical Society of Virginia, aged 59, died, April 15

Thomas Arthur Lynch, Omaha Creighton University School of Medicine, Omaha, 1931, aged 29, died, April 30, in St Catherine's Hospital, of septicemia

Alfred Earle Kinney, St Albans, N Y, University of Oregon Medical School, Portland, 1914, served during the World War, aged 47, died, April 10

John J Shaner, Agnew, Calif, Eclectic Medical Institute, Cincinnati, 1881, aged 83, died March 20 in the Agnews State Hospital, of chronic myocarditis

Archibald McEachran @ Minneapolis, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889, aged 68, died, April 11

Arthur Henry Leary, New York, College of Physicians and Surgeons, Medical Department of Columbia College New York, 1879, aged 79, died, April 12

James Short, Evans, Ky (licensed in Kentucky in 1920), member of the Kentucky State Medical Association, aged 77, died, April 21, of pneumonia

William Alison Lumley, Ellsworth Wis, College of Physicians and Surgeons of Chicago, 1893, aged 77, died, April 9, of lobar pneumonia

Francis Marion Collier, Montrose, Calif, Denver College of Medicine, 1895, aged 76, died, March 25, of chronic myocarditis and acute nephritis

Charles Lewis Knight @ Boston, Harvard University Medical School, Boston, 1901 aged 60, died suddenly, April 18, of coronary thrombosis

Emile Claud Mervy, San Francisco, University of California Medical Department, 1883, aged 76, died, February 14, of mitral regurgitation

Alfred Hultner, Pomona, Calif, University Medical College of Kansas City, Mo, 1896, aged 67, died, March 2 of cirrhosis of the liver

Magnus Andrew Unseth, Chicago, Rush Medical College Chicago 1893 aged 66, died, May 12, of lobar pneumonia and lymphatic leukemia

Daniel E Thatcher, Dallas, Wis (licensed in Wisconsin in 1900), also a pharmacist, formerly postmaster and mayor, aged 66, died, March 17

William Henry Mahler, New York Bellevue Hospital Medical College New York, 1880 aged 80, died, April 22, of bronchopneumonia

William B Graham, New Paris, Ohio (licensed in Indiana in 1897) Civil War veteran, aged 91, died, April 30, of cerebral hemorrhage

Charles Albert Gill, Madison, Wis Rush Medical College Chicago 1884, aged 79, died, March 22, in a local hospital of uremia

Eugene O Houck, Cleveland, Western Reserve University Medical Department, Cleveland, 1900, aged 56, hanged himself, March 23

Elizabeth Edmonston, Hillsboro Ohio, New York Medical College and Hospital for Women, New York, 1895, aged 79, died, April 12

Samuel S Watkins, Owensboro, Ky, University of Louisville School of Medicine, 1884, aged 70, died, March 25, in the City Hospital

Herbert Karl Smith, Modesto, Calif, Louisville (Ky) Medical College, 1894, aged 66, died, March 1, of cerebral hemorrhage

Edwin Llewellyn Hunter, Niles, Mich, Hahnemann Medical College and Hospital, Chicago, 1896, aged 60, died, March 30

Harrison Proctor Millard, Vancouver, B C., Canada University of Toronto (Ont.) Faculty of Medicine, 1891, died in March

Frederick Charles Marlow, Toronto, Ont, Canada, University of Toronto Faculty of Medicine, 1915, aged 40, died, April 25

George A Vinson, Atlanta, Ga, Southern Medical College, Atlanta, 1881, aged 77, died, April 26, of uremia and chronic nephritis

Sterling Egbert Neblett, Southside, Tenn., University of Tennessee Medical Department, Nashville, 1891, aged 75, died, April 5

Ernest Linwood Marston, Rock Island, Ill, Rush Medical College Chicago, 1888, formerly bank president, aged 74, died, April 2

Harold Winthrop Martin @ Boston, Tufts College Medical School, Boston, 1912, aged 48, died, April 15, at his home in Milton

August Kuhn, Pflugerville, Texas, Louisville (Ky) Medical College, 1894, age 66, died, February 26, of coronary thrombosis

William A Peek, Helena, Mont., Homeopathic Medical College of Missouri, St. Louis, 1898, aged 66 died March 12,

William Jefferson Guernsey, Philadelphia, Hahnemann Medical College of Philadelphia, 1875, aged 81, died, March 30

Hansford L Walls, Nitro, W V, University of Maryland School of Medicine, Baltimore, 1881, aged 73, died, March 11

Elwin Dexter Lane @ Andover, Mass, Boston University School of Medicine, 1912, aged 59, died, March 25, of uremia

Simon Beckman, Hartsville, S C., Medical College of the State of South Carolina, Charleston, 1884, aged 71, died, May 7

Clifford Henry King, Wabash, Ind, Rush Medical College, Chicago, 1881, aged 76, died, March 16, of chronic nephritis

Bruno Francis Sandow, Berkeley, Calif, Northwestern University Medical School Chicago 1891, died March 13



## Bureau of Investigation

### MORE NOSTRUMS IN RETROSPECT

#### Condensed Reports on "Patent Medicines" Previously Dealt With in Greater Detail

The chief work of the Bureau of Investigation lies not, as many physicians think, in the preparation of articles that appear in this department of *THE JOURNAL*, but in answering the thousands of letters that are received every year from physicians and laymen asking for information on 'patent medicines' and quacks. These letters show that there are certain 'patent medicines' that are much more widely inquired about than others, usually because the amount of money spent on advertising ballyhoo keeps them in the public eye. About a year ago there were published in this department condensed reports of longer articles published previously on several widely advertised 'patent medicines' about which the Bureau receives a large number of inquiries. The material that follows gives in condensed form statements regarding additional 'patent medicines' that have already been dealt with in the past in more extended articles.

**Absorbine, Jr**—This preparation was the subject of an extended article that was published in *THE JOURNAL* Oct 25 1913. Absorbine, Jr, is a liniment and, when first put on the market, was claimed to "remove any soft bunch without blistering or inconvenience" and to be "the only liniment known that positively cures varicose veins." As time went by, these obvious falsehoods were abandoned, but even at the time of the Bureau of Investigation's article it was still sold under the inferential claim that it would cure rheumatism, neuralgia, headache, varicocele, orchitis, toothache, corns, goiter, elephantiasis and several other conditions. Absorbine, Jr was analyzed in the A. M. A. Chemical Laboratory and the chemists reported that it was a clear, bright green liquid having a strong, penetrating, mint-like odor and seemed to be an acetone extract of some plant, probably wormwood, with the possible addition of some oil of sassafras and oil of menthol. The 1935 advertising of Absorbine, Jr, is much more restricted and conservative. It has been especially featured in the past year or so as a remedy for 'athlete's foot' and insomnia.

**Alka-Seltzer**—This 'patent medicine' put out by the Miles Medical Company of Elkhart, Ind., was dealt with in *THE JOURNAL* Nov 12, 1932. At that time the entire trend of the advertising was to give the impression that Alka-Seltzer was a mild, effervescent, alkaline preparation, although, in fact, the stuff was essentially aspirin. From the analysis of the A. M. A. Chemical Laboratory, it appeared that persons following the directions to dissolve two tablets of Alka-Seltzer in a glass of water got nearly 9 grains of aspirin and nearly 1 grain of salicylic acid with their mixture of citric acid and baking soda. Those who did as was suggested and took sixteen such tablets a day would get over 70 grains of aspirin and 6 grains of salicylic acid in twenty-four hours. Recent (May, 1935) radio broadcasting advertising still plays up the alleged antacid features of Alka-Seltzer. It incidentally refers to the fact that the stuff also contains, as the broadcast ballyhoo puts it, an 'acetylsalicylate.' Not one non-medically trained person in ten thousand, of course, knows that an 'acetylsalicylate' refers to aspirin. If one reads the small type on the trade package of today, he may learn that Alka-Seltzer, when dissolved in water, produces "Acetyl Salicylate of Sodium" described as "a salt of Aspirin." Nowhere, however, is any hint given as to the amount of aspirin present, and it is difficult to avoid the conclusion that the vast majority of people who take Alka-Seltzer are still quite ignorant of the fact that they are taking aspirin.

**Bromo-Seltzer**—This preparation was dealt with in *THE JOURNAL* of Feb 10, 1906. According to the analysis of Bromo-Seltzer published at that time, an average dose of the preparation—a teaspoonful, weighing about 76 grains—would contain potassium bromide, 7 grains, acetanilid 3 grains and caffeine, 0.8 grain. In the same issue of *THE JOURNAL* a Nebraska physician reported a case of poisoning from Bromo-Seltzer.

The most powerful drug in Bromo-Seltzer is acetanilid. The dangerous potentialities of acetanilid make the indiscriminate use of "patent medicines" containing this drug a serious menace to the public health. Cases of death, collapse, chronic poisoning and "habit" have been reported in medical literature from the use of Bromo-Seltzer. Sollmann in his "Manual of Pharmacology" (4th edition, 1932), in writing on the use of acetanilid in proprietary headache powders, states that they have "repeatedly produced acute and chronic poisoning" and that their continued use by persons with a predisposition to the drug 'has occasionally caused the development of a drug habit, with craving and withdrawal symptoms.' Sollmann points out that in chronic acetanilid poisoning there is a destruction of the red blood corpuscles, with blueness of the skin, heart weakness and "progressive mental and physical debility."

**Converse Treatment for Epilepsy**—This preparation has been dealt with in *THE JOURNAL* at various times. The first article appeared April 24, 1915, the second Dec. 2, 1922, and the third Dec 19 1931. The first article contained the chemists' report, showing that the Converse Treatment was another one of the bromide mixtures and that a person taking the stuff in accordance with the directions would get an amount of bromide equal to 58 grains of potassium bromide daily. One H. E. Sanderson seems to have been the head of this mail order quackery. The names of victims or, in the parlance of the medical mail order faker, the "sucker list," has, in the past at least, been obtained by the Converse concern by writing to the mayors, presidents of city councils and justices of the peace of small towns, as well as to teachers. These people were offered a premium, such as a small dictionary for the names of four epileptics, a fountain pen for the names of three, a cook book for the names of two, or a song book for one.

**Hayes Asthma Treatment**—The alleged asthma remedy of P. Harold Hayes of Buffalo, N. Y., was the subject of a brief article in *THE JOURNAL* of Oct. 2, 1909, giving the results of an analysis made by the Pharmaceutical Institute of the University of Berlin. The treatment is apparently a combination one, consisting mainly in the administration of iodides, together with a cough remedy, some iron and quinine, with, of course, the inevitable laxative. The six drugs used in the treatment were described and reported on as follows: *No 763*—Purgative pills, having as the active principle, jalap. *No 769 A C*—A syrup containing 67 per cent of iodine combined as potassium sodium and ammonium iodides, *No 781*—A cough medicine containing about 65 per cent of oils of turpentine and peppermint emulsified and sweetened with syrup, *No 808*—Capsules containing about 1½ grains of quinine sulphate, *T I Q*—Potassium iodide, a little wine and a small percentage of hydrochloric acid, *T II Q*—A liquid to be taken three times a day and found to contain iron in the form of iron peptonate.

**Hunter's Epilepsy Treatment**—This piece of mail-order quackery exploited by LaFayette M. Hunter, M.D., of Little Rock, Ark., under the trade name Dr. Hunter Laboratories, was dealt with at some length in *THE JOURNAL* June 19 1926. At that time it was stated that there was associated with Hunter one H. S. Brevoort, M.D. Both Brevoort and Hunter had previously operated quack advertising offices elsewhere. Later, Brevoort's name failed to appear in connection with Hunter's mail-order quackery, but did appear in connection with a testimonial for the Hunter product. Hunter used to emphasize in his advertising that his preparation would stop seizures from the first day that it was used. The Hunter 'remedy' came in the form of a white powder in colored capsules. When analyzed in the Chemical Laboratory of the American Medical Association, the stuff was found to be about one-fourth phenobarbital (luminal) and three-fourths milk sugar! Later the Hunter concern seems to have established a subsidiary company known as the Dexo Chemical Company, putting out another alleged remedy for epilepsy under the name "Dexo." This, when analyzed by the A. M. A. Chemical Laboratory, was found to be a bromide mixture.

**Lane's Asthma Treatment**.—D. J. Lane of St. Mary's Kan., has for some years put out a mail-order patent medicine for asthma. The preparation was analyzed some years



ago in the A M A Chemical Laboratory and a brief article appeared in THE JOURNAL May 10, 1919, giving the essential facts. The chemists reported that each dose of Lane's preparation contained approximately  $2\frac{1}{2}$  grains of calcium iodide, giving a daily dosage equivalent to 113 grains of potassium iodide.

**Tums.**—This preparation, put out by the A H Lewis Medicine Company of St Louis, was the subject of a brief article in THE JOURNAL May 23, 1931. It was there brought out that analysis indicated that Tums was apparently nothing more marvelous than sugar and chalk flavored with peppermint.

## Correspondence

### ATTITUDE OF BRITISH MEDICAL ASSOCIATION ON EXTENSION OF SICKNESS INSURANCE

To the Editor—I must protest against the statement which appears at the beginning of the London Letter in the issue of THE JOURNAL of THE AMERICAN MEDICAL ASSOCIATION for March 30. The sentence to which I refer is as follows: "In 1930 when this party was in power, the British Medical Association brought forward a scheme for a state medical service for the whole population." I wish to state emphatically that the British Medical Association has never brought forward any such scheme. It is true that we have advised the extension of the present national health insurance system to include first the dependents of all the existing insured persons and others of a like economic status and secondly, the provision of a consultant service and all necessary specialist and auxiliary forms of diagnosis and treatment, for this defined section of the community, but we have never advocated the inclusion within the ambit of the national health insurance scheme of that section of the population of status above that of the present insured.

The British Medical Association believes that there is a large section of the community which, unaided, is unable to provide for adequate medical attendance and it is for this section that it is considered the national health insurance system should provide, but the association also holds the view that there are many for whom no state provision is necessary as they are well able to provide for themselves.

G C ANDERSON M D, London

Medical Secretary, British Medical Association

### MEDICAL LICENSURE

To the Editor—In table 10 of the extremely valuable statistics of medical licensure presented in THE JOURNAL, April 27, and still more markedly in the map appearing on page 1513, the merit so well deserved by the various state examining boards for their efforts to exclude the more poorly or the unqualified candidates from the practice of medicine seems to be very unfairly assigned to certain states, whose legislatures appear to have done their utmost to make nugatory the endeavors of their own examining boards.

Thus for example this state of Maine, where I reside, is indicated on the map unshaded, indicating that it licenses no osteopaths, no undergraduates, and no graduates of unapproved schools; on the other hand the state of Massachusetts, in company with three others is shown in black, having in 1934 licensed twenty-one osteopaths and fifty-four other undesirable nondescripts, out of a total of 216 such applicants.

But then it is well within my knowledge that here in Maine a large number of osteopaths and others of that type (chiropractors and so on) are actually carrying on a perfectly legal practice, claiming to be legally qualified to do everything in

the way of medicine, surgery and obstetrics permitted to regular practitioners. These men have not been passed on at all by our state medical boards, nor is there in this state any basic sciences board, their actual qualifications are pretty well indicated by Etherington's paper on osteopathy and licensure on page 1549 of the same issue of THE JOURNAL, and doubtless any examination to which they have been submitted is as farcical as are the institutions from which they graduated.

If Massachusetts, represented by its state examining board, is unduly lax, it may perhaps be defended on the ground that half a loaf is better than no bread. It does at least submit the nondescripts it cannot exclude to some kind of examination actually rejecting 141 for seventy-five that it passes, some of the 141 doubtless coming to Maine, with possible results such as an Etherington might "shudder to envisage."

So, after all, I would prefer to see a lighter marking for Massachusetts and others, and a black mark for Maine and others in spite of the good intentions of state boards which 'gang sae far aiglie.'

WILLIAM R. TYMMS, M D, Port Clyde, Maine.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### RENAL OR NORMOGLYCEMIC GLYCOSURIA

To the Editor—Kindly advise me as to the diagnosis in the case of W R C a white man aged 24, a graduate engineering student weighing 156 pounds (70 Kg). His maternal grandfather is living at 81 but has been diabetic for twenty years; he has never been on insulin but the condition is proved by high blood sugar and he has survived by dieting and a strong will power to resist overeating. One sister, two years younger as a college student found much sugar in the urine and for the past three years in two hospitals and in private practice has been diagnosed as having a low renal threshold and possibly potential diabetes but the blood sugar has never been above normal except in one single hour hospital test and the accuracy of the test has been questioned. There is no other relevant family history. The patient has always been a heavy eater; he eats but does not crave sweets and eats three meals. He eats little breakfast but the evening dinner is more than the other two meals combined. He has eaten much meat and had two glasses of sweet milk at each meal for many months and before hurrying to school after arising late frequently makes a breakfast of cakes. January 18 he ate one Baby Ruth at 5 p m in addition to his regular diet. January 19 at breakfast he ate two egg sandwiches. For lunch he had a large piece of roast beef, French fried potatoes, peas, fried corn, four large biscuits, rice pudding, large servings of all and two glasses of sweet milk. Three hours after this meal three tests of the urine were made. The specific gravity was 1.025 and Benedict's test was decidedly green with a yellowish tinge. At 6 o'clock it was still green but lighter. For dinner the patient ate a large steak, French fried potatoes, stewed corn, two hot biscuits and two glasses of milk. Two hours after this the urine was reddish yellow and three hours later pea green with Benedict's test. January 20 the patient arose at 6 a m and drank a glass of water. Examination of the urine gave negative results. He drove 58 miles but had no other exertion, and rested for thirty minutes on the bed and a sugar tolerance test was begun with 100 Gm of dextrose. The fasting sugar was 120 mg per hundred cubic centimeters. No test of the urine was made. At one-half hour the sugar was 152 mg with a trace in the urine. At one hour the sugar was 97 mg. No specimen of urine was taken. At two hours the sugar was 81 mg and the urine was normal. The patient drops off to sleep readily when sitting around but as a student he may not get enough sleep. He has a voracious appetite and drinks an enormous amount of water estimated at from three quarts to a gallon a day. No itching eruption or boils are present but he has drunk a great deal of water for three or four years and nearly always gets up at night to void sometimes two or three times but at times sleeps all night without interruption.

M D Virginia

ANSWER.—The diagnosis in this case would seem to be renal or normoglycemic glycosuria. The fasting blood sugar of 120 is a high normal value, but the subsequent blood sugar values are quite normal and the test as a whole should be interpreted as that of renal glycosuria. Supporting this diagnosis is the fact that a sister apparently has a similar condition. The condition of low renal threshold is distinctly hereditary.

The associated voracious appetite and the large amount of water consumption raise the possibility of organic disease of

the diencephalon Brain tumor should be excluded. The possibility of a previous encephalitis should be considered. Many cases of diabetes insipidus are treated effectively by a procedure described by Francis M. Smith, "Diabetes Insipidus Treatment by Intranasal Insufflation of Posterior Lobe Pituitary Powder" (THE JOURNAL, March 3, 1934, p. 660).

#### THROMBOPHLEBITIC EDEMA

To the Editor —A man aged 40 was operated on six years ago for hernia and hemorrhoids with an uneventful recovery until he was allowed to go home which was on the eighteenth day when phlebitis developed in both legs which kept him in bed for eighteen weeks. Following this he had no particular pain but had swelling in both legs more marked around the ankles but extending nearly up to the knees this was controlled by elastic bandages. In the spring of 1933 besides the existing edema he had indurated painful and tender areas about 2 cm wide by 6 cm long with no apparent superficial reddening in the lower part of both legs (extending about 2 cm deep). These areas vary in size but have never completely disappeared. In August 1933 two painful small ulcers (1 cm in size) developed on the anterior surface of the left leg at the level of the junction of the lower and middle third which eventually healed in about two months with boric acid ointment and sunlight treatment. About six weeks ago apparent thrombosis of some small superficial vessels developed below the left external malleolus. These had the appearance of small pinheaded elevations. This was accompanied by severe pain and eventually broke down to form a small painful ulcer which is slowly healing up. The area around this is also very tender and painful especially while walking. During the day and night he complains of pain in both legs. There are no varicosities of the superficial vessels to be seen. In August 1933 glycosuria was discovered which was controlled by dieting. The blood sugar three months ago was 115 mg per hundred cubic centimeters. Other constituents of the blood are normal. The urine otherwise is normal. The blood Wassermann reaction is negative. Because of financial considerations the patient is compelled to continue working (he is a grocery store clerk) which is naturally aggravating his condition. What line of treatment would you advise following without having to put him to bed? Please omit name.

M D New York

ANSWER—The bilateral thrombophlebitic edema induration and ulceration of this patient is probably maintained in a subacute or recurring state by some low grade infection. This infection may be found in the usual foci, such as the teeth, tonsils or prostate, but more often in the edematous, indurated tissues themselves, which harbor bacteria readily and respond with acute flare ups following slight trauma, chilling or trivial respiratory infections. Attacks of phlebitis and periphlebitis, if near to the skin, readily break it down and form painful indolent ulcers, which are often resistant to treatment. After eradication of the infected foci an attempt should be made to put the inflamed tissues at rest. When rest in bed is impracticable Unna's paste boots are helpful in reducing the swelling and pain. Small doses of x-rays, 100 roentgens three times at ten day intervals, may be beneficial. As the persistent edema is injurious to the tissues an attempt should be made to reduce it by elevation at night, restriction of fluid and salt intake, and 5 Gm daily doses of potassium chloride. The treatment of these late cases of thrombophlebitic edema is difficult and sometimes unsuccessful. Better results may be obtained at the onset of the thrombophlebitic edema (de Takáts, Geza. The Management of Acute Thrombophlebitic Edema. THE JOURNAL, Jan 7, 1933, p. 34).

#### PTYALISM DURING PREGNANCY

To the Editor —I desire some information about the treatment of ptyalism during or following pregnancy. A patient aged 36 years went through her second pregnancy four years ago. She had considerable nausea during the early months and a very distressing ptyalism during the last five months. The saliva a clear thin fluid amounted to from 400 to 600 cc in a day. This symptom disappeared with the advent of labor. One year ago she had a cold or influenza which lasted about a week, when the ptyalism returned and has lasted ever since. There is no excessive flow of saliva during the day but in the morning when she awakes the mouth and throat are filled with a thin lumpy liquid which she cannot swallow without vomiting. This disappears when she eats breakfast. The patient leads a normal life does her own housework and works a little in a store. She is not nervous and there is no domestic or other sort of worry. Please omit my name.

M D Indiana

ANSWER—Ptyalism is a complication of pregnancy that is hard to cure, disappearing usually when quickening occurs but persisting in rare cases, up till delivery or even two or three months thereafter. It may recur in successive pregnancies.

Ptyalism has also been known to occur during menstruation; it can act vicariously for menstruation and it has been known to be present in cases of chronic endometritis, myometritis (Tamburini), retroflexio uteri (Schauta), amenorrhea (Simpson) and cancer (DeWees). The causes of salivation, both in pregnancy and outside of pregnancy, have not been deter-

mined, the various theories for the cause of toxemia having been invoked, such as reflex, toxic, neurohysterical and endocrinopathic.

In the case referred to the symptoms do not indicate a true ptyalism. Since mercurialization can be eliminated, some disorder of the teeth, gums or sinuses should be sought for. Stomatitis, thrush, parotitis and inflammation of the submaxillary gland (and stone) should be considered. Since DeWees found ptyalism in a case of genital carcinoma and since the sialorrhea can be hormonal, a special study of the ovaries would be in order. Treatment of course must be aimed at the cause if it can be found, otherwise local washes and general measures devoted to improving the health and to curing a possible avitaminosis are recommended.

#### X-RAY OF LUNGS FOR SILICOSIS

To the Editor —I would like some information on the technic of taking roentgenograms of the lungs. I have been told that cases of silicosis may be overlooked if taken with a 30 milliamperage machine and that in order to obtain satisfactory plates more milliamperage must be used. Is there anything to this? I should also like to know where to obtain a good book on chest roentgenology especially one covering silicosis. Please omit name and initials.

M D Indiana

ANSWER—Chest films made with a 30 milliamperage machine are considered entirely satisfactory for the diagnosis of silicosis. Thousands of men are being examined every year with 30 milliamperage machines installed in factories, and the results are entirely dependable. Comparison of films made in a tenth of a second with a 100 milliamperage broad focus tube, at a distance of 5 feet with films made in a third of a second with a 30 milliamperage tube at the same distance, the other factors being the same, show but little in favor of the faster exposure. The additional details furnished by the smaller focus of the 30 milliamperage tube more than compensate for the briefer exposure with the 100 milliamperage machine, which must necessarily use the larger focus. At an expense that is altogether out of proportion to any advantage gained, it is possible to use 1,000 milliamperes or even more and to obtain x-ray films in a small fraction of a second. Five hundred milliamperes at a distance of 6 feet will give a beautiful film of the chest in a thirtieth of a second but after all, its detail is so little better than that obtained by a 30 milliamperage tube in a longer time that it is difficult to find justification for the expense of the more elaborate apparatus unless the work is being done in a large institution specializing in lung diseases. Of course, the more rapid exposures are calculated to minimize the blurring in the vicinity of the lung roots and the descending branches of the lung tree resulting from the pulsations of the heart, but these pulsations disturb fine detail only for a short distance and in the remainder of the lung it would be extremely difficult to overlook silicosis.

Good books and articles on chest roentgenology in silicosis are the following:

Wessler and Jaehes. Clinical Roentgenology of Diseases of the Chest. Troy, N. Y. Southworth Publishing Company.  
Sante L. R. The Chest Roentgenologically Considered. New York. Paul B. Hoeber Inc. 1930.  
Overend, Walker. The Radiography of the Chest. London. William Heinemann Medical Books Ltd. 1928. two volumes.

All of these have sections relative to silicosis.

Pancoast H. K. and Pendergrass E. P. Pneumoconiosis (Silicosis). A Roentgenological Study. New York. Paul B. Hoeber Inc. 1926.

The following articles are also valuable for reference.

Pancoast H. K. and Pendergrass E. P. A Review of Pneumoconiosis. Further Roentgenological and Pathological Studies. *Am J Roentgenol* 26: 556 (Oct.) 1931.

Pancoast H. K. and Pendergrass E. P. Roentgenological Aspects of Pneumoconiosis and Its Medical Importance. *J Indust Hyg* 15: 117 (May) 1933.

Pancoast H. K. and Pendergrass E. P. Roentgenologic Aspect of Pneumoconiosis and Its Differential Diagnosis. *THE JOURNAL* Aug. 19 1933 p. 587.

Gardner L. U. The Pathologic Reaction in Various Pneumoconioses. *THE JOURNAL* Aug. 19 1933 p. 594 abstr. *Am J Pub Health* 23: 1191 (Nov.) 1933.

Gardner L. U. Silicosis. Analysis of Factors Involved in Its Production. *Indust Med* 2: 27 (July) 1933.

Gardner L. U. Pathology of So-Called Acute Silicosis. *Am J Pub Health* 23: 1240-1249. 1933.

Lanza A. J. Etiology of Silicosis. *THE JOURNAL*, Aug. 19 1933 p. 583 abstr. *Am J Pub Health* 23: 1191 (Nov.) 1933.

Sampson H. L. The Roentgenogram in So-Called Acute Silicosis. *Am J Pub Health* 23: 1237 (Dec.) 1933.

Russell A. E. Clinical and Statistical Aspect of Silicosis. *Tr Nat Safety Council* 21st Ann Safety Congress 1: 57 1932.

Gardner, Middleton and Orenstein. Russell, Stewart and others. Records of the International Conference. Johannesburg. Aug. 13-21, 1930.

Bromley J. F. Pneumoconiosis. Part I. Silicosis. *Brit J Radiol* 7: 263 (May) 1934.

Wood W. B. Pneumoconiosis. Part II. Pulmonary Asbestosis. *Brit J Radiol* 7: 277 (May) 1934.

Ellman Phillip. Pneumoconiosis. Part III. Pulmonary Asbestosis. *Brit J Radiol* 7: 281 (May) 1934.

## HAZARD IN USE OF BRONZE POWDER

To the Editor—Several girls were put to work in a printing shop gilding the lettering on covers of a catalogue. The gilt is dusted on recently printed letters. The girls are given small occasional jobs of this nature and do it by hand using cotton dusters. The powder more or less fills the air in the room which has no particular ventilation excepting the usual doors and windows. Friday and Saturday this work was done. On Saturday afternoon three girls complained of headaches and at about midnight one called me in still having the headache also a raw feeling in the trachea and a temperature of 101.4 F. Examination demonstrated a considerable coating of gilt powder in the nose and in one spot a reddened area which looked as if it had been bleeding though there was no history of this. In the month there were three teeth with swollen gums (two central incisors and a left canine) which looked like Vincent's angina and a blue line along the margin though this line was not very definite. I had poisoning of course entered my mind but not convincingly. She had not worked long in the shop so type would hardly be accountable. There were no other symptoms pointing to lead or nervous or abdominal symptoms. Striking was the statement that the stool was filled with gold. (Her mother said she resembled the goose that laid the golden egg.) Objection to powder was the statement that the teeth were brushed almost daily and the other teeth indicated this in their clean condition. Vincent's organisms were not found. I should like to know what the ingredients are of such gilding powders. The one used was made by the ILL International Printing Ink Corporation supposed to be in Chicago though there was no address on the box. Another powder (brand) was also used to some extent, the name of which was not obtained. Rest a mouth wash (perborate) and a cathartic cleared up the symptoms entirely so the patient went to work on Monday. There is however some excitement among the employees and I should like to allay it if possible or take precautionary measures if that is necessary. If there were but one case I would consider allergy probable. I do not believe there would be lead or mercury. Please omit name. M D Illinois

ANSWER—Bronze powders frequently have been suspected of causing occupational diseases but most of the available evidence is to the contrary. In the past more than at present, lead as an impurity in the metals marking up these powders has been encountered in quantities theoretically sufficient to induce lead poisoning. Gilding powders are ordinarily made up of copper, zinc and aluminum, more than 75 per cent being copper. Dust arising from exposure to gilding powders might in time produce increased fibrosis of the lungs, but the danger is negligible compared with that from silica and from silicates. The mechanical action of bronze powders may lead to the irritation of the respiratory passages but the quantity of damage is surprisingly low when considered in connection with the amount of powder sometimes deposited along the mucous membranes.

Some of the various fixing agents used to bind the gilt to the object being gilded are more likely sources of immediate irritation. Various types of sizings or varnishes are used for this purpose. A common one is a linseed oil varnish, which may contain naphtha solvent naphtha, linseed oil small amounts of lead and manganese. At times amyl acetate or similar agents enter into these fixatives. The combination of minor chemical irritation from the fixative plus minor mechanical injury from the gilding powder probably account to a full extent for the condition described. Subsequent infection of the respiratory tract undoubtedly played a part. Under ordinary circumstances this type of occupational injury may be regarded as of relatively minor significance. However if this operation is carried out near printing presses some consideration should be given to the possibility of irritation from a press cleaning material which commonly is naphtha, and some printing inks which sometimes contain vaporable irritating constituents.

## ACETYLCHOLINE IN BENZENE POISONING

To the Editor—The use of acetylcholine for the prevention of death due to the inhalation or absorption of benzol, or benzene has been discussed in some of the technical journals during the past year or so. It so happened that we are using benzene at some of our operations and we should like authoritative information regarding the use of this drug its effects, and results produced to be passed on to the medical men at our plants. If you do have any information available we shall appreciate your help.

C L JONES Wilmington Del  
Safety Engineer, Hercules Powder Company

ANSWER—Lately several articles have discussed the many types of actions produced by acetylcholine on animals. Among other properties it influences the autonomic nervous system, leads to vasodilatation and a fall in blood pressure sometimes with a secondary rise, slows the heart rate, and produces hyperglycemia. However, in man similar activities have not developed to an equal extent. Ellis and Weiss state that, after the intravascular injection of acetylcholine in man apparently this substance is inactivated in the capillaries and loses its capacity to induce changes. They continue. It is improbable that acetylcholine acts as a general hormone in the human body and unless

it acts differently in disorders of the arteriolar system it cannot be considered a useful therapeutic agent." In benzene poisoning two features are (1) the loss from the blood of many of those chemical bodies that provide protection against bacterial action with the result that an excessive proneness to infection exists (infection nearly always is the direct or contributory cause of death) and (2) the presence of a leukotoxin that tends to deprive the body of the presence and functional activity of leukocytes. At the same time there result from an action of the benzene on the bone marrow large numbers of premature red cells in the blood stream which are possibly of limited functional capacity. It is difficult to believe that acetylcholine may eliminate such results of benzene toxicity. Possibly some ministrations of benzene poisoning may favorably be influenced by this choline but no reason is known why this agent may be regarded as of any remarkable value in "the prevention of death due to inhalation of or absorption of benzene," as noted in the query. Moreover, Kahlson has stated that "acetylcholine has all the properties of a potential poison." Acetylcholine must be considered as still being decidedly in the experimental stage. It has not been recognized by the Council on Pharmacy and Chemistry as acceptable for New and Nonofficial Remedies.

## PURPURA AFTER ARSPHENAMINE

To the Editor—I have a patient with syphilis whom I have been treating with bismuth arspenamine sulphionate for the last three months. Following the last injection a few purpuric spots appeared beneath the elbows and he had some bleeding from the gums otherwise he looks and feels all right. Stokes in his latest edition on syphilis mentions the fact that this symptom is a serious precursor of a more violent blood destruction. Now what I want to know is whether I can use any other arspenamine derivative or should I stop all such treatment and stick to preparations of bismuth and mercury? Stokes mentions the severity but says nothing about treatment of the condition. Please omit name. M D, Connecticut

ANSWER—It is inadvisable to continue the use of any arspenamine preparation or derivative including bismuth arspenamine sulphionate after the appearance of purpuric spots and hemorrhage from the gums. The precise significance of these symptoms can be to some extent controlled by an immediate examination of the blood smear for signs of bone marrow irritation and injury.

Stokes discusses in full on pages 478-481 in the latest edition of "Modern Clinical Syphilology" the warnings of injury to the hematopoietic system giving full details of treatment, including the precise statement purpura and extensive capillary hemorrhage after an injection of an arspenamine is a sign of the gravest import, and should be a warning never to repeat this form of treatment' (page 478). Again, on page 480 he says "The treatment of the hematopoietic group of complications consists first in immediate and probably absolute discontinuance of an arsenical when even traces of purpura have appeared in the patient." The only form of treatment not mentioned by Stokes, since it postdates the publication of the second edition, is the possible use of leukocytic cream as recommended in agranulocytosis by Strumia, for example.

## CONTROLLING SIZE OF INFANT—USE OF POTASSIUM NITRATE TO REDUCE LIBIDO

To the Editor—1 There is a prevalent belief among women that pregnant women need not and should not have big babies and that the doctor is to blame if it is over 7½ pounds (3400 Gm.) That opinion was also stated today over the radio by psychologist Frank Payne. What is the consensus? 2 In a girl's college in New Jersey, nitre is given daily in some foods ad nauseam to some pupils the object being as stated to keep down passion. And the statement is made that this drug is given in other colleges for the same purpose. Please inform me whether nitre is of real value for that purpose and if it is safe to continue its use indiscriminately, year after year.

M D New Jersey

ANSWER—1 The size of a new-born baby is by no means under the entire control of its mother or of the physician who gives the mother antepartum care. To a moderate extent the size of a baby may be kept down by the mother if she is placed on a restricted diet. However, the size of a baby depends much more on hereditary factors than on diet. Hence a physician cannot be blamed if he delivers a large child unless the baby is monstrously large. If a physician recognizes that for some known (diabetes) or unknown reason a child in utero appears to weigh more than 4,000 Gm he is justified in inducing labor. However, it would be pernicious practice to induce labor in every case in which a baby appears to be over 3,400 or 3,600 Gm. Furthermore in many cases it is notoriously difficult to estimate the weight of a child in utero except with

the aid of roentgenograms. Furthermore, unless the roentgenograms are taken under standardized conditions, many errors will be made.

2 Potassium nitrate has practically no effect in reducing passion. Since the drug is used as a diuretic and as a diaphoretic and since it may produce gastro-enteritis, it is obvious that long continued use of it may result in harm. It should certainly not be given indiscriminately to a group of girls even for brief periods. It might be interesting to find out on whose authority the college in question forces girls to take the drug.

#### PEYRONIE'S DISEASE OR PLASTIC INDURATION OF PENIS

*To the Editor*—Recently a man aged 48 consulted me with the complaint that for the past year and a half he has had occasional shooting pains from his left side down into the left side of the penis. The pains have been much less during the past six months, but he has noticed that when he has an erection the organ bends to the left almost to a 30 degree angle. He has also noticed that the left side seems to be smaller and denser in consistency than the right side. During an erection he experiences considerable pain and intercourse is almost impossible. The condition is apparently becoming worse except for the pain and he of course is desirous of relief. Examination revealed a fibrosis or thickening of the corpus cavernosus on the left side. It has a solid consistency and one can see how that side would be shorter during an erection. His past history is negative. Cystoscopy did not reveal anything abnormal. The neurologic examination also gave negative results. The Wassermann reaction was negative. Any suggestions as to treatment would be greatly appreciated. Please omit name.

M D Wisconsin

*ANSWER*—From the history it is evident that the patient has a so-called Peyronie's disease, sometimes called plastic induration of the penis, or fibrous cavernitis. In view of the fact that the etiology of this condition is unknown, no specific treatment is at hand. On the theory that this may be due to focal infection, careful search for infection of the teeth, tonsils and sinuses should be made, and likewise it is important to massage the prostate and seminal vesicles and to examine the expressed fluid for the presence of pus. If foci of infection are found they should be treated accordingly.

The treatment consists of soaking the organ in hot water two or three times a day, followed by mild massage of the thickened area. It is desirable in some cases to use the official U S P iodine ointment made with a vanishing cream base instead of the U S P base. Administration of potassium iodide, from 0.65 to 1 Gm three or four times a day, seems to help in some instances. Application of diathermy to the thickened areas occasionally produces great improvement. Roentgen treatment and radium treatment have been advised. Their value is somewhat doubtful.

Surgical treatment offers little in the way of cure and is often followed by a prompt recurrence, often in an aggravated form.

#### MUCUS SECRETION IN TUBERCULOSIS

*To the Editor*—A man aged 62 has tuberculosis of some twenty five years standing always of the subacute variety. Now all signs of active tuberculosis are absent (temperature and pulse are normal, sputum is negative, blood pressure is 120 systolic 80 diastolic) except an asthmatic condition which appears to be due to a secretion of thick tenacious mucus which he expectorates. At times he coughs up mucous casts of the bronchi. I have tried all the usual expectorants but they soon lose their effectiveness and when given in large doses they disturb his digestion. I am afraid to give iodides for fear they will cause absorption of the scar tissue in his lungs. He is haunted by a fear that some time he will die of suffocation before medical aid can be obtained. Epinephrine gives temporary relief but later the condition is aggravated. On several occasions I have resorted to ether inhalations to relieve the spasm of the bronchi and stimulate the secretions. Aside from the distressing condition the patient is in excellent health and attends to his business during the day. Any assistance you can give me will be gratefully received. Please omit name.

M D California

*ANSWER*—This condition is one that not infrequently develops in advanced pulmonary tuberculosis when there has been extensive involvement with marked regression. The results of such healing leave several types of pathologic change in its wake. There is a variable degree of bronchiectasis, usually a marked emphysema in the clearing tuberculous tissue and, as the function of the lung diminishes, an active emphysema in the remainder of the lung. There comes a time when there is not enough healthy alveolar surface to aerate the blood so that a distressing dyspnea sets in, following any type of exertion or when there is otherwise any encroachment on the active alveoli. In this case it may be due to a plugging of bronchi as suggested or to an insidious inflammation that sets in from time to time as a result of infectious agents spilling over into the relatively normal tissue.

To relieve the mucus it seems that most measures have been tried. There need be no fear of trying iodides, in moderate dosage, especially if alternated with other expectorants for intervals of three or four weeks. Sometimes "coramine" will give temporary relief.

The new inflammations that develop can be alleviated only by rest. The time usually comes, however, when the hearts of such patients become inadequate for the load and there results a myocardial weakness that, near the end, is signaled by an ankle edema. Before this comes on, however, the patient's condition may be made more comfortable in the attacks by use of the oxygen tent.

#### FOURTH LEAD IN ELECTROCARDIOGRAPHIC TRACING

*To the Editor*—Will you please outline the accepted method of taking the fourth lead in electrocardiographic tracings, with special reference to the standardization to be employed in taking the fourth lead. Please omit name.

M D., New York

*ANSWER*—The use of lead 4 is so recent that a uniform technic has not been definitely established. However, the essential principles are now well known. Some of the details can be obtained by reference to the paper by C. C. Wolfarth and F. C. Wood in the *American Journal of the Medical Sciences* (183:30 [Jan.] 1932) and that by L. N. Katz and Milton Kassin in the *American Heart Journal* (8:595 [June] 1933). It has been accepted that the lead from the precordium is more important than the other lead. It is preferable to utilize bony landmarks for the chest lead, since it permits the taking of repeated curves from the same spot. The technic employed by Katz and Kassin is as follows:

With the patient on his back, one of the flexible tin electrodes (25 by 5 cm.), made of the same material as the sort used in diathermy, is applied at the level of the fourth interspace, just to the left of the sternum, with the long axis of the electrode parallel to the interspace. To this is attached the right arm terminal of the electrocardiograph. The other tin electrode is placed on the left leg and attached to the left arm terminal. The skin resistance should be kept low. The site of the chest electrode is shaved when necessary and the skin over the region cleansed with alcohol. A warm paste of flour and concentrated salt solution is spread over the electrodes before they are applied to the chest and leg. Adhesive tape is used to keep the electrodes in position. Care is taken to insure close application of the electrodes to the skin. The string tension is adjusted so that 1 millivolt gives a deflection of 1 cm. Care should be taken that the electrodes are polished, that the copper terminals soldered to the electrodes are clean, and that no salt solution gets on the solder.

#### BURN OF MOUTH

*To the Editor*—A boy aged 4 years by accident turned the spout end of a hot water kettle into his mouth as soon as the hot water scalded his mouth he screamed and some of the water entered his pharynx and no doubt his larynx before he could spit it out. As his mouth and throat were swollen greatly and he had a fever I treated the mouth with ephedrine sprays and also gave atropine sulphate to lessen the secretions in the mouth. Along with the foregoing he was treated prophylactically for any pneumonic condition that might develop which did not show up until the fourth day in the hospital. Since I could not find anything in the literature about such a case I would appreciate it if you would please let me know if the treatment given was correct and what else could be done in this case and in similar ones. Please omit name.

M D Canada.

*ANSWER*—The information at hand merely permits one to surmise that the case was one of a burn of the first degree of the tissues of the mouth and pharynx with probable involvement of the larynx. The treatment was, no doubt quite correct and probably everything was done to prevent the development of pneumonia, unless the pneumonia developed as a result of aspiration due to abnormal function of the larynx and pharynx. When such conditions in these parts make aspiration into the lungs inevitable, feeding should be carried on extra-orally.

#### LOCAL ANESTHESIA IN ASTHMA

*To the Editor*—What is the safest local anesthetic for nose and throat procedures in allergic asthma? Kindly omit name.

M D New York.

*ANSWER*—Untoward effects from the use of the usual substances for local anesthesia in allergic asthmatic conditions are seldom observed. Various concentrations of cocaine may be applied to the nasal or sinus mucous membrane. Infiltration of the mucosa or nerve blocking may be carried out with 1 or 2 per cent procaine hydrochloride or similar solutions.

## Medical Examinations and Licensure

### COMING EXAMINATIONS

**ALABAMA** Montgomery June 24 26 Sec Dr J N Baker 519 Dexter Ave, Montgomery

**AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY** Oral (Group A and Group B candidates) New York June 10 Sec Dr C Guy Lane 416 Marlborough St Boston

**AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY** Final oral and clinical examination (Group A and Group B candidates) Atlantic City N. J. June 10 11 Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh

**AMERICAN BOARD OF OPHTHALMOLOGY** New York June 10 Sec Dr William H Wilder 122 S Michigan Bldg Chicago

**AMERICAN BOARD OF PEDIATRICS** Atlantic City N. J. June 10 and St Louis Nov 19 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

**ARIZONA** Basic Science Tucson June 18 Sec Dr Robert L Nugent Science Hall University of Arizona Tucson Medical Phoenix July 2 Sec Dr J H Patterson 826 Security Bldg Phoenix

**CALIFORNIA** San Francisco July 8 11 and Los Angeles July 22 25 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**COLORADO** Denver July 2 Sec Dr Harvey W Snyder 422 State Office Bldg Denver

**CONNECTICUT** Hartford July 9 10 Endorsement Hartford July 23 Sec Medical Examining Board Dr Thomas P Murdock 147 W Main St Meriden

**DELAWARE** June 11 13 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover

**DISTRICT OF COLUMBIA** Washington July 8-9 Sec Commission on Licensure Dr George C Ruhland 203 District Bldg Washington

**FLORIDA** Jacksonville June 17 18 Sec Dr William M Rowlett P O Box 786 Tampa

**GEORGIA** Atlanta and Augusta June 11 12 Joint Sec State Examining Board Mr R C Coleman, 111 State Capitol Atlanta

**HAWAII** Honolulu, July 8 11 Sec Dr James A Morgan 48 Young Bldg Honolulu

**ILLINOIS** Chicago June 25 28 Address Department of Registration and Education Springfield

**INDIANA** Indianapolis June 25 27 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis

**KANSAS** Topeka June 18 19 Sec Board of Medical Registration and Examination Dr C H Ewing 609 Broadway Larned

**MAINE** Augusta July 2-3 Sec Board of Registration of Medicine Dr Adam P Leighton Jr, 192 State St Portland

**MARYLAND** Regular Baltimore June 18 21 Sec Dr John T O'Mara 1211 Cathedral St Baltimore Homoeopathic Baltimore June 11 12 Sec Dr John A Evans 612 W 40th St Baltimore

**MASSACHUSETTS** Boston July 9 11 Sec Board of Registration in Medicine Dr Stephen Rushmore 413 State House Boston

**MICHIGAN** Ann Arbor June 11 13 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 3-4 Hollister Bldg Lansing

**MINNESOTA** Minneapolis, June 18 20 Sec Dr E J Engberg 350 St Peter St St Paul

**MISSISSIPPI** Jackson June 25 26 Asst Sec State Board of Health Dr R N Whitfield Jackson

**MISSOURI** St. Louis June 12 14 State Health Commissioner Dr E T McLaughlin State Capitol Bldg Jefferson City

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16-18 Ex. Sec. Mr Everett S Elwood 225 S 15th St Philadelphia

**NEBRASKA** Omaha June 11 12 Dir, Bureau of Examining Boards Mrs. Clark Perkins State House Lincoln

**NEW JERSEY** Trenton June 18 19 Sec Dr James J McGuire 28 W State St Trenton

**NEW YORK** Albany, Buffalo New York and Syracuse June 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

**NORTH CAROLINA** Raleigh June 10 14 Sec Dr Benj J Lawrence 503 Professional Bldg Raleigh

**NORTH DAKOTA** Grand Forks July 2 5 Sec Dr G M Williamson 4 1/2 S 3d St Grand Forks

**PENNSYLVANIA** Written Philadelphia and Pittsburgh July 9 11 Bednde Philadelphia July 12 13 Dir Bureau of Professional Licensing Mr W M Denison 400 Education Bldg Harrisburg

**RHODE ISLAND** Providence July 2 3 Dir Department of Public Health, Dr E. A McLaughlin 319 State Office Bldg, Providence

**SOUTH CAROLINA** Columbia June 25 Sec Dr A Earle Booser 505 Saluda Ave. Columbia

**SOUTH DAKOTA** Rapid City July 16-17 Dir Division of Medical Licensure Dr Park B Jenkins Pierre

**TENNESSEE** Knoxville, Memphis and Nashville June 13 14 Sec Dr H W Qualls 130 Madison Ave. Memphis

**TEXAS** Austin June 18 20 Sec Dr T J Crowe 918 19 20 Mercantile Bldg Dallas

**UTAH** Salt Lake City July 8 10 Dir Department of Registration Mr S W Golding 326 State Capitol Bldg Salt Lake City

**VERMONT** Burlington June 26-28 Sec Board of Medical Registration Dr W Scott Nay Underhill

**VIRGINIA** Richmond June 19 21 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

**WASHINGTON** Basic Science Seattle, July 11 12 Medical Seattle July 15 17 Dir Department of Licensure Mr Harry C Huse Olympia

**WEST VIRGINIA** Clarksburg July 8 State Health Commissioner Dr Arthur E McClue Charleston

**WISCONSIN** Milwaukee June 25 28 Sec Dr Robert E Flynn, 401 Main St LaCrosse

### Minnesota January Examination

Dr E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Jan 15-17, 1935. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Forty-one candidates were examined, all of whom passed. One physician was licensed by reciprocity and one by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Stanford University School of Medicine	(1934)	90	3
Georgetown University School of Medicine	(1932) 91	2	93
Northwestern University Medical School	(1933)	86	1
Rush Medical College	(1934)	94	2
University of Illinois College of Medicine	(1931)	83	1
(1933) 87	4	(1934) 96	2
State University of Iowa College of Medicine	(1932)	89	3
Tulane University of Louisiana School of Medicine	(1932)	86	1
Harvard University Medical School	(1933)	88	5
University of Minnesota Medical School	(1933)	89	4
90 2 * (1934) 82 2 * 83 84 3 * 84 4 * 84 4 * 86 3 * 86 5 * 87 * 87 5 * 87 6 * 88 2 * 88 3 * 88 5 * 89 1 * 89 1 * 90 1 *			
St. Louis University School of Medicine	(1933)	90	1
Washington University School of Medicine	(1932)	92	1
University of Nebraska College of Medicine	(1933) 84	6	90
Cornell University Medical College	(1932)	89	6
Jefferson Medical College of Philadelphia	(1927)	92	6
University of Pennsylvania School of Medicine	(1933)	86	4
Vanderbilt University School of Medicine	(1932)	89	4
University of Virginia Department of Medicine	(1933)	88	5
University of Manitoba Faculty of Medicine	(1929)	91	2
McGill University Faculty of Medicine	(1933)	84	5
University of Cape Town Faculty of Medicine	(1929)	89	3
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Tennessee College of Medicine	(1930)	Tennessee	
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
University of Minnesota Medical School	(1931)	N B M Ex	

\* This applicant has received his M.B. degree and will receive his M.D. degree on completion of internship

## Book Notices

**The Nervous Patient: A Frontier of Internal Medicine** By Charles Phillips Emerson M.D. Research Professor of Medicine Indiana University Indianapolis Cloth Price \$4 Pp 453 Philadelphia & London J B Lippincott Company 1935

On page 279 the author says 'This is not a textbook on psychiatry but one on internal medicine. In the former specialty we are quite untrained'. In spite of this deficiency, which makes itself known in many places in the book, the present volume supplies a need that has been noted as significant for years. It provides the general practitioner with a volume giving the facts in systematic form of those conditions affecting patients coming to him which lie particularly in the sphere of neurology and psychiatry. There are thirty chapters, of which the first eighteen can be considered to stress organic phenomena while the last part of the book treats of the so called functional disorders, including disorders of sleep and disorders of the personality. Those chapters concerning actual physical disease contain a great amount of systematic material, little of which deals with the form and function of the nervous system or with psychiatry. Such diseases as neuralgias, allergic pulmonary syndromes and cardiac irregularities are presented in a fashion that differs little from the manner of treatment of these disorders in the conventional medical textbook. Some of these presentations are inferior, a few superior to those found in such books as Osler's and Cecil's. Even in thyroid disease and peptic ulcer, which are now known to have a definite relationship with the patient's mental makeup, this side of the problem is minimized and their treatments are largely presented from the standpoint of conservative medicine rather than from the more modern and, in many cases, apparently the more valuable approach of psychiatry. The physician who is not well grounded in psychiatry might be led dangerously astray in dealing with an occasional case of psychogenic peptic ulcer or even psychogenic cardiac arrhythmia by leaning too much on the present work. The second part of the volume deals chiefly with the superficial aspects of the psychoneuroses. Deep therapy and analysis of these cases is not stressed. Such conditions as impotence and frigidity in women, sources of great mental diffi-

culty yet which are many times brought to the attention of the general practitioner, are sketchily handled. In this part of the book one notes short paragraphs of definitions revealing an insufficient background. The slant given to hysterias and the neuroses is largely that of the English writers on these subjects, but much material is culled from the present journal. In spite of all these deficiencies there is much material in the book to justify recommending it to general practitioners who have wondered just what they were doing when dealing with "nervous" patients. Psychiatrists will feel that a great deal of the material is antiquated and even misleading as, for example, on page 262 the use of the word Banser's for Ganser's syndrome. It might be pointed out in favor of the book that in no other recent volume has the problem of the borderline neuropathic patient been so comprehensively treated. Each topic is closed with a short bibliography and there are occasional case examples in the text.

**Bee Venom Therapy: Bee Venom Its Nature and Its Effect on Arthritis and Rheumatoid Conditions.** By Bodog F. Beck, M.D. Cloth. Price \$5. Pp. 238. New York & London: D. Appleton Century Company, Inc. 1935.

This book fails in its purpose of advancing the use of bee venom because most of the evidence is uncritical. The use of bees in medicine is traced from the time of Hippocrates to the present day. The author feels that bee stings are not accepted therapy because of the professional attitude toward lay remedies (as in the case of quinine), the seasonal and rural availability of bees (commercial venom eliminates this factor), and the difficulty of using the procedure. The low incidence of arthritis in bee keepers and the tolerance of patients with arthritis to bee stings are noted. The venom is claimed to be effective through the increased oxidation (circulation) of the affected part. It is recommended in acute rheumatic fever and endocarditis, arthritis deformans, muscular rheumatism, myalgia, neuritis, migraine and many other conditions. It is stated to be contraindicated in tuberculosis, diabetes, gonorrhea and the "endocrine arthritides." The evidence presented is a hodge-podge of quotations from medical literature (principally European), from newspapers, and from testimonials of doctors, patients and bee keepers. The use of venom by applying the live bee to the patient in single and repeated multiple doses is discussed. Fatal cases of bee stings (even among bee keepers) the medicolegal aspects of bee stings, the fact that there is still much work to be done with bee venom, and the inferiority of the present commercial venoms are all noted. There is much elementary discussion of subjects usually relegated to preclinical training, the impression that the author is addressing the general public persists in the mind of the reader. The omission of the author's own case reports results in this being inadequate evidence for the use of bee venom. It is an interesting book from the historical aspect, has an extensive bibliography and is written in good style, but it is not a contribution to scientific medical literature.

**Experimental Bacteriology in Its Applications to the Diagnosis, Epidemiology and Immunology of Infectious Diseases.** By Dr. W. Kolle, Director of the Institute for Experimental Therapy and of the Chemico-therapeutical Research Institute, Georg-Speyer-Haus, and Dr. H. Hetsch, Professor at the Institute for Experimental Therapy, Frankfurt. In two volumes. Translated from the seventh completely revised German edition by Dagny Erikson. The English version incorporating further revision edited by John Eyre, F.R.S., F.R.S., M.D., Director of the Bacteriological Department, Guy's Hospital. Cloth. Price \$16 per set. Pp. 592, 613, with 318 illustrations. New York: Macmillan Company, 1935.

This book appeared first in the early part of the century. It was based on lectures on bacteriology by the senior author, who was associated with Koch in his investigations of cattle plague in South Africa in 1897. French, Italian, Spanish and Russian versions have appeared and this is an English translation of the seventh German edition. First come chapters on the morphology and biology of pathogenic micro-organisms, on immunity, on antibodies, on hypersensitivity, on serologic diagnosis and on bacterial and serum therapy. Then begins the study of specific infectious diseases, and the microbiologic details of each "are painted in with firm strokes upon the groundwork of a picture which portrays the clinical aspects of the particular disease." Commencing with a short historical survey, the accepted microbial agent is briefly but adequately described. Then comes a consideration of the possibilities of natural infection of domestic animals, the phenomena of the human infection, its clinical course, and if fatal a

description of the postmortem appearances, whilst the necessity for detecting and isolating the microbial cause is insisted upon as the real basis of exact diagnosis. Finally comes the epidemiology of the disease, and if of epidemic importance, the routes by which it is spread, the characters of the immunity consequent upon recovery from the infection, the methods of prophylaxis and serotherapy of the disease." There is no natural dividing line between the two volumes but, curiously enough, they are treated as separate entities, each with its own pagination, chapter numbers, plate and figure numbers as well as index. This is an awkward arrangement, as the contents of each volume are not indicated either on the title pages or on the backs of the books. The illustrations, especially the many colored plates, are of great value. No really serious fault can be found with the translation. The work may be characterized as an authoritative and comprehensive survey up to the last three years or so of our knowledge of the etiology, specific diagnosis and treatment of infectious diseases and of experimental bacteriology in general, with especial emphasis on "the discoveries, theories and practice of the Koch school." It has great historical interest and should be available for the ready use of teachers and students of bacteriology and infectious diseases.

**Kurzwellentherapie. Die medizinische Anwendung elektrischer Höchstfrequenzen.** Von Dr. Erwin Schliephake, Privatdozent für Innere Medizin an der Universität Jena. Physikalischer Anhang von Dr. L. Bohde. Second edition. Paper. Price 10 marks. Pp. 196 with 143 illustrations. Jena: Gustav Fischer, 1935.

Three years has elapsed since the appearance of the first edition, during which period short wave radiation has aroused a keen interest in its therapeutic possibilities. That short wave therapy has actually proved superior to diathermy is now the conviction of many authoritative investigators, arrived at after independent, critical study. It was first demonstrated by Schereschewsky in America in 1926, and his labors aroused the intense interest of workers in Austro-German centers, among whom Schliephake, of the research division of the University of Jena, contributed the greatest support and the most original labors.

In the present volume the author has not only collated the opinions of various laborers in the relatively new domain of hertzian short waves but has largely contributed to it both alone and in collaboration with others. This revision of the first edition represents a commendable example of conservative and well balanced discussions on the technical, experimental and clinical phases of the subject. For those technically inclined and familiar with physics, the first section, in connection with the appended chapter by Rhode, offers a clear explanation of the nature of the hertzian waves utilized and a presentation of the physical difficulties that must be overcome to provide the most practical apparatus for short and ultra-short wave radiation. The experimental section occupies the largest part of the volume and introduces an astonishing amount of data on the electrobiologic effects of short waves. This section is so rich in proofs of the biophysical and physicochemical changes produced together with those of their thermopenerative, physiologic and pathologic actions on cell, animal and human material as to merit the praise of the most critical reader. Schliephake himself, however, stresses that no one should offer dogmatic opinions on the present evidence because the entire problem is very complicated and involves numerous factors, which only time and greater orientation will clear up.

The clinical evidence of the value of short wave therapy is condensed to fifty-four pages but its discussion is compact and supported by concise case histories, tabulated reports, charts and especially clear roentgenograms. It reveals a large amount of clinical material of the unusual value of short and ultrashort waves in superficial and deep seated infections and inflammatory processes. The serious character of some of the conditions and the spectacular results obtained may create an unjustified skepticism by those best qualified to separate the clinical "wheat from the chaff." The author condemns the present tendency toward improper exploitation by unprincipled manufacturers and misuse by unqualified practitioners. He looks to scientific medicine to control the practice and the development of short wave radiation to insure lasting benefits. While the second edition has been materially revised and the bibliography greatly enlarged the book still lacks an index which always enhances the value of scientific contributions.



**Some Functions of the Cerebral Cortex** By J. F. Fulton M.D. Sterling Professor of Physiology Yale University School of Medicine Beaumont Lecturer for 1934 Beaumont Foundation Lectures Reprinted from the *Journal of the Michigan State Medical Society*, April-May 1934 Cloth Pp 47 Grand Rapids [n.d.]

This small volume comprises the thirteenth annual Beaumont Foundation Lectures which were delivered before the Wayne County Medical Society of Detroit in 1934. The lectures concern certain studies of the function of the cerebral cortex in primates. The book is divided into two chapters. The first is further subdivided into eight parts. They are: 1. Discussion of subcortical regulation of visceral functions. Intestinal peristalsis and finally intussusception result from bilateral extirpation of the frontal cortex. 2. Discussion of the cerebral cortex and its association with regulation of visceral activities. 3. Responses of the intestine to stimulation of the frontal lobes and various other parts of the cortex. Peristalsis and finally intussusception were produced experimentally by mild faradic stimulation of the supraprecentral sulcus. When the vagi were cut, no such reaction could be produced. 4. Relation of morbid hunger to lesions of the brain. The author urges further study of the motility of the stomach in traumatic crises of morbid hunger. 5. Vasomotor disturbances associated with cortical lesions and with faradic stimulation of certain cortical areas. 6. Cerebral cortex and vasomotor reflexes. 7. Discussion. 8. Summary. The second chapter also is subdivided into eight parts. Parts 1, 2 and 3 are concerned with the frontal lobes. Part 4 is concerned with the motor area and considers flaccidity, motor power and intellectual deficit. Part 5 is concerned with the premotor area and takes up spasticity and forced grasping reflex changes, motor power and ipsilateral representation and intellectual deficit. Part 6 describes frontal association areas. Part 7 presents clinical inferences. Part 8 is a summary. This book summarizes the previous work done by others as well as the work conducted by the author in his own laboratory. There is a good bibliography.

**Die Liquordiagnostik in Klinik und Praxis** Von Dr. Hans Demme, Chefarzt der neurologischen Abteilung des Allgemeinen Krankenhauses Barmbeck in Hamburg. Paper Price 7 marks Pp 205 with 96 illustrations. Munich: J. F. Lehmanns Verlag 1935.

The author states in his preface that he aims to present a practical rather than a theoretical treatise on cerebrospinal fluid. In this he has succeeded. The book discusses the practical aspects of the subject describing the technic of examination and the cerebrospinal fluid changes in various diseases. Most of the illustrations are devoted to the normomastic reactions in various diseases. This is unfortunate as the reader is given the impression that the normomastic curve of Kafka is the most important one in the examination of cerebrospinal fluid—even better than the colloidal gold curve—an idea to which few persons acquainted with the subject can subscribe. Demme gives the  $p_H$  of cerebrospinal fluid as between 7.35 and 7.8. The upper figure is too high except when the fluid has been allowed to stand, at which time it may be even higher than 7.8 because of the escape of carbon dioxide from the fluid. In fresh cerebrospinal fluid the  $p_H$  varies between 7.4 (rarely 7.35) and 7.6. Although there is nothing new in the book it is a practical guide to the examination of cerebrospinal fluid.

**The Practitioner's Library of Medicine and Surgery** Volume VIII Therapeutics. Supervising editor George Blumer M.A. M.D. David P. Smith Clinical Professor of Medicine Yale University School of Medicine. Associate editor Albert J. Sullivan B.S. M.D. Assistant Professor of Medicine Yale University School of Medicine. Cloth Price \$10 Pp 1031 with 27 illustrations. New York and London: D. Appleton Century Company Inc. 1935.

This great system gradually approaches its concluding volume. The present volume deals with the treatment of disease by all the various methods. To this there are a great number of contributors selected because of special contributions to various phases of modern therapy. Thus diet therapy is discussed by Dr. George A. Harrop Jr., the technic of medication by Dr. Bernard Fantus, and there are also sections on hydrotherapy, climatotherapy, light and air, inhalation, physical therapy, x-ray and radium therapy, biologic methods of treatment, nonspecific protein therapy, anesthesia and psychotherapy. Following this section of the book comes the remaining three fourths which is the special therapy of various types of diseases, classified according to their nature and according to the specific sections of the

body. The book naturally provides a vast amount of helpful material of a practical character in the treatment of all the various conditions that may come in an ordinary practice. It is the kind of book that ought to be read carefully at least once by its purchaser and then set aside as a constant reference work in the daily problems of practice. Fortunately the book has an extended index, which yields ready reference to the material that it contains. As the authors are most of them well trained physicians with a scientific point of view, the book is remarkably free from recommendations of secret, unestablished and nostrum-like remedies.

**Proprédaufique obstétricale** Par L. Devralgne chargé de cours de clinique annexe. Paper Price 22 francs Pp 191 with 50 illustrations. Paris: Masson & Cie 1934.

**La pratique obstétricale** Par L. Devralgne chargé de cours de clinique annexe. Paper Price 22 francs Pp 214 with 39 illustrations. Paris: Masson & Cie 1935.

These two books are part of a series written for medical students. In the first of the two volumes the author discusses fertilization, the pregnant uterus, the development of the ovum, the clinical examination of a pregnant woman, normal labor, presentation and contracted pelvis. In the second volume he takes up the pathology of reproduction, dystocia, puerperal infection, pathology of the new-born and obstetric operations. Readers are informed that, because of the necessity for keeping the size of the books down to a minimum only contemporary French obstetricians are quoted and unusual conditions had to be omitted. While the author successfully adhered to his first intention he frequently forgot his second plan. The first part of the second book contains discussions of numerous rarities in obstetric practice. The illustrations are few and of poor quality. The second book allots thirty-six pages to the subject of obstetric operations, and one fourth of them are devoted to destructive operations. Of the thirty-nine illustrations in the entire book eleven depict embryotomy. There are two drawings showing a vaginal cesarean section but not a single one for the classic or the transperitoneal cervical operation. For anesthesia the author prefers chloroform. He says that spinal anesthesia should be reserved for cesarean sections and for the Delmas operation. This advice is unfortunate for two reasons: first because spinal anesthesia is definitely more hazardous for obstetric patients than for other individuals and, second because the Delmas method of forcible manual dilation of the cervix should be heartily condemned as pernicious accouchement force. These books may serve a useful purpose for French students but there are more satisfactory books in English.

**Pseudo Sciences and Your Three Minds** By John F. Harwood. An Exposé of Astrology, Psychology, Psychiatry, Neurology, Criminology, Hypnotism, Christian Science. Cloth Pp 117 with 2 illustrations. New York: The Author 1934.

It must have required a good deal of courage for this writer to send his small book for review to THE JOURNAL, for even one as deluded as he appears to be should have had enough experience with the press to know that his nonsense would not be looked on with any degree of favor by any scientific group. The thesis seems to be that the author considers himself gifted with a 'greater mind,' which is more than the usual human 'mechanical mind' and human 'conscious mind' (his synonyms for the unconscious and conscious minds of everyday psychology). He maintains that psychology, psychiatry, neurology, criminology and hypnotism are fakes and frauds and he links them with astrology and Christian science, with which he has no sympathy either. There is probably no sentence in the book to which the psychiatrist cannot take exception.

**Grupo sanguíneo dos índios Guarany** Por Leonildo Ribeiro, director do Instituto de Identificação. W. Berardinelli e M. Rolter, anthropologistas do Instituto de Identificação. Rio de Janeiro: Rolter. Pp 9 with 5 illustrations. Rio de Janeiro: Imprensa Nacional 1934.

Every one of 107 Guarani Brazilian Indians examined was found to belong to group O. The authors cite Snider's study on pure American Indians (91.3 per cent group O) and Vela's study on Indians of Ecuador (95.5 per cent group O), but evidently overlooked the study by Larreta on 200 pure Indians in Peru, all of whom were found to belong to group O (Wiener, A. S. Blood Groups and Blood Transfusion, Charles C. Thomas 1935 pp 156-166). The authors have also overlooked



the study of Matson and Schrader (*J Immunol* 25 155 [Aug] 1933), who found that of 115 full-blooded Blackfeet Indians 23.5 per cent belonged to group O and 76.5 per cent to group A. The study by Matson and Schrader is the only exception to the general rule that pure Indians all belong to group O. Thus far these interesting observations in Indians have not been of much help to the anthropologist. It is too bad that the authors did not take advantage of the opportunity they had to examine the bloods of the Guaraní Indians not only for the four Landsteiner blood groups but also for the agglutinogens M and N.

**A Pathology of the Eye** By Eugene Wolff M.B. B.S. F.R.C.S. Ophthalmic Surgeon Royal Northern Hospital, Cloth Price 28s. Pp. 283 with 124 illustrations. London: H. K. Lewis & Company Ltd. Philadelphia: P. Blakiston & Son 1934.

In his preface the author states that this book "is intended as an introduction to a subject whose essentials most students and ophthalmic surgeons find difficult to come by." Perhaps it fulfils that purpose. The author seems to have dealt rather superficially with the subject. In many instances the pathologic process is described all too briefly and in general terms. Only a small portion of the work will be read with interest by the student of ocular pathology. Too much space is devoted to nonpathologic phases of ophthalmology even though, as the author states in his preface, "much of that which is usually regarded as clinical ophthalmology really belongs to the Pathology of the Living." Too little that is devoted to pathology is devoted to histopathology. Thirty of the illustrations are on normal anatomy and almost all of these are from the author's "Anatomy of the Eye." There is need for a scholarly book, written in English, that will bring the subject of the pathology of the eye down to date. This book does not fill that need.

**Report of the Second International Conference on Vitamin Standardization** (London June 12th to 14th 1934). League of Nations Health Organisation Permanent Commission on Biological Standardisation Quarterly Bulletin of the Health Organisation of the League of Nations Vol. III Extract No. 15 Paper Pp. 13 Geneva 1934.

This report is essentially a confirmation, with some revisions of the recommendations on vitamin standardization made by the first London conference in 1931. While the substances recommended as standards for vitamins A and C have been changed (to  $\beta$ -carotene for vitamin A and cevitamic acid [*l*-ascorbic acid] for vitamin C), the units formerly recommended for these vitamins have been retained and restated in terms of the newly chosen substances. The recommendations for standards and unitages of vitamins B<sub>1</sub> and D remain unchanged. On account of the insufficiency of our present state of knowledge concerning them, the conference has not adopted standards or units for vitamins B<sub>2</sub> (G) and E. The conference recognizes the desirability of expressing potency in terms of the exact amount of pure vitamin present but also recognizes the necessity, for the present of estimating potency by means of biologic tests in comparison with a standard substance. It is interesting to note that the conference recommends as subsidiary standards for vitamin A and D the standard Reference Cod Liver Oils which have been adopted for the U. S. Pharmacopeia (1934 Revision). For vitamin A a spectrophotometric test is also outlined. The report of the conference is of great interest to all who are concerned with vitamin standardization.

**Diseases of Children** First edition edited by Sir A. E. Garrod K.C.M.G., D.M. F.R.S. the Late Frederick E. Batten M.D. M.A. F.R.C.P. and Hugh Thursfield D.M. M.A. F.R.C.P. Third edition with contributions by 36 authors edited by Hugh Thursfield D.M. M.A. F.R.C.P. Physician Hospital for Sick Children and Donald Paterson M.D. F.R.C.P. Physician to Out Patients Hospital for Sick Children London Cloth Price \$10 Pp. 1152 with 277 illustrations Baltimore: William Wood & Company, 1934.

This edition has been edited by Hugh Thursfield and Donald Paterson. Numerous changes have been made from the second edition, published in 1929. Archibald Garrod, one of the original editors, has again contributed to the chapter on metabolic disorders. Several entirely new chapters are included, such as those on blood transfusion diseases of the new-born, rheumatism and tuberculosis. All the chapters have been revised. Numerous new illustrations have been included and newer therapeutic methods have been added. This continues to be the leading textbook on pediatrics by English authors.

## Miscellany

### THE LOST MANUSCRIPT ON OPHTHALMOLOGY BY THE THIRTEENTH CENTURY SURGEON IBN AN-NAFIS

CASEY A. WOOD, M.D.  
PASADENA, CALIF.

During the winter of 1933-1934 I was working in the Vatican Library on various tasks, among them the translation of an Arabic work on the eye and its diseases—the *Tadhkirat* of 'Alī ibn-'Isa, one of the few known complete manuscript copies of which is in the library. At the same time I was having photostat copies made of any other work bearing on early ophthalmic practice not already in the McGill General Medical or the Osler Library.

I was greatly aided in these quests by the invaluable assistance of the curator of Arabic manuscripts, Prof. Giorgio Levi della Vida, formerly of the University of Rome and a widely known oriental scholar. I asked him to make a survey of the manuscripts under his charge and note any titles likely to come under the head of my research.

My ambition to undertake the translation into English, with appropriate illustrations, notes, glossary, index and bibliography of the first systematic codex on the eye and its diseases was in part due to the fact that I had been the translator of the earliest printed textbook on the same subject, the *De Oculis* of Benevenuto Grassus, Ferrara, 1474 A. D. I had long believed that some competent person ought to undertake the same task for that famous Arabic codex 'Alī ibn-'Isa's "Notebook for Oculists," which from the tenth century onward had formed part of the equipment of medieval oriental and European surgeons.

Now the best known and by far the most erudite of ophthalmic oriental scholars since Hirschberg's death is Dr. Max Meyerhof of Cairo. Moreover, while my knowledge of medieval Latin was quite equal to "Englishing" the *De Oculis*, my studies of Arabic never reached much beyond the kindergarten stage. Consequently I suggested to Meyerhof that he, with his vastly superior equipment, should undertake the work. He acknowledged the need of a translation but firmly and decidedly declined the task. He passed the arduous undertaking to me with the promise that he would give me every assistance in his power if I would assume the responsibility—ill equipped as I was. While I was considering the matter, two influences turned the scale, a certain teaching body offered to finance the project, and I quite unexpectedly became the possessor, through the friendly aid of Professor Rustum of Beirut, of the only manuscript copy of the *Tadhkirat* that had been on the market for many years. And so the die was cast, I decided to proceed with 'Alī ibn-'Isa.

It may be added here and parenthetically that the great Biblioteca Vaticana possesses, among its many other treasures, over 60,000 more or less complete codices, as well as hundreds of early fragmentary writings in every literary language. These books and manuscript folios are now being indexed and annotated, a large number for the first time, with the aid of yearly grants from Carnegie funds, by a corps of scholars and informed cataloguers. Under these conditions one may expect to run across now and then a unique or hitherto unknown item of unusual value.

Professor della Vida kindly kept my request in mind and in March 1934 discovered, greatly to his and my joy and satisfaction, an unedited codex on eye diseases whose title page and colophon he translated and submitted to me. I recognized at once the importance of the discovery which I suspected to be an ophthalmic treatise by that famous thirteenth (1210-1288

A D) century Arabic author and compiler Ibn an-Nafis. The codex in question had long been placed on the list of lost manuscripts. Although quoted by several medieval writers and on the desiderata of Hirschberg, it had never been seen by any of them. It fortunately happened that Dr. Meyerhof was at the time engaged in translating one of Ibn an-Nafis's numerous works and is, in fact, the greatest living authority on the literary productions of that author. Accordingly I had a photograph made of the Ibn an-Nafis item and mailed to him for further information and report. I had no hesitation in making this request, since Meyerhof and I had both been pupils of that advanced oriental scholar and master of ophthalmic history, Julius Hirschberg and had retained with each other the pleasant personal contact made in Berlin forty years before.

My chief purpose in asking Meyerhof to give me his opinion of the status of della Vida's discovery was to determine what effect the contents of the find might have on my proposed translation of 'Ali ibn-'Isa's monograph. Perhaps it might prove to be a better exposition of medieval ophthalmology and put out of court a translation on which I had already expended considerable time and energy.

Following is the report on our treasure trove by Dr. Meyerhof:

"I was very happy in the receipt of your precious parcel. I passed the whole evening and most of the night in examining it and now send you my preliminary report.

'There is no doubt that it is the lost work of my friend Ibn an-Nafis! It bears his style as well as the marks both of his thoroughness and of his prolixity. It is as I expected a vast compilation, unhappily without quotation references but the completest work on ophthalmology ever written by an Arab scholar.

I experience some difficulty in translating the Arabic title, which I transliterate as follows: *Kitab al-Muhadhdhab fi Tibb al-'Ain*. I suggest tentatively, as an English title, *The Correct Book on Ophthalmology*.<sup>1</sup> While the early ophthalmic treatise of al-Ghafiqi (which I have partly translated and published in French) is more bulky from padding his treatise with an account of every possible subject relating to the eye, Ibn an-Nafis confined himself strictly to such subjects as one finds in a comprehensive but more rational monograph on ophthalmology.

"The MS. is complete: the first original leaf and a few subsequent folios have been replaced by carefully written copies in a more modern hand, but the bulk of the codex is in the calligraphy of the copy and corresponds to 851 A. H. (1447 A. D.), about 160 years after the death of the author. The name of the copyist, himself an oculist, has unfortunately been erased (perhaps intentionally), but the MS. forms, on the whole, an excellent, legible codex.

"The place of the usual introduction is taken by a three-part preface (I hope later to find time to translate this more carefully for publication) which contains several discussions lacking in other works of the kind and time, e. g., a description of the eyes of animals (mostly after Aristotle) and a more extensive account of the variations in size and color of human eyes than is found in any other eye-books of the day.

"Then follows the body of the work, the main part divided in two sections, one theoretical, one practical. Both of these are quite extensive, part I having 81 folios, part II 107 folios, together with a compilation of all the then known opinions of Greek and Arabic writers on ophthalmology.

"The chapter on the four types of cataract operations is well written but it lacks the touch of personal experience—a defect in most Arabic treatises.

"Finally, there is a long chapter on ophthalmic pharmacology. The importance of this compilation of Ibn an-Nafis is so great that I shall suggest to our medical faculty that 1000 copies of the codex be printed in Cairo at the expense of the university.

"Perhaps in the course of the next two or three years I may find time for a translation into one of the European languages—but that is another story."

<sup>1</sup> Literally: correct after emendations (Professor della Vida)

## Medicolegal

**Dental Practice Acts Rule Prohibiting Advertising by Dentists Declared Unauthorized**—Brown and others, on behalf of themselves and all other licensed dentists in the state of New York similarly situated, sought to restrain the enforcement of rule 8 of the Rules of the Board of Regents respecting advertising by dentists. Rule 8 declared the following form of advertising to be unprofessional and objectionable, and hence a cause for the revocation of a license to practice dentistry:

The employment of letters, handbills, posters, circulars, cards, stereopticon slides, motion pictures, radio, newspapers or other advertising devices for the purpose of soliciting patronage, except that a dentist may use personal professional cards of a modest type announcing his name, title, address, telephone number and office hours.

The supreme court of New York, special term, Albany County, denied the injunction and the plaintiffs appealed to the supreme court of New York appellate division, third department.

The Board of Regents has supervisory powers over the practice of dentistry, and 'conformably to law, may prescribe canons of conduct. The legislature, by chapter 609, sec. 7, Laws of 1933 authorized the revocation of a dentist's license if he, among other things is "guilty of untrue, fraudulent, misleading or deceptive advertising." The legislature thus set a standard for dental advertising. The rule adopted by the Board of Regents however, is more restrictive than the statute. The Board of Regents may not make laws and, since the statute permits advertising by dentists which is not "untrue, fraudulent, misleading or deceptive" any rule adopted by the Board of Regents prohibiting advertising that does not come within the ban established by the legislature constitutes the exercise of a law-making power not possessed by the Board of Regents and a power that may not be delegated by the legislature. The supreme court, appellate division, therefore, directed a judgment restraining the defendants from enforcing rule 8—*Brown v. University of State of New York (N. Y.)*, 273 N. Y. S. 809.

**Optometry Practice Acts Sale of Spectacles by Laymen.**—The S. S. Kresge Company operated a store in Jersey City, N. J. Among the goods displayed for sale were spectacles, designed to serve as an aid to human vision. An employee, not licensed to practice optometry in New Jersey, sold to a customer a pair of these glasses. It was stipulated that the employee gave no advice, aid or assistance to the customer in the selection of the spectacles. The employee merely sold the spectacles selected by the customer. The New Jersey state board of optometrists instituted this proceeding against the S. S. Kresge Company, charging it with employing and aiding an unauthorized person to practice optometry. The trial court gave judgment for the board, and the company carried the case to the supreme court of New Jersey.

The company contended, among other things, that if the optometry act is construed to bar the right to sell spectacles under the circumstances involved in this case, it would be an unreasonable exercise of the police power. The supreme court was unable to subscribe to this view. The right to practice medicine and kindred professions for the treatment of human ailments is subject to the paramount power of the state to impose such regulations, within constitutional limits, as may be required to protect the people against ignorance and incapacity, as well as against deception and fraud. The state, in the exercise of the police power, may undoubtedly regulate the practice of such professions for the protection of the lives and health of the people. It may prescribe that only persons possessing the requisite qualifications of learning and skill shall practice these professions. A statute prohibiting the sale at retail of "any spectacles, eyeglasses or lenses for the correction of vision, unless a duly licensed physician or duly qualified optometrist be in charge of and personal attendance at the booth, counter or place, where such articles are sold in such store or established place of business," is a valid exercise of police power. *Roschen v. Ward* 279 U. S. 337, 49 Sup. Ct. 336.

But, in the opinion of the court, the sale of the spectacles in the present case does not come within the condemnation of

the New Jersey optometry act. That act declares it to be unlawful if any person, company or association employs or aids or assists any unauthorized person to practice optometry, as defined in the act. The act defines optometry, in part, as follows

The practice of optometry is defined to be the employment of objective and/or subjective means for the examination of the human eye for the purpose of ascertaining any departure from the normal measuring its powers of vision and adapting lenses and/or prisms for the aid thereof

Oculists and ophthalmologists pursue a calling quite distinct from that of optometrists. The first has relation to the practice of medicine and surgery in the treatment of diseases of the eye, and the second to the measurement of the powers of vision, and the adaptation of lenses for the aid thereof. It is the primary function of the optometrist to employ means to determine the need of lenses for the correction of defects of eyesight, and for the increase of the power and range of vision. The practice of optometry, therefore, does not include the mere sale, without more, of spectacles, glasses or lenses designed to aid human vision. The statutory definition connotes the employment by the practitioner of means, objective or subjective, for the examination of the eye for the purpose of ascertaining its visual power, and the adaptation of lenses or prisms for the correction of discovered defects or deficiencies. The statute was not intended to apply to the sale of spectacles eyeglasses or lenses as merchandise, or to the mere sale of such to an individual for the use in the correction of his defects or deficiencies of vision, or for the alleviation of the consequences thereof. The power reasonably to regulate the sale of lenses designed to correct vision indubitably resides in the legislature, but it did not choose to exercise it. The judgment of conviction was therefore reversed and the cause remanded.—*New Jersey, State Board of Optometrists v S S Kresge Co (N J) 174 A 353*

**Malpractice Liability of Railroad Company for Negligence of Its District Surgeon**—The Chicago, Rock Island and Pacific Railway Company contracted with Dr Runyan, and other physicians associated with him in the operation of St. Luke's Hospital Clinic, to act as "District and Hospital Surgeons" for the railway company in Little Rock Ark., and vicinity. The railroad agreed to pay the physicians a definite sum monthly and the physicians agreed, among other things, to render necessary surgical and medical attention to passengers injured on the company's trains, to company employees injured in the course of their employment, and to company employees who were contributors to the hospital fund, which the company administered for the benefit of employees who became sick or disabled otherwise than in the course of their employment.

While operating on an employee entitled to benefits from the hospital fund, Runyan removed an enlarged and infected gland from the inguinal region. The gland ruptured during the course of removal and some exudate therefrom splashed in the eye of the plaintiff, a nurse assisting Runyan in the operation. The eye became infected and eventually had to be removed. The plaintiff sued the railway company and Runyan alleging that Runyan was in the employ of the railroad company and that through his negligence she had been injured. He had been negligent, she alleged, in failing to warn her of the infectious condition of the gland, and in carelessly cutting into the gland and rupturing it without warning her that he intended to do so. After the suit was started Runyan died. Judgment was rendered against the company and Runyan's estate. The company alone appealed to the Supreme Court of Arkansas.

The jury's verdict, said the Supreme Court, that the operation was negligently performed is conclusive. The operation being negligently performed, the company was liable regardless of whether or not it exercised due care in selecting or retaining the physician. The court held that the contract between the company and Runyan created the relationship of master and servant and the master became liable for the torts committed by the servant in the course of his employment. If a person or corporation, continued the court, makes a contract of employment with another, who accepts the employment and agrees to do the work but is negligent in doing it, the employer is liable.

A strong dissenting opinion, filed by three justices, however, criticized the majority holding. The relation, the dissenting justices stated, of master and servant did not exist between the railroad company and Runyan. In *Arkansas Midland R Co v Pearson*, 98 Ark 399, 135 S W 917, the court held that—

A physician cannot be regarded as an agent or servant in the usual sense of the term since he is not and necessarily cannot be directed in the diagnosing of diseases and injuries and prescribing treatment therefor for his office being to exercise his best skill and judgment in such matters without control from those by whom he is called or his fees are paid.

In *Runyan v Goodrum*, 147 Ark 481, 228 S W 397, it was said

The relation of master and servant cannot exist between physicians and surgeons who are not x-ray specialists themselves and the x-ray specialist or roentgenologist whom they employ to assist them in the diagnosis and treatment of diseases.

Also in *Norton v Hefner*, 132 Ark. 18, 198 S W 97, the court said

The doctrine of respondeat superior applies only in case of the negligence of a servant who acts under the direction and control of the master and does not apply to a physician or other professional man who when employed acts upon his own initiative and without direction from others.

In the opinion of the dissenting justices, the railroad company was not liable for Runyan's negligence unless it failed to exercise ordinary care in selecting or retaining him.

However, the judgment against the railroad company was affirmed.—*Chicago R I and P Ry Co v Britt (Ark) 74 S W (2d) 398*

## Society Proceedings

### COMING MEETINGS

- American Medical Association Atlantic City N J June 10-14 Dr Olin West 535 North Dearborn Street Chicago, Secretary
- American Association for the Study and Control of Rheumatic Diseases Atlantic City N J June 10 Dr Loring T Swann, 372 Marlborough Street Boston Secretary
- American Association for the Study of Gout Salt Lake City June 24-26 Dr W Blair Mosser 133 Biddle Street Kane, Pa Secretary
- American Association of Industrial Physicians and Surgeons Philadelphia June 10-11 Dr Volney S Cheney Armour and Company, Union Stock Yards Chicago Secretary
- American Association of Medical Milk Commissions Atlantic City N J June 10-11 Dr Harris Moak, 360 Park Place, Brooklyn N Y Secretary
- American Child Health Association Iowa City June 19-22 Dr Philip Van Ingen 50 West 50th Street New York, Secretary
- American Gastro-Enterological Association Atlantic City N J June 10-11 Dr Russell S Boles 1901 Walnut Street, Philadelphia Secretary
- American Heart Association Atlantic City, N J June 11 Dr H M Marvin 50 West 50th Street New York, Acting Executive Secretary
- American Physiotherapy Association Atlantic City N J June 11-12 Miss Louise Jetter 17 East Styles Avenue Collingswood, N J Secretary
- American Proctologic Society Atlantic City N J June 10-11 Dr Frank G Runyon, 1361 Perkiomen Avenue, Reading Pa Secretary
- American Radiology Society Atlantic City N J June 10-11 Dr Edward H Skinner 1103 Grand Avenue Kansas City Mo Secretary
- American Society of Clinical Pathologists Atlantic City N J June 7-9 Dr A S Giordano 531 North Main Street South Bend Ind Secretary
- American Urological Association San Francisco, June 25-28 Dr Gilbert J Thomas 1009 Nicollet Avenue, Minneapolis Secretary
- Associated Anesthetists of the United States and Canada, Atlantic City N J June 10-12 Dr F H McMechan 318 Hotel Westlake Rocky River Ohio Secretary
- Association for Research in Ophthalmology Atlantic City, N J June 11 Dr Conrad Berens 35 East 70th Street New York Secretary
- Association for the Study of Allergy Atlantic City N J June 10-11 Dr Warren T Vaughan 808 Professional Building Richmond Va Secretary
- Association for the Study of Internal Secretions Atlantic City N J June 10-11 Dr F M Pottenger 1214 Wilshire Boulevard Los Angeles Secretary
- Conference of State and Provincial Health Authorities of North America, Atlantic City N J, June 14-15 Dr A J Chesley State Department of Health, St. Paul, Secretary
- Maine Medical Association York Harbor June 23-25 Miss Rebekah Gardner 22 Arsenal Street, Portland Secretary
- Medical Library Association Rochester N Y June 17-19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary
- Medical Women's National Association Atlantic City N J June 9-11 Dr Alice I Conklin 55 East Washington Street Chicago Secretary
- Minnesota State Medical Association Minneapolis June 24-26 Dr E. A. Meyerding 11 West Summit Avenue St Paul Secretary
- Montana Medical Association of Helena July 2-3 Dr E G Balsam 208 1/2 North Broadway Billings Secretary
- National Tuberculosis Association, Saranac Lake N Y June 24-27 Dr Charles J Hatfield Henry Phipps Institute Philadelphia Secretary
- Pacific Northwest Medical Association Spokane Wash June 27-29 Dr C W Countryman 407 Riverside Avenue Spokane Wash Secretary
- Society for the Study of Asthma and Allied Conditions Atlantic City N J June 10-11 Dr W C Spain 116 East 53d Street New York Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Cancer, New York

27: 29 1008 (April) 1935

Adamantinomas of Hypophyseal Stalk and Sphenoid Bone H Zeitlin Chicago.—p 729

Endifferentiation in Bronchogenic Carcinoma P C Samson Ann Arbor Mich.—p 741

Relation of Cell Type to Metastasis in Bronchogenic Carcinoma I C Samson, Ann Arbor Mich.—p 754

Chemotherapy of Cancer I Lead J A Bergen B T Horton and A E Osterberg Rochester Minn.—p 762

Chemical Studies on Tumor Tissue II Effect of Protein on Swelling of Normal and Tumor Cells of Mice in Vitro M I Sherr Boston —p 771

Chondrosarcoma Report of Two Cases B Halpert and I B Davis New Haven Conn.—p 784

Congenital Teratoma of Thyroid Gland Report of Case with Review of Literature L C Pusch and C M Nelson Richmond Va.—p 791

Metastasis of Squamous Cell Carcinoma from Wrist to Axilla Without Demonstrable Intervening Growth Study by Serial Sections F R Long Chicago.—p 797

Hypophysectomy and Tumor Growth Supplementary Statement I T Samuels and H A Ball Los Angeles.—p 801

Ectodermal Tumors of Skin C F Geschickter and H P Koehler Baltimore.—p 804

**Adamantinomas of Hypophyseal Stalk and Sphenoid Bone**—Zeitlin reports three cases of adamantinoma. The structures present in the first case were suggestive of enamel formation, consisting of epithelial cell layers which were arranged similarly to the pattern found in the enamel organ. The outer layer was composed of columnar cells having a characteristic palisade formation corresponding to the ameloblasts or gonoblast cells of the enamel organ. Immediately beneath the gonoblasts were several rows of flattened cells the axes of which lay at right angles. The innermost layer of cells consisted of star shaped or stellate cells with protoplasmic bridges forming a reticulum. Epithelial pearl formations were present throughout. Toothbud-like projections were seen sprouting from the epithelial cells. Although there were some structures that resembled enamel-forming cells they showed considerable deviation from the normal. The elongated rod cells seemed to arise from the masses of epithelial cells and not directly from the ameloblasts. From the gross description of the second case, it is evident that the tumor arose from within the body of the sphenoid bone filled the sphenoid sinus extended into the posterior part of the roof of the left orbit, left middle ear and right internal jugular vein and invaded the posterior lobe of the hypophysis eroding through the dura and giving local metastasis to the infundibulum. This case therefore gives distinct evidences of a malignant character. In these malignant types of adamantinoma the erosions of the sphenoid bone and the infiltration of the dura and the base of the brain are usually conspicuous features. The third case may be considered an intracystic papillary adamantinoma. The character of this tumor was determined by the interlacing epithelial columns lined by a single row of cuboidal cells, the central masses composed of stellate cells with a tendency to form whorls, and the calcareous deposits and numerous cyst formations. Keratohyaline granules were not demonstrable in any of the tumors. The significance of these granules in differentiating the tumors under discussion from epitheliomas of the skin as emphasized by Erdheim and Jackson can no longer be maintained. Hair follicles, sebaceous glands and sweat glands described by Bostroem, Globus, Shapiro and others in epidermoid cysts simulating hypophyseal duct tumors were likewise absent in these cases. Depending on the stage of formation and differentiation of the oral epithelium the epithelial cells vary in the

formation of the enamel organ. Hypophyseal duct adamantinomas are more common in children and adolescents. The author's first patient was 3 years of age. The clinical picture varies with the location of the tumor and with the age of the patient. The symptoms are largely those of intracranial hypertension disturbance of hypophyseal function and compression of the neighboring structures. Compression of the optic chiasm is the cause of optic atrophy defect in the visual fields and visual disturbances. In the 3 year old child there were no marked evidences of pituitary disturbance or pressure on the hypothalamic region except possibly her precocious intelligence. In the second case the scantiness of the pubic hair and the atrophy of the testicles may be significant. The preoperative diagnosis of the tumors of the hypophyseal duct rests largely on the suprasellar calcification which is often detectable on roentgen examination. It is present in the majority of the cases and when typically developed is of great diagnostic significance, in fact it may be considered pathognomonic.

**Metastasis in Bronchogenic Carcinoma**—Samson studied 100 cases of bronchogenic carcinoma in which there were complete necropsies with adequate microscopic control. These were classified as to cell type and 51 per cent were found to be adenocarcinoma, 30 per cent squamous-cell and 19 per cent undifferentiated-cell carcinoma. A comparison of the reported metastases was made in the three groups by the method of coefficients of association, and it was found that each group presented certain general characteristics. The adenocarcinomas showed a strong tendency to involve the central nervous system, adrenals, kidneys, both lungs and to some extent the liver. This is best explained on the basis of predominant hematogenous metastasis with involvement also of the thoracic and abdominal lymph nodes. The squamous cell series showed a marked tendency to local extension rather than widespread metastasis involving the pericardium and bronchial lymph nodes to some extent. In 24 per cent of the squamous cell carcinomas no lung metastases were found. Because of the tendency to local extension this group would appear to offer the best prognosis for radical removal. Judged from the type of organic involvement, the small-cell carcinomas showed little tendency to hematogenous metastasis. The neoplasms in this group showed extensive lymphogenous metastases however associated with involvement of the pancreas, liver and spleen. Because of differences in the type and extent of growth and of metastases, knowledge of the cell type and of the degree of differentiation can be of aid to the clinician in determining the most advisable course of treatment. Such knowledge should obviously be used in conjunction with the physical examination, history and roentgen study.

**Chemotherapy of Cancer**—Bergen and his associates used colloidal lead phosphate in treating eighty-one cases of inoperable cancer of various organs. To receive benefit from lead it seemed necessary for patients to pass through a stage of lead intoxication, therefore at least 400 mg of lead in a course was given if the patient's general condition permitted it. In some the immediate reaction was so severe that relatively small amounts could be given. The eighty-one patients received a total of 476 intravenous injections of lead, the average total dose administered being 440 mg. Sixty patients are known to be dead, fourteen are known to be living and have been carefully examined at the clinic and found to be free from carcinoma two or more years after treatment. Of these fourteen, seven had treatment by roentgen rays or radium, or both, in addition to the lead, seven received only lead. The other seven patients have not been examined at the clinic recently, they are known to have had recurrent or metastatic lesions or satisfactory reports could not be obtained by virtue of their inability to return for examination. The observations suggest that providing a suitable vehicle to transfer lead into cancerous tissue by the systemic route and disturbing bodily metabolism by the introduction of a substance that will hinder the growth of cancer are two important approaches to the treatment of cancer. The present methods of administering lead and other allied substances may afford a possibility for future research. For the present, lead seems to have a field of usefulness in conjunction with surgery. When size, extent and the site of a malignant growth make complete removal impossible, the intravenous

injection of lead seems to do something to bodily metabolism that tends toward suppression of the remaining cancer cells. Possibly the same thing would be true if cancers were treated with lead very early. The opportunity for a trial of this has not been afforded. Systemic treatment with lead affords just one additional hope, but, the authors believe, a more important one than has heretofore been thought for the control of cancer.

### American J Digestive Diseases and Nutrition, Chicago

2: 65 138 (April) 1935

- Vaccine Therapy in Ulcerative Colitis S Lups Groningen Holland translated and edited by A J Baker Grand Rapids Mich—p 65  
Unrecognized Strokes and the Gastro Enterologist W C Alvarez Rochester Minn—p 90  
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Parallel Concentration of Enzymes in Pancreatic Juice S G Baxter Montreal—p 108  
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Dysphagia Roentgenologically Considered L S Ottell and F O Coe Washington D C—p 117

### American J Obstetrics and Gynecology, St. Louis

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- Renal Function in Toxemias of Pregnancy W J Dieckmann Chicago—p 472  
Clinical Comparison of Various Ergot Preparations on Postpartum Human Uterus J L Jones and O W Barlow Cleveland—p 489  
Harmful Effects of Certain Chemical Substances on Uterus of Rat F E D Amour and N Kiven Denver—p 503  
\*Hemorrhagic Encephalitis (Neoparsphenamine) in Obstetric Patients E D Plass Iowa City and E B Woods Augusta Ga—p 509  
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When to Operate in Ruptured Ectopic Gestation Analysis of Two Hundred and Forty Seven Cases W C Meagher, Brooklyn—p 541  
\*Management of Prolapse of Uterus with Especial Reference to Manchester Fothergill Operation C A Gordon Brooklyn—p 547  
\*Two Years Experience with Theelin Treatment of Gonorrheal Vaginitis J R Miller Hartford Conn—p 553  
Cesarean Section and Its Abuses H J Stander New York—p 559  
\*Sterilization of Women by Intra Uterine Coagulation of Tubal Orifices Preliminary Report. Lydia Allen De Vibius Miami Fla—p 563  
Abdominal Circulation During Late Pregnancy as Shown in Aortograms W E Coutts L Opazo T B Bianchi and O S Donoso Santiago Chile—p 566  
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Pregnancy After Nephrectomy A C Posner New York—p 579  
Sudden Death Due to Pulmonary Embolism in Case of Puerperal Endometritis Associated with Unsuspected Suppuration in Ruptured Symphysis Pubis I Daichman Brooklyn—p 582  
Bilateral Uterovaginal Fistula Successful Implantation of Both Uterus into Bladder Seven and Eleven Months Following Total Hysterectomy E von Graff Des Moines Iowa—p 585  
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Twin Pregnancy with One Living Full Term Child and One Fetus Papyraceus P K Edmunds Los Angeles—p 600  
Suprarenal Cortex Therapy in Pernicious Vomiting of Pregnancy W Freeman and J M Melick, Worcester Mass—p 602  
Treatment of Pruritus Vulvae with Subcutaneous Alcohol Injections A Jacoby New York—p 604  
Full Term Pregnancy Complicated by Ruptured Splenic Aneurysm H Sered and L M Steiner Chicago—p 606  
Abrupt Placentae Complicating Twin Pregnancy L A Balasquide, Ponce Puerto Rico—p 608

**Hemorrhagic Encephalitis (Neoparsphenamine) in Obstetric Patients**—Plass and Woods discuss the cases of three women one 19 and two 22 years of age, who died during late pregnancy or shortly after delivery in the course of antisyphilitic therapy directed at latent syphilis detected by routine blood Wassermann tests. In two instances hemorrhagic

encephalitis was demonstrated post mortem, while in the third the clinical picture made the diagnosis reasonably certain. Neoparsphenamine was employed in each case six injections totaling 2.2 Gm in the first case and three injections totaling 1 Gm in each of the other two. In addition, four injections of gray oil (2 minims each) were given to the first patient and one similar dose to the third patient. In each instance the initial dose was within the limit usually recommended and succeeding doses were not large, being smaller than the maximal recommended dose (0.45 Gm). Injections were made twice a week, instead of once as is commonly advised. In two instances the spinal fluid Wassermann reaction was positive despite the absence of clinical evidence of cerebrospinal syphilis. In each instance, cerebral symptoms of arsenical poisoning developed within seventy-two hours after the final injection of neoparsphenamine, and death occurred within three days of the initial manifestations, or on the third to the fifth day after the last injection. Two patients developed convulsive seizures, which naturally suggested puerperal eclampsia, a condition which must obviously be considered whenever convulsions appear in the latter trimester of pregnancy or shortly after delivery. In the second case the bizarre character of the convulsions and in the third case the anatomic observations clearly removed this possibility. From a review of the literature, it seems that pregnant women are more susceptible to the deleterious, as well as to the beneficial, effects of antisyphilitic treatment by the modern arsenicals than are other individuals. The clinical picture, as they observed it, was varied and may be confusing, but positive diagnosis can be made by pathologic changes in the central nervous system, more especially by the presence of scattered punctate hemorrhages round the smaller vessels, and usually by an associated edema. Intelligent prophylaxis demands that great care be exercised in giving a first course of antisyphilitic arsenical therapy to a woman with latent syphilis in the latter months of pregnancy.

**Management of Prolapse of Uterus**—Gordon points out that it has been clearly shown by many operators that even the worst types of prolapse of the uterus may be cured by vaginal plastic surgery. No abdominal operation then should be done for prolapse. Since the parametrium may be united in the midline without removal of the uterus, why remove it? Hysterectomy should be reserved for those patients in whom the uterus is diseased, removal of the normal uterus for the cure of prolapse is unnecessary, and in young women wrong. The Manchester-Fothergill is all that could be desired, and it should have no mortality. That it does not interfere with parturition may not perhaps be proved, but many women have been successfully and easily delivered after operation. Reviewing his results of seventeen years with this operation, he is satisfied that it accomplishes the most with the least risk.

**Treatment of Gonorrheal Vaginitis with Estrogenic Preparations**—Miller has treated sixty-eight cases of gonorrheal vaginitis with estrogenic preparations. With the exception of the first few cases the preparations used have been purchased in the open market. The amount of vulvovaginal irritation, discharge and the intensity of the reaction was estimated as described by Lewis. Many complicating diseases occurred during the treatment of the children. Fresh infections required much longer treatment than did old infections, emphasizing the part that immunity may play. Relapses are frequently due to reinfection from the urethra and will be found more frequently if long-continued follow-up studies are made. The vaginal infection, whether it is due to a gonococcus or other organism, responds equally well to theelin treatment. The author suggests tentatively that the child be cleared as rapidly as possible with daily injections of at least 100 rat units, preferably in divided doses, diminishing the amount as a reaction is obtained, but maintaining a vigorous squamous cell reaction until the gonococcus disappears, and thereafter maintaining over a period of two or three months a moderately well developed reaction. He cannot say that this treatment is harmless, for he does not know what it is doing to the ovaries. So far at least, deleterious effects have not been manifest. The end results for the forty-two cases of gonorrheal vaginitis that have been observed for six months or longer are given

in terms of negative smears for the time stated, the result apparently had some relationship to the treatment good results, nineteen, temporary control only (up to the present time), sixteen, and frank failures, due either to insufficiency of dosage or to lack of cooperation, seven

**Sterilization by Intra-Uterine Coagulation of Tubal Orifices**—De Vilbiss began a series of thirty coagulation cases for sterilization in January 1933. In January 1934, twenty patients were reported with tubes blocked, six tubes patent, three with no Rubin test and one not treated. In January 1935, seventeen cases were reported blocked, nine patent, three not tested and one no treatment. Seven patients had become pregnant, three of whom had been reported blocked, one partially blocked and three not tested. Twenty two are reported non-pregnant, some of whom are using contraceptives. The author concludes that intra-uterine coagulation of the tubal orifices is contraindicated in untreated syphilis because of the liability to hemorrhage. It must also be used cautiously in cases of gonorrhea, since the blocking of tubes may interfere with tubal drainage, although this infection in itself will probably render the woman sterile. The resulting irritation from the coagulation current may also light up an old infection temporarily. Two such cases occurred in the series. The patients suffered pain and elevation of temperature for several days, though without any serious after-effects. There is no positive assurance that the blocking of tubes with the coagulation method will be permanent. The intra-uterine cautery or coagulation method of sterilization may be recommended when surgical intervention is inadvisable or contraindicated.

### American Journal of Ophthalmology, St Louis

18: 307-408 (April) 1935

- Intensity of Light in Relation to the Near Point and the Apparent Range of Accommodation C E Ferree and Gertrude Rand, Baltimore.—p 307  
Fatigue of Convergence Induced by Reading as Function of Illumination Intensity M Luckiesh and F K Moss Cleveland.—p 319  
Use of Sclerosing Solutions in Ophthalmic Therapeutics M F Weymann Los Angeles.—p 323  
Temperature Changes in Conjunctiva in Relation to Application of Heat and Cold to Skin G H Gowen Chicago.—p 331  
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Photography of Eye with Miniature Camera R Castroviejo New York.—p 353  
Simple Device for Measuring Stereopsis M Davidson New York.—p 356

### American Journal of Pathology, Boston

11: 185-372 (March) 1935

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Distribution of Nuclear Inclusions in Wild Animals E V Cowdry, A M Lucas, St. Louis and H Fox Philadelphia.—p 237  
\*Lesions of Coronary Arteries and Their Branches in Rheumatic Fever L Gross, M A Kugel and E Z Epstein New York.—p 253  
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\*Diffuse Arteritis of Syphilitic Origin C L Derick and G M Hass, Boston.—p 291  
Congenital Anomaly of the Heart Report of Case with Embryologic Discussion S K Ngai, Peiping China.—p 309  
Sacrococcygeal Teratoma Report of Case R S Rosedale Buffalo.—p 323  
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Malignant Hemangioma of Lung with Multiple Metastases E M Hall, Los Angeles.—p 343  
Antigrowth Effect of Lipoid Fractions of Tissue Extracts F A McJunkin and J W Henry Chicago.—p 353  
Congenital Megacolon L. Oppen New Haven Conn.—p 365

**Hemorrhagic Encephalitis**—Baker reports twenty cases of a peculiar involvement of the central nervous system (hemorrhagic encephalitis), since clinically the patients present a typical picture of encephalitis and pathologically the most striking lesion is a hemorrhagic involvement of the brain. Hemorrhagic encephalitis may be characterized clinically as an acute ailment of the central nervous system occurring in previously healthy young persons and manifesting itself by a sudden onset, headache, an abrupt rise of temperature and a

rapid loss of consciousness. Convulsions are common the extremities are spastic and the reflexes are frequently abnormal and variable. Death ensues in from a few hours to several days after the onset of the illness. The most conspicuous feature of this disease is the pathologic picture in the brain. It is chiefly hemorrhagic and predominantly in the white matter. The hemorrhages vary widely in number and size, from extensive extravasations that destroy much brain tissue to tiny perivascular bleedings. In the brains of patients who survive the first few days there are often observed areas of nonhemorrhagic perivascular demyelination, which are invaded by scavenger cells. Consistent specific changes in the ganglionic cells have not been observed. An occasional blood vessel shows a slight perivascular infiltration of mononuclears. A few widely scattered polymorphonuclears can be detected in the areas of degeneration. Postmortem study shows that all the organs except the brain are normal. Cerebral hemorrhages may frequently be found in other diseases but by careful clinical and pathologic study these can easily be differentiated from true hemorrhagic encephalitis. The brain tissue from one case of hemorrhagic encephalitis has proved virulent to rabbits on intracerebral inoculation. The author accepts hemorrhagic encephalitis as a clinical entity and believes that it is entitled to a definite position in neurologic nosology.

### Lesions of Coronary Arteries in Rheumatic Fever

Gross and his associates discuss the incidence of various progressive, retrogressive and inflammatory processes in the coronary tree as a whole in rheumatic fever. Their studies are confined to the incidence of these phenomena in active rheumatic cases and in normal controls. They describe distinctive vascular lesions found in active as well as inactive cases of rheumatic fever. Their study is based on an examination of 100 hearts, sixty-six of which were from cases of acute rheumatic fever with Aschoff bodies in the myocardium and presenting the evidences of activity. The remaining thirty-four hearts were from inactive cases presenting the typical anatomic evidences of inactive rheumatic fever. Fifty normal hearts, representing age periods from birth to the ninth decade, served as a base line to establish deviations from the normal. The lesions of the coronary artery tree found in active and inactive rheumatic fever are divided into (1) evolutionary changes also found in normal control cases and (2) lesions occurring either uncommonly or never in normal control cases. Many of the vascular diseases falling into the second category are so peculiar and encountered so rarely in other diseases that their presence should lead to a strong suspicion of rheumatic fever in its active stages. The coronary arteries and their branches in the heart show marked damage due to rheumatic fever. This damage is vivid and impressive in the active cases. In the inactive cases the lesions do not appear to be essentially dissimilar from the normally occurring evolutionary age period changes. The observations in the main coronary arteries in the inactive cases are by no means as strikingly clear cut as are those in the active cases. Here, besides the earlier development of intimal hyperplasia (often of a fibrotic type) and medial elastification and scarring, there also occurred in a significant incidence (15 per cent) a variety of arteritides, which are represented by various grades of exudative and necrotizing inflammation and by thrombosis as well as by certain peculiar vascular and intravascular lesions, viz, edema palisade formation, endarteritis verrucosa and granular thrombotic lesions. Together with these lesions in the main coronary trunks, the smaller vessels distributed throughout the myocardium presented similar changes in nineteen cases. The total incidence of the various types of arteritis occurring in either the main coronary trunks, the smaller myocardial vessels or both, was 33 per cent. There occur in the smaller branches of the coronary arteries many different types of vascular lesions. The variety and wide distribution of these lesions afford additional support to the belief that the heart is the most extensively involved organ in the body in this disease and that the various rheumatic vascular disorders of the heart produce their damage during the active as well as the inactive stages.

**Diffuse Arteritis of Syphilitic Origin**—Derick and Hass describe a case of widespread progressive chronic arteritis in a young adult with syphilis. The small arteries were involved



almost exclusively, and all three coats of the vessels were included frequently in the lesion. In most instances the vessels were occluded partially or completely, either by the marked thickening of their walls, by the formation of thrombi or by a combination of the two processes. Infarcts of various organs often were present in regions where the most severe vascular lesions were found. The etiology of the arteritis has not been proved conclusively, but the authors believe that it is the virus of syphilis.

### Am J Roentgenol. & Rad Therapy, Springfield, Ill.

33 293-440 (March) 1935

- Physical Determination of Radium Dosages O Glasser, Cleveland —p 293
- Physical Factors in Teleradium Therapy W Stenstrom, Minneapolis —p 296
- \*Physical Factors in Intracavity Radium Therapy J L Weatherwax, Philadelphia —p 302
- Physical Factors in Interstitial Radium Therapy Edith H Quimby, New York —p 306
- Drosophila Eggs in Radium Dosimetry C Packard, New York —p 317
- Clinical Considerations Influencing Radium Dosage M Lenz and J R. Freid, New York —p 319
- Factors Influencing Determination of Radiosensitivity of Cancers of Oral Cavity and Upper Respiratory Tracts A P Stout, New York. —p 327
- Histologic Structure of Carcinoma of Cervix Uteri and Its Relation to Radiosensitivity C C Norris, Philadelphia —p 332
- Value of Roentgen Rays in Diagnosis and Surgical Treatment of Extra-pulmonary Intrathoracic Tumors S W Harrington, Rochester, Minn. —p 340
- Roentgen Diagnosis of Aneurysms of Innominate Artery C H Warfield, Chicago —p 350
- Evaluation of Roentgen Findings in Gonorrheal Arthritis P J Kapo, Philadelphia —p 359
- \*Primary Hemangioma of Third Lumbar Vertebra Case Report. S K Livingston, Hines, Ill. —p 381
- Pellegrini Stueda's Disease L F Miller and L J Miller, Chicago —p 383
- Biologic Effects of Roentgen Rays on Planaria Dorocephala F G Meserve and Mary J Kenney, Evanston, Ill. —p 386
- Dangers of Roentgenoscopy and Methods of Protection Against Them IV Detailed Consideration of Doses Received by Fingers of Examiner E I L Cilley, B R Kirklind and E T Leddy, Rochester, Minn. —p 390
- \*Roentgen Dermatitis Treated with Fresh Whole Leaf of Aloe Vera. C E Collins and C Collins, Crisfield, Md. —p 396

**Physical Factors in Intracavity Radium Therapy** — Weatherwax states that the radiologist should plan intracavity treatment of a lesion, keeping in mind (1) the location of the lesion, (2) the distance of the applicator from the surface of the lesion, (3) the filter employed, (4) the size and shape of the applicator and (5) the penetration. Experience has demonstrated that in the treatment of many intracavity lesions it is impossible to deliver a lethal dose throughout the entire lesion with radium alone. The lethal zone produced by radium can be extended by combining roentgen irradiation, and it would seem advisable to have the height of tissue reaction for both radium and roentgen irradiation occur at approximately the same time. Assuming that radiologists have experience in the proper evaluation of the factors pertaining to intracavity irradiation, the greatest advances in the future will be made by obtaining both clinical and experimental evidence in coordinating intracavity and roentgen or teleradium irradiation.

**Primary Hemangioma of Third Lumbar Vertebra** — Livingston discusses a primary hemangioma of the third lumbar vertebra in a man 44 years of age. The patient was admitted to the hospital for treatment of osteo-arthritis, complaining of low back pain. When a child the third lumbar vertebra was injured, which necessitated the wearing of a plaster cast for six months, following which there were no symptoms for many years. He played football while in college. In 1921 pain suddenly developed in various joints at intervals. His condition was diagnosed as rheumatoid arthritis, including the spine. In 1932 an acute cystitis appeared suddenly followed by chronic prostatitis. The condition cleared in about two months. Signs and symptoms when present are indistinguishable from those produced by spinal cord tumor, i. e., compression myelitis. On deep palpation and fist percussion there is some tenderness along the lumbar spine, especially the third and the sacro-iliac joints. About 50 per cent of the limitation of motion in abduction and flexion in the right hip is due to arthritis. Roentgen examina-

tion of the lumbar spine shows evidence of a hemangioma of the third vertebral body. This is characterized by a decrease of the total density of the vertebral body and the formation of vertical striations. There was considerable reaction to the first roentgen dose but only a little to the second.

**Roentgen Dermatitis Treated with Aloe Vera.**—The Collines report a case of severe roentgen dermatitis treated with fresh whole leaf of aloe vera in a case that had become progressively worse until there was extensive desquamation with oozing of serous fluid. A skin graft was indicated. At the time of examination the patient was furnished with a quantity of aloe vera (fresh whole leaf) for local application, with the hope that this material might serve as a palliative. Twenty-four hours later she reported that the sensation of itching and burning had entirely subsided. She was instructed to continue its use, and when she was seen from time to time during the next five weeks the condition was found to be progressively improved, and after one month there was complete regeneration of the skin of the forehead and scalp, new hair growth, complete restoration of sensation and an absence of scar. There was at this time a slight blanching of the affected area. When last seen the healed area appeared to be completely cured, with no indication whatever of a relapse. The aloe vera leaf contains a large quantity of a light yellowish green material, which is used for local application. The leaf may be split lengthwise or cut into thick cross-sections and the intestine material macerated. While this is still fresh, liberal quantities are applied to the area to be treated and this is covered with a neutral, nonporous substance (such as waxed paper). A bandage or adhesive plaster may then be used to secure the mass in place. An hour or two is the life of an application, it will then be found to be dark and gummy. It is simply washed off carefully with warm water, without soap or medication. The applications may be renewed as often as may be desirable.

### Annals of Medical History, New York

7: 99-200 (March) 1935

- Robert Koch (1843-1910) An American Tribute Part I L Brown, Saranac Lake, N. Y. —p 99
- Bidloo and Cowper Anatomists F Beckman, New York. —p 113
- Thomas Addison and His Discovery of Idiopathic Anemia E. R. Long, Philadelphia —p 130
- Johannes Lange of Heidelberg R. H. Major, Kansas City, Mo. —p 133
- Dr. Charles Caldwell (1772-1853) A. H. Barkley, Lexington, Ky. —p 141
- La Fayette Guild E. B. Carmichael, University, Ala. —p 147
- Gerrit Parmelee Judd, M.D. Surgeon and Diplomat of the Sandwich Islands (1828-1873) F. J. Halford, Honolulu, Hawaii —p 156
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- The Blood Letting Controversy in the Nineteenth Century B. M. Randolph, Charlottesville, Va. —p 177
- A Short Historical Sketch of Osteomyelitis J. C. Pickett, Cleveland —p 183
- Medicine in the Romance of Petronius E. T. Sage, Pittsburgh. —p 192
- Additional Paleopathologic Evidence of Paget's Disease A. K. Fisher, Milwaukee —p 197

### Archives of Ophthalmology, Chicago

13: 523-732 (April) 1935

- Present Status of Treatment of Detachment of the Retina H. Arruga, Barcelona, Spain, translated by S. L. Rhode, Reading, Pa. —p 523
- Observations on Four Thousand Optic Foramina in Human Skulls of Known Origin J. E. L. Keyes, Youngstown, Ohio —p 538
- Lectures on Motor Anomalies of the Eyes III Paralysis of Conjugate Movements of the Eyes A. Bielschowsky, Breslau, Germany —p 569
- Muscle Imbalance in Myopia F. W. Marlow, Syracuse, N. Y. —p 584
- \*Salzmann's Nodular Corneal Dystrophy Its Pathologic Process and a Suggested Therapy E. V. L. Brown and D. Katz, Chicago —p 598
- Lipid Interstitial Keratitis P. Heath, Detroit —p 614
- Tuberculous and Streptococcal Retinal Hemorrhages C. M. Swab, Omaha —p 620
- Glioma of Optic Nerve Report of Case. C. Weskamp, Rosario, Argentine Republic. —p 630

**Salzmann's Nodular Corneal Dystrophy** —Brown and Katz describe the pathologic process of Salzmann's nodular corneal dystrophy as a noninflammatory, slowly progressive process, early hypertrophic and later degenerative, producing marked and varied alterations of the epithelial layer, Bowman's



membrane and the outer third to half of the corneal stroma. All descriptions of the histopathologic changes present will necessarily be a description of a stage of the disease. It is doubtful whether any two specimens of this condition from two different nodules will ever be secured that will be identical in their histopathologic changes. Salzmann's nodular corneal dystrophy should be treated surgically. The indications are a reduction or threatened reduction of visual acuity. Complete removal of the nodule or nodules holds out the only hope for successful treatment. The nodule or nodules may be removed completely without perforation of the cornea with a small Graefe knife, sharpened to about half its original size. All of the nodule above the surface of the cornea as well as part of the portion that extends into the corneal stroma can be removed readily and safely. To remove the base completely, a trephine is used to cut through the various layers of the pathologically involved corneal stroma. These can then be removed with the Bowman knife and an Elliot scleral disk forceps. The thickness of the removed tissue will depend on the depth at which the cornea is no longer opaque. The trephining is repeated in whatever direction is necessary until the floor of the dystrophic nodule becomes completely transparent.

### Archives of Pathology, Chicago

19:465-610 (April) 1935

- Ligation of Arteries of Conduction System. Second Attempt to Produce Heart Block in Dogs. E. M. Barton. Chicago—p. 465
- \*Relation Between Basophilic Invasion of Neurohypophysis and Hypertensive Disorders. C. Spark. New York—p. 473
- High Frequency Electric Fields and Roentgen Rays. Effects on Compensatory Hypertrophy of Kidney. R. B. Allen, New York. C. B. Pratt and C. Sheard. Rochester. Minn.—p. 502
- Infection with Trypanosoma Equiperdum. D. Perla. New York—p. 505
- \*Quantitative Study of Mitochondria in Various Grades of Squamous Cell Carcinoma. Zola K. Cooper and M. G. Seelig. St. Louis—p. 524
- Cholesterol Induced Atherosclerosis. Its Prevention in Rabbits by Feeding an Organic Iodine Compound. I. H. Page and W. G. Bernhard. New York—p. 530

**Basophilic Invasion of Neurohypophysis and Hypertensive Disorders.**—Spark compared histologically the pituitary glands from seventy persons with essential hypertension, eleven persons with evidence of antecedent hypertension and 108 with various nonhypertensive diseases. He observed that those from persons with essential hypertension showed no greater degree of basophilic invasion of the pars nervosa than those from nonhypertensive ones when groups of approximately the same ages were compared. The invasion of the posterior lobe by basophils is in some way related to the aging of the organism and possibly to some sex factor as well. The immediate stimulating factors are unknown. There is no morphologic evidence to support the hypothesis that essential hypertension and eclampsia of pregnancy are due to a hyperactivation of the neurohypophysis by basophilic cells.

**Study of Mitochondria in Squamous Cell Carcinoma.**—Cooper and Seelig point out that no significant differences are apparent in the mitochondria-cytoplasmic ratios of the normal and of the cancerous tissue. Thus, although the phospholipid content of malignant tissue is greater than that of normal tissue, according to Bloor and Bierich, Detzel and Lang, this difference cannot be demonstrated morphologically by any quantitative change in the mitochondria of cancer cells. In fact, the mean mitochondria-cytoplasmic ratio, i. e., the mitochondrial surface per hundred cubic microns of cytoplasm, is somewhat greater for the normal tissue (65) than for the cancer tissue (475). The mean mitochondria-cytoplasmic ratios for the three grades of squamous cell carcinoma studied are not significantly different. Less difference was found in the mean mitochondria-cytoplasmic ratios for each of the three grades of squamous cell carcinoma than was observed between the ratios for normal and for carcinomatous tissue. In some carcinomas of grade 1 or 2 in which keratinization was marked, almost complete disappearance of the mitochondria was noted. In other grade 1 carcinomas however the mitochondria were more numerous than in tumors of grade 3. Consequently, a quantitative estimation of the mitochondria in squamous cell carcinoma does not form any basis for grading.

### Archives of Surgery, Chicago

30:557-730 (April) 1935

- Reactions of Contents of Jejunum and Experimental Production of Peptic Ulcer. P. P. T. Wu. Rochester. Minn.—p. 557
- Tuberculosis of Diaphysis. Report of Case. G. E. Bennett and H. A. Jones. Baltimore—p. 563
- \*Histologic Effects of Intravenous Sclerosing Solutions on Subcutaneous Tissues. H. R. Mahorner and A. Ochsner. New Orleans—p. 573
- \*Carcinoma of Body and Tail of Pancreas. H. K. Ransom, Ann Arbor, Mich.—p. 584
- Slipping of Proximal Femoral Epiphysis. Therapeutic Results in One Hundred and One Cases. M. M. Pomeranz and Marian Frauenthal. Sloane, New York—p. 607
- Rate of Absorption of Alveolar Gases in Relation to Hyperventilation. H. E. Lemmer and E. A. Roventine. Madison, Wis.—p. 625
- \*Postoperative Prognosis in Cancer of the Breast. Results After Seven to Twenty Years in a Series of Cases Studied with Reference to Rapidity of Preoperative Growth. E. M. Stanton. Schenectady, N. Y.—p. 629
- Bronchobiliary Fistula. R. W. French. Fall River. Mass.—p. 635
- Changes of Bones in Leukemias. L. F. Craver and M. M. Copeland. New York—p. 639
- Median Cleft of Lower Lip and Mandible Cleft Sternum and Absence of Basihyoid. Report of Case. C. B. Morton and H. E. Jordan. University, Va.—p. 647
- Congenital Absence of Sacrum. W. R. Hamsa. Iowa City—p. 657
- Effect of Pneumothorax and Oleothorax on Histologic Structure of Thyroid Gland. A. C. Abbott. A. M. Goodwin. Sara Meltzer and E. Stephenson. Winnipeg, Manito.—p. 667
- Primary Sarcoma of the Duodenum. Report of Case. D. Frey, J. M. Foster Jr. and W. Dennis. Denver—p. 675
- \*Experimental Pulmonary Embolism Associated with Venoclysis. M. J. Rumold, Kansas City. Kan.—p. 685
- Differentiation of Benign and Malignant Gastric Ulcers. Unreliability of Diagnostic Criteria. A. B. Rivers and T. J. Dry. Rochester. Minn.—p. 702
- Fifty Sixth Report of Progress in Orthopedic Surgery. J. G. Kuhn. E. F. Cave. S. M. Roberts. J. S. Barr. Boston. J. A. Freiberg. Cincinnati. J. E. Milgram. New York and R. I. Stirling. Edinburgh. Scotland—p. 716

**Effects of Sclerosing Solutions on Subcutaneous Tissues.**—Mahorner and Ochsner injected 2 cc of the following sclerosing solutions subcutaneously at different points into dogs: 5 per cent sodium morrhuate, 5 and 3 per cent sodium gynecarbonate, 5 per cent sodium hydnocarpate, quinine and ethyl carbamate, 40 per cent sodium salicylate, 75 per cent invert sugar and equal parts of 50 per cent dextrose and 30 per cent sodium chloride. The areas into which the injections were made were removed after one hour, twelve hours, twenty-four hours, four days and ten days. They found that the solutions produced necrosis of the subcutaneous tissue with a zone of inflammatory reaction surrounding it, liquefaction necrosis and subsequently fibrosis—in other words, a sterile abscess, which resulted in ulceration only twice. Since destruction of endothelium is essential in the intravenous injection of sclerosing solutions for the treatment of varicose veins, the property of injuring cells locally is desirable provided the systemic effect is not untoward. A 5 and 3 per cent solution of sodium gynecarbonate, one of 5 per cent sodium morrhuate and one of 40 per cent sodium salicylate seemed to produce more complete necrosis of tissues than did the other solutions tested. This is in similar ratio to their thrombus-producing effectiveness as tested by intravenous injection. A 40 per cent solution of sodium salicylate is not advocated for clinical use.

**Carcinoma of Pancreas.**—Ransom compiles the records of sixteen cases of carcinoma of the body or tail of the pancreas observed during a period of eight and a half years. In every case the diagnosis was verified by operation or necropsy. Microscopic confirmation of the diagnosis was obtained whenever biopsy specimens could be taken. During this period fifty-eight cases of carcinoma of the head of the pancreas were seen. The youngest patient was 40 years old and the oldest patient was 69 years. The average age was 57 years. Operation was performed on all the patients except the two who died, in whom the diagnosis was confirmed by necropsy. There were no deaths at operation. Of the fourteen patients operated on, six were discharged from the hospital unimproved, seven completely or partially relieved from pain and one definitely worse. In the group of patients who were relieved from pain there seemed to be no relation to the type of operation, and the improvement following simple exploratory laparotomy in some cases was as great as that following some of the more complicated procedures. Of the eight cases in which operation was performed and in which the time of death was ascertained, the average duration

of life following operation was four and five-tenths months. The average duration of symptoms prior to admission was five and seven-tenths months. In the patients who died without operation the duration of symptoms was eight months and one month, respectively.

**Prognosis in Cancer of the Breast**—Stanton states that the prognosis in cancer of the breast is by no means hopeless. In favorable cases, postoperative survival without demonstrable recurrence for more than twenty years is by no means uncommon. The woman who is fortunate enough to have a thorough operation performed for a slowly metastasizing tumor before glandular involvement has taken place stands an excellent chance of never having a recurrence or of living for many years without a demonstrable recurrence. Surgery has little to offer the woman with a rapidly metastasizing tumor. In the case of the slow-growing, less malignant tumor, even though operation is performed relatively late, the postoperative survival is liable to be prolonged in keeping with the course of the progress indicated previous to the operation.

**Experimental Pulmonary Embolism Associated with Venoclysis**—According to Rumold, a foreign body, such as a cannula, lodged in the vein of a dog produces an inflammatory reaction throughout the wall of the vein with partial occlusion of the lumen by an organizing fragile thrombus. All the necessary factors for thrombosis are present. There was no difference in the reactions caused by the various types of commonly used cannulas. The results of the experiments indicate that a foreign body in a vein is more active in the production of thrombi than is the infused solution. The animals used in the experiment lost weight while receiving a 10 per cent solution of dextrose given in the same quantity per body weight as it is given clinically to man. All dogs showed a high incidence of pulmonary infarction and thrombosis after having received venoclysis. The pulmonary infarcts were usually associated with other pulmonary pathologic changes, such as pneumonia and edema. Well formed clots were injected into the external jugular veins of dogs having apparently normal lungs. At necropsy, pulmonary thrombi were found but no pulmonary infarcts. The experiments show that pulmonary complications, such as bronchopneumonia and edema, predispose to pulmonary infarction when thrombi are circulating in the pulmonary vessels. By analogy it seems probable that pulmonary embolism and thrombosis are not infrequently associated with continuous venoclysis as used in man, although they may not always be recognizable clinically. Continuous intravenous infusions are not without danger.

### Bulletin of Neurol. Inst. of New York, New York

4 1220 (March) 1935

- The Sense of Smell. Introduction. C. A. Elsberg. New York—p. 1.  
Id. I. New and Simple Method of Quantitative Olfactometry. C. A. Elsberg and I. Levy. New York—p. 5.  
Id. II. New Principle for Classification of Odors Based on Their Olfactory Coefficients. C. A. Elsberg, I. Levy and E. D. Brewer. New York—p. 20.  
Id. III. Relation Between Olfactory Coefficients and Boiling Points of Odorous Substances. C. A. Elsberg, E. D. Brewer and I. Levy. New York—p. 26.  
Id. IV. Concerning Conditions Which May Temporarily Alter Normal Olfactory Acuity. C. A. Elsberg, E. D. Brewer and I. Levy. New York—p. 31.  
Relation Between Chronic Anterior Poliomyelitis or Progressive Spinal Muscular Atrophy and an Antecedent Attack of Acute Anterior Poliomyelitis. L. A. Salmon, Brooklyn and H. A. Riley. New York—p. 35.  
\*Cerebrospinal Fluid Obtained by Lumbar and by Ventricular Puncture in Tumors of the Brain. C. C. Hare. New York—p. 64.  
Demonstration of Normal Cerebral Structures by Means of Encephalography. V. Ventricles, Interventricular Foramina and Aqueduct of Sylvius. L. M. Davidoff and C. G. Dyke. New York—p. 91.  
Nerve Supply of Ventricular Ependyma. E. M. Deery. New York—p. 133.  
Pathology of Cerebral Angiomas. Study of Nine Cases. A. Wolf and S. Brock. New York—p. 144.  
Hereditary Progressive Neuropathic (Peroneal) Muscular Atrophy. Report of Family with Unusual Manifestations. S. E. Soltz. New York—p. 177.  
Hypertrophic Arthritis of Cervical Vertebrae with Thoracic Muscular Atrophy Occurring in Three Sisters. E. G. Zabriskie, C. C. Hare and R. J. Masselink. New York—p. 207.

**Cerebrospinal Fluid in Tumors of Brain**—Hare studied the composition of the cerebrospinal fluid in 218 cases of verified tumor of the brain. The study of the fluid was of

little value in the differential diagnosis of tumors from other diseases of the brain. An increase of protein and of globulin in the fluid obtained by lumbar puncture occurred in 61 per cent of meningiomas, 64.8 per cent of multiform glioblastomas and 100 per cent of acoustic neuromas and other tumors in the lateral recess of the posterior cranial fossa, and in 35.4 per cent of supratentorial astrocytomas, 60 per cent of supratentorial and 20 per cent of subtentorial medulloblastomas, in other pathologic types of intracranial tumor an increase of protein and globulin occurred in some cases but not in others. Increases were not found in the oligodendrogliomas, dermoid cysts or papillomas of the choroid plexus. Changes in the protein and globulin of fluid removed by ventricular puncture are more infrequent, but in supratentorial growths in one cerebral hemisphere the fluid removed from the lateral ventricle of that side will often contain more protein and globulin than that from the other ventricle. In infiltrating growths, increase of protein and globulin in the lumbar fluid is more frequent in the glioblastomas and astrocytomas when the tumor is entirely subcortical. The largest increase of protein and globulin in the lumbar fluid was found in the multiform glioblastomas and in acoustic nerve tumors, and in the ventricular fluid in the multiform glioblastomas. The increase of protein in the lumbar fluid varied between 50 and 490 mg., and of globulin between 1+ and 4+. The lumbar manometric pressure was normal in sixty-nine cases. There was a pleocytosis of more than 10 cells per cubic millimeter in 86 per cent of the lumbar fluids. When a brain tumor is suspected, an increase of protein and globulin in the fluid obtained by lumbar puncture is of some value for the diagnosis of the pathologic nature of the growth. In the more differentiated gliomas, changes in the fluid are more unusual. The examination of the fluid may be of aid in the differentiation between intracerebellar and extracerebellar growths and between supratentorial infiltrating tumors that are entirely subcortical and those that involve the cortex as well.

### Florida Medical Association Journal, Jacksonville

21 375-420 (March) 1935

- Suggestions as to Care of Brain Injury Cases. R. N. Greene. Jacksonville—p. 387.  
Causalgia or Thermalgia. R. F. Godard. Quincy—p. 389.  
The Dengue Epidemic in Miami. G. N. MacDonell. Miami—p. 392.  
Tissue in Florida 1934 and Its Significance. T. H. D. Griffiths, Jacksonville—p. 395.

### Journal of Bacteriology, Baltimore

29: 333-436 (April) 1935

- Products from Fermentation of Glucose and Arabinose by Butyric Acid Anaerobes. A. F. Langlykke, W. H. Peterson and Elizabeth McCoy. Madison Wis.—p. 333.  
Studies on *Escherichia Acrobacter Intermediates*. I. Cultural Characteristics. R. P. Tittsler and L. A. Sandholzer. Rochester N. Y.—p. 349.  
Fermentation of Alpha Methylglucoside by Bacteria. R. P. Tittsler and L. A. Sandholzer. Rochester N. Y.—p. 363.  
Relationship of Soil Protozoa to Tubercle Bacilli. C. Rhines. New Brunswick, N. J.—p. 369.  
Studies on Cultural Requirements of Bacteria. IV. Quantitative Estimation of Bacterial Growth. J. H. Mueller. Boston—p. 383.  
Further Observations on Certain Variants of *Bacillus Megatherium*. G. Knaysi. Ithaca N. Y.—p. 389.  
Evidence on Specificity of Hexosidases. Comparison of Activity of *Escherichia Coli* and *Escherichia Communior*. Margaret Hotchkiss. New York—p. 391.  
Behavior of Virus of Equine Encephalomyelitis on Chorio-Allantoic Membrane of Developing Chick. Elizabeth Higbie and Beatrice Howitt. San Francisco—p. 399.  
\*Note on Susceptibility of Ferrets to Virus of Common Cold. W. C. Noble Jr. and D. H. Brainard. New York—p. 407.  
Studies on Respiratory Mechanism of Streptococci. M. A. Farrell. New Haven Conn.—p. 411.

**Susceptibility of Ferrets to Virus of Common Cold**—Noble and Brainard injected filtrates from forty persons with colds into twelve ferrets. Of these animals eight were used only once and four were used twice, the inoculation with a second virus being given only when the first had failed to infect, and after a rest period of from seven weeks to three months. Four of the twelve ferrets developed symptoms consisting of elevation of temperature, increased nasal secretion, and in one or two instances lacrimation and lethargy. In the temperature curve, an initial elevation appeared in from twenty-four to seventy-two hours and lasted from twenty-four to forty-eight

hours, this was followed by a depression, which lasted from twenty-four to seventy-two hours. The normal temperature seldom exceeded 102.5 F. The maximal elevation following inoculation was 104.1 F. which lasted for two days. Rhinorrhea of mild character appeared in from twenty-four to seventy-two hours and lasted about four days, the secretion was mucoid, never mucopurulent, and was sometimes sufficient to wet the hair about the nostrils. On the third or fourth day the animals were sometimes drowsy and difficult to arouse. An attempt was made to transmit the infection from ferret to ferret and from ferret to human being. The human subject, who had repeatedly handled the ferrets and had been exposed to their respiratory secretions when they sneezed or coughed on being inoculated, had never reacted to them. The second ferret in the series showed no symptoms, but the human subject who was not isolated after inoculation, developed nasal obstruction and slight rhinorrhea in eight hours. These symptoms were mild and lasted about thirty-six hours.

## Journal of Biological Chemistry, Baltimore

108: 607-808 (March) 1935 Partial Index

- Relation of Lipid Composition to Physiologic Activity in Ovaries of Pregnant and Pseudopregnant Rabbits E. M. Boyd Rochester N. Y. —p. 607
- Chemical Method for Estimating Epinephrine in Blood J. C. Whitehorn Waverley Mass. —p. 633
- Stool Volatile Fatty Acids. IV. Influence of Feeding Bran Pentosan and Fiber to Man W. H. Olmsted G. Curtis and O. K. Timm St. Louis —p. 645
- Biochemical Method for Determining Indigestible Residue (Crude Fiber) in Feces Lignin Cellulose and Non Water Soluble Hemicelluloses R. D. Williams and W. H. Olmsted St. Louis —p. 653
- Presence of Creatinine in Blood J. M. Hayman Jr. S. M. Johnston and J. A. Bender Cleveland —p. 675
- Studies on Vitamin B<sub>2</sub> (G) Nonidentity of Vitamin B<sub>2</sub> and Flavins C. A. Elvehjem and C. J. Koehn Jr. Madison Wis. —p. 709
- Sequence and Extent of Tissue Changes Resulting from Moderate Doses of Viosterol and Parathyroid Extract Agnes Fay Morgan and Zdenka Samisch Berkeley Calif. —p. 741
- Provitamin D Potencies Absorption Spectrums and Chemical Properties of Heat Treated Cholesterol Millicent L. Hathaway and F. C. Koch Chicago —p. 773

## Journal of Pharmacology & Exper Therap., Baltimore

53: 385-486 (April) 1935

- Effect of Caffeine Coffee and Decaffeinated Coffee on Blood Pressure Pulse Rate and Simple Reaction Time of Men of Various Ages Kathryn Horst and W. L. Jenkins Ann Arbor Mich. —p. 385
- \*Acetanilid Poisoning Clinical and Experimental Study S. Payne Durham N. C. —p. 401
- Comparison of Effects of Potassium Iodide and of Duodotirosin on Basal Metabolism W. J. Siebert and C. S. Linton St. Louis —p. 418
- Studies of Morphine Codeine and Their Derivatives VIII Mono acetylmorphine and Diacetylmorphine and Their Hydrogenated Derivatives N. B. Eddy and H. A. Howes, Ann Arbor Mich. —p. 430
- Narcotic Potency of Some Cyclic Acetals P. K. Knoefel, San Francisco —p. 440
- Effects of Papaverine Hydrochloride and Dihydromorphine Hydrochloride (Dilaudid) on Nonanesthetized Dog's Intestine Subjected to Different Internal Pressures C. M. Gruber and J. T. Brundage Philadelphia —p. 445
- Action of Local Anesthetics on Respiratory Apparatus E. F. Hill and A. D. MacDonald Manchester England —p. 454
- Effect of Caffeine and Theobromine on Digitalis Toxicity Experimental Study H. B. Haag and J. D. Woodley Richmond Va. —p. 465

**Acetanilid Poisoning**—Payne studied the records of several patients poisoned by proprietary preparations containing acetanilid. In most cases poisoning was insidious and followed years of addiction. Abrupt withdrawal of the drug was usually followed by three or four days of restlessness and excitement. Acetanilid appeared to be habit forming. A small amount of acetanilid (0.3 Gm.) would have a completely quieting effect on a patient quite manic following abrupt withdrawal of his pet nostrum, an effect that could not be duplicated with barbitol or morphine. Cyanosis was observed in all cases, disappearing or fading rapidly to the more persistent gray discoloration on withdrawal of the drug. Tachycardia was frequent, but there was no evidence of heart disease except in one case, in which symptoms disappeared after gradual withdrawal of the drug. A wide variation in red blood cell counts was noted and an attempt made to correlate cyanosis, dyspnea and weakness with anemia. Although anemia was often associated with weakness many cases showing extreme cyanosis,

dyspnea and weakness presented normal or increased red blood cell counts. Since in every case the toxic symptoms of acetanilid poisoning were partly obscured or further complicated by the bromides contained in the "patent medicine" used, the author experimented with dogs (two), restricting the intoxication to acetanilid alone. The first effect of these experiments after daily acetanilid ingestion was an anemia. Following prolonged administration, the animals gained tolerance. After ingestion of acetanilid there was a transient methemoglobinemia and increase in blood phenol. During methemoglobinemia, oxygen capacity falls and symptoms of anoxemia may result. No cardiac damage was demonstrable by electrocardiograms.

## Kansas Medical Society Journal, Topeka

36: 89-132 (March) 1935

- Backache Symptom P. B. Magnuson Chicago —p. 89
- Pituitary and Ovarian Hormones in Gynecologic Conditions C. MacBryde St. Louis —p. 91
- Diaphragmatic Hernia with Especial Reference to Esophageal Hiatus Hernia H. N. Tihen Wichita —p. 95
- Breast Tumors B. A. Nelson Manhattan —p. 101
- Psychoses Associated with Pregnancy, Their Etiology and Their Prevention R. R. Wilson, Kansas City, Mo. —p. 104

36: 133-176 (April) 1935

- \*Diseases of Peripheral Arteries E. V. Allen Rochester Minn. —p. 133
- Hodgkin's Disease Presenting the Pel-Ebstein Type of Remittent Fever with Chills and Generalized Pruritus R. R. Melton, Halstead —p. 140
- Chronic Lipoid Nephrosis R. H. Major Kansas City Mo. —p. 144
- Treatment of Burns M. E. Pusitz, Topeka —p. 148

**Diseases of Peripheral Arteries**—Allen discusses Raynaud's disease, erythromelalgia, thrombo-angitis obliterans and arteriovenous fistula as diseases of the peripheral arteries. The color of the extremities is of little diagnostic value and, when too much stress is placed on this single manifestation, errors in diagnosis result. Thus vasomotor changes simulating Raynaud's disease may be a symptom of thrombo-angitis obliterans and the excessive redness of the extremity in the dependent position in thrombo-angitis obliterans and arteriosclerosis obliterans may be erroneously attributed to erythromelalgia. Mechanical methods are likewise of little value in diagnosis. Such procedures serve their best function in physiologic studies and records of vascular disease, and as such they are worthy of great respect, careful examination of the patient and of his symptoms, however, is adequate for diagnosis in all but a small proportion of cases. Careful examination of patients with suspected disease of the peripheral blood vessels is an absolute necessity. This consists of careful palpation of the dorsalis pedis, posterior tibial, popliteal, femoral, radial and ulnar arteries for pulsations, determination of the effect of posture on the color of the extremities, a search for inflamed or thrombosed superficial veins and for varices, an estimation of the temperature of the parts and a notation of atrophy, minor trophic changes or frank gangrene.

## Laryngoscope, St. Louis

45: 163-242 (March) 1935

- Carcinoma of Larynx Some Conclusions Derived from Personal Experience J. C. Beck and M. R. Guttman, Chicago —p. 163
- Id. Surgical Considerations S. Salinger, Chicago —p. 174
- Submucous Resection of Nasal Septum Notes H. L. Berman New Haven Conn. —p. 184
- Correction of Recent and Old Fractures of Nose G. H. Cox Glen Cove, N. Y. —p. 188
- Some Improvements in Sinus Diagnosis L. W. Oaks H. G. Merrill and L. E. Oaks Provo Utah —p. 198
- Mucocoeles of Frontal Sinus J. A. Cavanaugh, Chicago —p. 205
- Gradenigo Syndrome and Suppuration of Cerebral Ventricles as Complications of Acute Suppurative Otitis Media Report of Case with Autopsy Findings E. K. Mitchell and A. Silverstein Philadelphia —p. 214
- Staphylococcus Albus Septicemia Secondary to Mastoiditis and Sinus Thrombosis Operation and Recovery Report of Case G. D. Wolf New York —p. 227
- Diathermy in Treatment of Chronic Deafness New Technique D. M. Lazujian Trenton N. J. —p. 230

## Maine Medical Journal, Portland

26: 45-60 (April) 1935

- Will America Copy Germany's Mistakes? Results of Half a Century's Practice of Social Insurance in the Land of Its Inception G. Hartz —p. 51
- Spontaneous Meningeal Hemorrhage J. O. Piper, Waterville —p. 55

**Medical Annals of District of Columbia, Washington**

4 63 92 (March) 1935

- Medical Management of Urinary Lithiasis C C Higgins Cleveland —p 63  
 Rapid Diagnosis and Serum Treatment of Lobar Pneumonia H F Dowling Washington —p 66  
 Problems in Management of Deafness V R Alfaro Washington —p 70  
 Pages of Spanish Medicine F H Garrison Baltimore.—p 73  
 Industrial Medicine and Medical Ethics Work of the Medical Department of the Chesapeake and Potomac Telephone Company W C Moore Washington —p 77

**Missouri State Medical Assn Journal, St Louis**

32 125 168 (April) 1935

- New Electrode for Conization of Cervix R J Crossen St Louis —p 125  
 Municipal Program for Control of Tuberculosis H I Spector St Louis —p 128  
 Acute Sacro Iliac Strain D D Stofer Kansas City —p 133  
 \*Compression Fractures of Spine Simple Method of Treatment F A. Jostes St Louis —p 136  
 Recent Cardiovascular Therapy J C Lyter St Louis —p 138  
 Dilaudid Addiction Report of Case J N Wakeman Springfield.—p 141  
 Advantages of Local Anesthesia in Gynecology and Obstetrics G Gellhorn St Louis —p 143  
 Atypical Thyroid Disorders O P J Falk St. Louis —p 146  
 Tuberculosis of Axilla and Vulva R Hanks Fulton —p 148  
 Site of Action of Drugs on Oculo-Autonomic System C Beisbarth St Louis —p 151

**Compression Fractures of Spine**—Jostes submits a method for treating compression fractures of the spine in which after the diagnosis has been made the patient is placed on a hospital bed with an automatic knee elevator. The head of the patient is placed at the foot of the bed, bringing the site of the fracture over the knee rest, which is elevated until the spine at the site of the fracture is hyperextended sufficiently to bring about reduction. This can be done in from twelve hours to four days. At intervals lateral views of the spine are taken without disturbing the position of the patient. The film case is forced firmly over the prominence of the knee elevator, thus depressing the mattress sufficiently to permit a true lateral view of the spine on the plate. If complete "decompression" of the vertebral body has been accomplished, the patient can be left in the position on the bed until the fracture has healed or placed in a hyperextension plaster jacket for a period of twelve weeks. No weight bearing is permitted. A hyperextended celluloid jacket is worn for a period of another three to five months. During the latter period the patient is up and about.

**New England Journal of Medicine, Boston**

212: 597 646 (April 4) 1935

- Traumatic Diaphragmatic Hernia Following War Injuries P E Truesdale Fall River Mass., and W G Phippen Salem Mass.—p 597  
 Psychogenic Origin of Organic Diseases E Moschowitz New York —p 603  
 Hyperpyrexia at the Boston Psychopathic Hospital. S H Epstein Boston —p 611  
 Pasteurization and the Courts. J A Tobey New York.—p 613

**New Orleans Medical and Surgical Journal**

87 653 736 (April) 1935

- Stanford Emerson Chaille as a Student Viewed Him J M Mason Birmingham Ala.—p 653  
 Light and Its Application to Irradiation of Foods H T Scott Madison Wis.—p 660  
 Recent Advances in Treatment of Heterophoria and Squint C A Babin New Orleans —p 667  
 \*Glaucoma Nutritional Edema Preliminary Report. H Schroeder New Orleans —p 671  
 Carcinoma of the Breast, and What Is Before Us. O H Beck Greenville Miss.—p 678  
 Consideration of Microscopic Appearance in Prognosis and Treatment of Carcinoma. E H Lawson New Orleans —p 682  
 Recognition and Prevention of Epithelioma. M T Van Studdiford New Orleans —p 684  
 Cancer Brief Resumé of Methods of Palliative Surgical Treatment. A. H. Storck New Orleans —p 686  
 Importance of History Taking and Complete Examination A B Harvey Tylertown Miss.—p 688  
 The Ketogenic Diet O W Bethea New Orleans —p 691

**Glaucoma**—Schroeder explains all the different stages of glaucoma on the basis of nutritional edema, except that in inflammatory glaucoma an infection is superimposed. The active stage of acute glaucoma he considers an angioneurotic

edema of the eye. Schamberg recommends calcium lactate and desiccated adrenal in the treatment of angioneurotic edema, Lagrange and Gouterman use similar treatment in glaucoma. In the etiology of glaucoma as a nutritional edema he considers protein deficiency due to faulty diet, faulty assimilation, the anemias (primary and secondary) due to infection, nutritional disturbances or hemorrhage (frank and occult) and possibly vitamin B deficiency as an accessory factor.

**New York State Journal of Medicine, New York**

35 337-468 (April 15) 1935

- Contemporary Views of Angina Pectoris and of Coronary Thrombosis. L F Barker Baltimore —p 408  
 Peritonitis C G Heyd New York.—p 416  
 Newer Methods of Treating Peptic Ulcer Constipation and Indigestion G Crile, Cleveland —p 422  
 The Psychiatric Point of View B Glueck, Ossining-on Hudson —p 429  
 Bronchography and Bronchiectasis I S Schapiro and L. Jaches, New York —p 441  
 Progress in Diagnosis and Treatment of Pernicious Anemia E. G. Allen Syracuse —p 448  
 Foreign Body in the Heart Report of Case with Retention of Large Needle with Recovery G L Fair, Oyster Bay —p 453

**Oklahoma State Medical Assn Journal, McAlester**

28: 117 156 (April) 1935

- \*Combined Artificial Pneumothorax and Phrenicectomy for Closure of Diffusely Adherent Tuberculous Cavities D W Gillick Shawnee —p 117  
 Heliotherapy and Pulmonary Tuberculosis W D Rosborough Tahleah. —p 124  
 Chronic Hydrocephalus Following Amputation of Meningocele. Observations Twelve Years After Operation L Stone Topeka Kan.—p 133  
 What the Public Thinks of Doctors. S H Babcock, Holdenville.—p 138

**Combined Artificial Pneumothorax and Phrenicectomy for Closure of Diffusely Adherent Tuberculous Cavities.**—Gillick states that cavities of the upper lobe diffusely adherent to the chest wall are noncompressible under pneumothorax treatment alone. Cavities attached to the parietal pleura by fixed string and band adhesions can be compressed by pneumothorax combined with phrenicectomy. The explanation of the combined treatment is based on the fact that retraction of the compressed upper lobe toward a fixed point is influenced by the tendency and tension of the lobe toward the root and the contraction capacity of the stretched adhesion. While the diaphragm remains active, tension toward the root dominates and the upper lobe, suspended before two fixed points, continues to retract toward the hilus. The cavity is pulled from the attachment to the adhesion, and the enlargement of the cavity and tearing of the treated lung may take place. Phrenicectomy is indicated as soon as such enlargement becomes appreciable. Following the paralysis of the diaphragm, the tendency of the lung to retract toward the root or the hilus gradually diminishes. The contraction capacity of the stretched adhesions commences to prevail and the upper lobe begins to retract toward its attachment to the adhesion. The raising of the paralyzed diaphragm seems to play no part in the obliteration of the cavity because cavities seem to close in the same manner, whether the diaphragm is raised, lowered or remains unchanged. This has been noted particularly in cavitations of the left side, which seem to close equally well, although the left diaphragm seldom rises to a high level. It would appear that several months are required for relaxation of the lung and closure of the cavity after a phrenicectomy in contrast to the rapid closure obtained by cauterizing the holding adhesions by means of intrapleural pneumolysis. It is assumed, of course, that the adhesions are accessible for cauterization, although roentgen evidence often fails to provide positive proof. The continuance of the closure of the cavity must be brought about by the maintenance of the proper pressure by refilling

**Philippine Islands Med. Association Journal, Manila**

16 115 176 (March) 1935

- Clinical Observations with Reference to Leprosy in Children of Lepers C B Lara and B de Vera Culon.—p 115  
 Reduction of Postnatal Birth Weight Loss of the New Born. Honoria Acosta Sison and J S Galang Manila.—p 130  
 Further Observations on Case of Complete Separation of Symphysis Pubis During Labor R. R. Llamas Manila.—p 132  
 Medical Service in Rural Towns of the Philippines I Distribution of Physicians H Lara Manila —p 143

**South Carolina Medical Assn Journal, Greenville**

31: 43 68 (March) 1935

- Importance and Ease of Prescribing Diets L P Barnes, Bennettsville —p 49
- Anemia in Infants and Young Children C W Bailey Spartanburg —p 54

**Southern Medical Journal, Birmingham, Ala**

28: 289 394 (April) 1935

- Relief of Pains of Locomotor System by Local Injections of Iodized Oil with Control by X Rays J Forester Paris and Aix les Bains France.—p 289
- Fractures of the Spine Report of Three Hundred and One Cases with Especial Reference to Treatment and End Results C W Stallard Montgomery, W Va.—p 295
- Diagnosis of Diverticulitis and Diverticulosis of the Colon, with Especial Reference to Roentgen Study of These Conditions C P Rutledge Shreveport La.—p 303
- Anterior Pituitary Dwarfism Further Report of Cases Treated with Growth Hormone H H Turner, Oklahoma City—p 309
- \*Hemolytic Icterus with Infantilism. W Langston, Oklahoma City—p 316
- Decompression of Femoral Vessels Together with Kondoleon Operation for Congenital Elephantiasis in a Child Report of Case B M Bernheim Baltimore—p 320
- Lipoid Pneumonia in Children H F Garrison Jackson Miss—p 322
- Panniculectomy W A Wagner, New Orleans—p 324
- \*Technic of Bronchial Lavage Demonstration with Patient M M Winter San Antonio Texas—p 328
- Treatment of Trigeminal Neuralgia, with Especial Reference to Alcohol Injection C W Flynn Dallas Texas—p 330
- Therapeutic Value of Strong Epinephrine Solutions E C Ellett Memphis, Tenn—p 336
- Some Aspects of Asthma Problem C M Miller, Richmond Va.—p 338
- Allergic Purpura. C. H. Eyermann, St. Louis—p 341
- Some Phases of Conduct of Labor J L Baer Chicago—p 345
- Innervation of Muscles of Abdomen with Reference to Surgical Incisions C S White, Washington D C—p 349
- Reconstructive Surgery of Common Bile Duct G Coors Memphis Tenn—p 351
- Value of Presacral Sympathectomy in Gynecology P Graffagnino New Orleans—p 353
- Some Clinical Examples of Indirect Suicide A A Menninger Topeka Kan—p 356
- Hypothyroidism Complicated by Heart Disease M B Whitten and G D Mahon Jr, Dallas Texas—p 360
- Undulant Fever S. C. Fulmer, Little Rock Ark.—p 367
- Chronic Ulcerative Colitis L. A. Riely Oklahoma City—p 370
- New Treatment for Recalcitrant Pustular Acne Preliminary Report A W Sohrweide, New York—p 376
- Newer Management of the Diphtheria Carrier I S Barksdale, N Ethel Turner and R L Bates, Greenville S C—p 378
- The Teaching of Hygiene in Medical Schools R R Spencer, Washington D C—p 381

**Hemolytic Icterus with Infantilism.**—Langston cites a case of hemolytic ictero anemia associated with skeletal and genital infantilism. As far as can be determined from the history, the onset of the two conditions was simultaneous. Hence a causal relationship of the ictero-anemia to the infantilism is suggested. The hemolytic ictero-anemia was relieved by splenectomy, with characteristic response. Following recovery from the operation, hormone therapy (growth and sex) was instituted. Twenty-seven months later, normal height (for his family) and normal genital development had been attained. The increase in height in this period of time was  $6\frac{1}{2}$  inches (16 cm.). Roentgen studies suggest that closure of the epiphyses is progressing slowly, if at all, and further increase in height may be expected. This young man's general health is now excellent, and he is able to carry on the work of a normal person.

**Technic of Bronchial Lavage.**—Winter used the following procedure for bronchial lavage in a severe case of bronchiectasis. The method differs from that used by Stitt and is safe and simple. The patient is seated in a chair and inclined toward the side desired for lavage. The head is held back and the tongue pulled forward. The tip of a number 12 French catheter is placed on the base of the tongue and held in position by the patient. While the patient breathes normally, the hypertonic solution of sodium chloride of Bledsoe-Fisher is introduced by gravity through a 20 cc Luer syringe. An amount of solution sufficient to fill the dilated bronch and cavities, but less than enough to interfere with respiration, is injected. This amount is determined by trial and varies from as little as 30 cc to as much as 400 cc. After the proper amount

of fluid has been injected, the patient sits quietly to permit the retained pus to float out of the cavities. The pus and the solution are then expelled by postural drainage and the procedure is repeated until the washings are clear. Then 100 cc of a 1:2,000 aqueous solution of sodium ethylmercurithioralicylate (merthiolate) is injected and permitted to remain in the lung for five minutes. It is then drained and 5 cc of endolysin is injected, to remain. The amount of solution used, the number of washings necessary and the frequency of lavage vary with the size of the cavities, the amount of secretion and the condition of the patient.

**United States Naval Med Bulletin, Washington, D C**

33: 169 312 (April) 1935

- Efficacy of Typhoid Prophylaxis in the United States Navy S S Cook —p 169
- Modified Stokes Stretcher W L Mann—p 177
- \*Gonococcal and Meningococcal Endocarditis Report of Three Cases C W Ross and F C Greaves—p 179
- Ivy Poisoning (Rhus Dermatitis) W R Manlove Jr—p 183
- Comparative Study of Measurement of Speed of Adjustment of Eye for Near and Far Vision C J Robertson—p 187
- Resuscitation of Stopped Heart by Intracardial Therapy IV Further Use of Artificial Pacemaker A S Hyman—p 205
- Illumination for Dental Operations H E Harvey and C A Rault —p 214
- Studies of Active Pneumococcus Immunity III Duration of Type I Pneumococcus Immunity D Ferguson—p 219
- Encephalography Report of Cases P T Crosby—p 225
- Recent Progress in Electrically Produced Gamma Radiation A Soland —p 235
- Treatment of Obesity with Dinitrophenol R J Leutscher—p 238
- Treatment of Furuncles and Carbuncles W H Whitmore—p 243
- Industrial Medicine Part II H L Shinn—p 250

**Gonococcal and Meningococcal Endocarditis.**—Ross and Greaves cite three cases of bacterial endocarditis in two of which it was proved that the gonococcus was the causative agent. Swartz's medium, modified by omitting the agar, was used in obtaining the blood cultures. For inoculation, 15 cc of blood was used, care being taken to have the medium at body temperature when the blood was introduced. Twenty-four hours later there was a scanty growth of gram negative diplococci. The growth increased during the next twenty-four hours, after which it rapidly died out. All attempts to obtain subcultures failed. In the third case the meningococcus was not definitely shown to be the cause of this endocarditis, but there is rather strong presumptive evidence that it was. There was a fairly definite history of rheumatic fever in childhood. Meningococcal bacteremia may exist for weeks or months before meningeal signs appear. Before the appearance of the meningeal signs in this patient, he had a daily temperature of 100 F with a cardiac disability that was gradually increasing in severity. As soon as the specific therapy was begun, the temperature became normal and the cardiac condition became stationary and then slowly improved as compensation occurred. It is reasonable to assume that the antimeningococcus serum exerted a specific action on any meningococci localized in the endocardium, halted the progress of the endocardial lesion and permitted recovery within the limits of the damaged heart to compensate.

**West Virginia Medical Journal, Charleston**

31: 145 192 (April) 1935

- Ocular Tuberculosis M L Dillon Charleston—p 145
- Symptomatology and Diagnosis of Upper Urinary Tract Lesions A E Goldstein, Baltimore—p 158
- Backache R L Anderson Charleston—p 165
- Experiences in Surgery of Lateral Sinus and Internal Jugular Vein M F McCarthy Cincinnati—p 171
- Prognosis in Nasal Surgery I Fawcett, Wheeling—p 177

**Wisconsin Medical Journal, Madison**

34: 221 292 (April) 1935

- Clinical Expressions of Marrow Insufficiency W S Middleton and O O Meyer Madison—p 231
- End Results in Surgical Treatment of Cancer J F Smith, Wausau —p 234
- Roentgen Diagnosis of Small Carcinomas of Stomach L G Rigler, Minneapolis—p 236
- Diagnosis and Treatment of Common Precancerous Lesions of Skin H J Farrell Milwaukee—p 241
- Perforated Ulcer J Dean, Madison—p 251
- Mold Allergy Its Importance in Asthma and Hay Fever S M Feinberg Chicago—p 254

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Physical Medicine, London

9 223 242 (April) 1935

- Diet in Middle Age J D Comrie—p 224  
 Rheumatism in Middle Age M B Ray—p 226  
 Diseases and Disabilities of the Eye Which Occur in Middle Age  
 F A Williamson Noble—p 230  
 Dental Diseases of Middle Age F Talbot—p 232  
 Prevention and Treatment of Heart Disease in Middle Age T East  
 —p 234  
 Treatment of Chronic Bronchitis and Asthma in Middle Aged Persons  
 J B Alexander—p 236

## British Journal of Urology, London

7 1 102 (March) 1935

- Perineal Drainage for Certain Bladder Operations G Illyés—p 1  
 \*Hexamine as a Urinary Antiseptic I Its Rate of Hydrolysis at  
 Different Hydrogen Ion Concentrations II Its Antiseptic Power  
 Against Various Bacteria in Urine R St A Heathcote—p 9  
 Prostatic Electrossection M Baillie—p 33

**Methenamine as a Urinary Antiseptic**—Heathcote determined the effect of exposure at 37 C for periods of three and six hours of *Staphylococcus aureus*, *Bacillus coli-communis* and *Bacillus coli-alcaligenes* to a 1:500 solution of methenamine at pH 5, 6 and 7. At pH 7 no definite effect on the growth of any of these organisms could be observed, even after six hours. At pH 6 an exposure of three hours produced no effect in the case of *Staphylococcus aureus*, a doubtful effect with *B. coli communis* and a considerable effect in the case of *B. coli-alcaligenes*. An exposure of six hours produced a doubtful effect in the case of *Staphylococcus aureus* but a well marked action on the others. At pH 5 the growth of *Staphylococcus aureus* was definitely reduced by six but only doubtfully by an exposure of three hours. In the case of the other organisms, the acidity of the medium itself was sufficient to obscure the effect of methenamine. Similar experiments with borax, 1:500, at pH 8.5, showed no effect on *Staphylococcus aureus* but a considerable reduction in growth in the other organisms. The two factors of the greatest importance as to whether an antiseptic strength of formaldehyde will be reached in the urine of a patient taking methenamine are time and the reaction of the urine. In infections of the upper part of the urinary tract there will not be sufficient time for such a strength to be developed. In acute cystitis a urine sufficiently acid to produce such a strength of formaldehyde will cause such pain and frequency of micturition as to prevent any effective action. In chronic cystitis there may be hope of reaching an antiseptic strength of formaldehyde over a long enough period to be effective. Methenamine might be a valuable prophylactic in cases in which repeated catheterization will be needed. Borax might be of value in the treatment of acute or chronic cases of cystitis, especially if due to a coliform organism.

## British Medical Journal, London

1: 631-688 (March 30) 1935

- The Huxley Lecture on Clinical Science Within the University T Lewis—p 631  
 Local Anesthesia in Gynecology A A Davis—p 636  
 Fatal Case of Leptospirosis Jaundice of Obscure Origin G W Watson  
 J W McLeod and M J Stewart—p 639  
 \*Radiology of the Appendix (Appendiculography) F G Wood—p 640  
 Some Observations on Surgical Uremia H L Attwater—p 642

1 689 748 (April 6) 1935

- Clinical Importance of Fibrositis in General Practice W H M Telling—p 689  
 Tuberculosis in Home Contacts Note on Incidence and Role of Human Contagion G G Kaye—p 692  
 An Insulin Resistant Diabetic R D Clay and R D Lawrence—p 697  
 Some Effects of Artificial Heat on Circulation in Cold Temperature Climates R F Fox—p 698  
 Case of Megalencephaly Showing Unusual Talent for Calculating Dates W M McGrath—p 699

**Radiology of the Appendix**—Wood states that roentgen representation of the appendix may be obtained in all cases in which the lumen of the appendix is not obliterated or obstructed. The method of filling the organ consists in giving a preparation of barium with milk or corn flour at night following this after

an interval of three hours by a dose of magnesium sulphate. Roentgenograms are obtained on the following morning and are continued at such intervals as may appear necessary during the following days until the cecum is entirely empty. Of the 100 patients examined by the author during the last two years, the appendix was successfully filled in ninety-three and failed to fill in seven. Thirty of the patients were operated on, and the roentgen appearances correlated with the operative observations and the pathologic reports. In twenty-eight cases gross and obvious changes in the appendix were noted at operation, while the remaining two showed no evidence of abnormality. The normal appendix gives characteristic appearances in the roentgenogram, and, conversely, the abnormal appendix can also be detected readily, as a rule, from alteration in its contour, emptying rate, position and other changes. A large single fecalith, if it contains calcium, may be visible in a plain roentgenogram and is usually seen close to the right iliac crest. The most characteristic changes are seen when the appendix is the seat of subacute inflammation. There is obvious dilatation of the lumen, especially at the distal extremity, fixation is present in one position and, owing to the diminution or absence of peristalsis, there is delayed emptying of the barium, as the appendix is generally the last to empty. When the appendix lies behind the cecum, it is concealed from view in the earlier roentgenograms. As the cecum begins to empty, however, it comes into view, and it is then sometimes possible to obtain roentgenograms showing its shape and position. When the colon is spastic, the appendix tends to be contracted and the lumen is narrow. When the colon is found to be atonic, the atony appears to affect the appendix at the same time, and it fills with considerable ease and shows a large lumen. Dilatation of the lumen of the appendix appears to be one of the most important roentgenologic signs of disease, especially when it affects the distal extremity and is accompanied by retention of the barium.

## Irish Journal of Medical Science, Dublin

No 111 97 144 (March) 1935

- General Principles of Surgical Treatment for Pulmonary Tuberculosis and Bronchiectasis H M Davies—p 97  
 Some Recent Additions to Our Knowledge of Infectious Disease and Their Significance C J McSweeney—p 108  
 Recent Trends in Diphtheria Prophylaxis J C Saunders—p 117  
 Nervous and Mental Manifestations of Myxedema H L Parker—p 124  
 Bearing of Embryology on Clinical Diagnosis in Diseases of Eye Ida Mann—p 128

## Journal of State Medicine, London

43: 187 248 (April) 1935

- Incidence of Rickets in Durham and Norfolk (King's Lynn) J W McIntosh—p 187  
 Prevention of Industrial Skin Diseases W J O'Donovan—p 199  
 Prevention of Disease in Infancy W Pearson—p 204  
 Economics of Tuberculosis Problem P Varrier Jones—p 209  
 Prevention of Nervous Disorders H Yellowlees—p 213  
 Prevention of Deafness R S Stevenson—p 218  
 Influence of Hygiene on Surgery W E Tanner—p 225  
 The Public Health Service and the Prevention of Disease D M Connan—p 233

## Journal of Tropical Medicine and Hygiene, London

38: 81 92 (April 1) 1935

- Human Onchocerciasis in Kenya Report of Case P G Preston—p 81  
 Examination of Saliva A Castellani M Douglas P Redaelli and G Amalfitano—p 81

## Lancet, London

1 659 722 (March 23) 1935

- The Evolution of Mind J S Bolton—p 659  
 Respiratory Failure Including So-Called Asphyxia Neonatorum III Treatment A Moncrieff—p 664  
 Cysts in or Alongside Hernial Sacs G H Edington—p 670  
 Fracture of Newly Formed Bone B Fuchs—p 673  
 Some Clinical Features of Perforated Jejunal Ulcers D Trevor—p 673  
 \*Excretion of Estrin During Pregnancy S L Cohen G F Marrian and M Watson—p 674  
 Empyema Complicating New Growth of Lung E T Baker Bates and G R Ellis—p 676

**Excretion of Estrogenic Substance During Pregnancy**—Cohen and his associates present data showing that the first fact of physiologic interest is that during the greater part of



pregnancy more than 99 per cent of the total estrogenic material excreted in the urine is in the "combined" ether-insoluble form, which possesses only a low physiologic potency. It is therefore no longer difficult to reconcile the production of large amounts of estrogenic substance in the body during pregnancy with the fact that its injection into pregnant animals may interfere with the normal course of gestation. Either true or pseudo labor is accompanied and may be preceded by a fall in the "combined" theelin and theelol and a rise in the 'free' forms of each excreted in the urine. The free theelin or theelol is that fraction which can be extracted from the fresh untreated urine with ether. The combined theelin or theelol is that which can be extracted from the urine only with ether after treatment with acid. It is impossible to determine from the available data whether these changes are caused by the events that initiate labor or whether they are themselves factors in the mechanism of parturition. It is clear from the work of Zondek that the animal body is capable of converting large amounts of administered estrogenic substance into a combined form which is physiologically inactive and from which it may be released by acid hydrolysis. The fact that 99 per cent of the hormone excreted during pregnancy is in such a form suggests that the pregnant woman has the power of similarly inactivating much of the estrogenic substance that she produces. The authors reason that a factor in the initiation of labor is the production in the body of larger amounts of free estrogenic substance of a high physiologic potency, either by hydrolysis of the previously formed combined hormone or by some interference with the normal mechanism of inactivation of the hormone after it is produced. The decrease in the amount of total estrogenic substance excreted just prior to and during labor could be explained on the grounds of the utilization of some of that present in the free state at this period, while the increase in the free hormone excreted might be supposed to represent the unutilized excess.

### Medical Journal of Australia, Sydney

1 323 352 (March 16) 1935

- Human Tuberculosis of Bovine Origin in Victoria R Webster—p 323  
The Pollen Content of the Melbourne Air During the Hay Fever Season of August 1933 to March 1934 Marjorie M Sharwood—p 326  
Some Observations on Etiology of General Paralysis of the Insane. C. R. D Brothers—p 332  
The Problems of Antenatal Care T D Hughes—p 334  
Thrombophlebitis Migrans with an Illustrative Case M L Powell—p 336

1 353 384 (March 23) 1935

- Aboriginal Mentality H K. Fry—p 353  
Clinical Aspects of Nephrectomy S A Roe—p 360  
Glycogen Accumulation Disease. Phyllis M Anderson—p 362  
Leukemic Retinitis: Analysis of Eye Changes in Thirty Five Cases of Leukemia Together with Report of Gross Papilledema in a Case of Chronic Myelogenous Leukemia T J F Frank—p 364

### Quart. Bull., Health Org., League of Nations, Geneva

Special Number 1 128 (Jan.) 1935

- Proposed International Standard for Gas Gangrene Antitoxin (Vibrio Septique) P Hartley and P B White—p 13  
Proposed International Standard for Gas Gangrene Antitoxin (Edema terna) L E Walbum and C Reymann—p 42  
Proposed International Standard for Antipneumococcus Serum (Type I) P Hartley and W Smith—p 48  
Proposed International Standard for Antipneumococcus Serum (Type II) P Hartley and W Smith—p 65  
Proposed International Standard for Staphylococcus Antitoxin P Hartley and Margaret Llewellyn Smith—p 68  
Conference on Standardization of Sex Hormones Preliminary Note H H Dale—p 121

### Japanese Journal of Obstetrics and Gynecology, Kyoto

18 1-86 (Feb.) 1935

- Melanocyte Reaction of Preparations of Pituitary Body and Urine of Cancer Patient R. Umezawa—p 2  
Blood Vessels of Uterine Tumors Part II Histologic Observations of Distribution of Blood Vessels in Uterine Cancer G Kawanishi—p 16  
Histologic Examinations on Fetal Heart Muscle in Human Beings K Matsuda and S Odani—p 25  
Biologic Study of Action of X Rays to Malignant Tumors, Especially on Attitude of Malignant Tumors of Stromal Tissues to X Rays H Kawakami—p 35  
Lactation and Reonset of Menstruation T Saito—p 63  
Experimental Study of Autotransfusion Part III Effect of Autotransfusion on Character of Blood T Kubota—p 73

### Presse Médicale, Paris

43: 465 488 (March 23) 1935

- Barbiturate Coma Eleven Cases G Carriere and C Huriez—p 465  
\*Obliteration of Right Branch of Portal Vein N Strajsko—p 469  
\*Corneal Cholesterol Arc or Circle Madeleine H Paillard—p 471

**Obliteration of Portal Vein**—Strajsko describes the case of a man, aged 37, in whom obliteration of the right branch of the portal vein was diagnosed. This was later confirmed at necropsy. As a result he believes that a syndrome exists which permits this condition to be diagnosed during life. It consists first in a splenomegaly accompanied by profuse and repeated gastric hemorrhages, total absence of cirrhotic changes in the right and left lobes of the liver, and absence of ascites. An ascites may nevertheless appear temporarily after hemorrhage and disappear as the blood regenerates. In addition, the syndrome consists of an exceptional development of the subcutaneous collateral anastomoses communicating with the umbilical and para umbilical veins. The author believes that this description should allow any clinician to suspect obliteration of the principal right branch of the portal vein before its entry into the liver.

**Corneal Cholesterol Circle**—Paillard describes three types of cholesterol deposits in the cornea. The first she calls an arc, the second a circle, and the last, for which she has found no adequate name, is a circle of greater width. Altogether 420 cases were observed by her or by Henri Paillard. Proved biliary lithiasis occurred in 11 per cent, xanthoma in 7 per cent, gouty tophi in 2.5 per cent, dry polyarthritis in 13.5 per cent, orbital cellulitis in 26 per cent and arterial atheroma in 2 per cent. The coincidence is less than with gallstones—a fact which indicates that corneal cholesterol precipitation is an earlier lesion in the family of cholesterol disorders than biliary lithiasis. The condition is nevertheless a sign of some significance.

43 489 504 (March 27) 1935

- \*Curable and Incurable Phases of Alimentary Dystrophies G Mouriquand—p 489  
Reflections on One Hundred and Eight Gastrectomies for Ulcer J Duval—p 491  
Experimental Encephalitis of Rabbit A Phylactos—p 493

**Phases of Alimentary Dystrophies**—Mouriquand believes that the stages of alimentary dystrophy due to deprivation of vitamin C may be differentiated. The first phase he divides into predeficiency, intermediate and dystrophic phases. In the scorbutic infant in this stage, supplying vitamin C produces increased weight and restoration of nutritive equilibrium. The second stage is that of curability of the deficiency dystrophy but incurability of the general dystrophy. There is finally a stage of complete incurability. At this time, specific treatment comes too late, cachexia is extreme. Necropsy shows hemorrhages in the femoral region.

43 505 520 (March 30) 1935

- \*Treatment of Addison's Disease by Common Salt G Marañon, I A. Collazo and J Jimena—p 505  
Action of New Pancreatic Hormone in Hypertensives P Bernal—p 507

**Treatment of Addison's Disease by Common Salt**—Marañon and his co-workers treated twelve cases of Addison's disease with oral administration of sodium chloride. The basis for this therapy arises from the disturbance in sodium and potassium ratios in adrenalectomized animals and patients with Addison's disease. They feel that the sodium-potassium disequilibrium produced by the adrenal insufficiency might well be the principal cause of the severe dehydration present in Addison's disease. Whatever the mechanism, however, the clinical efficacy of sodium chloride (usually administered in daily doses of from 3 to 6 Gm in capsules) is undeniable. In some of their patients the results were astounding and in others were less remarkable. Another advantage of the saline treatment is the economy of cortical extract allowed. In less severe cases the extract can in fact be entirely reserved for complications, such as infections. The saline treatment is well tolerated in general. In some patients gastric disorders are produced. To avoid them the salt may be taken with milk or with sodium bicarbonate. Edema was observed in only one case.



## Policlínico, Rome

42 597 644 (April 1) 1935 Practical Section

- Electrophonocardiography Clinical Study of Mitral Stenosis U Diliberto—p 597
- Effects of Gamma Rays on Pilose System in Normal and Pathologic Conditions V Palumbo—p 600
- Primary Tumor of Lung with Neoplastic Thrombosis from Superior Vena Cava to Auricle A Fabris—p 607
- \*Simple Method of Preparing Suspension of Choroid Pigment for Melano reaction of Henry in Malaria R Silvestrini—p 614

**Melanoreaction of Henry in Malaria.**—Silvestrini reviews the literature on the melanoflocculation reaction of Henry and describes a method of extraction with ether of the choroid pigment, which renders the reaction easy to perform. Henry's method is the following: After the crystalline lens has been removed the choroid of the ox is scraped and the gelatinous liquid and the melanin are collected. These are mixed, double the amount of distilled water is added and the whole is well triturated. Formaldehyde is added for preservation in the proportion of 1 per cent. A certain amount of precipitation may take place. Filtration is done through glass wool. The filtrate is centrifugated for eight minutes at 4,000 revolutions. The blackish supernatant liquid is decanted in sterile recipients and preserved on ice. It is vigorously shaken twice weekly and used after one month. The stock suspension is diluted to an opacity corresponding to that of a tube marked 0.20 of the albuminometric scale. Applying the method of extracting pigment from melanotic tumors by shaking the tumor fragments with ether, the author extracted in the same manner the pigment from the choroid of the ox to make the suspension for the reaction of Henry. He thus obtains the finest suspension of particles of pigment in ether. The ether in which the pieces of choroid are shaken is poured in a funnel with a stopcock at the bottom of which several cubic centimeters of physiologic solution of sodium chloride has previously been placed. The pigment is deposited and forms a layer between the salt solution and the ether. The stopcock is opened the salt solution and the pigment are collected and the ether is discarded. The pigment is shaken in the salt solution and is diluted with physiologic solution of sodium chloride until it shows a weak opalescence. The suspension is distributed in sterilized tubes and the serum to be examined is added in various proportions. With malarial serums the author obtained intense precipitations flocculating after two hours of rest at 98.6 F. If the tubes are observed for a long time, there is no need to take account of slight deposits at the bottom of the tube. Only the rapid intense and flocculating precipitation and the clarification of the liquid as compared with control tubes have a real value.

42 193 260 (April 15) 1935 Surgical Section

- Achondroplasia Associated with Multiple Angiomas and Fibromas Case A Casini—p 193
- Primary Thrombophlebitic Splenomegaly Treated with Splenectomy and Cured for Six Years G Giordano—p 219
- Testicular Retentions G B Macaggi—p 228
- \*Anatomopathologic and Pathogenic Study of Diverticula of Duodenum L Minucci Del Rosso—p 236

**Diverticula of Duodenum.**—Minucci Del Rosso reports two cases. A woman, aged 61 had two diverticula and a man, aged 68, had a single diverticulum. On reviewing the pathology he found that there is no morphologic correspondence between duodenal diverticulosis and the classic picture of diverticulosis of the large intestine. The author states that duodenal diverticula in 90 per cent of cases are found between the second and the third portion of the duodenum and are limited to the duodenal segment corresponding to the pancreas. Islands of accessory pancreas are frequently found in the wall of the diverticulum. The dynamics of the development of the relation of duodenum and pancreas is extremely complex and involves both organs. The histologic structure of the duodenal tract even in the second and third portions, presents accessory diverticular invaginations during the first weeks of life. The author states in conclusion that extrinsic mechanical embryonic factors such as pressure on the part of the pancreas and torsion of the umbilical loop in certain cases may lead to the persistence of the characteristic diverticular formations which normally are transient.

## Prensa Medica Argentina, Buenos Aires

22 609 660 (March 27) 1935 Partial Index

- \*Hemiballistic Syndrome Cases M Alurralde and M J Sepich—p 609
- Elective Pneumothorax and Its Pathogenic Mechanism A A. Raimondi and R Scartascini—p 614
- \*Erythrocyte Sedimentation in Obstetrics and Gynecology D Taylor Gorostiaga—p 639
- Gastro-Intestinal Tract and Sympathetic Nervous System in Infantile Paralysis G P Goñalons—p 649

**Hemiballistic Syndrome.**—Alurralde and Sepich say that a clinical diagnosis of a degenerative lesion in the hypothalamic nucleus can be made by the presence of hemiballism and that the seat of the hypothalamic lesion in those cases is contralateral to the side of the body affected by hemichorea. The following symptoms are found. The patient is suddenly taken ill with hemichorea of a characteristic nature, followed by absence of sleep and appearance of mental disturbances. The choreic movements are violent, jerking and twitching and of exaggerated intensity, more marked at the root of the limbs than at the distal extremities. They increase in amplitude and frequency when the patient does not try to control them and entirely cease for the few minutes in which the patient can sleep if he is given some hypnotic and sedative. Both the mental and the motor symptoms are aggravated at night. The disease follows a rapid evolution and the patient dies in about six weeks from its onset. In the two cases reported, a clinical diagnosis of a probable basal lesion in the hypothalamic nucleus causing hemichorea was made.

**Erythrocyte Sedimentation in Obstetrics and Gynecology.**—Taylor Gorostiaga performed the erythrocyte sedimentation test on 150 women in normal, gynecologic and obstetric conditions. He concludes that the increased speed of sedimentation may have several causes. The interpretation of the Fåhræus test should be based on the results of a careful clinical examination of the patient. The Katz index increases during menstruation in women clinically normal from 3 to 7 mm in 75 per cent of the cases. The speed of sedimentation increases in normal pregnancy at the end of the second month in 50 per cent of the cases, in the third month in 83.3 per cent and after the fourth month in 100 per cent. The test is not applicable to an early diagnosis of pregnancy. However, a speed increasing constantly during the test repeatedly performed indicates pregnancy. The speed of the sedimentation increases during the first month of normal puerperium in 100 per cent of the cases. It reaches its greatest rate by the ninth day after which it slowly decreases and reaches normal figures by the thirtieth or forty-fifth day of the puerperium. The speed of sedimentation is greater in puerperal infection than in the normal puerperium and it is in direct relation to the seriousness of the infection. The speed of sedimentation increases greatly in infected abortion and slightly in noninfected abortion, in comparison to that corresponding to the time of evolution of pregnancy. In all women who were subjected by the author to curettage after abortion, in spite of the presence of a high Katz index, the postoperative period was normal and the patients were discharged in good condition. The speed of erythrocyte sedimentation is normal in women with small or middle sized fibromas that have not undergone degeneration or infection or are not complicated by abundant hemorrhages, as well as in those who have an ovarian cyst, if its pedicle is not twisted. The speed of sedimentation increases slightly in adnexitis. As it is in relation to the evolution of the disease, the performance of the operation can be determined by the results of the test rather than by the curve of the fever. The speed of sedimentation increases in large fibromas and still more in pyosalpinx parametritis and Bartholinitis. In uncomplicated extra-uterine pregnancy the speed corresponds to that of normal pregnancy at the same period of evolution and it increases in complicated extra-uterine pregnancy. A differential diagnosis between either chronic or subacute adnexitis, on the one hand, and uncomplicated extra-uterine pregnancy on the other cannot be made by the results of the test as it is between the former condition and a peritoneal blood effusion from a ruptured extra-uterine pregnancy. A differential diagnosis between acute adnexitis and ruptured extra-uterine pregnancy can be made by the results of the test when the clinical examination of the patient excludes the presence of pyosalpinx.

**Semana Medica, Buenos Aires**

42:913 972 (March 28) 1935 Partial Index

- Diabetes and Tuberculosis R A Izzo, A Casanueva and J B Ferradís —p 913  
Right Angle Triangular Shadow of Posterior Mediastinum Clinical and Roentgen Interpretation D Thamm F A Medici and C A Rey —p 918  
Thalamic Syndrome Case. II R Rugiero —p 921  
Ample Gastrectomy in Gastric Ulcer M J Taverna —p 952

**Right-Angle Triangular Shadow of Posterior Mediastinum**—Thamm and his collaborators say that the clinical diagnosis of the process that causes a right-angle triangular shadow of the posterior mediastinum to appear in the roentgenogram may be made by a differential diagnosis of the following conditions: adhesions of the middle and inferior lobes of the lung, costomediastinal pleuritis, pneumonia of any etiology, especially that described by Pospischin as a complication of whooping cough, bronchiectasis, atelectasis in bronchial compression by a ganglion of increased size, dislocation of the inferior lobe of the lung (Bernou), bronchial cancer, and encysted empyema. To make a differential diagnosis with exudative mediastinal pleurisy is easy, but to make it with costomediastinal pleurisy is difficult. In the case reported by the authors, the presence, evolution and disappearance of the clinical symptoms (presence of tubercle bacilli in the sputum and hemoptysis, which disappeared with the favorable evolution of the disease) coincided with the presence, evanescence and complete disappearance of a right-angle triangular shadow of the posterior mediastinum in the roentgenogram. A puncture at the base of the left hemithorax in this case gave negative results. The clinical diagnosis was tuberculous infiltration (epituberculosis), superficially located in the zone that corresponds to the left accessory lobe of the lung.

**Beiträge zur Klinik der Tuberkulose, Berlin**

86:117 160 (March 23) 1935 Partial Index

- Diagnosis of Carcinoma of Bronchus A Kenner —p 117  
\*Significance of White Blood Picture in Relation to Sedimentation Speed of Erythrocytes in Clinical Estimation of Some Forms of Pulmonary Tuberculosis G Thiele —p 126  
Technical Improvements in Thoracoplasty R Noack —p 146

**Diagnosis of Carcinoma of Bronchus**—Kenner describes the chief clinical symptoms of carcinoma of the bronchus on the basis of observations in eighteen cases. He stresses the almost general occurrence of an accompanying chronic pneumonic involvement of the affected portion of the lung. He thinks that, if there is a chronic pneumonia of the indurating, abscess forming or gangrenous form, it is necessary to search for a stenosis of the pertaining bronchus. The concurrence of several accompanying symptoms, such as relapsing hemoptyses, stenotic respiration, or formation of collateral vessels in the skin, are of diagnostic significance.

**The Leukocytes and Sedimentation Speed in Tuberculosis**—Thiele compared the blood picture and the sedimentation speed of the erythrocytes in 100 male patients with open tuberculosis. Some had caverns, but in most the clinical course had a tendency to latency. The sedimentation values were normal or nearly normal, but the white blood picture showed considerable changes. All forms of leukocytes showed qualitative and quantitative changes in the majority of the cases, while in others only one of the types showed alterations. The total number of leukocytes was normal or increased, never reduced. The quantitative blood picture showed a considerable lymphocytosis, frequently in spite of a simultaneously existing deviation of the neutrophils to the left. The lymphoid cells likewise showed qualitative deviations from the normal. In cases presenting nearly normal neutrophil blood pictures, the lymphocytes were still strongly altered. In no case was the blood entirely normal. Discrepancies between the hematologic and the clinical aspects were frequent. The author gained the impression that a normal sedimentation speed and a normal, total number of leukocytes do not exclude the existence of caverns. The tuberculous process has been arrested only after the blood has become normal again. In the cases examined by the author, the blood picture proved superior to the sedimentation reaction as an indicator of the status of the pulmonary

process. It proved that a real arrest of the process had not taken place when this assumption seemed justified on the basis of the sedimentation speed and the other clinical aspects. The author rejects Schilling's "phases" and his interpretation of the hemogram, because they do not correspond to the real conditions. He thinks that for practical purposes it is preferable to use Arneth's simplified neutrophil blood picture, in which only the cells of the first class are determined among 100 neutrophils.

**Chirurg, Berlin**

7 233 264 (April 15) 1935 Partial Index

- Indication and Technic of Resection of a Cerebral Lobe W Tonniss —p 233  
\*Hypertonic Solution of Dextrose in Treatment of Increased Intracranial Pressure K Kamniker and W Sinnreich —p 239  
Morphine as Premedication in Evipan Anesthesia K Vogeler and Kotzoglou —p 242

**Dextrose in Treatment of Increased Intracranial Pressure**—Kamniker and Sinnreich report thirty-two cases of skull injuries treated with hypertonic solution of dextrose. The method consisted in slowly (from ten to fifteen minutes) injecting into a vein about 70 cc. of a 50 per cent solution in women and 100 cc. in men. The injections were given one day apart and an average of three injections was used. Twelve of the patients were rendered symptom free and fourteen were discharged as improved. In six there were no results. Three of these had sustained severe destructive brain lesions. The author concludes that the method is safe and valuable in lowering intracranial pressure. It is effective when the headache, stupor and dizziness are caused by rising intracranial pressure.

**Deutsche Zeitschrift für Chirurgie, Berlin**

244:663 795 (April 5) 1935 Partial Index

- Methods of Bone Transplanting in Lower Jaw M Wassmund —p 704  
\*Exophthalmic Goiter Thyroid and Vegetative Nervous System Neurovegetative Hormone System as Biologic Unit P Sunder-Plassmann —p 736

**Neurovegetative Hormone System**—Sunder-Plassmann was able to demonstrate, in his histologic studies, the existence in the cells of the thyroid of a "terminal reticulum" of the vegetative nervous system. This reticulum was traced as it proceeded from a cell of the vessel wall to an individual cell of the gland, where it spread out within the plasma and continued uninterruptedly in a close network so as to include all the cells in one functioning unit. The thyroid receives its nerve supply, according to the author, not alone from the superior cervical sympathetic ganglion but to a great extent from the three cervical ganglia, the superior laryngeal nerve, the recurrent laryngeal nerve, the carotid plexus, the cardiac branches and the glossopharyngeal nerve and from the walls of all the thyroid blood vessels. Resection of the sympathetic does not accomplish denervation of the thyroid. A more or less complete denervation of the thyroid would imply in addition to extensive resection of the nerves stripping of the thyroid vessels, the common carotid artery and the carotid sinus, or their treatment with phenol and trichloroacetic acid as advised by Cattaneo. A more or less complete blocking of the sympathetic innervation can be obtained temporarily by administering to an animal tartaric acid ergotamine. The author was further able to demonstrate that the thyrotropic hormone effect could be completely eliminated by administering to the animal a type of anesthetic which acted on the brain stem (solution of the sodium salt of secondary butyl-beta-bromallyl barbituric acid), thus proving that the vegetative nervous centers are located in the vegetative midbrain, which controls both the hypophysis and the thyroid. Experimental stimulation of the neurovegetative receptor areas in the carotid sinus produced a definite and pronounced stimulation of the functional and secretory activity of the thyroid. The reaction varied with the type of stimulus. These facts suggest that the neurovegetative hormone system is one individual biologic unit. The role of the nervous system in the activity of the thyroid as well as in the pathogenesis of thyrotoxicosis is of the greatest importance. A severe case of thyrotoxicosis represents a permanent irreversible alteration and is therefore best treated by subtotal resection of the gland. Sympathectomy, roentgen irradiation and medicinal agents are not effective.

**Klinische Wochenschrift, Berlin**

14 481 520 (April 6) 1935 Partial Index

\*Elimination of Cevitamic Acid in Health and Disease H Schroeder —p 484

New Soy Water Bread and Use of Soy Flour in Treatment of Diabetes Mellitus and Obesity F Schellong —p 487

\*Follicle Hormone Content of Blood in Eclampsia W Bickenbach and H Fromme —p 496

Blood Pressure Reduction in Pyelovenous Reflux. K Liedholm —p 497

**Elimination of Cevitamic Acid**—Schroeder studied the elimination of cevitamic acid in healthy persons and in persons with various disorders (exophthalmic goiter, typhoid, cystitis, polyarthritis, tuberculosis, pneumonia, diabetes, carcinoma and other conditions) before and after the administration of cevitamic acid. His investigations indicate that during infectious diseases the consumption of cevitamic acid is often considerably increased. Other investigators likewise observed a gradual increase in the cevitamic acid content of the serum during the period of convalescence after sepsis and typhoid. The author deplores that he was not able to extend his studies to cases of capillary toxicoses and to other hemorrhagic diatheses, in which other investigators had obtained favorable results with the intravenous administration of cevitamic acid. However, he thinks that the prompt improvement often produced by the administration of cevitamic acid in the hemorrhagic diatheses developing after infectious diseases, as well as the result of his own investigations, make it appear probable that a hypovitaminosis (to be sure, on an endogenic basis) is an essential factor in the pathogenesis of the capillary toxicoses. He thinks that studies of suitable cases will furnish the definite proof of the correctness of his conclusions, and also that they may indicate why the predisposition to capillary hemorrhages is more pronounced in some cases. He points out that Presnell's observations on guinea-pigs correspond with his own, because this author observed that in case of a deficiency in vitamin C the coagulation time is prolonged and the number of erythrocytes and the hemoglobin are reduced before the appearance of the symptoms of scurvy.

**Follicle Hormone Content of Blood in Eclampsia**—Bickenbach and Fromme found that, in spite of the increased follicle hormone content of the urine of patients with eclampsia reported by Heim, even the extraction method, which they employed on the blood of four women with eclampsia, disclosed no noticeable increase in the follicle hormone content of the blood over the values observable during normal pregnancy.

**Medizinische Klinik, Berlin**

31 469 500 (April 12) 1935 Partial Index

\*Technic and Practical Significance of Insufflation of Uterine Tubes J Novak —p 480

\*Do Narcotics Influence Action of Therapeutic Fever? L Wehner —p 482

Observations in Brain Surgery B Oton —p 483

\*Refractory Case of Lambliaosis of Biliary Passages H Scheidel —p 485

Reduced Resistance Against Infections in A Avitaminosis M Frank —p 486

**Insufflation of Uterine Tubes**—Novak employs Rubin's technic of insufflation. The apparatus consists of a carbon dioxide tank from which the gas passes through a regulating valve into a glass volumeter. The gas is passed through sterile water and a boric acid solution or some other sterile fluid, and thus dust particles and other matter are removed. Then it passes through a sterile tube to an intra-uterine catheter introduced beyond the internal os. By means of a rubber cone that surrounds the catheter, the external os is closed airtight. The intra-uterine gas pressure is indicated by a manometer attached to the volumeter. In recent years a kymograph has been used and although this instrument is not necessary, it is a valuable aid. The author considers insufflation of the uterine tubes advisable in cases in which other methods of examination, including the examination of the woman's husband and of a specimen of semen do not reveal causes of sterility. If tuberculosis of the internal genitalia is suspected insufflation should not be done. The most favorable time for insufflation is immediately following the menstrual period. Before resorting to insufflation, the apparatus should be carefully inspected. Then the uterine cervix is drawn forward by means of a ball-

forceps. Dilatation of the cervical canal is usually unnecessary because it is usually permeable for an intra-uterine catheter. Anesthesia is unnecessary because the method causes little pain. Moreover, because the pain phenomena are of great diagnostic significance, it is undesirable to exclude them by anesthesia. The quantity of gas necessary for the insufflation is approximately 160 cc. The intra-uterine pressure should never exceed from 200 to 220 mm. of mercury. If the tubes are impermeable at the uterine ostium, the intra-uterine pressure increases rapidly and the patient complains of painful tension in the middle of the lower part of the abdomen. As soon as the pressure reaches 200 or 220 mm. of mercury, the attempt is given up and the gas escapes from the uterus. If the tubes are obstructed at the abdominal ostium, the patient experiences pains also on both sides of the abdomen, and the gurgling tubal sounds and the characteristic pains in the shoulder are absent. If at least one tube is patent, but so constricted that the gas penetrates only with great difficulty, the manometric pressure rises at first rather high and then recedes gradually. Occasionally insufflation produces a therapeutic effect in that it opens the obstruction and thus counteracts sterility.

**Influence of Narcotics on Therapeutic Fever**—Wehner points out that the extremely high temperatures in fever therapy are frequently accompanied by severe headaches, nausea, vomiting, pains in the muscles and joints, palpitation of the heart, dyspnea, insomnia and other symptoms, so that the patient demands the premature interruption of the treatment. For this reason it would be desirable to give the patients remedies that would reduce these symptoms. Antipyretics are inadvisable because, by reducing the fever, they would defeat the object of the fever therapy. The author decided to try different narcotics and she found that opiates and certain barbituric acid derivatives reduce some of the undesirable symptoms without interfering with the biologic action of the fever therapy.

**Lambliaosis of Biliary Passages**—Scheidel relates the clinical history of a man, now aged 54. The anamnesis indicates that symptoms which were repeatedly interpreted as being caused by cholecystitis date back seventeen years. The lambliaosis was not recognized until twelve years later. After that the patient was subjected to various therapeutic measures including treatment with neosarsphenamine and duodenal irrigations. Although a reduction in the number of the protozoa was followed by improvement in the disturbances, complete cure was not obtained.

**Wiener klinische Wochenschrift, Vienna**

48:417-448 (April 5) 1935 Partial Index

Demonstration of Tubercle Bacilli According to Method of Löwenstein Experiences in Vienna Children's Clinic J Siegl —p 417

Radium Bomb or More Radium Institutes with Average Amounts of Radium? L Freund —p 421

\*Epidemiology and Pathogenesis of Epidemic Acute Serous Meningitis H Schneider —p 425

Observation of Anomalies of Two Muscles on Living Persons G Sauer —p 430

**Epidemic Acute Serous Meningitis**—Schneider points out that the clinical aspects of serous meningitis, the so-called aseptic meningitis of Wallgren, seem to correspond partly to an abortive epidemic encephalitis and partly to an abortive poliomyelitis. He arrived at this opinion on the basis of necropsies in acute cases and of the after-examinations of former patients for, after an apparent recovery from the meningitis, symptoms of parkinsonism developed in some cases. He discusses the epidemiology on the basis of observations he made in the course of seven years in 150 cases. The disorder seems to confer an immunity, it is communicable and occasionally it is transmitted by carriers, who themselves remain free from it. In some cases the disorder seems to become manifest in two successive outbreaks. The disease is most frequent during the later part of the summer. The author points out that several of these epidemiologic factors indicate a poliomyelitic etiology of the serous meningitis. In a discussion of the necropsies he stresses that the histologic aspects likewise indicate relations to poliomyelitis. He describes the bacteriologic observations and points out that the term aseptic meningitis is unsuitable because it is contradictory. Bacteriologic studies of a number of patients disclosed various types of streptococci nonhemolyzing ones.

hemolyzing ones and some that produced a green zone. The author points out that some streptococci, among them the diplo-streptococcus that has been found in the brain of patients with epidemic encephalitis, are now considered saprophytes. It is known that some anaerobic organisms require symbiosis with saprophytes for their existence. In this connection he calls attention to the bacillus of tetanus, which requires for its growth the presence of aerobic bacteria that absorb the oxygen and thus produce anaerobic conditions. The virus of poliomyelitis likewise can be cultivated only under anaerobic conditions. The author cites evidence that makes a symbiosis of the virus of poliomyelitis with streptococci seem likely. He thinks that the atypical abortive course of poliomyelitis in the cases observed by him is due to the same cause. The high incidence of the disorder during the summer may be due to the fact that work in the hot sun produces a predisposition. In this connection it is pointed out that Japanese encephalitis is likewise most frequent during the hot season. Another factor is the possibility of the transmission of the virus in the dust.

4S 449-480 (April 12) 1935 Partial Index

Pathochemistry of Urine in Carcinoma M Weiss—p 454

Transcutaneous Method of Bronchography by Means of New Instrument J Sargo—p 462

Extragenital Lymphogranuloma Inguinale in a Nurse H Homma and H T Chaglassian—p 464

\*Atrophic Cirrhosis of Malarial Origin O Serefettin—p 466

**Chemistry of Urine in Carcinoma.**—Weiss concedes that no method of urinalysis definitely demonstrates the existence of a malignant tumor but only makes its existence probable. Moreover, not a single pathologic aspect of the urine but rather the collective consideration of several aspects, is of diagnostic value. The author considers first the pigment elimination and the specific gravity of the urine of cancer patients. In cases of gastro-intestinal cancer, for instance, the urine may become relatively pale. The appearance of urochromogen in the urine is an early sign of some types of cancer, and a positive urochromogen test in an older person, who is free from fever, severe cardiac decompensation and tuberculosis, should make the physician suspicious of a malignant growth. The specific gravity of the urine of cancer patients may be somewhat reduced. Increased intestinal putrefaction, which is indicated by an indican reaction, the presence of uroerythrin, Thormählen's test that demonstrates the presence of indole-like substances or a test that determines the oxacids, often indicates the presence of gastro-intestinal cancer. The estimation of the mineral metabolism on the basis of urinalysis is valuable in determining cancer metastases in the bones. A reduction in the chlorides and an increase in the calcium indicate an endogenic origin of the calcium and consequently make probable the existence of bone metastases. In order to determine the presence of hepatic metastases, the author resorts to a method demonstrating the existence of tyrosine. He discusses the protein disintegration in cancer and emphasizes that there is no protein disintegration that is specific for cancer. He gives especial attention to the nucleo-albumin elimination in the urine and believes that the nucleo-albumins may favor the development of cancer. He discusses the significance of urinalysis for the detecting of changes in the ferment metabolism and admits that these studies on the ferment metabolism cannot be definitely evaluated as yet.

**Atrophic Cirrhosis of Malarial Origin.**—According to Serefettin, most authorities agree that malaria may lead to hypertrophy of the liver, but the possibility of atrophic cirrhosis is not so generally admitted. Some investigators suggest that malaria patients who develop atrophic cirrhosis are either alcohol addicts or are syphilitic. But there are some, particularly those who practice in paludal regions who agree that malaria may produce an atrophic cirrhosis. To the suggestion that alcoholism might be the cause, the author replies that his own observations, as well as those of other observers, were made on Mohammedan patients that is, persons who had never taken alcohol. Moreover, the patients were free from tuberculous lesions and the serologic reactions for syphilis were negative. In describing the symptomatology, the author states that the patients are pale, which differentiates them at once from those with alcoholic cirrhosis, who usually have a reddish appearance. Postmalarial atrophic cirrhosis is characterized

also by general weakness, anemia and emaciation of the extremities and of the chest, in strong contrast to the swollen abdomen. Then there is ascites, dilatation of the abdominal veins, and enlargement of the spleen so that it reaches beyond the umbilicus. The liver is not palpable, even following withdrawal of the ascitic fluid. The pulse is weak and accelerated and there are cardiac murmurs like those of anemia. The temperature fluctuates and occasionally reaches extremely high values. The urine contains urobilin, urobilinogen and bilirubin and, in some cases, also indican. The erythrocyte count fluctuates between two and three millions. Necropsy disclosed that the anatomic aspects of postmalarial atrophic cirrhosis differ somewhat from those of the alcoholic and the syphilitic type. The surface of the malarial liver is not so humpy and is less firm than in alcoholic cirrhosis. The connective tissue strands do not show an advanced development. The bile passages and arteries are not completely destroyed, and the process of degeneration is not advanced. If the patients have not reached a state of advanced cachexia, the condition is still amenable to treatment, and much better therapeutic results can be obtained than is the case in the alcoholic form. The author administers 1 Gm of quinine for ten successive days, then follows a pause of eight days after which the treatment is resumed for eight or ten days and, following another pause of seven days, the medication is resumed for six or eight days more. The diet should provide large quantities of vegetables and fruits, but the proteins, carbohydrates and fats should be restricted. The patient is kept in bed and the constipation is adequately treated. In order to compensate for the deficient hepatic function and to stimulate diuresis, liver preparations are administered. Many patients improve considerably under this treatment.

## Zeitschrift für Kinderheilkunde, Berlin

57:75 184 (March 21) 1935 Partial Index

Influence of Open Air Treatment on Course of Tuberculosis in Childhood G Weber—p 75

\*Serologic Diagnosis and Specific Treatment of Whooping Cough M Gundel W Keller and W Schluter—p 89

Determination of Protein by Means of Acid Binding Power E. Freudenberg—p 108

\*Malariotherapy of Nonsyphilitic Nervous Disturbances During Childhood L von Dobszay and Ilona Fischer—p 124

**Serologic Diagnosis of Whooping Cough.**—Gundel and his associates describe a method of complement fixation in whooping cough. The antigen is a concentrated suspension of whooping cough bacilli in alcohol with the addition of lecithin, which they found highly specific. The reaction may become positive at the end of the second or third week after whooping cough has been contracted, that is, even before the onset of the typical coughing attacks. The reaction remains negative in cases with severe complications and in lethal cases. The percentage of unexplainable failures in definitely demonstrated cases of whooping cough amounts to 3 per cent. The authors state that they generally observed considerable antibody formation following vaccination with whooping cough vaccine. They observed also that the antigenic action of various strains of the bacillus differs considerably. In order to gain better insight into the immunologic processes, they made studies on the endotoxins of the whooping cough bacillus and succeeded in obtaining a highly potent endotoxin with a strong toxic effect for rabbits and mice. However, in its present form it proved unsuitable for purposes of immunization. Attempts to use this endotoxin for diagnostic purposes, in the form of intracutaneous tests, failed.

**Malariotherapy of Nonsyphilitic Nervous Disturbances.**—Von Dobszay and Fischer decided to try malariotherapy in early and late postencephalitic disturbances, in Little's disease, in idiocy and in epilepsy. They discuss their clinical observations and results. Malariotherapy proved entirely ineffective in five cases. Two of these children had the late form of the postencephalitic disturbance, two others were idiots and the fifth had true idiocy. Malariotherapy had definitely harmful effects in two cases. Three children, two idiots and one with Little's disease, showed slight improvement following the treatment. One child with genuine epilepsy showed great improvement and two children, in whom the postencephalitic disturbances were in the early stage, were completely cured.

The authors reach the conclusion that malaria therapy is justified in cases of severe, refractory disorders of the nervous system, particularly in those complicated by feeble-mindedness. They consider it most promising in the early stages of post-encephalitic disorders.

### Zeitschrift für klinische Medizin, Berlin

128 1 120 (March 20) 1935 Partial Index

- \*Duodotirosin and Compound Solution of Iodine in Treatment of Hyperthyroidism H. Gotta—p 1
- Studies on Electrical Skin Resistance Following Sea and Sun Baths H. Meissner—p 12
- Determination of Site of Development of Ventricular Extrasystole H. Baumann and A. Weber—p 18
- \*Action of Adrenal Cortex Extract on Cholesteremia C. V. Medvei—p 58

**Duodotirosin and Compound Solution of Iodine in Hyperthyroidism.**—Gotta studied the efficacy of duodotirosin and of compound solution of iodine, because some investigators maintained that duodotirosin is more effective than compound solution of iodine, while his own studies had convinced him that the efficacy of the two preparations is about the same. From observations on twenty-six patients with hyperthyroidism, he reaches the conclusion that there is no difference between the action of compound solution of iodine and of duodotirosin. The differences that may be observed in the action of the two are merely the result of the order in which they are administered, that is, the preparation that is given first is most effective. The author discusses also the pathologic anatomy of the thyroids that were removed following treatment with iodine and reviews animal experiments. He summarizes his observations as follows: 1 Duodotirosin as well as compound solution of iodine produce in hyperthyroidism a temporary improvement that is followed by an exacerbation. The latter develops, no matter whether the treatment is continued or interrupted in the latter event the exacerbation develops earlier. In exceptional cases the improvement may be permanent, no matter which of the two preparations is employed. 2 There are cases of hyperthyroidism that are resistant to duodotirosin and the author found that these cases were likewise resistant to iodine. 3 Comparative studies on two groups of patients, indicating that the preparation which is given first is the most effective, convinced the author that the iodine of duodotirosin produces the therapeutic effect, for it is known that iodine, if administered with interruptions, loses its efficacy more and more. The author regards duodotirosin as a prehormone of thyroxine. Its regular occurrence in the normal thyroid and the biologic similarity and the chemical relationship between the two substances indicate this.

**Action of Adrenal Cortex Extract on Cholesteremia.**—Medvei points out that, while it is generally conceded that epinephrine, the active principle of the adrenal medulla, effects an increase in the cholesterol content of the blood, opinions differ about the effect on the blood cholesterol of adrenal cortex extract. Recent studies on B. avitaminosis disclosed that various modes of extraction of the active principle of the adrenal cortex result in products with slightly different actions. For instance, one product of the adrenal cortex, extracted by primary alkaline hydrolysis, was found to inhibit the hypercholesteremia as well as the reduction in the blood phosphatides of pigeons with B. avitaminosis, while another product, obtained by acid extraction, was also found to inhibit the hypercholesteremia but to promote the reduction in the phosphatides. The latter substance was found to aggravate the B. avitaminosis, while the first substance improved it. These and other observations seemed to indicate that adrenal cortex extract contains at least three distinct components. Attempts to isolate these three substances succeeded. Other authors searched for still other factors. The author studied the action of adrenal cortex extract on the cholesterol content of the blood of several patients with Addison's disease and he also made tests on persons free from endocrine disorders. He found that adrenal cortex extract that was prepared according to the method of Swingle and Pfiffner and contained no epinephrine reduces the cholesterol content of the blood in the majority of normal persons. Correspondingly a hypercholesteremia was found in Addison's disease. However, in case of hyperfunction of the adrenal cortex, normal

or subnormal blood cholesterol values were found. These observations correspond with the reports on epinephrectomized animals. The author observed Addison's disease in two siblings and considers this a new proof for the existence of a constitutional predisposition for this disorder, which he traces to a genotypical defect of the adrenals.

### Hospitalstidende, Copenhagen

78: 337 364 (March 26) 1935

- \*Treatment by Inanition in Disturbances of Urinary Tract. E. W. Gøthgen—p 337

**Treatment by Inanition in Disturbances of Urinary Tract.**—According to Gøthgen, an absolute requirement in inanition treatment is that no sugar or carbohydrate in general be given, and a successful outcome of the treatment depends on the absence of complications. Because of its simplicity, short duration and high percentage of cures he advocates the treatment as the general method for hospitalized patients with pyuria and calls attention to the further advantage that a negative result almost certainly indicates a complication. The method is also considered a valuable feature in therapy after operations on infected urinary tracts, with possible significance in some cases in preoperative treatment.

### Norsk Magasin for Lægevidenskapen, Oslo

96 345-448 (April) 1935

- \*Triboulet Reaction Controlled by Roentgen Examination. G. Hertzberg—p 345
- \*Hemolytic Fecal Streptococci (Enterococci) S. D. Henriksen—p 361
- Miliary Carcinosis Developed from Cancer of Stomach in Boy Aged 19 E. Schie—p 374
- Investigations on Iron Metabolism in Pregnancy III Determinations of Hemoglobin and Iron in Blood of Pregnant Women. K. U. Toverud—p 381
- Attempts at New Treatment of Erythema Nodosum. J. Heimbeck—p 390
- After Examination of Patients Operated on for Primary Chronic Appendicitis E. Poppe—p 395
- \*Lamy Bile R. B. Engelstad—p 407
- Roentgen Treatment of Pruritus Ani R. B. Engelstad—p 411

**Triboulet Reaction Controlled by Roentgen Examination.**—On the whole there was agreement between the results of the Triboulet reaction and of roentgen examination of the intestine in Hertzberg's forty-six cases. He says that the Triboulet reaction is not specific and may be influenced by other nonspecific factors. While no roentgen symptoms are pathognomonic for intestinal tuberculosis, localization of the pathologic results about the ileocecal region is most important in the differential diagnosis in intestinal tuberculosis.

**Hemolytic Fecal Streptococci (Enterococci)**—Henriksen says that biochemical study of thirty-eight strains of enterococci, eighteen of which were hemolytic, showed that all the strains were heat resistant, gave low  $p_{\text{H}}$  concentration, grew in 30 per cent solution of bile and reduced methylene blue. All but one hydrolyzed sodium hippurate. Most strains fermented mannitol, sorbite and trehalose. Only two of the hemolytic strains were virulent in mice, and only two strains, both of the gamma type, were the probable cause of disorders in man. The author asserts that a relationship is established between the enterococci and *Streptococcus acidilactici* and points to the theoretical and practical significance of classification of hemolytic streptococci isolated from feces or other material.

**Lamy Bile**—Engelstad states that, while calcium carbonate may be found in the gallbladder as a common component of gallstones, it may also appear as a special deposit as a stone or a milk-white fluid or a half-fluid mass. Because of the variation in color and consistency he prefers the term "lamy bile" (Knutsson) to "milk of calcium" bile or calcium carbonate stones. In his case, with roentgen diagnosis confirmed on operation, the history pointed to a gallstone disturbance. The gallbladder, in addition to the dark brown, thick, tarlike lamy bile, also contained a clear, thin hydropic bile and numerous concretions. There was an obstruction in the cystic duct. Obstruction of the cystic duct the author says seems almost always to be present in this condition and may perhaps assume a certain pathogenic role.

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## THE BREATH OF LIFE

PRESIDENTIAL ADDRESS

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MONTREAL

The text of my address will be found in the Holy Writ in the second chapter of Genesis and the seventh verse where it saith "And the Lord God formed man of the dust of the ground and breathed into his nostrils the breath of life, and man became a living soul" But in Flavius Josephus we read in the second paragraph of the first book that "God took dust from the ground and formed man and inserted in him a spirit and a soul" So here we see that there is apparently a close affinity between life, the spirit and soul. Already we find in the first chapters of Genesis that God had already commanded the waters to bring forth abundantly every moving creature that hath life and fowl that may fly above the earth in the open firmament of heaven. And He created great whales and every living creature that moveth, and let the earth bring forth the living creatures, and made the beast of the earth after his kind and cattle after their kind and everything that creepeth upon the earth after his kind. He commanded them to reproduce each after their kind, so having provided for the future of man "He breathed into him the breath of life" and made him a living soul.

This beautifully allegorical account of the Creation cannot but move us to admiration of the perfect historian who in a few clear-cut sentences outlines for those who follow after his conception of the beginning and way of life. But it must be noted that to man only was there given something of a special nature—all animal life was commanded to live, to reproduce, but the breath of life gave to man a soul.

A somewhat more comprehensive interpretation of the breath of life is undoubtedly to be found in ancient writings, but, to keep to the Holy Writ we find written in the fifth chapter of II Kings and the 34th and 35th verses how Elisha resuscitated the son of the Shunammite.

He went up, and lay upon the child, and put his mouth upon his mouth and his eyes upon his eyes and his hands upon his hands and he stretched himself upon the child and the flesh of the child waxed warm.

Then he returned, and walked to and fro and went up and stretched himself upon him and the child sneezed seven times, and the child opened his eyes.

This is the first recorded resuscitation by direct artificial respiration, the transference of the breath of life or the spirit of the soul of man from the holy prophet to the son of the Shunammite woman.

"Man does not live by bread alone" The members of the animal kingdom carry within themselves stores of most of their requirements, such as water, salts and food in the ordinary sense, but they have no stores of oxygen, without which life becomes extinct. In their development through the eons of time it seems strange that for this substance of imperative need there has been no mechanism evolved whereby a reserve might be accumulated. Even in those species which have a constant aqueous environment the acquisition of oxygen is a matter of the moment and is proceeded with incessantly to meet the continuous demands.

### RESPIRATORY MECHANISMS

Respiration is commonly restricted to the intake of oxygen and the elimination of carbon dioxide by the lungs or their analogue. In a general way this is similar in all species in that the oxygen is acquired from the surrounding medium by diffusion through a more or less permeable membrane, on the internal side of which either the cell plasma or the blood transports it to living cells, where it now takes such vital part in their nutrition and life. These cellular activities may be termed "internal respiration."

It is now my purpose to review briefly the beautifully subtle manner in which the animal organism through its various phases acquires for itself this essence of life imperative for its survival and incidentally uses it for that love song, so to speak, with which to allure its mate for the perpetuation of its species.

### UNICELLULAR ORGANISMS

I shall first consider the unicellular organism, which in a way may represent the component parts that make up the whole of the higher orders, which are but an aggregated although organized arrangement of cells separated anatomically by physicochemical interphases to make the tissues, organs and complicated structures of the higher mammals, and even unto God's image, as we are pleased to call man. For such a unicellular organism I shall select the humble but sometimes deadly ameba, which, although it may have some excretory respiratory faculty, acquires the essence of life by direct inward diffusion due to the negative difference in the partial pressure of oxygen between its internal and its external environment. If we can imagine such a small cell acquiring the source of life and power from the sludge that surrounds it, we can quite easily appreciate how the primitive multicellular animal developing in the primordial mud must have evolved some more efficient means of acquiring this breath of life. As they progressed into more complicated entities and the competition for propagation became more intense, they necessarily had to move faster and this demanded a more efficient method of locomotion than the plasmodial pseudopodia of yore. But increased movement requires an increased supply of oxygen. As by now the surface



membrane for protective purposes has lost much of that quality suitable for the diffusion of gases, some means must be provided for the acquisition of the breath of life, which is being required in increasing amounts. These means are ingenious and have numerous variations but in principle are more or less the same. In special areas the cuticle remains thin and delicate and may be a smooth surface or thrown into folds with indentations of varying complexity. These may be considered as rudimentary gills. Their situation differs from species to species but there is one more or less constant feature, namely, they are on or near the organs of locomotion. I might take as a good example the Isopoda, in which respiration is effected by the broad rami of the abdominal limbs. The renewal of the water, containing the oxygen, on the respiratory surfaces is brought about and accelerated by the movements of the limbs on which they are located, but often certain appendages bear special lobes adapted to set up a current under the shell or carapace and thus flush the chamber in which the gills are situated. So increased activity is served by serving itself. These are but slow moving creatures, although they do as best they can.

#### GILLS AND SWIM BLADDER OF THE FISH

As we proceed upward in the scale of development we find as the consumption of oxygen in the tissues is more rapid that there is an increasingly facile manner of acquiring it, until at last the medium containing it flows in increasing quantities past delicate membranes of vast area where freely circulates in capillaries the blood that is to acquire and carry the oxygen to the far distant cells to play an essential part in nutrition. This is well exemplified in the completely developed gills of the fish. These delicate organs perform a wondrous task and can meet changes in external environment in a manner to arouse our admiration. In lakes and oceans and deep bodies of water the oxygen held in solution decreases as the depth increases. But even at the best of times the concentration is low. The great handicap under which the aquatic animal is living may be realized when it is considered that a liter of air at ordinary temperature contains 210 cc of oxygen. A liter of water contains only 3 to 9 cc. This means that aquatic animals have at their disposal at the most in a liter of their immediate environment less than one twentieth of the amount of oxygen which an air-breathing animal has. To compensate for this, fish have a great capacity for extracting oxygen from the surrounding water and can do so even when the variations of concentration fluctuate acutely over a relative range to which an air-breathing animal could not possibly accommodate itself so rapidly.

In addition to gills, fish have another interesting organ, namely, the swim bladder, which in some has a respiratory function. This organ contains gases in practically the same proportion as in the surrounding medium and its contents usually vary with it. In most fish it undoubtedly is filled by physical diffusion, but in other cases there would appear to be an active inward secretion of gases. About this point revolves one of the important physiological controversies of the day. Can the human being secrete oxygen inward if exposed to suitable environmental conditions? On this question I shall not tarry, as the future holds the solution. To return to the swim bladder. In addition to such respiratory functions as it may have it acts as a hydrostatic

organ allowing the fish to volplane and loop the loop, dive to great depths and soar to the surface of its environment, and at the same time permits it to receive the triste song of its mate and to send her its call for one night of love.

#### THE AMPHIBIA

But we must pass on to the amphibia, from which we shall choose the humble frog, who in pollywog days has gills, but when he reaches his prime and becomes the *basso profundo* of his world he can breathe not only with his lungs but also through his skin, especially in those forms which hibernate in the mud. So he can adapt himself to the vicissitudes of his environment and still acquire sufficient oxygen for his humble needs.

#### BIRDS

From the waters we now soar to the firmament above and consider the streamline bird, which acquires the oxygen from the air through its lungs, which are relatively small, but this is compensated for by the bronchial tubes connecting with air spaces extending into the bones. The inspired air is thus distributed all over the body, so that aeration of the blood is not confined to the somewhat limited lung surfaces. This, however, serves another purpose by lending lightness and buoyancy to the frame. It helps the bird in its flight and rapid change of altitude.

#### MAMMALS AND THE EXPLOITS OF MAN

So finally we come to the mammals, the example of which will be man, whose external respiration is accomplished entirely through the lungs. He has no accessory or auxiliary respiratory mechanism. As the air is inspired it rapidly ventilates the lungs. This ventilation is so delicately adjusted and flexible as to maintain the oxygen content of the mean alveolar air at such a constant level under all ordinary circumstances as to saturate almost completely the hemoglobin, which acts as the oxygen reservoir for the blood plasma, from which the tissues obtain this breath of life. But this is not the only function of respiration. Biologic processes may at times seem wasteful, but if so there is a reason, if we can find it, which will reveal that it is the best under the circumstances and is accomplishing other functions vitally important for preservation or propagation. In addition to supplying the body with oxygen it eliminates carbon dioxide, removes water, helps to regulate the body temperature, is the fine adjuster of the chemical reaction of our internal environment which is maintained with remarkable constancy and, last but not least, serves us to tell our own story. If this were all it would be wonderful enough. But man has not been content to remain in his ordained surroundings. He has aspired to imitate the fish of the sea and the birds of the air. He is an envious and interfering creature, always poking his nose into other people's back yards, spying on their personal affairs out of pure curiosity, and to accomplish this he has used the ingenuity of Satan because he is not equipped by respiration to do it without danger to himself. The curiosity of Eve and the wisdom of the serpent have driven him onward, sometimes to his doom, in the name of truth and science. And the curious part of the whole thing is that he is succeeding.

When he aspired to invade the domain of the humble fish he thought the only thing necessary was to be supplied with the breath of life. But he soon found



that his finned cousin had power to stand variations in external pressure such as would crush him to a pulp. Furthermore, this respiratory business was not so simple. There were other things to be taken into consideration besides oxygen. The laws of physics have an uncomfortable way of being consistent. Although 80 per cent of the atmosphere is nitrogen and of no account in life, he failed to appreciate that it still obeyed these laws and diffused into the plasma in amounts proportionate to the increase in the partial pressure. So, when he returned from visiting his friend the fish in the depths of the sea he became acutely aware that all was not well within him. He found himself full of bubbles, in fact, he was like a soda-water bottle that has been suddenly uncorked, and he further found that air emboli have an aggravating way of "gumming up the works" so to speak, and the laugh was with the fish. But seeming defeat only made him more persistent. He found the reason and sought the remedy, which in common with most truths was simple. Instead of uncorking himself suddenly he learned to do it gradually so as to blow off his excess nitrogen at a safe rate. But this was a slow process and inaccurate, so he decided to do this with mathematical precision and found he could "de-gas" himself not only more rapidly but with greater safety. So now, having mastered his respiratory difficulties, he decided to visit his friend the fish and explore his habits and haunts whether he liked it or not. In fact, this Peeping Tom even took photographs without their permission and the final insult was moving pictures of their most private and intimate domes. Poor fish, your privacy is gone for ever!

Man, having conquered the depths of the sea, turned his attention to the bowels of the earth. Many of his engineering difficulties were inherent in the human factor. But survival in compressed air solved certain of these and permitted him to burrow like a rabbit. In order to satisfy his craving for speed and his avarice for the treasures of mother earth, he proceeded by exploratory operation and permanent anastomosis to expose her whole interior. Happily the earth worm and the gopher are not subjected to the indignities of the fish.

Since the beginning of time, man has been envious of the bird. Envious of its freedom! Envious of its flight! Although he could burrow in the earth and swim in the sea, he could not fly, so his soul was depressed and his spirit angry. Again defeat spurred him on until at last like the fledgling he made his first clumsy and blundering flight from his nest on earth. Now he had in his hand the possible means to outfly and outsoar the bird and within a few short years this had been done. But he soon discovered that respiration put a limit to his ambitions. As he soared like the falcon into the eye of the sun, he found there were limitations not of his machine but within himself in that the breath of life seemed to leave him. The atmosphere was there—it supported his birdlike structure but it could not support him. The explanation was not far to seek. With the increasing altitude the partial pressure of the atmospheric gases steadily declined until finally that of oxygen was not sufficient to penetrate the alveolar walls to saturate the plasma and hemoglobin in sufficient amounts to support life. Realizing that it is not the percentage of a gas which

determines its rate of diffusion, but its partial pressure which is the sum of its concentration and barometric pressure, man decided to increase the former as he could not alter the latter. So, with his oxygen tank and respirator he found the means to overcome his respiratory limitations.

#### INTERNAL RESPIRATION

Now we must leave external respiration and travel with the hemoglobin and its load of oxygen along the labyrinth of the arterial tree to the cells of the body. It must be clearly remembered that these obtain their oxygen from the tissue fluids surrounding them and these in turn receive it from the plasma of the blood with which it is in physical equilibrium. The amount of oxygen used by the tissues is in direct proportion to the amount of work done although some tissues require more than others. As the oxygen in the tissue fluids and plasma is consumed it is immediately replenished from the oxyhemoglobin, the dissociation of which occurs with great rapidity. We are now back to the unicellular organism again. Whereas the ameba had to seek for the breath of life where best he could, our cells have it brought to them ready to use with the least effort on their part.

What do they do with it? This brings us to life itself.

We must remember that in the structure of any organism, no matter how complex, the one purpose that is rigidly adhered to is the maintenance of a continual supply of energy to the individual cell.

Our ancestors, with considerable justification from an imaginative standpoint, compared life to a flame. The contemplation of an open fire with flames of different form, color and intensity is impressive from the ever varying, unordered and uncontrolled changes taking place. How similar are the processes of life! No living thing is absolutely still, alterations in position relative to environment, alterations in form, in growth and finally changes in the atomic and molecular structure make for ceaseless activity, and just as the changes in a fire are physicochemical so also are the changes in living matter physicochemical.

The power to live, the power to work, is not in the brain or in the body, just as in a machine the power is not inherent in the pistons, valves and fly-wheels. The power of living matter or machinery comes from without. What is this energy, how is it made available and how does it operate in living matter? Of the total energy of the universe part is available for work (free kinetic energy) and part not directly available. Our struggle for existence, as Boltzman has put it, "is the struggle for free energy."

What is our source of energy?

Firstly, plants act as the transformers of the kinetic energy of sunlight, converting it into the potential energy of carbohydrates, fats and proteins.

Secondly, to understand how this energy is made available to the individual cell is to understand the fate of the foodstuffs following ingestion and the changes undergone during digestion, absorption and assimilation, which will be discussed by Dr McLester.

Lastly, it is following the liberation of this potential energy in the animal organism that the internal respiration has its function.

Our modern conception of calories, combustion, and the fine values of foodstuffs has brought the idea of

oxidation and heat production so much before our minds that we are apt to consider our bodies as a sort of glorified steam engine puffing laboriously through life on the caloric equivalents of breakfasts, lunches and dinners. The fallacy of this conception is shown by a brief consideration of Carnot's equation, whereby it can readily be shown that, if the liberation of energy in our bodies took place by the conversion of foodstuffs to heat with a working efficiency of 25 per cent, then the temperature of the heat source would have to be 116 C or, in other words, at a temperature of 69 C above the lethal point. It is quite evident then that, when we convert bound energy into free energy, conversion of foodstuffs into heat is not one of the steps. It is not known how living material is able to convert the chemical energy of foodstuffs into mechanical energy, but one thing we are sure of—the liberation of energy in the animal is invariably followed by oxidation, and this oxidation takes place on or in the surface of the cellular units.

Our entire respiratory mechanism with its colossal surface area of more than 100 square meters and a red blood cell carrying surface of more than 3,000 square meters exists for and is controlled by the demands of the tiny individual cells. The breath of life is oxygen, the seat of life is the cell.

#### REPRODUCTION

I have already mentioned that most of the functioning systems carry out multiple tasks. This is one of the beautiful economies of the animal organism. As respiration is essential for the life of the individual, it is not surprising that it should play a part in arranging for the generations to come. It is true that this may be considered merely an accessory function but without an important one in the propagation of the species. The most primitive song of love has not as yet been recorded but we do know that in certain coelenterata of the free-swimming variety there are oostocytes, called by more recent authorities statocytes, as they are considered to serve a greater purpose for equilibrium than for hearing. That they serve both purposes there can be little doubt. The call of the earthworm we do not know, nor that of the fish, but there is ample evidence to show that the gaseous swim bladder is used both for sending and for receiving messages. Time does not permit mention of other species, but we cannot pass by that troubadour of the early summer night, the bull frog. Who has not listened to his song and the answering chorus from afar? He takes no chances. Being of the amphibians, he sits at the water's edge and sends his stentorian basso through both the water and the air so that all may hear. His song is as sweet to the fortunate who understand as is that of the "blithe spirit" of which Shelley sang, or the serenade to the lovely maiden as she sits behind the balcony screen in old Seville. The breath by which life is maintained does its part to ensure that this spirit may be carried on in future generations.

#### CONCLUSION

Now I hand over the future of man to my esteemed colleague and friend Dr. McLester. But before closing I wish to express to the officers and Fellows of the American Medical Association, on behalf of myself and my countrymen, our deep appreciation of your kindness in having us as your guests and I extend to you our thanks for your gracious hospitality.

## NUTRITION AND THE FUTURE OF MAN

### PRESIDENT'S ADDRESS

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Man's place in future history will depend in no small degree on the food he eats. The truth of this was fore-shadowed about two decades ago when it was discovered that an animal's life processes may be profoundly disrupted by the omission from its food of any one of a number of substances, each of them ridiculously small in the amount required. Today there has been added the further, highly significant, observation that under certain circumstances an animal's life may be greatly improved by the addition of appropriate foods to a diet that previously had been regarded as entirely satisfactory. Through this knowledge, physiologists have been able to influence to a surprising degree the life history of their experimental animals and in some instances so to improve the stock as apparently to produce a new species.<sup>1</sup> Can this be applied to man? Can man, by giving thought to the food he eats, influence the destiny of his race? There is reason to believe that he can.

#### IMPROVEMENT OF RACIAL STOCK THROUGH DIET

Improvement of the stock as a result of betterment of the diet has been observed repeatedly both in the lower animals and in man. Among the earliest experiments in this field were those of Osborne and Mendel, who were able to show that what had previously been regarded as normal weight for the albino rat was not a fixed figure but was subject to material increase with improved nutritive conditions. The previously accepted standard weight of this experimental animal at 100 days of age, as established by Donaldson in 1906, was 165 Gm, but a few years later, under improved nutritive conditions, the standard for rats of that age was raised to 200 Gm, and within another decade to an average weight of 315 Gm. In this series of experiments the increase in weight of the albino rat, beginning at 2 Gm a day, was raised first to 4 Gm and finally to 6 Gm. Thus, during a period of twenty years, under conditions that were not varied except for improvement in the ration, the rate of growth of these animals was trebled and the standard weight for the species was about doubled. This improvement has not been limited to mere increase in bulk, for there has been concomitant improvement in all phases of physical development, including growth of the bones and inner organs and, according to Sweezy,<sup>2</sup> changes in cellular structure. It should be emphasized that the earlier generations of rats on which these studies were begun were living on rations that at the time were apparently suitable, and that it was by reconstruction of a supposedly adequate diet in accordance with newly discovered nutritional principles that this improvement was effected. It would appear that, by intelligent improvement of the animal's nutrition through successive generations, there has been developed a new species of albino rat.

Is the increased rate of growth of these animals to be regarded as wholly favorable? Most physiologists

<sup>1</sup> President's address before the American Medical Association in joint meeting with the Canadian Medical Association Atlantic City, June 11, 1935.

<sup>2</sup> Smith A. H. and Bing F. C. Improved Rate of Growth of Stock Albino Rats. *J. Nutrition* 1: 179 (Nov.) 1928.

<sup>2</sup> Sweezy quoted by Smith A. H. *Yale J. Biol. & Med.* 4: 551 (March) 1932.

answer yes, but McCay<sup>3</sup> states that such forced development, as he regards it, is not compatible with longevity. He believes that such animals age early and die prematurely. Against this criticism, Cowgill offers the pertinent suggestion that the increased metabolic needs of the more rapidly growing animals of McCay's series were possibly not met by commensurate increases in certain essential substances, and that under such circumstances a relative deficiency, with nutritive failure and consequent early senility, would necessarily follow. Of like import is the experience of Sherman,<sup>4</sup> who has observed that when an apparently adequate diet is enriched in certain of its chemical factors by an increase in the proportion of milk there results not only an increase in the rate of growth but also an improvement in vitality and in the animal's average length of life. It is well known that increased vigor and sustained longevity are among the notable accompaniments of improvement in an animal's ration. It can safely be said therefore, that the experiences of other physiologists are not entirely in accord with those of McCay and that the preponderance of evidence indicates that the increased growth achieved by well considered improvement in the diet is accompanied by general physiologic betterment and definite improvement of the species.

#### IMPROVEMENT IN CHILDREN OF IMMIGRANTS

Have comparable changes, the result of improved living conditions, been observed in man? Yes, anthropologists tell of similar changes, which, while not so graphic as those seen in the lower animals, are none the less significant. Witness the report of Appleton<sup>5</sup> that Chinese living under improved nutritive conditions in Hawaii grow to greater stature than people of the same racial strain in China, and that their growth continues to a more advanced age than does the growth of those remaining in the less hospitable homeland. The average height at 20 years of age for the group studied in Hawaii was 11 inches greater than that of similar groups in the ancestral province of Kwantung. A similar report from Kanzaki<sup>6</sup> tells that children born of Japanese living in California show definite superiority in height, weight and other characteristics over their immigrant parents. The same can be said of other races who have emigrated to America, for it is of frequent comment in the larger American cities that children born in this country of European parents are of larger stature and better physique than their forebears. It is a common observation in medical schools that the Jewish students of European parentage who apply for admission are strikingly superior in physical attributes to their parents. The anatomist Todd<sup>7</sup> has recently commented on changes of the form of the head seen in the children of immigrants, and of other changes which would indicate that the improvement in physique that is now being observed is not limited to mere increase in stature but is also an expression of better general development.

#### RESULTS OF HYGIENE AND IMPROVED NUTRITION

Such improvement in racial strain is not limited to those peoples who emigrate to more favored lands for like superiority of development is seen to accompany

better living conditions among the children of natives both in this and in other countries. Witness the studies of children from different social groups in this country made by Gray and Nicholson<sup>8</sup> in Eastern private schools and by Faher in San Francisco, indicating that those of the more favored groups grow to a greater height. Of 4,000 women students who have entered Stanford University during the past thirty years, Mosher<sup>9</sup> found that, although the average age of women coming to the university today is less than formerly, the average height has increased a little more than 1 inch. She believes that the changes reported by her point to a more fully developed and more perfectly functioning type of American woman. Similar reports come from England. The anatomist Parsons,<sup>10</sup> of the University of London, believes that hygiene and better nutrition have undoubtedly raised the height of upper class Englishmen, in illustration of which he cites the fact that while the average height of the modern English working classes may be taken as 5 feet 5 inches (165 cm) that of the more well nourished group is definitely higher, the average among medical students being 5 feet 9 inches (175 cm). Of like import were the observations of Mann, undertaken for the British Medical Research Council, to the effect that, on the ordinary diets assumed by medical men to be proper for healthy development, the boys studied by him did not reach the full physical or mental growth of which they were capable, and that it was only when these diets were supplemented by milk that the best growth was attained. Similar evidence was seen in the more rapid growth observed during the large-scale experiment of distributing free milk to the school children of the Scottish county of Lanarkshire. Thus it is evident in man as in the lower animals that improvement in a diet that previously had been regarded as adequate will often result in a larger stature and a higher degree of development.

It should be emphasized, however, that larger stature is not the sole advantage that comes from improvement in diet, for there is abundant evidence that greater physical efficiency also follows. This was shown in a recent observation<sup>11</sup> that, of 160 English school children selected to compete in athletic events, 87 per cent of the winners were above the normal for height and weight and only 6 per cent below normal, and that the winners showed a proportion of overweight three times that of the seconds, thirds or "also rans." From the English air service<sup>12</sup> comes the report that athletic prowess and the capacity to endure physical stress, except in long distance events, was found most common in overweight men and that men who are underweight on joining the service are more often invalidated out than are those who are overweight. From Japan there was issued a public health bulletin<sup>13</sup> stating that, when groups of Tokyo school children were given milk as a supplement to the diet, not only was greater increase in weight and height observed but these children were more cheerful and happy and showed greater prowess in athletics than did those of the control groups. Experiences such as these have brought physiologists

- 3 McCay C M *Is Longevity Compatible with Optimum Growth?* Science 77: 410 (April 28) 1933  
4 Sherman H C *Food and Health* New York, Macmillan Company 1935  
5 Appleton V B *The Growth of Chinese, China M. J.* 40: 259 (March) 1926  
6 Kanzaki Kiichi *Is the Japanese Menace in America a Reality?* Ann. A. Acad. Polit. & Soc. Sc. 93: 88 1921  
7 Todd T W *Anthropology and Growth Science* 81: 259 (March 15) 1935

- 8 Gray Horace and Nicholson S T *The Tallest American Boys,* J. A. M. A. 88: 2022 (June 25) 1927  
9 Mosher Clelia D *Concerning the Size of Women* California State J. Med. 19: 53 (Feb.) 1921  
10 Parsons F G *A New Type of Englishman* Am J Phys Anthropol 11: 378 (Jan.) 1928  
11 Dunstan W R *Athletics and Weightage* M. Officer 52: 121 (Sept. 22) 1934  
12 Treadgold H A *Functional Efficiency and Body Build in the Young Male Adult,* Lancet 1: 1377 (June 30) 1934  
13 Cow S *Milk and Growth of Children,* Bull. Pub. Health A. Japan 5: 1 1931

to the realization that a diet which appears to be adequate is not invariably the optimum diet. Far from it. In this connection Sir Frederick Hopkins<sup>14</sup> writes

The mere survival of a community, for instance, is too often taken as proof that the nutrition of its constituent individuals is adequate, lack of health or efficiency being attributed to racial or other uncontrollable factors. In social-economic surveys a race or community is found in equilibrium with an environment which includes its food supply. It is often forgotten that such environment is fortuitous and that the equilibrium reached is one in which the community, while managing to survive, may yet be functioning at levels far below those possible to its innate capacities. During the whole of history the needs of nutrition and the kind and amount of foods geographically available have played a great part in determining the destiny of races. Inadequacy in the supply has in some cases stunted innate capacities and led to the degeneration of a race more generally in the past it has stimulated effort and led to migrations and wars of aggression.

In nutrition the words adequate and optimum are seldom synonymous.

#### INFLUENCE OF HEREDITY AND ENVIRONMENT

Such statements would seem to deny the influence of heredity, but this is not true, for heredity and environment are both of influence. The two combine to shape man's destiny. The truth of this is seen in those instances in which inherited characters have been profoundly altered by environment. This applies to details of structure as well as to other physical attributes. Witness the great sensitiveness to nutritional disturbances exhibited by the growth centers in the bones of the face. In infancy nutritive deficiency has its effect on the transverse and anteroposterior dimensions, while after five years retardation of vertical growth is most apt to occur. This explains the changes in the shape of the face which Broadbent has demonstrated in malnourished infants, and the difference in facial expression observed by Boaz between the foreign born and the American born children of immigrant parents. While the exact type of structural change produced by nutritional failure depends somewhat on the nature of the deficiency, it is a rule that malnourished children, as was observed by the Bakwins,<sup>15</sup> suffer more in the growth of their transverse than in their longitudinal dimensions. The long bones continue to grow and there often results a thin individual with a misshapen chest and a gaunt, lanky appearance. This was beautifully stated by Todd,<sup>7</sup> when he wrote "The adult physical pattern is the outcome of growth along lines determined by heredity but enhanced, dwarfed, warped, or mutilated in its expression by the influence of environment in the adventures of life."

This influence of environment is far reaching. Under unfavorable environmental conditions the development of a person's finer qualities are sometimes seriously retarded, while, on the other hand, under optimal circumstances his less fortunate traits may be mitigated. Even his period of usefulness may be greatly extended. One may accept Warthin's view that man's span of life is fixed by inheritance and is unchangeable, but "lives there a man with soul so dead" who does not ardently desire some means by which within his allotted span he may lengthen the years of his usefulness. There is evidence, as was recently emphasized by Sherman,<sup>4</sup>

that this can be done, that by improvement of a diet that already is apparently adequate man's prime of life, in both directions, may be considerably extended. The hastening of maturity may not be of interest to many people, but the postponement of senility through betterment of the diet is an alluring thought to every one.

#### THE GOSPEL OF GOOD FOOD

If such is the influence of environment, it should be possible through improved nutrition to bring mankind to a higher level of physical development. How is this to be accomplished? In this respect the American people are not indifferent. Indeed, they are acutely food conscious and will eat anything that they are told is healthful, but to teach them what they properly should eat will require the combined efforts of a great many people, notably the teacher, the physician and the publicist. In addition, in order that people may, within the means at their disposal, get the foods they need, there must also be elicited the help of the economist and the law maker.

Education comes first. Health education by means of nutrition classes such as is being carried on in the public schools of my own and of other cities can be expected to pay big dividends, for not only are the pupils themselves helped but these children carry the gospel of good food into the home and eventually elevate the nutritive standards of the entire family. It is a hopeful sign, too, that the physician himself is taking an infinitely greater interest in the science of nutrition than he has shown in the past. He can be expected to give to his patients dependable information which will eventually percolate throughout the community and bring widespread good, but unless he is also something of an economist he is apt to make the mistake at times of prescribing foods that the family budget will not afford. It is not sufficient, therefore, that the physician interest himself merely in the science of nutrition. He must study also the economics and distribution of foods and be prepared to prescribe diets that not only meet the patient's physiologic needs but also are within his easy reach. The necessity for the wider dissemination of such knowledge is seen in the fact that a great deal of malnutrition comes from the unenlightened selection of foods made by the house wife with a rigidly restricted budget. It is unfortunate that many of the cheaper foods, such as the potato, which carry the greatest number of calories and have the highest satiety value, fall far short of providing in sufficient quantities such essential food factors as vitamins, minerals and good proteins. Vitamins and minerals can be obtained in abundance in fruits and vegetables, while proteins of high biologic value are found in meats, eggs and milk, but these are all among the more costly foods. The important thing, therefore, is to know how in an economical manner to use these other more costly articles in order to supplement the less expensive foods. The experiments of Mendel and Osborne, and later of Cowgill and associates,<sup>16</sup> would indicate that the cheaper cereals can still be used as the mainstay of the diet provided properly selected supplementary foods, such as liver and lettuce, are added in suitable amounts. In the effort to secure economical but well balanced diets Cowgill believes that, if sufficient intelligence is devoted to the selection

<sup>14</sup> Hopkins, Frederick. Nutrition and Human Welfare. Nutrition Abst. & Rev. 1:3 (Oct.) 1931.

<sup>15</sup> Bakwin, Harry, and Bakwin, Ruth M. Body Build in Infants I, II and III. *J. Clin. Investigation* 10: 369-377 (June) 1931. Body Build in Infants. V. Anthropometry in the New Born Human. *Biol.* 6: 612-625 (Dec.) 1934.

<sup>16</sup> Cowgill, G. R., Jones, Margaret H., Frisch, R. A., and Jackson, G. P. Studies on the Effect of an Abundant Cereal Intake. *J. A. M. A.* 89: 1770 (Nov. 19) 1927.

of these supplements, man can use cereals to a greater extent than is common today in this part of the world. It is because of its high supplementary value in a diet of cereals as well as of other foods that nutrition experts as a rule insist that a place be provided in the budget for definite quantities of milk and milk products. Even with today's high prevailing prices milk is still a bargain in food values. Thought must always be given to the protein allowance, too, since animal experiment as well as observations on man, such as those of Youmans in Tennessee, would indicate that protein is often the limiting factor in these cheaper diets. It is a function of the physician and the educator, then, to teach people the proper use of the protective foods in supplementing the cheaper diets.

#### IMPORTANCE OF FOOD HABITS

The food habits of a people are determined to an enormous degree by custom. What is commonly regarded as a diathesis or familial predisposition not infrequently, as has been pointed out by Cowgill, is an expression of the faulty food habits of the family. So dominating are the tabus and customs of a family or race as regards their food that these sometimes assume all of the force of mores. If the food habits of a people, because of poor supply, religious prejudice or other reason are grievously at fault, in all likelihood these will be accompanied by a gradual deterioration of the family or race, if, on the other hand, these habits are good, this circumstance will be reflected in more advanced physical development, greater longevity and a higher level of cultural attainment. Here in America where so many foreign groups have brought with their Lares and Penates their food habits as well, racial customs must be taken into consideration. If these customs are good, the physician in offering advice must accept them, if they are faulty, he must endeavor by education to combat them.

#### POLITICAL AND ECONOMIC FACTORS

I do not wish to discuss the political implications of my subject, but it must be recognized that any plan that proposes to elevate racial standards by means of improved nutrition must give serious consideration to political and economic factors, for in the carrying out of such a plan food must be produced in adequate amounts and marketed at a price that the public can pay. It is difficult to estimate how many persons in this country are so poor that they are unable to purchase the food necessary to keep them in health, but if one takes the criterion adopted by Orr<sup>17</sup> in discussing the identical problem in England and assumes that those living on relief belong in this category, it can be said that something like twenty million American people are living near or below the threshold of nutritive safety. This condition, if continued, will surely affect the health of the race. The income of these people must be raised or the price of food lowered.

To make agriculture profitable to the extent that a good rural population can be maintained and at the same time the rest of the population supplied with cheap food is a problem that confronts the nation. This is a subject for economists to discuss, but I should like to call attention to the report of the Elgin Committee, appointed to determine a National Agricultural policy for Scotland<sup>17</sup>. After offering the familiar advice that

methods of distribution be so reorganized as to reduce the wide and growing difference between what the consumer pays and what the producer receives, the committee concluded that "it is in the interests of the state that the price of food should be kept so low that the poorest can obtain an adequate dietary." Adequate nutrition, then, is in the last analysis a problem of education and of government.

#### MASTERY THROUGH SCIENCE

In the past, science has conferred on those peoples who availed themselves of the newer knowledge of infectious diseases better health and a greater average length of life. In the future it promises to those races who will take advantage of the newer knowledge of nutrition a larger stature, greater vigor, increased longevity and a higher level of cultural attainment. To a measurable degree, man is now master of his own destiny, where once he was subject only to the grim hand of Fate.

### THE DANGER OF GANGRENE OF THE TOES

#### IN THROMBO-ANGITIS OBLITERANS AND ARTERIO-SCLEROSIS OBLITERANS

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In spite of warnings by Buerger,<sup>1</sup> Brown,<sup>2</sup> Allen and others, the vulnerability of the toes of patients with peripheral occlusive arterial disease has not been sufficiently emphasized. At the Mayo Clinic, approximately 20 per cent of such patients have definite gangrene of the toes or feet on admission. In a series of 171 consecutive cases of thrombo-angitis obliterans in which the patients when first seen had definite gangrene of the toes or feet, ninety-four patients (55 per cent) stated that the gangrene had occurred spontaneously, and seventeen (10 per cent) stated that it had followed accidental, mechanical or thermal trauma, on the other hand, sixty (35 per cent) stated that it had followed therapeutic procedures instituted for painful toes or feet when gangrene or ulceration had not previously been present.

These figures are still more appalling when it is added that thirty-two, or more than 50 per cent, of the patients in the latter group lost their legs subsequently because of this gangrene which had been induced by treatment. Similarly, in 115 consecutive cases of arteriosclerosis obliterans in which patients had gangrene of the toes or feet, accidental trauma had been the inciting cause in nineteen cases (17 per cent) and therapeutic procedures in forty-five cases (39 per cent), in twenty-eight cases in the latter group, amputation of the leg was necessary.

A more detailed analysis of these cases of traumatic gangrene and gangrene induced by treatment is worthy of consideration. In table 1 are given the known accidental causes of gangrene. It is possible that this number would be swelled considerably from the group of spontaneous gangrene if more information had been available. There is a certain amount of trauma to the

From the Division of Medicine, the Mayo Clinic  
1 Buerger Leo. The Circulatory Disturbances of the Extremities Including Gangrene, Vasomotor and Tropic Disorders, Philadelphia W. B. Saunders Company 1924  
2 Brown G. E., Allen E. V. and Mahorner H. R. Thrombo-Angitis Obliterans Philadelphia W. B. Saunders Company 1928

17 Orr J. B. Chadwick Lecture 1934 Aberdeen Scotland Rowett Institute

feet in walking, particularly if the patient's shoes do not fit well. Minor contusions, small blisters and chilling may have passed unnoticed by the patient.

In table 2 are listed the causes in this series of cases of gangrene induced by treatment. Seven of the sixteen corns and calluses were removed by chiropodists. All of the other surgical procedures were carried out by physicians. The first three chemicals were suggested by druggists, the remainder by physicians. Eight of the ten burns were sustained in hospitals. Thirty-three of the forty-three toenails removed in part or in whole were from the great toe, and eleven of the sixteen corns removed were from the fifth toe. For anatomic reasons, one or the other of these two toes usually suffers most from ischemia in a given case and is therefore the most vulnerable. Five of the chemical and four of the thermal burns involved the entire foot. It would seem that in these cases the physicians who treated the patients had failed to recognize the presence of arterial disease or else were unaware of the hazards of such local treatment in the presence of arterial insufficiency.

The end results in the 105 cases of gangrene induced by treatment are given in table 3. In the cases of thrombo-angitis obliterans, half of the amputations of the leg were done at the clinic. In these cases conservative treatment was carried out for a considerable period of time, and the leg was sacrificed only because of extensive and progressive death of tissue or because of uncontrollable pain. In those cases in which healing took place without amputation, the period of disability ranged from one month to four years in the majority of cases lasting from three to nine months. Making all allowances for the possible development of spontaneous gangrene, if the original surgical, thermal or chemical trauma had not occurred, the price in time, money and loss of limbs which these patients paid for well intentioned but misdirected treatment was truly great.

In order to understand why gangrene occurred so easily it is necessary to review the pathology and pathologic physiology of occlusive arterial disease of the extremities. In the majority of cases localized, occlusive arterial lesions occur periodically. Between

ischemia, even slight trauma to the toes is a serious event. Minor bruises, irritation from rubbing of shoes, moderate exposure to cold, and even the pressure of weight bearing that occurs in simple walking may be just enough to destroy cells that are poorly nourished and poorly oxygenated and start the gangrenous process. It is quite possible that in many cases what is considered to be spontaneous gangrene has such an origin and that there is really a traumatic factor in its

TABLE 2—Gangrene Induced by Treatment

Cause of Gangrene	Cases	
	Thrombo-Angitis Obliterans	Arterio-sclerosis Obliterans
<b>Surgical</b>		
Removal of part or all of toenail	34	9
Incision for suspected abscess	3	7
Removal of corn callus or nodule	9	7
Application of cast for sprain	1	0
Application of adhesive tape for sprain	0	1
<b>Thermal (burns)</b>		
Hot packs	0	4
Hot water bottles	2	2
Hot foot baths	0	1
Electric heater	0	1
<b>Chemical</b>		
Freezone	1	1
Bethulol oil	1	0
Phenol	1	1
Caustic paste	1	0
Concentrated merthiolate	1	0
Salicylic acid ointment	1	1
Carbolated petrolatum	2	2
Hydrogen dioxide and alcohol	0	1
Iodine	0	2
Unknown ointments	3	3
Total	60	45

production. How much more serious, then, is a surgical wound that destroys part of the blood supply, which already is poor, and increases the risk of bacterial infection of badly devitalized tissues. How much more serious is a thermal burn to tissues which are barely surviving at optimal temperatures or a chemical burn to tissues in which there is already a profound disturbance of tissue chemistry. Once the gangrene has started, it may spread with alarming rapidity even beyond the toe to the foot itself, and the conservative treatment of peripheral occlusive vascular disease with frank gangrene is likely to be long, discouraging, expensive and not always successful.

Although the development of gangrene is a serious event in thrombo-angitis obliterans, it is even more serious in arteriosclerosis obliterans. In arteriosclerosis obliterans the occlusive arterial disease is likely to be more progressive and the collateral circulation develops more slowly than in thrombo-angitis obliterans. In the former condition the tissues of the toes and feet have a lower vitality, less resistance to trauma and less ability to heal ulcers, even in the presence of a blood supply that is only moderately limited than they do in thrombo-angitis. Arteriosclerosis obliterans is some times complicated by diabetes mellitus (as it was in a fifth of the present group with gangrene) and, if so, the spread of the gangrene is likely to be much more rapid and secondary infection is likely to be much more common. A rapidly spreading cellulitis of the leg and septicemia may occur and be followed by death.

The patient who is suffering from marked ischemia of the toes which has resulted from an active phase of thrombo-angitis obliterans or arteriosclerosis obliterans usually consults a physician because of severe pain which results from the ischemia of digital tissues and nerve endings. He may have ingrown toenails, corns, trichophytosis or red swollen toes that appear to be infected. Possibly the ischemia has greatly aggra-

TABLE 1—Gangrene Induced by Accidental Trauma

Cause of Gangrene	Cases	
	Thrombo-Angitis Obliterans	Arterio-sclerosis Obliterans
Contusion and crushing injury	12	7
Cuts while trimming nails	2	3
Frostbite	2	2
Actinic burn (sun)	1	0
Thermal burn	0	2
Blisters from friction	0	5
Total	17	19

these episodes are varying periods of quiescence during which the compensatory collateral circulation increases slowly. During active periods of the disease, and dependent somewhat on the extent and localization of the occlusive arterial lesions, many of these patients suffer from marked degrees of ischemia of the toes. Sometimes this ischemia is enough to cause spontaneous gangrene. Sometimes the tissues of the digit are perilously close to death but if some form of additional trauma does not occur they will survive until the collateral circulation increases the blood supply well beyond the danger limit. During periods of marked



vated the pain of an old corn or ingrown toenail. Most physicians frequently see corns and ingrown toenails in feet that have a normal blood supply, but they do not frequently see cases of thrombo-angitis obliterans and arteriosclerosis obliterans. However, in a case in which there is a painful toe or a lesion of the toe, regardless of how apparent the cause may be, it is a comparatively simple procedure for the physician to assure himself that pulsations are present in the dorsalis pedis and posterior tibial arteries, that there is no abnormal pallor of the toes after elevation of the foot, or that there is no delay in return of color on suddenly bringing it to a dependent position after elevation. He should also beware of an "inflamed" toe that is cold. Abnormal color of feet or toes, whether pallor, rubor or cyanosis, should excite suspicion of arterial disease. If there is evidence of deficient arterial blood supply, which was very easily demonstrated in all of the cases in this series, it is a safe rule to avoid all minor surgical procedures and to avoid all local applications except possibly warm foot-soaks of boric acid solution (not over 103 F). In such a case the patient should be kept off his feet. The affected foot should be kept warm with heat at a distance, and measures to increase the circulation to its maximal extent should be the principal therapeutic consideration.

It is commendable that newer methods of treatment, such as sympathetic ganglionectomy and the various medical vasodilating procedures, are definitely reducing the incidence of gangrene and amputation of the leg in thrombo-angitis obliterans. No small credit is also due to education of the patient regarding the nature of his disease and how to give his feet the maximal protection. If well intentioned surgical, thermal and chemical trauma to ischemic toes can be avoided, the incidence of gangrene will be lessened much further.

#### SUMMARY

In cases of peripheral occlusive arterial disease, the toes are extremely vulnerable and gangrene may easily be induced by even mild degrees of injury. In a

TABLE 3—End Results in Cases of Gangrene of Toes or Feet Induced by Treatment

End Results	Thrombo- Angitis Obliterans		Arterio- sclerosis Obliterans	
	Per Cases	Per Cent	Per Cases	Per Cent
Slough and healing under local and medical treatment	10	17	12	27
Slough and healing after local treatment and sympathectomy	7	12	0	
Surgical amputation of toe with healing	11	18	3	7
Surgical amputation of toe without healing and with subsequent amputation of leg	6	10	0	
Surgical amputation of leg	26	43	28	62
Death	0		2	4

series of 171 cases in which gangrene was associated with thrombo-angitis obliterans, the gangrene followed therapeutic procedures on the toes in sixty (35 per cent), and in a series of 115 cases in which the gangrene was associated with arteriosclerosis obliterans, the gangrene followed therapeutic procedures in forty-five (39 per cent). These procedures consisted chiefly of removal of ingrown toenails, less commonly they consisted of removal of corns, incisions for suspected abscesses, thermal burns, and irritations resulting from the application of strong chemicals or exfoliating ointments. Pain in the toes may result primarily from ischemia, even when there is an obviously deformed

nail, or a corn. It is strongly recommended that no local surgical or medical treatment of toes be instituted in any case until the arterial blood supply has been proved adequate by palpation of pulsations in the posterior tibial and dorsalis pedis arteries, and by the absence of abnormal color changes in the elevation dependence test. If arterial insufficiency is demonstrated, local treatment of painful toes should be extremely conservative, and all possible trauma should be avoided.

## THE RÔLE OF SODIUM IN ADRENAL INSUFFICIENCY

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Thomas Addison<sup>1</sup> was the first to observe that complete destruction of the adrenal glands results in death. He also suggested that a study of the disease now known by his name might lead to some understanding of the function of these glands. This prophecy has been amply fulfilled. In addition to the clinical approach to the problem, as suggested by Addison, knowledge of the physiologic activities of these structures has been greatly enhanced by two other methods of attack. The first of these, a corollary of the clinical method, is represented by a study of the changes resulting from adrenalectomy in animals and the effects of extracts of various portions of the gland on the disturbances encountered. By the application of this technic, the elementary and fundamental fact that the extract of the cortex is essential for survival has been established. Furthermore, it has been shown that medullary extract as elaborated by the adrenal bodies is unnecessary for the normal activity of the animal. The second method, that of chemical isolation and synthesis, has already contributed enormously in defining many of the functions of the medullary secretion, epinephrine. The isolation of cevamic acid from the adrenal glands is another step that has been accomplished, but the significance of the storage of this substance is still uncertain.<sup>2</sup> The future of the chemical approach, as far as the isolation of the active principle cortin is considered, is at the moment distinctly bright, and the physiologic and pharmacologic harvest to be reaped fills one with hope.

The adrenal glands appear to be running a close second to the pituitary body, which Harvey Cushing has so appropriately termed the leader of the endocrine band.<sup>3</sup> The effect of the adrenals on blood pressure and smooth muscle behavior, their intimate relation to pigment and carbohydrate metabolism, and their influence on certain phases of electrolyte physiology are now indisputable facts. Many other activities have been suggested, and the relation which these less clearly identified functions bear to those enumerated must be determined in the future. It is apparent from this brief summary that the subject of adrenal physiology has become vast in its scope and that the various methods

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From the Department of Medicine Columbia University College of Physicians and Surgeons and the Presbyterian Hospital  
1 Addison Thomas Disease of the Suprarenal Capsule 1855  
2 Szent-Gyorgyi, A Abstracts of the Communications to the Thirteenth International Physiological Congress Boston 1929 p 265  
3 Cushing Harvey Harvey Lectures 1932 1933 p 90



of study are consequently so divergent that they can hardly be covered by any one group of investigators. It is our purpose in this paper to discuss only one particular phase of the activity of the adrenal cortex, namely, that related to its regulatory effects on electrolyte physiology and renal function.

At the Presbyterian Hospital in New York we have for a number of years been studying the behavior of electrolytes in their relation to disease. That the approach to the problem of adrenal insufficiency through the study of salt and water metabolism is a logical one may be indicated by the following brief historical sketch of this subject.

As long ago as 1831, Dr W B O'Shaughnessy<sup>4</sup> of Newcastle-upon-Tyne made a profoundly significant series of observations on the chemical pathology of cholera. He found that the state of collapse, or what since has been termed "medical shock,"<sup>5</sup> was associated with a decrease in the water content of the blood, a decrease in the neutral and alkaline salts of the blood, and an increase in its urea content. Moreover, he found that the inorganic constituents lost from the blood had been excreted through the intestinal canal. He concluded logically that the cure was "seemingly dependent upon the restoration of the water and salts to the blood stream." For this purpose, just 103 years ago, he resorted to the intravenous injection of physiologic solution of sodium chloride as a therapeutic measure, with the beneficial results now so familiar.

In 1874, Dr C Hilton Fagge<sup>6</sup> of Guy's Hospital reported "a case of diabetic coma, treated with partial success by the injection of a saline solution into the blood." He introduced this measure because he recognized that the state of dehydration and collapse was essentially similar to that studied by O'Shaughnessy in cholera. The importance of the loss of inorganic base and water in the production of shock is now universally recognized, and for this reason no one today would care to rely on insulin alone in the treatment of severe diabetic acidosis.

Surgeons have for many years noted the salutary effect of the intravenous injection of physiologic solution of sodium chloride in the prevention and treatment of the state of shock resulting from pyloric and high intestinal obstruction, as well as from those conditions in which for some reason there exist fistulous openings from the upper gastro-intestinal tract or the bile ducts. Gamble was the first to show that the benefit derived from this therapeutic measure was due to the replacement of water and base lost from the body.

The state of shock that may develop in these diseases as well as in certain other pathologic conditions is primarily due to the continued loss of salt and water from the blood stream and the reservoirs existing in the intercellular spaces of the body. The mechanism involved in the loss of salt and water from the blood stream and intercellular spaces is obvious in cholera, as was demonstrated by O'Shaughnessy, and is also clear in the case of high intestinal obstruction. In diabetic acidosis, base and water are lost through the kidneys with the excretion of ketone bodies. We<sup>7</sup> have shown recently that, even without ketosis, base as sodium and potassium is also lost through the kidneys coincident with the development of severe glycosuria. The reason for this is not yet clear.

The syndrome of salt loss, dehydration and the resultant state of shock, typical of these disturbances, is characterized clinically by progressive weakness and overwhelming prostration, nausea and vomiting, increasing pulse rate with falling blood pressure, subnormal temperature, sunken eyes and loss of the normal turgor of the subcutaneous tissues. Examination of the blood shows an increase in the hematocrit, i e, decrease in water content, decrease in the bicarbonate or chloride content of the serum or a decrease in both accompanying a fall in the sodium. When the development of this syndrome is rapid there is also an increase in urea, which appears before the final stages of oliguria or anuria develop.

The similarity of this syndrome to the picture of acute adrenal insufficiency in Addison's disease suggested the possibility that in this condition also the loss of salt and water might prove to be a significant factor.

E C, a Negro man, admitted to the Presbyterian Hospital in May 1932, presented the typical picture of acute adrenal insufficiency. A study of the blood serum showed that the sodium content was reduced from the normal of 140 milliequivalents per liter to 109.5 milliequivalents per liter, a change even greater than that usually found in those conditions in which shock has been known to follow the loss of salt and water from the body. Chloride and carbonate were reduced in concentration, whereas potassium, sulphate, phosphate and serum protein were increased. The nonprotein nitrogen was 75.9 mg per hundred cubic centimeters. The patient was treated with cortical extract prepared by Dr R. Zwemer but died two days later. At autopsy the adrenal glands were found to be replaced by large tuberculous masses.

J V, admitted to the hospital a week later, had equivocal mild Addison's disease. A chemical survey of the blood showed that the sodium concentration was slightly reduced, being 131 milliequivalents per liter. The blood chloride was also slightly decreased, but the other analyses were normal.

A third patient, M W, admitted to the hospital in July 1932, was suffering from unmistakable Addison's disease. She was prostrated, the blood pressure was 85 systolic, 55 diastolic, and she vomited from time to time. The sodium content of the blood was only 123.5 milliequivalents per liter, and there was an equivalent reduction of chloride and bicarbonate. Except for a blood sugar of 73 mg per hundred cubic centimeters, the other analyses were all normal. During the next week she went downhill rapidly with a diffuse bronchitis, and after seven days she was in a moribund condition, the blood pressure falling to 65 systolic, 48 diastolic. At this time the blood sodium had fallen to the amazing level of 107.8 milliequivalents per liter. The chloride and bicarbonate fell with the sodium, while the potassium, serum protein and nonprotein nitrogen increased.

On the basis of these observations it seemed probable that loss of salt and the resultant dehydration contributed to the state of shock, as in the other conditions that have been discussed.<sup>8</sup> In view of this fact, the patient was given 15 Gm of sodium chloride by mouth and by rectum daily and received a single intravenous dose of 10 cc. of Eschatin, Parke, Davis & Co (adrenal cortical extract made according to the method of Swingle and Pfiffner). After a week, she had regained sufficient strength to sit up in a chair. The sodium content of the serum had risen to 133 milliequivalents per liter, and there was a corresponding rise in chloride and bicarbonate. The potassium, nonprotein nitrogen, serum protein and hematocrit fell, and the blood pressure rose to 85 systolic, 65 diastolic. The patient went home and continued to take between 7 and 15 Gm of salt daily in addition to her diet (chart 1). The patient remained quite well doing most of her housework and walking a mile or so a day and occasionally dancing. The blood sodium had risen to the normal value of 139.5 milliequivalents per liter, and the blood pressure was about 100 systolic, 75 diastolic.

4 O'Shaughnessy, W B. *London M Gaz.*, 1831.  
5 Atchley, D W. *Medical Shock*. J A M A **95** 385 (Aug 9) 1930. *M Clin North America* **17** 1379 (March) 1934.  
6 Fagge, C H. *Guy's Hosp Rep*, 1874.  
7 Atchley, D W. Loeb R F. Richards D W. Benedict, Ethel M., and Driscoll, Mary E. *J Clin Investigation* **12** 297 (March) 1933.

Whether salt and water replacement or a single dose of Eschatin had been responsible for the improvement, which continued at home could not be finally settled until it could be ascertained whether salt withdrawal would induce adrenal insufficiency. The opportunity for our much desired observation finally presented itself. Slight puffiness about the eyes and mild edema of the ankles developed, and the patient was advised to follow a salt-poor regimen. One week later she was readmitted to the hospital with a history that after two days of salt withdrawal she became so weak that she had to

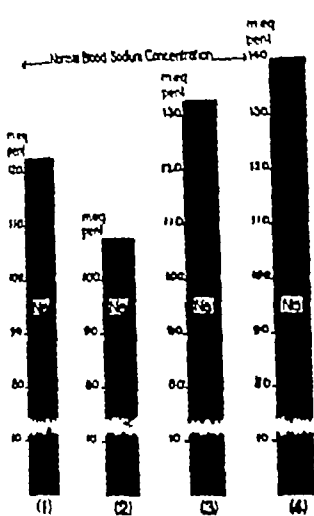


Chart 1—Relation of symptoms to blood sodium concentration in Addison's disease. Before the administration of sodium chloride: (1) patient weak, nauseated, and vomiting; (2) patient in a moribund condition. After the administration of sodium chloride: (3) patient much improved walking about ward; (4) patient at home doing part of the housework.

go to bed. Weakness had been progressive and vomiting began on the third day of salt withdrawal. When she entered the hospital it was found that the blood sodium had again fallen to 126.8 milliequivalents per liter and the blood pressure was 86 systolic, 60 diastolic. At this time therapy consisted of the administration of salt alone, no cortical extract being used. Improvement was striking. Strength returned, blood pressure rose, vomiting ceased and after one week she was discharged, the blood sodium having risen to 138 milliequivalents per liter and the blood pressure to 122 systolic, 80 diastolic. At the present time, more than two years later, the patient is relatively well.<sup>9</sup>

On the basis of these observations we could conclude (1) that the acute adrenal insufficiency of Addison's disease was associated with a sharp decrease in the sodium content of the blood and with dehydration, (2) that insufficiency had been induced in one patient by salt withdrawal and (3) that this state had been alleviated by salt administration.

The next step in this study was that concerned with the mechanism by which the sodium, the chloride and the bicarbonate concentrations of the blood were decreased in the acute adrenal insufficiency of Addison's disease. The question presented itself as to whether sodium was actually lost from the body with the development of adrenal insufficiency or whether its distribution within the body was merely altered. To answer this question, it was decided to resort to blood studies and electrolyte balance observations in the adrenalectomized dog. Marine and Baumann<sup>10</sup> had shown in 1927 that the sodium content of the blood of adrenalectomized cats was decreased while that of potassium was increased. Zwerner had confirmed these observations, but the fate of the lost sodium had not been established.

In the dogs studied by us,<sup>11</sup> the sodium content of the blood fell rapidly following the removal of the second adrenal gland. This change was accompanied by a drop in the level of chloride and bicarbonate. The balance studies showed a striking increase in sodium excretion by the kidneys (chart 2). This urinary loss of sodium proved that the changes in blood sodium

concentration were due to actual sodium loss rather than to internal redistribution. Furthermore, the sodium excretion was sufficiently great to indicate that sodium must have been lost from interstitial fluid as well as from the blood stream. This might be expected from the equilibrium known to exist between blood serum and interstitial fluid. Not only was the total amount of sodium excreted by the kidneys increased after adrenalectomy, but also the concentration of this ion in the urine was definitely augmented in spite of the fact that the urinary volume was greater during the first four or five days after operation than in the control periods (chart 3). These results have since been confirmed by Harrop and his co-workers,<sup>12</sup> who have studied the effects of cortin withdrawal in adrenalectomized dogs.

The other changes observed in these animals can be summarized briefly. The chloride ion decreased in the blood after adrenalectomy, and chloride excretion was augmented. While the behavior of this ion approximately paralleled that of sodium, the changes were not correspondingly as great. The potassium content of the blood increased, although no consistent abnormality of potassium excretion could be determined by the balance studies. The increase in nonprotein nitrogen was marked following adrenalectomy as was first observed by Marshall and Davis,<sup>13</sup> and it should be noted that this abnormality developed at a time when the urinary volume was greater than before adrenalectomy. In the light of these observations, it becomes apparent that nitrogen retention is not dependent on failure of urinary secretion as a result of hypotension. Furthermore, current explanations, which imply that this type of renal insufficiency results from a decrease in the water available for urinary excretion, are not valid.

Having established the fact that a decrease in sodium concentration in the blood occurs in Addison's disease and in adrenalectomized animals, and having shown in dogs, as Harrop<sup>14</sup> has since confirmed in man, that adrenal insufficiency is associated with a marked loss of sodium through renal excretion, we were next faced with the problem of the mechanism of this disturbance. At the present time, unfortunately, we must resort to the realm of speculation for an explanation. Several possibilities present themselves. First, it is conceivable that the removal or destruction of the adrenal glands is associated with the liberation of some foreign acid that calls on fixed base for its excretion, as is the case in diabetic acidosis.

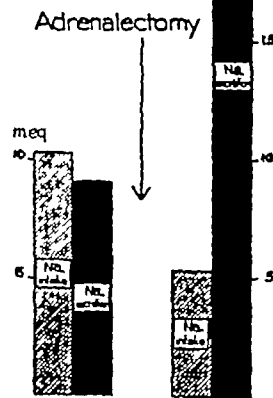


Chart 2—Sodium loss following adrenalectomy in dogs. The great loss of sodium that follows adrenalectomy takes place through the kidneys.

<sup>12</sup> Harrop G A, Soffer L J, Ellsworth Read and Trescher J H. *J Exper Med* 58: 17 (July) 1933.

<sup>13</sup> Marshall E K, and Davis D M. *J Pharmacol & Exper Therap* 8: 525 (Sept) 1916.

<sup>14</sup> Harrop G A, Weinstein Albert, Soffer L J, and Trescher J H. *The Diagnosis and Treatment of Addison's Disease*. J A M A 100: 1850 (June 10) 1933. Harrop G A. *Diagnosis and Treatment of Addison's Disease*. Correspondence J A M A 101: 388 (July 29) 1933.

<sup>9</sup> Loeb R F. *Proc. Soc Exper Biol & Med* 30: 808 (March) 1933.

<sup>10</sup> Marine David, and Baumann E J. *Am J Physiol* 81: 86 (June) 1927.

<sup>11</sup> Loeb R F, Atchley D W, Benedict Ethel M, and Leland Jessica J. *Exper Med* 57: 775 (May) 1933.

Ketone bodies usually play no part in adrenal insufficiency and Harrop<sup>12</sup> has shown that the lactic acid content of the blood is not increased in the dog suffering from hypo-adrenalism. Nevertheless, it is possible that some unrecognized organic acid might be present in amounts sufficiently great to produce the disturbances found.

Acidosis due to an organic acid should be associated with an increase in the excretion of urinary ammonia.

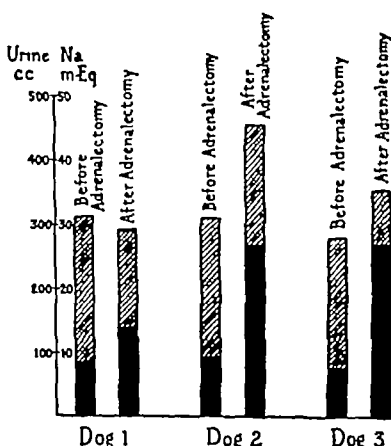


Chart 3—Relative increase in sodium excretion in relation to water excretion after adrenalectomy in the dog

Therefore the urinary ammonia excretion was studied in a patient with Addison's disease. As the patient drifted into marked insufficiency and while the blood sodium dropped from 135.3 milliequivalents per liter to 123.4 milliequivalents per liter, the ammonia excretion was normal and appeared to decrease slightly as insufficiency became acute. With the administration of salt and a simultaneous rise in the blood sodium to 138.1 milliequivalents per liter, the ammonia excretion increased slightly.<sup>15</sup> This year we<sup>16</sup> have followed the ammonia excretion in an adrenalectomized dog, kept alive with the aid of cortin and salt. When moderately severe adrenal insufficiency was allowed to develop in this animal there was certainly no increase in ammonia excretion and possibly a slight decrease. Thus it seems highly improbable that the loss of sodium is dependent on an acidosis due to an organic acid. Sulphate and phosphate ions may be retained in adrenal insufficiency but can hardly be held responsible for the loss of base.

As a second explanation, it might be assumed that the loss of sodium from the body is due to the loss of water through the kidneys. This hypothesis is untenable because, as has been mentioned, the loss of sodium is relatively much greater than that of water. Furthermore, with primary dehydration one would expect an increase rather than a decrease in the sodium content of the blood.

Perhaps the most attractive hypothesis which may be advanced at this time is that the adrenal cortex serves as a regulator of sodium metabolism. The locus of this action is uncertain, but the evidence at hand suggests that the adrenal cortical substance acts on the kidney to control the excretion not only of sodium but also of urea. In adrenal insufficiency the rate of salt excretion is increased while urea elimination is retarded. The concept that an internal secretion may control the metabolism of an inorganic ion is no longer unique. That the behavior of the phosphate and calcium ions is to a large extent regulated by the parathyroid secretion is established, and the influence of the thyroid gland on iodine metabolism is well recognized.

Before turning to the more practical aspects of the role of salt in Addison's disease, it may be of interest

to mention one phase of the experimental work carried on during recent months.<sup>18</sup> We have made comparative studies of the effect of the withdrawal of salt and of cortin in an adrenalectomized dog. In both instances the sodium content of the blood falls and the urea concentration increases, as Harrop has also observed.<sup>12</sup> As might be anticipated, the changes are much more acute and more pronounced following the withdrawal of cortin, but the type of response is identical in the two instances (chart 4). When cortical extract is completely withdrawn, the sodium level cannot be maintained even with the administration of as much as 0.3 Gm. of salt per kilogram daily. This is a point that should be kept in mind in relation to the clinical course following the treatment of Addison's disease. Finally, it has been shown that salt may be completely withdrawn from the diet without inducing a fall in the blood sodium level or an increase in the urea content of the blood, provided a cortical extract of adequate potency is employed. Under these conditions the dog is in all respects as normal in his physiologic responses as is the animal with intact adrenal glands.

Of greatest interest to the clinician is the applicability of laboratory investigation to the diagnosis and treatment of disease. Most important is a critical analysis of the accuracy and limitations of the methods so employed. The first question that naturally comes to mind is concerned with the frequency with which the concentration of sodium in the blood serum is decreased. We have had the opportunity of making sodium determinations on the blood of sixteen patients with outspoken Addison's disease and in all but three the values were found to be definitely below normal.

These three patients were being treated with salt at the time, and in two of them a salt-poor regimen instituted later, brought about a sharp drop in the blood sodium level. Thus, in our experience it may be stated that the decrease in sodium content of the blood in

patients presenting themselves for treatment is a relatively constant finding, although the magnitude of the deviation from normal may be only slight in certain cases. Indeed, when the degree of damage to the adrenal cortex is relatively slight, it seems unlikely that any gross abnormality in sodium metabolism would be encountered. This view receives support from the fact that the removal of one adrenal gland is not attended by any significant physiologic disturbances. It must be emphasized that the decrease in the sodium content of the blood is not *prima facie* evidence of Addison's disease.

Base loss forms a characteristic part of the clinical picture in a number of the pathologic states already discussed, as well as in certain others, and a low sodium level has also been found in a few critically ill patients without structural changes in the adrenal glands. Thus it is clear that the sodium concentration

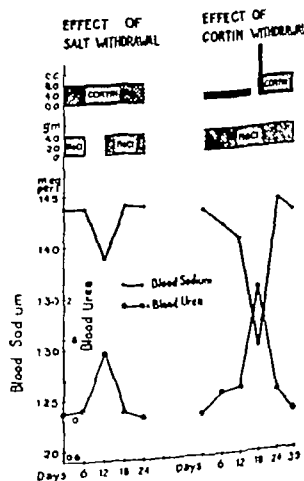


Chart 4—Comparison of the effect of the withdrawal of sodium chloride and of cortin on the blood sodium and blood urea level in the adrenalectomized dog maintained on a constant diet

15 Loeb R F, Atchley D W, Gutman Ethel B and Jillson Ruth  
Proc Soc. Exper. Biol. & Med. 31: 130 (Oct) 1933  
16 Stahl J, Atchley D W and Loeb R F Unpublished experiments

of the blood in spite of its diagnostic importance, is not an infallible criterion of the presence of Addison's disease

The effect of salt withdrawal in one patient has been mentioned, and it has been pointed out that the same experiment carried out under the proper conditions in the dog is associated with a fall in the sodium content of the blood. We have used this reaction as a diagnostic test in six patients suffering from Addison's

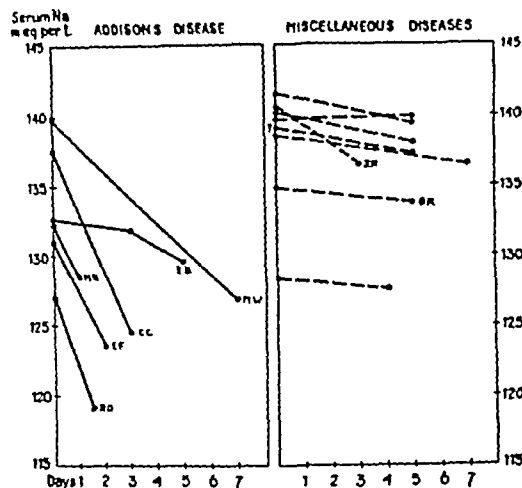


Chart 5—Comparison of the effect of salt withdrawal on the blood sodium level in patients suffering from Addison's disease and certain other miscellaneous pathologic conditions

disease with quite consistent and at times alarming results (chart 5). The blood sodium level has fallen precipitously, as contrasted with that of patients suffering from other diseases, regardless of the initial values. Symptoms of profound weakness, prostration, nausea and vomiting, usually associated with a fall in blood pressure, develop in the course of from one to five days, and we are in complete sympathy with Harrop, who has warned against the dangers encountered with this procedure.

In one of our patients, E B, the chain of events accompanying salt withdrawal, was sufficiently unusual to merit comment (chart 5). This patient had suffered from the classic signs and symptoms of Addison's disease for eight months. Weakness and anorexia had progressed rapidly in the two weeks preceding admission. The initial blood sodium level was 132.6 milliequivalents per liter and the blood pressure was 82 systolic 60 diastolic. When given a salt-poor diet, she became slightly weaker and drowsier for four days and ate but little. At the end of the fifth day, her condition became suddenly critical. She could hardly move because of weakness, she was semicomatose, her pulse was almost imperceptible, and the blood pressure fell to 58 systolic, 50 diastolic. Curiously enough the blood sodium had fallen to only 129.4 milliequivalents per liter, but the blood sugar concentration was as low as 48 mg per hundred cubic centimeters, and a moderate ketosis had developed. She was given 25 cc. of cortical extract intravenously and frequent injections of epinephrine, and a continuous infusion of salt solution and dextrose was started. The next day her condition showed little change. The blood pressure was 62 systolic, 40 diastolic and the state of shock persisted. The blood sugar rose and remained at a normal level, the ketosis disappeared but the blood sodium, despite salt and cortin therapy, fell to 124 milliequivalents per liter. The continuous infusions were kept up for seven days, and her general health improved greatly. At the present time she is eating satisfactorily, vomiting has stopped and strength has returned to some extent. She is taking 10 Gm of salt daily in addition to her diet.

This case has been presented in detail because it demonstrates that the picture of acute adrenal insufficiency is a complex one and that, while the loss of sodium with its attendant dehydration is of apparently great significance, other factors may prove to be of vital importance in a given case. In this particular patient, shock developed with a fall of only 3 milliequivalents in sodium, a change not significant in itself, although the eventual deviation from normal was about 16 milliequivalents per liter. In spite of the administration of large amounts of cortin, fluid and salt, the state of shock was not altered in twenty-four hours and the blood sodium fell sharply. The factor of hypoglycemic shock was superimposed on the other disorders. This phase of adrenal insufficiency, which Britton<sup>17</sup> has stressed in his study of cats, is not, as a rule, striking in the dog and in the human being and may not be dependent on cortical insufficiency. Prompt alleviation of the hypoglycemia in this patient appeared to have little influence on the state of medical shock. Finally, ketosis entered into the complex picture and probably added to the state of dehydration. It is unfortunate that a diagnostic procedure so highly specific as is salt withdrawal in Addison's disease should be attended by such grave consequences to the patient.

A detailed discussion of the treatment of Addison's disease lies beyond the scope of this paper, but it is appropriate that reference should be made to the role of salt and cortin. The concept that salt solution is of value in the treatment of adrenal insufficiency in animals and man is not new. In 1898 Soddu<sup>18</sup> first mentioned the fact that salt solution prolonged the survival of adrenalectomized animals, and this was confirmed by Banting and Gairns<sup>19</sup> in 1926. Marine and Baumann<sup>20</sup> in 1927 administered salt solution to cats because of the decreased content of sodium in the blood and obtained the same result. Many other investigators have more recently arrived at the same conclusion. In 1932 Rogoff<sup>20</sup> wrote that the intravenous administration of physiologic solution of sodium chloride "becomes an indispensable adjuvant in the treatment of Addison's disease with extracts representing the hormone of the adrenal cortex." The explanation offered by Rogoff was fallacious in that the salt solution was administered to correct an assumed "intoxication." It seems more rational

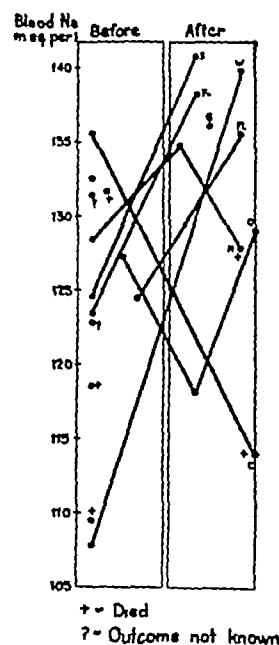


Chart 6—Blood sodium values before and following the administration of sodium chloride in patients suffering from Addison's disease

- 17 Britton S W and Silvette H *Am J Physiol* 107: 190 (Jan) 1934  
18 Soddu, L *Sperimentale* 52: 87 1898  
19 Banting F G and Gairns S *Am J Physiol* 77 100 (June) 1926  
20 Rogoff J M *Addison's Disease J A M A* 99: 1309 (Oct 15) 1932

The most convincing evidence for the value of salt as a therapeutic measure in adrenal disease in man, as well as in the adrenalectomized animal, is found in the fact that the withdrawal of salt may induce acute adrenal insufficiency and that frequently the only therapeutic measure necessary to relieve it is the readministration of sodium chloride. Nevertheless, it should be recalled that salt alone will not maintain the normal sodium level in the blood or cause indefinite survival of the completely adrenalectomized animal. In other words, a certain amount of cortical substance, either formed within the body or introduced from without, is essential to life. With this in mind it becomes obvious that salt will not relieve those individuals whose adrenal glands have been completely destroyed by disease.

Since the introduction of salt as a means of replacement therapy in our first case in 1932, we have treated and followed eight patients. The results have in reality been less confusing than might be judged from chart 6. Of the patients treated, two have died.

One of these, N, succumbed to a severe acute febrile illness with fever maintained at 105 F for one week. She had active pulmonary tuberculosis and at autopsy the adrenal glands were found to be completely replaced by tuberculous tissue.

Patient C had been in another hospital for adrenal insufficiency, where he had been treated with salt for some months. He had tuberculosis of the right kidney and of both lungs. While under our observation he remained quite well from the adrenal standpoint and the blood sodium was maintained at a level of 135 milliequivalents per liter. His condition was so satisfactory that nephrectomy was contemplated. He was admitted to the wards for cystoscopy to determine the status of the other kidney. Following this manipulation, the temperature rose abruptly and never returned to normal. He was treated with salt and on one occasion with cortin, but he grew progressively weaker; the blood sodium continued to fall to a final level of 114 milliequivalents per liter after four months, at which time he died. At autopsy he had diffuse bilateral tuberculosis and primary atrophy of the adrenal glands, only scattered cells being found after careful microscopic examination.

Patient O has apparently active tuberculosis of the adrenal bodies. Salt withdrawal in this patient caused serious acute insufficiency associated with a sharp fall in the blood sodium content in thirty-six hours. Salt administration relieved the clinical symptoms, but it has not been possible to raise the sodium to a normal level in spite of the ingestion of 20 Gm daily. During a period of increased fever, the sodium fell still further. In recent weeks, however, improvement in the sodium content of the blood has been encouraging and has accompanied a fall in the temperature.

It is of interest that any febrile episode in patients suffering from Addison's disease appears to decrease the function of the remaining adrenal tissue much as infection increases the severity of diabetes mellitus.

The remaining five patients are all taking between 7 and 10 Gm of salt a day in addition to that of the diet. Their blood sodium levels remain within normal limits, and they are able to lead very much more active lives than before salt therapy was instituted. They will suffer from easy fatigability, they have occasional nausea, they feel the cold intensely, and pigmentation is little if at all changed. Our experience has shown that the optimum therapeutic dose of salt is variable and can be determined only by the method of trial and error. The clinical improvement of patients following the administration of salt has been confirmed by Harrop<sup>14</sup> and Snell<sup>21</sup> and a number of other investigators in recent months.

The successful treatment of Addison's disease will be accomplished only when the active principle or principles of the adrenal cortex become available for clinical use in high concentration and in a form that lies within the economic limits of sufferers from this disorder. At the present time numerous reports of treatment with cortical substance continue to enter the literature. Patients are said to "feel better" with this treatment and the blood pressure appears to rise, yet death from Addison's disease seems to be the ultimate outcome.

Although we have used a commercial preparation of cortical substance only occasionally, we have seen little objective evidence of beneficial effect. For example, one of our patients who had been maintained in the hospital on a regimen high in salt remained weak, and the blood sodium was fixed at a level of about 125 milliequivalents per liter over a period of many weeks. He was therefore given 4 cc of a commercial preparation of cortical extract intramuscularly daily for four days and then 10 cc daily for two days, without any effect on the blood sodium level. The fall in sodium in a patient who received 25 cc of cortical extract in one day has been mentioned. Other examples might be cited. Perhaps our results may be best summarized as follows:

#### SUMMARY

If adrenal insufficiency in man is not relieved by salt administration, it will not be relieved by commercial cortical extracts given in the usual dosage. It is distinctly hopeful, however, for the future of this type of therapy that the commercial extract is entirely adequate for the healthy survival of the adrenalectomized dog.

The studies that we have presented indicate that there is a definite relationship between sodium metabolism and the active principle of the adrenal cortex. When cortical insufficiency develops, the disturbances in sodium metabolism manifest themselves in a number of ways that have significant diagnostic and therapeutic implications. The sodium concentration of the blood is decreased because of an increased rate of sodium excretion. The diagnostic change in the sodium level becomes more apparent and specific when salt is withdrawn from the diet. The withdrawal of salt, however, may result in an adrenal crisis dangerous to the patient. Conversely, the administration of salt will frequently alleviate acute adrenal insufficiency, and the continuation of this therapy mitigates to a considerable extent the signs and symptoms of Addison's disease. Finally, it should be recalled that, when destruction of the adrenal glands is complete, salt alone will not maintain life.

#### CONCLUSIONS

It should be emphasized once more that no attempt has been made to consider adrenal physiology in its entirety. There are many important and fascinating aspects of the problem, of which the work discussed constitutes but one.

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**Mongolism.**—All the known facts concerning mongolism seem to point to some condition in the ovary as underlying its pathogenesis. We have a sufficient amount of circumstantial evidence to borrow a legal term, to justify the speculation that foci of tissue change—perhaps scars—marking the sites of old ovulation are the cause of the trouble. Rosenoff, A. J. and Handy, Leva M. *Etiology of Mongolism*, with Especial Reference to Its Occurrence in Twins, *Am J Dis Child* 48:764 (Oct.) 1934.

21 Snell, A. M. Personal communication to the authors.

# MENTAL CHANGES ASSOCIATED WITH PERNICIOUS ANEMIA

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While in the literature there have been many accounts of involvement of the central nervous system in pernicious anemia, most of these have described only the cord changes. A few<sup>1</sup> have also mentioned cerebral symptoms and there have been a fair number of reports concerned primarily with the mental changes. Mild mental changes with irritability as an outstanding feature are reported in as high as 40 per cent of cases, but frank psychoses are said to be rare, occurring in not more than 4 per cent.<sup>2</sup> The majority of writers assume the existence of a direct etiologic relationship between pernicious anemia and the associated psychosis, although a number stress the importance of heredity and psychogenic factors as well. Hackfield,<sup>3</sup> on the other hand, takes the view that there is no such fundamental etiologic relationship, and Musser and Wintrobe<sup>4</sup> say "It is usually considered that major psychoses are predisposed to rather than a part of the disease pernicious anemia."

As long ago as 1905 the presence of psychoses in pernicious anemia was described by Langdon,<sup>5</sup> but, as Hackfield<sup>3</sup> says, previous to the introduction of liver therapy all the patients died and the only method of showing the relationship of the pernicious anemia to the psychosis was necropsy. The pathologic studies were not conclusive. Since the use of liver the effect of treatment on the psychosis has been observed but

TABLE 1—Analysis of Seventy-Six Cases of Mental Changes in Pernicious Anemia

Total number of cases analyzed	76
From Milwaukee Sanitarium	7
From Milwaukee County Hospital for Mental Diseases	6
From Milwaukee County Asylum for the Chronic Insane	4
From case reports in the literature	59
Family and Past History of Mental Diseases	
Total cases in which data are given	52
Positive family or past history in	24
Correlation Between Blood Picture and Mental State	
Total cases in which data are given	34
Correlation present	8
Correlation absent	26
Results of Liver Therapy	
Total treated cases suitable for analysis	35
Deaths	10
Mentally unimproved	13
Mentally recovered	13

the reports have been diverse. Arguments against pernicious anemia being the primary cause of an associated psychosis are the following:

- 1 There is very often a family history or personal past history of mental disease.
- 2 The psychoses present no characteristics that clearly distinguish them from endogenous depressions or other well recognized mental disorders.

<sup>1</sup> Goldhamer S. M. Bethell F. H. Isaacs Raphael and Sturgis C. C. Neurologic Changes in Pernicious Anemia J. A. M. A. 103 1663 1667 (Dec. 1) 1934. Young R. H. Neurologic Features of Pernicious Anemia ibid. 99 612 614 (Aug. 20) 1932.  
<sup>2</sup> Woltman H. W. The Mental Changes Associated with Pernicious Anemia. Am. J. Psychiat. 3 435-449 (Jan.) 1924.  
<sup>3</sup> Hackfield A. W. Studies of the Etiological Relationship Between the Somatic and Psychotic Disturbances in Pernicious Anemia J. Nerv. & Ment. Dis. 76 31-48 (July) 1932.  
<sup>4</sup> Musser J. H. and Wintrobe M. M. in Tice Frederick Practice Section on Blood Disease about 1930.  
<sup>5</sup> Langdon, F. W. Nervous and Mental Manifestations of Pernicious Anemia J. A. M. A. 45: 1635 1638 (Nov. 25) 1905.

3 Mental improvement, when present, does not parallel the physical.

4 Autopsy shows no consistent relation between the pathologic changes in the brain and the psychosis.

Aside from mere association, the chief argument for the pernicious anemia having a causal relationship to the psychosis is the frequent occurrence of an "anxious-paranoid" picture, which, as Francke<sup>6</sup> says, "has been too often described in association with pernicious anemia to be a coincidence." The proponents of the theory that pernicious anemia is an important factor in the production of the associated psychosis admit that there is often no mental improvement under liver treatment but attribute this, as in the case of persistent cord symptoms, to the existence of irreversible pathologic changes.

TABLE 2—Treated Cases with Physical and Mental Improvement

Case	Duration of Psychosis Subsequent to Treatment (In Months)	Correlation with Blood Picture (Approximate)
1	4	+
2	12	—
3	6	—
4	24	—
5	5	+
6	5	—
7	10	—
8	4	+
9	2	+
10	25	—
11	?	+
12	4	?
13	3	+

From the records of the Milwaukee Sanitarium I have gathered seven cases of pernicious anemia with associated mental changes. Through the courtesy of physicians at the Milwaukee County Hospital for Mental Diseases and the Milwaukee County Asylum for the Chronic Insane, I have examined records of ten additional cases. Through a personal communication and a search of the literature I have reports of fifty-nine other cases, thus making a total of seventy-six cases for analysis (table 1). In some of these the data are rather meager. In fifty-two cases both family history and past history are given, and there is in this group a personal or family history of mental disease in twenty-four. There is a family history of mental disease in nineteen of fifty-two, and a personal history of previous mental disease in six of fifty-five cases in which data are given. In thirty-four cases, fairly definite conclusions are possible as to the correlation between the blood picture and the mental state. In eight there appears to be a correlation and in twenty-six there does not.

When one comes to consider the effect of liver treatment on the psychoses, the material for analysis is more restricted. Quite a number of the collected cases antedate the era of liver therapy, a few show an obviously incidental relationship in that a chronic psychosis of the schizophrenic type existed for years before the development of pernicious anemia, a few show only mild mental symptoms and a few are classed as terminal psychoses. This leaves a group of thirty-six treated cases for more detailed analysis. Of the thirty-six patients, ten died. Three of the deaths were due to causes other than the anemia—pneumonia in two, and coronary disease in the third. The other seven patients failed to respond physically to liver treatment. Thir-

<sup>6</sup> Francke Ueber Geistesstörungen bei perniziöser Anämie Allg. Ztschr. f. Psychiat. 98 9: 104 1932.

TABLE 3—Pertinent Data in Seventeen Cases of Pernicious Anemia

Num ber	Patient	Insti tution*	Age	Sex	Analysis of Blood (Lowest Recorded)			Free Gastric Acidity	Cord Changes	Past History of Mental Disease	Family History of Mental Disease	Principal Psychotic Manifesta tions	Complic ations	Known Duration of Psychosis Before Onset of Anemia	Known Duration of Psychosis After Beginning of Liver Psychosis	Course of Psychosis	Response of Blood to Liver	Correla tion of Blood Picture with Mental State	Period of Obser vation
					Hemo globin Per Cent	Red Cells Million	Color Index												
1	G S	A	60	♂	55	3.02	1.4	30	No	No	No	Mania confusion	None	0	0	Unimproved	No liver (transfusion)	No	4 months
2	S V	A	49	♀	75	2.90	1.3	?	Yes	Yes	No	Mania paranoid trend	None	0	0	Died	No liver (transfusion)	No	5 years
3	W L P B	A	43	♀	28	2.60	1.1	0	No	No	No	Depression	None	0	0	Recovered	No liver (transfusion)	No	2 months
4	J T	A	61	♀	58	2.62	1.1	?	Yes	No	Yes	Paranoid trend	None	0	0	Died	Good	Yes	6 weeks
5	W H	A	60	♂	65	2.31	1.2	4	No	No	No	Depression	None	0	0	Recovered	Fair	No	2 yrs 6 mos
6	E M	A	47	♀	75	2.33	1.4	0	Yes	No	No	No psychosis mild depression irritability	None	0	0	Unimproved	Good	Yes	6 months
7	M R	B	30	♀	45	3.65	1.0	0	Yes	No	No	Paranoid trend	None	0	0	Unimproved	Fair	No	5 months
8	M Y	B	78	♀	55	1.93	1.7	?	No	Yes	No	Depression	None	0	0	Recovered	Good	No	2 yrs 2 mos
9	J B	B	64	♂	75	1.77	1.6	?	No	No	No	Confusion impaired memory	Arterio sclerosis	0	0	Unimproved	Good	No	10 months
10	E M	B	51	♀	40	2.79	1.1	0	Yes	No	No	Impaired memory loss of judgment, irritability	None	0	0	Died	?	?	4 months
11	G P	B	59	♀	40	1.62	1.3	?	No	No	Yes	Melancholia	None	5 months	0	Unimproved	Good	No	4 yrs 5 mos
12	B W	B	51	♂	80	2.92	1.6	?	Yes	No	No	Depression paranoid trend confusion Eccentricities of mania episodes of mania and depression	Hemi plegia	9 years	0	Unimproved	Good	No	1 yr 4 mos
13	B W	C	71	♀	40	2.41	1.6	?	No	No	No	Mania	None	8 years	0	Unimproved	Good	No	8 years
14	A B	C	68	♀	40	0.50	1.0	0	No	No	No	Diagnosis paranoid dementia praecox	None	0	0	Unimproved	Good	No	3 years
15	H C	O	59	♀	0.90	0.90	?	?	No	Yes	Yes	Diagnosis praecox dementia praecox	None	20 years	0	Slightly improved	Good	No	21 years
16	M W	O	70	♀	2.00	2.00	?	?	?	Yes	Yes	Diagnosis praecox dementia praecox	Cardioma of skin metastases in abdomen	16 years	0	Unimproved	Good	No	10 years
17														41 years	0	Died	No liver (pernicious anemia diagnosed at necropsy)	No	41 years

Institution A Milwaukee Sanitarium Institution B Milwaukee County Hospital for Mental Diseases Institution C Milwaukee County Asylum for the Chronic Insane

teen patients of the surviving twenty six had not improved mentally at the time the reports were made, although all but one had shown a good physical response. Three of these thirteen cases were complicated by arteriosclerosis. Four were considered to be dementia praecox. An other patient did not show a good physical response to liver and after being normal mentally for two years lapsed again into a depressed state. Another case had been observed for only one month at the last report. Of the remaining four cases that failed to show permanent mental improvement, two had shown a temporary change for the better. Thirteen patients recovered physically and mentally under liver treatment, but in these the duration of the psychosis showed a wide range from a minimum of two months up to twenty six months, and in only six of the thirteen did the mental improvement approximately parallel the improvement in the blood picture (table 2).

Essential data of seventeen cases in Milwaukee are presented in table 3, and one case is here reported in detail.

#### REPORT OF CASE

W L, a white woman, aged 43, married, had no history of previous mental illness. Her health had been good until an attack of influenza one year previously. Since then she had tired easily. No blood count was made before admission.

For two months the patient had been nervous. She worried, was easily upset and was "blue." Two weeks before admission she became ill with influenza and had pain in the right lower quadrant of the abdomen. A diagnosis of appendicitis was made but operation was not performed because of the influenza. The pain subsided in three or four days. Five days after the onset of the acute illness the patient showed some confusion and on the next day kept her eyes closed and would not talk. Following this she talked continually and cried a great deal. She was too distractible to eat so had to be fed, and she could not sleep without hypodermics. She thought God talked to her. Until the day of admission she was in bed, but then was brought to us by automobile from her home in northern Michigan.

The social history was irrelevant.

There was no family history of nervous or mental disease or other hereditary illness.

Physical examination showed the patient to be well developed and well nourished but very pale. The tongue was rather smooth, especially at the tip. A soft blowing systolic murmur was heard at the base of the heart. The spleen was not palpated. Slight edema of the ankles was noted. The deep reflexes were normal and there was no Babinski reflex. A morbilliform rash was present over the abdomen, in the axillary fossae and faintly on the back.

The patient remained in bed but talked almost constantly in a low tone. Rarely she was more excited, jumped out of bed, ran into the hall, and even showed violence toward her nurse. Most of the time she was pleasant and cooperative but by spells was irritable and antagonistic. Her talk was incoherent and rambling. She appeared disoriented in all spheres and confused.



Laboratory examination showed hemoglobin, 58 per cent, red blood cells, 2,600,000, white blood cells 3,000 color index, 1+, marked anisocytosis and poikilocytosis, polymorphonuclear leukocytes, 69 per cent, lymphocytes 27 per cent, monocytes, 2 per cent, eosinophils, 2 per cent, no free hydrochloric acid in the stomach contents, Wassermann reaction, negative, no abnormality of the urine

There was a low fever on admission but this gradually subsided. The skin rash cleared entirely in a few days.

A diagnosis of pernicious anemia was made and liver therapy instituted. Steady gradual improvement of the blood picture followed and the patient's color and strength improved.

During the first month, confusion continued to be an outstanding feature of the mental picture. People about her were misidentified and at times she had delusions that the food was poisoned, that there was dirt in her bed and that the bed blankets were charged with electricity. She stopped eating toward the end of the fourth week but after two or three forced feedings began again to eat and from that time on made steady progress both physically and mentally. During her convalescence she was quiet, inactive and mildly depressed but gradually returned toward normal, so that two months after admission she was discharged as cured.

From this study one finds little unequivocal evidence to support the assumption that pernicious anemia can cause psychoses or that mental changes may be a manifestation of pernicious anemia in the same sense as may neurologic changes. Few patients with pernicious anemia develop psychoses and of those who do almost half have a predisposition to mental illness as indicated by the family or past history. While a few of the cases, such as the one reported here in detail presenting the severe anemia and relatively prompt physical and mental recovery, might lead one to think that there is a close correlation between the physical and mental changes, the evidence is far from being conclusive. Failure of the mental symptoms to improve might be due in some instances to complications such as arteriosclerosis and in others may be explained on the theory of irreversible pathologic changes, but one would expect those cases in which the psychosis did clear to show a closer correlation between the physical and the mental improvement. In the recovered cases which I have cited, the duration of the psychosis in one case was two months and in one three months, but in the others the mental symptoms lasted four, five, six, ten, twelve and even twenty-four and twenty-six months. True, the mental symptoms might be slower to respond to treatment than the blood picture, but one would expect a more consistent mental response than I have been able to find.

The majority of the reported psychoses associated with pernicious anemia are of the anxious-paranoid type, but this does not necessarily indicate an etiologic relationship. In the first place the preponderance of acute over chronic types of psychoses may be only apparent, since the association of pernicious anemia with chronic psychoses would probably be presumed to be incidental and would not lead to the reporting of such cases. Secondly, the preponderance of depressive and paranoid manifestations in the reported cases may be explained, as has been suggested by several writers, on the ground that the physical symptoms of pernicious anemia, the weakness, paresthesias, incoordination, and so on, would serve to color the mood or form the basis for paranoid ideas. Manic psychoses in association with pernicious anemia are notably rare; only four of the seventy-six cases.

I conclude from this study that the association of psychoses with pernicious anemia is probably largely incidental.

## EFFECT OF ANTERIOR PITUITARY-LIKE PRINCIPLE FROM THE URINE OF PREGNANCY

ON UNDESCENDED TESTES IN MAN

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During the last two years, several accounts of the treatment of cryptorchidism in man by pregnancy urine extracts have appeared in the medical literature. Schapiro<sup>1</sup> reported a group of cases in which the injection of anterior pituitary-like substance caused increased mobility of the testes. The details of treatment and the position of the testes were not given. Goldman and Stern<sup>2</sup> described two cases of unilateral undescended testis treated with commercial extract of pregnancy urine. In one case the testis descended into the scrotum but in the other it remained in the inguinal canal. These patients were also given thyroid substance and dried pituitary substance by mouth. Sexton<sup>3</sup> described six cases of so-called hypogenital condition treated with pregnancy urine extracts. In four of these, descent of a cryptorchid testis occurred during treatment. Rubinstein<sup>4</sup> described one case of bilateral cryptorchidism successfully treated in the same manner. Aberle and Jenkins<sup>5</sup> have carefully treated five cases. In only two of them did descent of the cryptorchid testis occur. The number of units of the pregnancy urine extracts used varied widely in each of these series. Aberle and Jenkins have analyzed their results and suggested that the failure of treatment may have been due to insufficient dosage, to the nutritional state of the child or to a mechanical block in the inguinal canal.

In spite of the apparently clearly defined cases in which descent of a cryptorchid testis occurred during the administration of pregnancy urine extracts, much skepticism has been expressed by physicians as to the efficacy of this form of therapy. Accordingly, the following additional series is presented in the hope of establishing further the rationale of the procedure and providing additional data as to dosage.

### EXPERIMENTAL

Since July 1933, eleven cases of cryptorchidism have been treated by the injection of pregnancy urine extracts. These cases have not been selected and comprise all the available individuals with cryptorchidism. The position of the testes was checked by at least two different observers before treatment was begun. Attempts were made to measure the length and width of the testes, but these were later abandoned because of the inconsistency of the method. The pregnancy urine extract used was the commercially available "Follutein."<sup>6</sup> The injections were given by having the patients come into the clinic daily or they were administered by the family physician who referred the case. In each instance the initial dose was 25 rat units. This

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<sup>1</sup> Schapiro, B. *Deutsche med. Wchnschr.* 56:1605 (Sept. 19) 1930.

<sup>2</sup> Goldman, A. and Stern, A. *New York State J. Med.* 33:1095 (Sept. 15) 1933.

<sup>3</sup> Sexton, D. L. *Endocrinology* 18:47 (Jan. Feb.) 1934.

<sup>4</sup> Rubinstein, H. S. *Endocrinology* 18:474 (July-August) 1934.

<sup>5</sup> Aberle, S. B. D. and Jenkins, R. H. *Undescended Testes in Man and Rhesus Monkeys*. J. A. M. A. 103:314 (Aug. 4) 1934.

<sup>6</sup> Supplied by the courtesy of E. R. Squibb & Sons.

was increased by 25 rat units daily until a 250 rat unit dosage was reached. This amount was then given daily for two weeks.

In the case of all boys over 11 years of age, an assay of the urine for "male" hormone was made prior to the beginning of the treatment and again approximately two weeks after the completion of the injections. Extraction of this hormone was done by the Womach and Koch<sup>7</sup> method. Assay was carried out on white leghorn capons. The combs were photographed daily under standard conditions and the area of the comb shadow was measured by a planimeter.<sup>8</sup>

The following case summaries give the condition of the patients before treatment and the details of the therapy.

CASE 1—B C, aged 6 years, weighing 17.7 Kg, was a normal looking boy with good general nutrition. The right testis could not be felt in either the inguinal canal or the scrotum. The left testis was normal. The penis was normal except for phimosis.

Injections of pregnancy urine extracts were begun on September 14. On September 29, after 2,000 units had been given, the right testis descended into the scrotum. On the previous day the child's father, who was a physician, had been unable to feel this testis either in the inguinal canal or in the scrotum. On September 30, the right testis was smaller than the left and very soft. Three weeks later, October 20, this testis was of the same size and consistency as the left one, although no further injections of pregnancy urine extract had taken place since September 30.

CASE 2—C T, aged 6½ years, weighing 18 Kg, had a normal general physique but was slightly underweight. The right testis was in the upper third of the inguinal canal. The left testis was in the scrotum in normal position. The penis was normal.

After the injection of 2,300 units of pregnancy urine extract over a three weeks period, the right testis descended into the normal position in the scrotum. Two weeks later it had increased in size until it was only slightly smaller than the left. Sensation was present and the testis was of a firm consistency.

CASE 3—F F, aged 9 years, weighing 37.7 Kg, had been overweight since the age of 6 and had always been considered healthy. When the child was 8 years of age his parents noted that he had a small penis and that both testes were absent from the scrotum. When he was 8½ years old, 300 rat units of "Antutrin S" per week were administered for two weeks with no apparent effect. On physical examination the child was found to be overweight. Neither testis could be felt, either in the inguinal canal or in the scrotum. The penis was infantile.

March 6, 1934, pregnancy urine extract injections were begun. March 29, after 3,600 rat units had been given, the right testis was in the scrotum and the left testis could be felt in the upper portion of the inguinal canal. April 12, after another 3,000 rat units of pregnancy urine extract had been given, the left testis was noted to lie high in the scrotum, while the right continued in the normal position. Therapy was discontinued. September 12, both testes were still in the scrotum and exhibited a firm consistency.

CASE 4—P E, aged 10 years, weighing 55 Kg, had poliomyelitis as a child. He had been overweight since the age of 7. Physical examination showed overweight. The penis was normal. The right testis was at the lower end of the inguinal canal and could be forced into the scrotum. The left was not felt, either in the scrotum or in the inguinal canal.

Injections of pregnancy urine extract were begun on June 7, 1934. July 1, after 3,700 rat units, both testes were in the scrotum. They were firm but still below normal size. Bilateral hernias were present, through which the testes could be pushed to their original position in the canal. Operative repair of these is being arranged.

CASE 5—F C, aged 11 years, weighing 38.2 Kg was of normal general physique. The left testis was in the normal position in the scrotum. The right testis was not felt either in the inguinal canal or in the scrotum. The penis was normal.

After 2,400 rat units of pregnancy urine extract, given over a two weeks period, the right testis was found to be in the scrotum in normal position. It was approximately half the size of the left one. Ten days later, after daily injection of the extract, the right testis had increased in size until it was only slightly smaller than the left one.

CASE 6—H D, aged 11 years, weighing 44.2 Kg, was mentally defective. He had had no serious illnesses. He was a "fat baby" and had always been overweight. The right testis was in the normal position. The left one could not be felt either in the scrotum or in the inguinal canal. The penis was normal.

Injections of pregnancy urine extract were begun, February 5. February 20, after 1,900 rat units, the left testis was found to be in the scrotum. At that time it was less than half the size of the right testis. Injections were continued until April 26. At this time no difference in size or consistency of the two testes could be noted.

CASE 7—A H, aged 14 years, weighing 42 Kg, was normal looking and had had no serious illnesses. His general nutrition was good. The right testis was at the upper end of the inguinal canal. It could not be moved along the canal or expressed into the scrotum. The left testis was normal. The penis was normal and there was some growth of pubic hair.

After the administration of 4,000 rat units of pregnancy urine extract over a period of four weeks, the right testis was found to be in the normal position in the scrotum. It could, however, be pushed back through a hernial opening into its original position in the canal. The patient stated that it did not retract of its own accord. Arrangements are being made for operative repair of this hernia.

CASE 8—B B, aged 14 years, weighing 49 Kg, was of normal general appearance. The right testis was in the middle portion of the inguinal canal. The left was in the upper third of the inguinal canal. Both testes could be moved slightly but neither could be expressed into the scrotum. "Testicular sensation" was present in both. The penis was smaller than normal.

Injections of pregnancy urine extracts were begun on September 14. October 16, after 4,200 rat units had been given, both testes were in the scrotum in the normal position. They were smaller than normal but moderately firm.

CASE 9—G L, aged 15 years, weighing 64 Kg, had been followed in the clinic for several years. He had a chronic rheumatic endocarditis with mitral stenosis and insufficiency. In February 1933 a consulting urologist advised removal of an atrophic right testis, which could be felt in the upper end of the inguinal canal. The left testis was normal. The penis was normal.

Dec 18, 1933, injections of pregnancy urine extract were begun. December 30, after 1,500 rat units had been given, he noted that the right testis was high in the scrotum. Injections were stopped. This testis, which at the time of its descent was soft and small, increased in size steadily. In June 1934 it was of the same size and consistency as the normal left one.

CASE 10—M L, aged 21, weighing 65 Kg, was a tall boy of the so-called hypogenital type. The right testis was in the scrotum but was small and soft. The left testis could be felt in the upper portion of the inguinal canal. The penis was small. The prostate was small and soft.

Pregnancy urine extract was begun, June 2. July 10, after 5,000 rat units, the left testis was found to be in the scrotum. There was slight increase in size in the right one and this testis was definitely firmer. Daily injections of the extract were continued until September 6, at which time both testes were firm but still below the normal size. There had been an apparent increase in the size of the prostate.

CASE 11—W S, aged 26 years, weighing 65 Kg, had an operation at the age of 11 for bilateral cryptorchidism. The right testis was placed in the scrotum. The left testis could not be found. General physical examination was normal except for a left inguinal scar and the absence of the left testis in the scrotum.

<sup>7</sup> Womach E B and Koch, F C. Proc. Sec. Internat. Cong. for Sex Research, p. 329.

<sup>8</sup> These assays were aided in part by a grant from the Council on Therapeutics of the American Medical Association.

The patient was given 4,000 rat units of pregnancy urine extract over a period of one month. The left testis did not descend and no effect of the therapy was noted.

#### COMMENT

Of eleven cases of undescended testes which had been treated with pregnancy urine extract, the testes descended into the scrotum in ten instances during treatment. The one case in which failure occurred was a man of 26 who had had a previous exploration of the inguinal canal in an effort to locate the testis. Three of the cases were of bilateral undescended testes. In all these, both testes descended into the scrotum. In two instances, hernias persisted three months after the descent of the testes. Through these hernias the testes could be pushed back into the inguinal canal. Operative repair of the hernias will probably be necessary. In each instance the testes tended to increase in size after their descent into the scrotum. In three cases the recently descended testis could not on physical examination be differentiated from the normal one, three

TABLE 1—Summary of Cases

Case	Age Yrs	General Appearance	Condition of Testis Before Treatment	Treatment Pregnancy Urine Extract Rat Units	Result
1	5	Normal	Right testis not felt left normal	2 000	Descent of right testis into scrotum
2	6½	Underweight	Right testis upper third inguinal canal left normal	2,300	Descent of right testis into scrotum
3	9	Overweight penis small	Right testis not felt left testis not felt	3 600 + 3 000	Right descended into scrotum left descended into position high in scrotum
4	10	Overweight	Right testis in lower end of inguinal canal left not felt	3 700	Right descended into scrotum left descended into scrotum
5	11	Normal	Right testis not felt left normal	2 400	Descent of right testis into scrotum
6	11	Overweight	Right testis normal left not felt	1,900	Descent of left testis into scrotum
7	14	Normal	Right testis upper end of inguinal canal left normal	4 000	Descent of right testis
8	14	Normal	Right testis middle portion inguinal canal left upper third inguinal canal	4 200	Descent of both testes into scrotum
9	15	Chronic rheumatic endocarditis overweight	Right testis upper end inguinal canal left normal	1 500	Descent of right testis into upper portion of scrotum
10	21	Hypogenital type	Right testis in scrotum small left upper portion inguinal canal	5 000	Descent of left testis into scrotum
11	26	Normal	Right testis brought to scrotum at age of 11 by operation left testis not found at operation	4 000	No effect noted

months after the cessation of treatment. The others remained smaller than normal. More striking than this increase in size was the change in consistency. All of them increased in degree of firmness.

Assays of the urine for "male hormone" of the five boys who were above the age of 11 years showed no definite change after therapy (table 2). This was to be expected, since all these patients except one had normal secondary sexual characteristics and in this one instance (case 10) the departure from normal was not extreme.

The dosage of the pregnancy urine extract used was greater in our cases than in most of the others pre-

viously reported. Beyond slight erythema at the site of injection, no reactions were encountered. With our system of dosage, descent of the testis usually occurred during the third week of treatment. It would appear that the time period over which the hormone is administered, as well as the total number of units given, is a factor.

Our results in the treatment of undescended testes with pregnancy urine extracts show a smaller per-

TABLE 2—Assay of Urine for "Male" Hormone

Case	Age	Male Hormone Before Administration of Pregnancy Urine Extract (Average Cock Units per 24 Hours)	Result	Male Hormone after Administration of Pregnancy Urine Extract for 1 Month (Average Cock Units per 24 Hours)
11	26	3 0	None	2.8
10	21	2 0	Left testis descended into scrotum	2.4
9	15	1 6	Right testis descended into scrotum	1.8
8	14	1 6	Descent of both testes into scrotum	2.0
7	14	2 0	Descent of right testis into scrotum	1.8

centage of failures than most of the reported cases. Although our cases were unselected, it is probable that there was an element of chance in determining the high percentage of cases in which descent occurred, since it is scarcely conceivable that in a certain group of cases the testes are not prevented from descending by a mechanical block such as the adhesions commonly found at operation. However, the incidence of successful descent was great enough to make it appear that this method of therapy should be tried before operative procedure is considered. Further, it would seem advisable to institute therapy at as early an age as possible, in order to prevent destruction of the spermatogenic function of the testis. Although spontaneous descent may occur up to the age of puberty, it does not appear desirable to wait until this time before starting therapy, since the testis may have already undergone considerable damage. The relatively large doses of pregnancy urine extracts and the time period over which they were given may have been important factors in bringing about the result.

No conclusions could be reached in our cases in regard to the mechanism that was responsible for the descent of these testes. In two of the cases, hernias persisted and the testes could be expressed back into the inguinal canal, although they did not tend to assume this position spontaneously. The increase in size of the testis, which occurred in most instances after descent, may be an important factor in preventing its return to the abdominal cavity. Schloss<sup>9</sup> has suggested that the presence of "anterior pituitary-like" substances in the blood of the mother is responsible for the descent of the testes in man during fetal life. It would seem that the same mechanism, whatever it may be, can be instigated by substitution therapy in the child, and that its success depends on the absence of any mechanical block.

#### SUMMARY

Eleven cases of undescended testes in man were treated with a commercial extract of pregnancy urine.

<sup>9</sup> Schloss O. M. Interpretation of Some Recent Advances in Medicine in Terms of Equilibrium. *Am J Dis Child* 46:1 (July) 1933.

Three of these patients had bilateral undescended testes. In ten of the cases, descent of the cryptorchid testes occurred during the period of treatment. No increase in the excretion of "male" hormone was noted after descent of the testes.

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## BREATH ODORS FROM ALLIACEOUS SUBSTANCES

### CAUSE AND REMEDY

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Offensive odor of the breath is often a matter of considerable importance to those afflicted, and medical advice is occasionally sought. The fact that the odor may arise from pathologic conditions in the structures of the mouth and respiratory tract is well recognized. But in many cases no definite pathologic changes are found. Moreover, the odor may not be present continuously but only during temporary periods of disturbed health or during menstruation.

It has been suggested that in such cases the substances causing the odor are of systemic origin, that the air in the lungs is tainted by aeration from the blood, or in the mouth from secretion of the substances into the saliva, or, again, that the odor arises directly from the stomach. It is more probable, however, as the evidence to be here presented also indicates, that generally the source of the odor is not systemic but local in the mouth or respiratory tract. Determination of the source is essential to any therapy.

As a phase of the problem that is directly amenable to experimental study, we have investigated the source of the odor arising after eating onion or garlic.

It is well known that there exists among different individuals wide differences in the intensity and particularly in the persistence of the odor on the breath after eating onion or garlic. Usually the breath loses its odor within a few hours, but in occasional individuals even small amounts of onion or garlic inadvertently eaten in salads, soups or sauces taint the breath for several days. Moreover, in such cases the odor often loses its typical alliaceous character after some hours have passed and, although the breath is offensive, it is difficult to identify precisely the nature of the odor. As a rule in the past little relief could be given for this condition except by disguising the odor with the use of mouth washes containing aromatic oils.

The odor from onion and garlic is due to the essential oils contained in these vegetables. That of onion is mainly allyl-propyl disulphide,  $C_6H_{12}S_2$ , this oil appears in garlic in small amounts, but the main constituent of the distillate from garlic is diallyl disulphide,  $C_6H_{10}S_2$ .<sup>1</sup> In addition to these main constituents there are both lighter and heavier fractions of sulphur bearing oils of uncertain chemical composition but all possessing disagreeable odors.

The taint on the breath after eating onion or garlic is due to the presence of these essential oils or their

decomposition products in the expired air. Considerable uncertainty has existed, however, as to the manner in which the oils are discharged into the expired air. Four theories have been advanced.<sup>2</sup>

1 That the oils pass into the blood stream during digestion, are then aerated from the blood in the lungs, and so pass into the expired air. For certain volatile substances such as ether, alcohol and acetone this passage from the blood to the air in the lungs is well established. This theory is the one commonly accepted also to explain the source of the odor on the breath after eating onion or garlic, occasionally it is amplified by the addition of a hypothetical secretory activity of the respiratory mucosa by which the oil is believed to be selected from the blood and passed into the air—presumably to account for the fact that the blood, following digestion of garlic, has not been observed to smell of the oil.

2 That the essential oil appears in the saliva by secretion from the blood passing through the salivary glands.

3 That the odor passes from the stomach by way of the esophagus (other than during eructation) and enters the breath through this channel.

4 That possibly the odor arises in part from particles of onion or garlic retained about the teeth, the tonsils and the papillae of the tongue. Considerable attention has been given to pathologic conditions in the structure of the mouth and pharynx as sources of odor on the breath but no one has advanced the idea that after eating onion or garlic the odor arises solely from particles retained in this locality. We, however, do advance such a theory and moreover we here substantiate it with experimental demonstration. The localization of the source of the odor to the mouth structure opens up a possibility of a remedy. No known measure could control the passage of the oils from the blood or saliva to the expired air or prevent their passage from the stomach, it is possible, however, as we shall show, to rid the mouth of the alliaceous oils.

The only extensive experimental work carried out to determine the disposition of alliaceous essential oils in the body was that of Lehmann.<sup>3</sup> He estimated the amount of garlic oil appearing in the breath of rabbits after administering the oil subcutaneously, intravenously, rectally and orally. For analytic determination he passed measured amounts of the expired air through hundredth normal permanganate solution and titrated with hundredth normal oxalic acid solution. The doses of oil he used were enormous, from 4 to 5 cc. of the juice pressed from garlic and containing from 8 to 10 mg of the essential oil. This amount would be equivalent to 6 or 8 Gm of the vegetable. Such a dose given to a rabbit weighing 1.5 Kg would correspond to 300 or 400 Gm of garlic given to a man.

Following subcutaneous injection, no oil was detected in the expired air. Following intravenous injection in which the juice was administered over a period of thirty-eight minutes, the expired air gave traces of the oil for a period of fifty minutes, after that time no more appeared on the breath—obviously an effect quite different from the persistent taint observed on the human breath after eating garlic. Following adminis-

<sup>2</sup> Boas I. Ueber Foeter ex ore et lingua und dessen Behandlung, Therap. d. Gegenw. 70:10 (Jan.) 1929. Kessler, J. I. Halitosis, M. J. & Rec. 106:230 (Sept.) 1932. Lederer, W. J. Fetid Breath, M. Rec. 73:58, 1908. French, H. Foulness of the Breath. An Index of Differential Diagnosis, ed. 3. New York, William Wood & Co., 1923.  
<sup>3</sup> Lehmann, F. A. Untersuchungen über Allium sativum (Knoblauch), Arch. f. exper. Path. u. Pharmacol. 147:245 1930.

tration to the stomach by means of a tube, the amount of oil appearing in the expired air was so slight as to fall within the limit of the error of the method of analysis, definitely less than 1 per cent of the oil appearing in the breath in spite of the massive dose that had been given.

Lehmann's work really offers no support to the belief that the odor on the breath after eating ordinary amounts of onion or garlic comes from the blood by way of the lungs or salivary glands or from the stomach through the esophagus. It offers no explanation for the persistent odor on the breath after the vegetables are eaten.

We have approached the problem in another manner and with an experiment that is crucial. One and five-tenths grams of raw garlic was chewed and swallowed. The breath was immediately rendered foul and remained so for more than twenty-four hours. When the odor was no longer detectable, the same amount of garlic was chopped into small particles and inclosed in gelatin capsules, the capsules were swallowed. No odor whatever was detected on the breath at any time during the next twenty-four hours. The only exception occurred when, during the first three hours after eating the garlic, the subject belched only momentarily then was the breath rendered foul by the odor from the stomach—indicating beyond question that the capsules had dissolved and discharged their contents.

Several repetitions of these experiments gave in each case the same results. Moreover the substitution of 20 Gm of onion for the garlic (in a correspondingly larger number of capsules) gave the same results as those obtained with garlic.

The conclusions appear obvious: the odor of onion or garlic on the breath does not come from the blood stream, from the salivary glands or from the stomach (except at the moment of eructation), it comes instead as an emanation from particles retained by the structures in and about the mouth.

The experiments were amplified by quantitative analysis of the expired air for the following reasons:

1 To substitute actual numerical values for the rough subjective impressions obtained by merely smelling the breath.

2 To allow a critical study of the effect of certain deodorants on the sources of the odor in the mouth. Quantitative methods were particularly desirable in regard to the latter study, for if the deodorant itself possess an odor it is difficult to tell by the sense of smell whether the onion odor is removed or merely masked.

There is no highly sensitive quantitative method of analysis specific for onion or garlic oil. The iodine pentoxide method for estimating volatile organic substances, previously described in papers from this laboratory,<sup>4</sup> for use in determining small amounts of ether, alcohol and carbon monoxide, is much more sensitive than the permanganate method used by Lehmann. Neither method is specific for onion or garlic oil but responds to all oxidizable organic vapors. This disadvantage was overcome, however, by determinations made on the breath of the subject prior to each experi-

ment to show freedom from all such substances. Likewise in testing deodorants it was necessary to carry out suitable control experiments to prove that no volatile organic substance appeared from the deodorant.

In this method of analysis the air containing the organic vapor is drawn by suction through a tube packed with alternate layers of glass wool and iodine pentoxide ( $I_2O_5$ ) heated in an electric oven to a temperature of 180°C. The vapor is oxidized, the iodine (in some cases also hydriodic acid)<sup>4c</sup> liberated passes on in the stream of air and is collected in an aqueous solution of potassium iodide and titrated with standardized thio-sulphate solution in the presence of starch.

Theoretically 1 mg of the diallyl disulphide from garlic should yield 5.8 mg of iodine, and 1 mg of the allyl-propyl disulphide from onion, 6.09 mg of iodine. Both onion and garlic contain in addition to these main volatile ingredients, closely allied odoriferous organic sulphur compounds of greater or lesser volatility. The method of analysis was therefore standardized against the distillate from the vegetables rather than from the commercial oils. To this end a carefully weighed piece of the vegetable (in each of several experiments averaging about 0.1 Gm) was placed in a small flask through which passed the stream of air leading to the tube containing the heated iodine pentoxide. The flask was heated by immersion in a water bath. All connections in the circuit were made glass to glass to avoid exposure of rubber tubing that might absorb the oils distilled from the onion or garlic. Twenty minutes sufficed to remove all the oil from the vegetable as shown by cessation of iodine liberation from the pentoxide.

The results from four experiments carried out on garlic gave closely corresponding results with an average of 10.93 mg of iodine liberated per gram of garlic. This amount of iodine corresponds theoretically to 19 mg of diallyl disulphide (all of the oil considered to be in this form) thus indicating a yield of 0.19 per cent. The yields of oil collected from crude distillation of garlic are only about half this amount.<sup>5</sup> By the method employed here a higher yield would be expected since there is no loss from failure of condensation of even the most volatile fractions.

The same procedure carried out for onion gave 2.98 mg of iodine per gram of onion or, calculated as allyl-propyl disulphide, 0.049 per cent of oil.

As judged from the sense of taste there is considerable variation in the content of essential oil in different onions, but probably less difference in garlic. The onion used throughout the experiments reported here was an ordinary culinary onion of domestic growth, of medium size and fairly pungent.

In the first series of quantitative experiments, 15 Gm of garlic was chewed and swallowed. Five minutes later and each hour following for a period of six hours, a measured amount of expired air (from 5 to 15 liters) was passed through the iodine pentoxide and the liberated iodine collected and titrated. To obtain the measured amount of air a tube of large bore connected to the pentoxide container was held in the mouth and closed by the tongue during inspiration but left open during expiration, beyond the absorber containing the potassium iodide for collection of the liberated iodine, a gas meter was placed in the circuit, the effluent passage of the meter was attached to the

4 (a) Henderson, Yandell, Haggard H W, Teague M C, Prince A L, and Wunderlich, R M. Appendix 4. Report of Tunnel Gas Investigations. States of New York and New Jersey, p. 203. (b) Haggard, H W. An Accurate Method of Determining Small Amounts of Ethyl Ether in Air, Blood and Other Fluids. *J Biol Chem* 55: 131 (Feb.) 1923. (c) Haggard H W and Greenberg L A. Studies in the Absorption, Distribution and Elimination of Ethyl Alcohol. I. The Quantitative Determination of Ethyl Alcohol in Air, Blood and Urine by Means of Iodine Pentoxide. *J Pharmacol & Exper Therap* 52: 137 (Oct.) 1934.

5 Parry, Lehmann.

suction pump, which drew the stream of air through the analyzer train. During each expiration about 50 cc of air was drawn through the pentoxide, when the meter registered the desired total, fresh air was passed through the train for five minutes in order to flush it. The results of three experiments, in each of which 1.5 Gm of garlic was eaten, are given in table 1, which also shows the results from the second and third series of experiments. It will be seen that, five minutes after the garlic was eaten, each liter of expired air contained from 0.0028 to 0.0035 mg of oil, recorded as diallyl disulphide<sup>6</sup>. One hour later the content had fallen to only 0.0008 to 0.001 mg. Thereafter the decline was gradual, six hours after eating the garlic the breath contained from 0.00015 to 0.00025 mg of the oil. This amount was easily detected by the sense of smell.

As a control on these experiments, a second series was carried out in which 1.5 Gm doses of garlic were swallowed in capsules. In no instance was the slightest trace of oil found in the expired air. In each of a third series of experiments, 1.5 Gm of garlic was chewed and then as completely as possible spit out, the mouth was rinsed with water and the concentration of essential oil in the expired air estimated as in the previous experiments. The amounts found were almost identical with those of the first series in which the garlic was chewed and swallowed.

A somewhat different procedure was carried out for onion. In the first experiment 2 Gm was eaten and the oil in the expired air determined as in the case of garlic, in the second experiment the procedure was repeated except that 20 Gm of onion was eaten. If all the odor arose from particles retained in the mouth, the total amount of onion eaten should make little difference in the odor given off, since only a limited amount can be retained in the structure about the mouth. If, on the other hand, the oil passed into the breath from the blood stream, the amount in the breath

the proportion of 0.0005 and 0.0030 respectively, or 1 to 6. These values correspond approximately to the relative amounts of oil obtained by direct distillation of these two vegetables and given in the foregoing as respectively 4.9 and 19 mg per gram. From these observations it is clear that the source of odor after eating onion and garlic is from particles retained in the mouth structure. If so it should be possible to remove or deodorize these particles. Brushing the teeth has often been advocated in overcoming

TABLE 2—Effects of Certain Procedures on the Removal of Garlic Odor from the Expired Air\*

Time	Teeth and Tongue Brushed and Mouth Rinsed with								
	A Soap and Water			B 30 per Cent Solution of Alcohol			C Solution of Chloramine		
	Mg of Oil per Liter of Expired Air			Mg of Oil per Liter of Expired Air			Mg of Oil per Liter of Expired Air		
	1	2	3	1	2	3	1	2	3
5 minutes	0.0034	0.0027		0.0023	0.0083		0.0036	0.0027	0.0029
1 hour	0.0012	0.0008		0.00075	0.0009		0.0011	0.0008	0.0009
1½ hours	0.0008	0.0006		0.0005	0.0006		0.0003	0.0005	0.0007
2 hours	0.0006	0.0005		0.0004	0.0006		0.000	0.000	0.000
3 hours	0.0004	0.0004		0.0004	0.0004		0.000	0.000	0.000
4 hours	0.00025	0.0004		0.0003	0.0005		0.000	0.000	0.000
5 hours	0.0003	0.0003		0.0002	0.0003		0.000	0.000	0.000

\* In each experiment 1.5 Gm of garlic was chewed and swallowed the amount of essential oil in the breath was determined at intervals as indicated. The procedure intended to deodorize the mouth was applied one and one-half hours after the garlic was eaten.

the odor of onion. To test this procedure quantitatively, 1.5 Gm of garlic was chewed and swallowed and the amount of essential oil in the expired air determined five minutes, one hour and one and one-half hours later. During this time the concentration of the oil had fallen to the plateau level (as shown in experiments of series A and C, table 1) in which its further course could be predicted. The teeth and tongue were then brushed with soap and water and the mouth rinsed. The commercial dentifrices were avoided here because the essential oils which they contain liberate iodine from the pentoxide. As seen from experiment A in table 2, no marked decrease in the garlic odor was obtained with the use of soap and water.

From previous work in this laboratory with chlorine in the destruction of organic odors,<sup>7</sup> attention was turned to the possibilities of this substance in the form of chloramine. After garlic had been eaten the teeth were scrubbed, the tongue brushed and the mouth rinsed with a solution made by dissolving one 4.6 gram (0.3 Gm) chloramine<sup>8</sup> tablet in each 30 cc of water. Particular attention was paid to the tongue, for the papillae at the base of this structure have long come under suspicion as a source of odor from retained food particles.<sup>9</sup> No odor of garlic could be detected on the

Time	After 1.5 Gm of Garlic Was								
	A Chewed and Swallowed			B Enclosed in Gelatin Capsules and Swallowed			C Chewed and Spat Out Mouth Rinsed with Water		
	Mg of Oil per Liter of Expired Air Experiments			Mg of Oil per Liter of Expired Air Experiments			Mg of Oil per Liter of Expired Air Experiments		
	1	2	3	1	2	3	1	2	3
5 minutes	0.0028	0.0035	0.0032	0.000	0.000	0.000	0.0028	0.0031	0.0025
1 hour	0.0008	0.0010	0.0008	0.000	0.000	0.000	0.0009	0.0008	0.00075
2 hours	0.0005	0.0005	0.0006	0.000	0.000	0.000	0.0005	0.0004	0.0004
3 hours	0.0003	0.0003	0.0004	0.000	0.000	0.000	0.0004	0.0004	0.00035
4 hours	0.0003	0.00025	0.0003	0.000	0.000	0.000	0.0004	0.0003	0.0003
5 hours	0.0002	0.00025	0.00025	0.000	0.000	0.000	0.0002	0.0003	0.00015
6 hours	0.0002	0.00025	0.00015	0.000	0.000	0.000	0.00015	0.0003	0.00020

should be proportioned to the amount eaten. Five minutes after the eating of 2 Gm of onion the breath contained 0.0005 mg of oil, calculated as allyl-propyl disulphide, per liter of air, five minutes after the eating of 20 Gm of onion it contained 0.00056 mg of oil—essentially the same amount. Four hours later these amounts had fallen to 0.00002 and 0.00003 mg respectively, the odor was still detectable by the sense of smell.

The relative amounts of oil found in the breath after the eating of onion and garlic are approximately in

6 Actual numerical values are of significance only in showing the rate at which the odor leaves the breath, there are undoubtedly wide variations in the amount of oil found on the breath of different subjects.

7 Henderson, Yandell and Haggard, H. W. The Elimination of Industrial Organic Odors. J. Indust. & Engin. Chem. 14: 548, 1922. The use of chlorine water in deodorizing the nose and mouth is described by French, as quoted in Solis-Cohen, Solomon and Githens, T. S. Pharmacotherapeutics, New York: D. Appleton Company, 1928, p. 537. Suspension of chlorinated lime in water, dilute chlorine water or a solution of chloramine in water as described later will rid the hands of the odor from onion or garlic. The senior author was able to remove a quickly from the skin all trace of the odor from the discharge of a skunk (accidentally received) with the use of a strong suspension of chlorinated lime in water.  
8 Paratoluene sodium sulphonchloramide Chloramina, U. S. P. The tablets used here were those prepared by the Abbott Laboratories and bearing the name Chlorazene.  
9 Hopmann, Eugen. Uebler Mundgeruch, Munchen med. Wchnschr. 79: 1895 (Nov. 4) 1932. Wagner, Richard. Zungenreiner zur Behandlung ublen Mundgeruches, ibid. 79: 2049 (Dec. 16) 1937. Prinz, H. Halitosis Cause and Prevention. Dental Cosmos 72: 700, 1930.



breath but there remained a slight odor from the chlorine products. The question of whether the garlic odor was actually destroyed or simply masked was determined by analysis of the expired air.

Experiments were carried out first as controls to determine whether the chlorine odor liberated iodine from the pentoxide. The expired air of a subject who had not eaten garlic was first passed over the pentoxide to confirm the absence of any organic vapors. Next the teeth and tongue were washed and the mouth rinsed with the chlorine solution. The expired air was again passed over the pentoxide. No iodine was liberated, the chlorine odor did not affect the pentoxide.

In each of three experiments, series C of table 2, 15 Gm of garlic was chewed and swallowed and the amount of oil in the expired air followed for one and one-half hours as in the case of experiments of series A, table 2. During this time the oil had risen to concentrations ranging from 0.0027 to 0.0036 mg per liter and fallen to the plateau level of from 0.0008 to 0.0011 mg. The mouth was then treated with chloramine solution as described. Repeated analyses during the next three hours showed absence of oil in the expired air. The chlorine products had deodorized the garlic particles.

Two additional experiments were carried out in which, after garlic had been eaten, the teeth and tongue were brushed and the mouth rinsed with 30 per cent solution of alcohol in water. Control experiments demonstrated that the vapors of alcohol, after the mouth had been washed with this substance, persisted in the breath for only fifteen to twenty minutes. In some proprietary mouth washes recommended for the removal of onion odor the only possible deodorant is the alcohol, which might conceivably dissolve and remove the essential oils. Our experiments, series A, table 2, show that alcohol is without effect on the garlic odor. It would appear that the only effective part played by proprietary mouth washes containing alcohol is in masking the breath by the odor of the essential oils with which they are flavored and which are held in solution by the alcohol.

#### CONCLUSIONS

The odor given to the breath by onion or garlic comes from the essential oil contained in these vegetables.

The oil does not, as has been suggested, reach the breath from aeration of the blood in the lungs, from pulmonary secretion, from salivary secretion, or in air passed from the stomach. It arises solely from particles of onion or garlic retained in the structure about the mouth.

Quantitative experiments demonstrate this fact.

The particles from which the odor arises can not be removed completely by mechanical means, brushing the teeth and tongue and washing the mouth with soap and water fail to deodorize the breath. Similarly washing the mouth with a 30 per cent solution of alcohol is ineffective.

The breath can be immediately and completely rid of the odor by washing the teeth and tongue and rinsing the mouth with a solution of chloramine. The chlorine liberated in the mouth reacts chemically with the essential oils and deodorizes them.

It is probable that many cases of foul breath from other causes would be amenable to the same method of treatment.

## DIABETES MELLITUS AND HYPERTHYROIDISM

REPORT OF A CASE WITH A FASTING BLOOD SUGAR OF 1500 MG PER HUNDRED CUBIC CENTIMETERS IN THE ABSENCE OF COMA

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This case is presented to record a fasting blood sugar of 1500 mg per hundred cubic centimeters in a diabetic patient without coma but manifesting all the signs and symptoms of marked hyperthyroidism. An extreme hyperglycemia of this degree has been observed infrequently in diabetes (the literature is summarized in the table), not one of the published cases was complicated by thyrotoxicosis. As far as I could learn, this is the only case on record of diabetes complicated by hyperthyroidism showing a blood sugar over 1000 mg per hundred cubic centimeters without any signs of coma although in the present case coma undoubtedly was impending.

#### REPORT OF CASE

Mrs. L. J. White, aged 43, a seamstress, seen Sept. 13, 1929, complained of pruritus vulvae and vulvar boils. One month previously there had been a surgical intervention for an infected finger and at that time sugar was found in the urine. The past, personal and family histories were irrelevant.

Physical examination showed that the patient was 14 pounds (64 Kg.) overweight, that there was slight recession of the gums, that the tonsils were irregular, and that systolic murmurs were present at the apex and base of the heart, otherwise the examination revealed nothing of note. The urine showed a specific gravity of 1.017, no sugar, no diacetic acid and no albumin, microscopic examination was negative. Blood chemistry showed fasting blood sugar 167 mg per hundred cubic centimeters, urea nitrogen, 124 mg, and plasma cholesterol 169 mg.

The patient was given a diet containing 80 Gm of carbohydrate, 60 Gm of protein and 140 Gm of fat (total calories 1820). The diet was well tolerated and the urine remained free from sugar without the use of insulin. Her condition remained practically unchanged until July 1932, when she complained of palpitation and loss of weight.

Physical examination at this time revealed moderately prominent eyeballs, tremor of the fingers, an irregular and nodular enlargement of the thyroid gland and auricular fibrillation. The basal metabolic rate was plus 42 per cent, the fasting blood sugar was 227 mg per hundred cubic centimeters. A diagnosis of hyperthyroidism complicating diabetes mellitus was made. Measurable quantities of sugar appeared in the urine and from 8 to 16 units of insulin was prescribed daily. Thyroidectomy was advised but refused by the patient. Roentgen treatments of the thyroid were instituted in its place and in January 1933, following five exposures the basal metabolic rate fell to plus 8 per cent. In spite of the decrease in the basal metabolic rate, increasing quantities of insulin were required to keep the urine free from sugar. In July 1933, because of gain in weight, a diet containing 65 Gm of carbohydrate, 80 Gm of protein and 40 Gm of fat (total calories 940) was ordered, at this time, she was taking 38 units of insulin daily.

In September 1933, following a vacation of two months in the country with more or less self treatment, she returned to the office complaining of weakness, palpitation and marked loss in weight. The pulse rate was 134 per minute and completely irregular. The skin was dehydrated and the eyeballs were moderately soft. There was a slight acetone odor to the breath. The night and morning urines showed 5 and 36 per cent of

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sugar, respectively, and appreciable quantities of acetone in both. The fasting blood sugar was 1,500 mg per hundred cubic centimeters (checked and rechecked by the method of Folin and Wu), the plasma cholesterol 675 mg and the basal metabolic rate plus 59 per cent. A temporary dietary change and increased insulin dosage were instituted, and the patient was admitted to the New York Post-Graduate Hospital the following day.

The subsequent course may be summarized briefly as follows: Glycosuria, acetonuria and loss in weight persisted for several days following admission to the hospital, in spite of an increase in the diet to 230 Gm. of carbohydrate, 75 Gm. of protein and 300 Gm. of fat (total calories 3,920) and 210 units of insulin daily. Ten days following admission the basal metabolic rate had fallen to plus 20 per cent and the fasting blood sugar ranged from 210 to 255 mg per hundred cubic centimeters.

October 5, a subtotal bilateral resection of the thyroid gland was performed by Dr. C. G. Heyd. The examination of the excised thyroid gland revealed multiple adenomas.

The postoperative course, especially for the first few days, was stormy but the patient eventually made a good recovery and was discharged from the hospital seventeen days following the operation. For three days prior to her discharge the urine was free from sugar on a diet containing 100 Gm. of carbohydrate, 70 Gm. of protein and 90 Gm. of fat (total calories 1,490), and 45 units of insulin daily. Since November 1933 she has been followed in the metabolic clinic of the New York

dence has been presented to show that hyperthyroidism adversely influences the course of diabetes. Pollack<sup>8</sup> and MacBryde<sup>9</sup> have recently reviewed the subject of insulin resistance and they consider hyperthyroidism to be the responsible factor in many cases of diabetes that are refractory to insulin. This is to be expected, since the advent of hyperthyroidism in a patient with diabetes as exemplified by the present case, "creates abnormal demands upon an already inefficient carbohydrate metabolism both by virtue of an elevation of the basal metabolism and by enhancement of glycolysis."<sup>10</sup>

As indicated in the case report for the first few days following the thyroid resection the clinical condition of the patient was precarious and she continued to be markedly refractory to insulin. Several days later, however, the patient responded more favorably to insulin and the daily dose could be gradually reduced. A similar case exhibiting extreme postoperative resistance to insulin in a diabetic patient with hyperthyroidism was recently reported by Hills, Sharpe and Gay.<sup>11</sup>

In the majority of cases, hyperthyroidism precedes the onset of diabetes. John<sup>7</sup> has developed the Naunyn-von Noorden hypothesis to the extent that he

Cases of Diabetes Mellitus with Blood Sugars Over 1,000 Mg Per Hundred Cubic Centimeters

Case	Authors	Reference	Age	Sex	Blood Sugar Mg %	Degree of Coma	Clinical Course	Comment
1	Pittfield	M. J. & Rec. 120:433 1924	45	♂	1,700	Moderate	Died	
2	Paddock	J. A. M. A. 82:1855 1924	22	♂	1,040	Moderate	Died	
3	Foster	J. A. M. A. 84:719 1925			1,200	Complete	Recovered	Complicated by otitis media CO <sub>2</sub> 9 vol %
4	Argy	Boston M. & S. J. 103:1236 1925	33	♂	1,714	Complete	Died	
5	Joslin	Treatment of Diabetes Mellitus 1928 p. 213	47	♂	1,490	Moderate	Died	Preliminary era
6	Curtis and Dixon	J. A. M. A. 90:1115 1928	18	♀	1,620	Complete	Recovered	CO <sub>2</sub> 18 vol %
7	Rabinowitch	Cited by Joslin loc. cit. p. 193 and by Curtis and Dixon loc. cit.			1,420		Died	
8	Olmsted	Cited by Joslin loc. cit. p. 213	14		1,400	Complete	Died	CO <sub>2</sub> 27.7 vol %
9	Shepardson and Anderson	Endocrinology 13:188 1929	50	♂	1,090	Complete	Recovered	Cholesterol 70 mg per 100 cc
10	Haines and Davis	J. A. M. A. 99:24 1932	53	♀	1,120	Complete	Recovered	
11	Haines and Davis	J. A. M. A. 99:24 1932	30	♀	1,060	Complete	Recovered	CO <sub>2</sub> 11 vol %
12	Haines and Davis	J. A. M. A. 99:24 1932	46	♀	1,296	Complete	Recovered	CO <sub>2</sub> 18 vol %
13	Lawrence	Brit. M. J. 1:877 1934			2,060		Died	
14	Present case		43	♀	1,500	None	Recovered	Complicated by hyperthyroidism plasma cholesterol 675 mg per 100 cc

Post-Graduate Hospital, and her condition has been entirely satisfactory to the day of writing. The last study, carried out approximately one year following the thyroidectomy, showed the weight average normal, basal metabolic rate minus 6 per cent, pulse 78 per minute and regular, and the urine free from sugar or, at most, traces in fractional specimens. The diet was approximately 150 Gm. of carbohydrate, 70 Gm. of protein and 90 Gm. of fat (total calories 1,690), and the dosage of insulin was 44 units daily.

COMMENT

The association of diabetes and hyperthyroidism is frequently encountered in large clinics, although as recently as 1931 Ginsberg<sup>1</sup> remarked that comparatively few cases have been reported in the literature. Fitz,<sup>2</sup> Allen,<sup>3</sup> Boothby and Wilder,<sup>4</sup> Wilder,<sup>5</sup> Joslin and Lahey<sup>6</sup> and John<sup>7</sup> have made pertinent contributions on the clinical aspects of this subject, and much evi-

believes that hyperthyroidism per se does not lead to a disturbance in carbohydrate metabolism, in patients with a predisposition to diabetes (diabetic "anlage"), however, the development of hyperthyroidism and the resultant demands of an increased metabolism brings about a true diabetes in the same manner as infection or obesity would in the same individual. The clinical observations of John and the experimental studies of Shpiner<sup>12</sup> lend proof to the validity of this hypothesis. The present case, however, does not belong to this category. This patient manifested all the signs and symptoms of true diabetes mellitus approximately three years before any evidence of hyperthyroidism developed. The advent of the thyrotoxic state so upset the already impaired carbohydrate metabolism that very large doses of insulin were required to bring the diabetic condition under control and to permit thyroidectomy.

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1 Ginsberg, A. M. Hyperthyroidism and Diabetes Mellitus with a Report of Nine Cases. *Endocrinology* 15: 225 (May-June) 1931.  
2 Fitz, Reginald. The Relation of Hyperthyroidism to Diabetes Mellitus. *Arch. Int. Med.* 27: 305 (March) 1921.  
3 Allen, F. M. Experimental Studies in Diabetes. Series II. The Internal Pancreatic Function in Relation to Body Mass and Metabolism. 10. Influence of Thyroid upon Diabetes. *J. Metabolic Research* 1: 619 (May) 1922.  
4 Boothby, W. M. and Wilder, R. M. Metabolic Studies in Exophthalmic Goiter Complicated by Diabetes. *J. Clin. Investigation* 1: 590 (Aug. 20) 1925.  
5 Wilder, R. M. Hyperthyroidism, Myxedema and Diabetes. *Arch. Int. Med.* 38: 736 (Dec.) 1926.  
6 Joslin, E. P. and Lahey, F. H. Diabetes and Hyperthyroidism. *Am. J. Sc.* 176: 1 (July) 1928.  
7 John, H. J. Hyperthyroidism Showing Carbohydrate Metabolism Disturbances. Ten Years Study and Follow Up of Cases. *J. A. M. A.* 99: 620 (Aug. 20) 1932.

8 Pollack, Herbert. Conditions Associated with Unusual Requirements for Insulin. *Proc. Staff Meet. Mayo Clin.* 8: 453 (July 26) 1933.  
9 MacBryde, C. M. Insulin Resistance in Diabetes Mellitus. *Arch. Int. Med.* 52: 932 (Dec.) 1933.  
10 Andrus, E. C. Hyperthyroidism and Diabetes Mellitus. *Bull. Johns Hopkins Hosp.* 50: 383 (June) 1932.  
11 Hills, R. G., Sharpe, J. C. and Gay, L. N. Diabetes Mellitus and Hyperthyroidism. The Report of a Case. *Bull. Johns Hopkins Hosp.* 55: 193 (Sept.) 1934.  
12 Shpiner, L. B. Increased Metabolism Only One Factor in the Production and Maintenance of the Hyperglycemia and Glycosuria in Experimental Hyperthyroidism. *Am. J. Physiol.* 92: 672 (April) 1930.

## TREATMENT OF RHEUMATOID ARTHRITIS WITH FEVER INDUCED BY DIATHERMY

A FOLLOW-UP STUDY

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Since the preliminary report by Neymann and Osborne<sup>1</sup> in 1929 of the employment of high frequency currents in the production of fever, the therapeutic use of this method has been rapidly extended to various chronic diseases. At the same time, other methods such as the use of short radio waves and radiant and conducted heat have been employed, all successful in raising and sustaining a patient's temperature in a controlled manner. That chronic arthritis should have been one of the first diseases to be tried seems natural, since local heat to the joints, hot baths and fever induced by typhoid vaccine have long occupied a prominent place in its therapy. It is our purpose in this paper, after briefly reviewing the published reports of others who have utilized artificial fever, to summarize the end results in twenty-five cases of rheumatoid (atrophic) arthritis treated with fever produced by general diathermy. It is to be noted at this point that, in both our own cases and those cited from the literature, we have confined ourselves to rheumatoid or atrophic arthritis, sharply excluding both purely hypertrophic arthritis and that due to a specific organism, such as the gonococcus.

In 1932 Neymann and others,<sup>2</sup> using general diathermy, obtained definitely beneficial results in a total of 64 per cent of two groups, one of six patients followed for twenty months, and one of five followed for a year or less. They ascribed their success to the giving of eight weekly treatments with temperature sustained at 104 F for at least ten hours and believed that briefer courses (two or three hours at 103 F or less) were of no value. In the same year Tenney,<sup>3</sup> using short radio waves, reported fourteen out of sixteen patients with rheumatoid arthritis definitely helped. In his paper, no details of treatment or duration of follow up are included. Bierman<sup>4</sup> in 1933 stated that patients given a fever of 105 to 106 F for several hours with the radiotherm, although showing marked temporary improvement, relapsed at least partially after a day or two. Further gain was seen, however, after successive treatments, and at the end of the series there was usually definite improvement. About the same time Berris<sup>5</sup> treated eleven cases of rheumatoid arthritis, the average course comprising eight treatments

with temperatures of 102.5 F for three and one-half hours. Only 28 per cent of these showed no gain, and he reports 36 per cent both objectively and subjectively improved and another 36 per cent only subjectively improved. King<sup>6</sup> also reported striking results in rheumatoid cases treated at 104 F for two hours or more and stated that recurrences were caused by too long intervals between treatments. In two groups of patients, one of sixteen followed for about two years and another of twenty followed for about a year, Kohn and Warren<sup>7</sup> found that all but two derived definite benefit from one or more treatments with general diathermy. (The temperature maintained and the duration of treatments were not stated.) Three cases which relapsed later showed improvement with another treatment. In direct contrast to the startling results thus far recorded is the report of Nicholls and Stainsby<sup>8</sup> published early in 1934. These authors treated twelve patients from one to five times, with fever induced by radiant heat, with temperatures averaging from 104 to 105 F for from three to five hours. At the end of a month or more, only three claimed subjective benefit, which was not substantiated by objective examination. The absence of noteworthy changes in the sedimentation rate of these patients following treatment confirmed the authors' clinical impression.

In table 1 are summarized our results obtained in twenty-five cases of rheumatoid arthritis. These had all been thoroughly studied in the medical wards before treatment was instituted and fulfilled the diagnostic criteria of rheumatoid arthritis. Most of them had received general treatment, including a high vitamin diet, rest, control of pain, physical therapy, and the removal of obvious foci of infection. During the follow-up period, such general treatment as seemed indicated was pursued. They were all given one or more treatments by means of a Victor superpower diathermy machine and the electrodes described by Neymann and Osborne<sup>9</sup>. During application of the high frequency current and after the electrodes had been removed, the patients were insulated with warm air by means of a box containing electric lamps,<sup>10</sup> and their temperatures were thus maintained. They were given fluids at room temperature as desired and were kept more comfortable by cold compresses on the head and the use of an electric fan. A mixture of opium and alkaloids in doses of one-third grain (0.02 Gm) was used also. It is fair to state that the experience was a harrowing one for most of the patients and that treatments were not uncommonly followed by headache, nausea and vomiting, and severe herpes. Patient 9 expressed himself as "knocked out" by the treatment for three weeks. Undoubtedly some of this discomfort was due to the excessive sodium chloride loss in the sweat and could have been eliminated by the oral administration of sodium chloride in the course of the treatment, as advocated by Simpson.<sup>11</sup>

Publication 16 of the Robert W. Lovett Memorial for the study of crippling disease. Harvard Medical School.

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The authors are indebted to Dr. Stafford Warren and his associates for suggesting the use of this method in cases of arthritis and have been privileged to draw freely on their experiences and to copy certain apparatus which they had devised.

1. Neymann C. A. and Osborne S. L. Artificial Fever Produced by High Frequency Currents. Preliminary Report, Illinois M. J. 56: 199-203 (Sept.) 1929.

2. Neymann C. A., Feinberg S. M., Markson D. E., and Osborne, S. L. Present Status of Electropyrrexia. Arch. Phys. Therapy 13: 749-768 (Dec.) 1932.

3. Tenney C. F. Artificial Fever Produced by Short Wave Radio and Its Therapeutic Application. Ann. Int. Med. 8: 457-468 (Oct.) 1932.

4. Bierman William in discussion on Wolf, H. F. Limitations of Physical Therapy in Arthritis. Arch. Phys. Therapy 14: 205 (April) 1933.

5. Berris J. M. Treatment of Arthritis by Artificial Fever. Preliminary Report of Twenty Cases. J. Michigan M. Soc. 32: 355-358 (June) 1933.

6. King J. C. Therapeutic Fever Produced by Diathermy. Its Present Developments and Future Possibilities. Radiology 20: 449-456 (June) 1933.

7. Kohn L. A., and Warren, S. L. Preliminary Report on Treatment of Chronic and Subacute Infectious Arthritis by Artificial Fever. J. Clin. Investigation 12: 971 (Sept.) 1933.

8. Nicholls Edith E., Hanson K. G., and Stainsby W. J. Treatment of Rheumatoid Arthritis with Hyperthermia Produced by High Frequency Current. J. Bone & Joint Surg. 16: 69-74 (Jan.) 1934.

9. Neymann C. A. and Osborne, S. L. The Treatment of Dementia Paralytica with Hyperpyrexia Produced by Diathermy. J. A. M. A. 98: 7 (Jan. 3) 1931.

10. Bishop F. W., Horton C. B., and Warren, S. L. A Clinical Study of Artificial Hyperthermia Induced by High Frequency Currents. Am. J. M. Sc. 184: 515-533 (Oct.) 1932.

11. Simpson W. M., Kislig F. K., and Sittler E. C. Ultra High Frequency Pyretotherapy of Neurosyphilis. Ann. Int. Med. 7: 64-75 (July) 1933.

The age of the patients treated varied from 16 to 58 years, with an average of 36. There were nine males and sixteen females in the series. The average duration of the disease was three and one-half years, with extremes of three months and seventeen years. We took the cases as they came along, so that the series

had vasomotor disturbances, as evidenced by cold extremities, increased sweating and cyanosis, while 24 per cent had arteriosclerosis, demonstrated either clinically or by roentgenograms. In all, seventy-one treatments were given our group of twenty-five patients, with the temperature usually maintained at 104° F. or

TABLE 1—*Clinical Course in Twenty-Five Cases*

Patient	Age Sex	Duration of Disease	Involvement		Limitation	Vascular Changes	Treatments	Duration of Improve- ment	Follow Up	Final Result	Comment
			Soft Tissue	Cartilage							
1	34 ♀	6 yrs	Slight	None	None	Vasomotor	One of 4 hrs at 103° F	None	33 mos	Unchanged	Mild subcutaneous burn
2	27 ♂	5 mos	Moderate	None	Slight	Vasomotor (marked)	Three of 4 hrs at 104-105° F ten of 2-3 hrs at 103° F	10 mos	16 mos	Improved	Still shows definite arthritic changes and unable to work
3	31 ♂	4 yrs	Marked	Moderate	Moderate	Vasomotor (marked) arterio- sclerosis	Three of 4 hrs at 106° F twelve of 2-3 hrs at 103° F	6 mos	14 mos	Worse	Not helped by typhoid vaccine intravenously
4	57 ♀	1.5 yrs	Moderate	Moderate	Moderate	Arterio- sclerosis	One of 4 hrs at 104° F	1 mo	33 mos	Worse	Severe second degree burn
5	26, ♀	2 yrs	Slight	None	None	Vasomotor	Two of 4 hrs at 105° F	23 mos	33 mos	Well	Became pregnant one month after last treatment
6	23 ♀	2 yrs	Moderate	Slight	Slight	Vasomotor (marked)	Two of 4 hrs at 105° F	32 mos	32 mos*	Improved	Remission began two months be- fore treatment
7	21 ♀	3 mos	Slight	Slight	Slight	Vasomotor	One of 4 hrs at 106° F	2 wks	39 mos	Unchanged	Initial improve- ment followed by exacerbation of two months in- cluding knee effu- sion then nearly well for over two years followed by another exacer- bation
8	42 ♀	8 yrs	Moderate	Moderate	Moderate	Vasomotor	Two of 4 hrs at 105° F	None	30 mos	Worse	Marked headaches and buccal herpes following treat- ment
9	21 ♂	6 yrs	Marked	Marked	Marked	None	One of 4½ hrs at 103° F	None	36 mos	Unchanged	'Knocked out' for three weeks fol- lowing treatment
10	32 ♀	2 yrs	Moderate	Moderate	Moderate	Vasomotor arterio- sclerosis	Two of 4 hrs at 104° F	3 wks	6 mos	Worse	
11	36 ♂	5 yrs	Moderate	Moderate	Moderate	None	One of 4 hrs at 103° F	1 mo	19 mos	Worse	
12	16 ♀	7 mos	Slight	None	None	Vasomotor	One of 4 hrs at 105° F	9 mos	20 mos	Unchanged	Exacerbation of eight months followed initial improvement
13	53 ♀	6 mos	Moderate	None	Moderate	None	One of 4 hrs at 104° F	18 mos	18 mos	Nearly well	Unusually faithful local and general treatment fol- lowed
14	25 ♀	4 yrs	Marked	Marked	Marked	Vasomotor (marked)	One of 4 hrs at 104° F	None	34 mos	Worse	
15	46 ♂	6.5 yrs	Slight	Moderate	Moderate	None	One of 4 hrs at 103° F	None	37 mos	Unchanged	
16	23 ♀	5 yrs	Moderate	Moderate	Marked	None	One of 4 hrs at 105° F	3 days	35 mos	Worse	
17	42 ♀	1.5 yrs	Moderate	Moderate	Marked	Vasomotor (marked) arterio- sclerosis	Three of 4 hrs at 104-105° F	1 week	33 mos	Worse	Improved for six months after first two treatments ensuing relapse not affected by third treatment
18	36 ♀	4.5 yrs	Moderate	Moderate	Moderate	Arterio- sclerosis	One of 4 hrs at 106° F	6 mos	36 mos	Worse	
19	50 ♂	3 yrs	Slight	Moderate	Slight	Arterio- sclerosis	One of 4 hrs at 105° F	3 days	20 mos	Worse	
20	47 ♂	4 yrs	Moderate	Moderate	Marked	None	Two of 4 hrs at 105° F	3 days	29 mos	Worse	
21	58 ♂	17 yrs	Moderate	Marked	Marked	None	Ten of 4 hrs at 105° F	1 week	38 mos	Unchanged	Unchanged for 14 months improved for 18 months, back to former status in last 6 months
22	31 ♂	2 yrs	Moderate	Moderate	Slight	Vasomotor (marked)	Four of 2-3 hrs at 104° F	2 wks	23 mos	Worse	
23	41 ♀	1.5 yrs	Moderate	Moderate	Moderate	Vasomotor	Two of 4 hrs at 104° F	27 mos	41 mos	Improved	Complicated by ulcerative colitis
24	34 ♀	8 mos	Slight	None	None	Vasomotor	One of 4 hrs at 105° F	2 wks	40 mos	Unchanged	
25	42 ♀	5 yrs	Moderate	Moderate	Moderate	Vasomotor	One of 4 hrs at 105° F	1 mo	30 mos	Worse	

includes both early, mild cases and advanced, severe, crippling types. In table 1 we have attempted to summarize the degree of arthritis before the treatment, with cartilage involvement demonstrated by definite joint narrowing in roentgenograms. It can be seen that all presented soft tissue changes, and nineteen, or 76 per cent, a certain amount of cartilage destruction. In the next column is shown the vascular status of the patient, so important in this disease. Fifteen or 60 per cent,

over for four hours. Patients 2, 3 and 22 were given briefer treatments lasting from two to three hours, at lower temperatures (from 102 to 103° F.)

#### RESULTS

In twenty out of our twenty-five cases, at least temporary improvement was shown, both subjectively, in freedom from pain and objectively, in increased joint motion and occasionally in decreased effusion and

swelling At times the results were almost miraculous and encouraged greatly both the patients and ourselves. Unfortunately, with few exceptions this improvement was only temporary, and in only five, or 20 per cent, has the gain been maintained to the end of the follow-up period. Table 2 shows roughly the duration of improvement after the course of treatments.

It can be seen from table 1 that patient 21, in the course of over three years' follow up, was unchanged for fourteen months and improved for the next eighteen months, only to return to his former status during the last six months. This illustrates the variable course of the disease and the danger in drawing conclusions after a comparatively brief follow up. Patient 17 was benefited for six months after her first two treatments and then relapsed. She was treated again, with benefit lasting only a week, and has since steadily gone down hill.

An attempt has been made to follow this group of twenty-five patients as carefully as possible after their diathermy treatments. As seen by table 1, nine have been followed for three years or more, nine for two years or more, and all but one of the remainder for over a year. The final survey shows that five or 20 per cent, were improved, seven or 28 per cent, were essentially unchanged while thirteen, or 52 per cent, were worse. Considering the severity of the treatments,

TABLE 2—Duration of Improvement

Duration	Cases
None	5
Up to 2 weeks	8
From 2 weeks to 6 months	6
From 6 months to 1 year	1
From 1 year to 2 years	2
Two years or more	3

these results seem hardly to justify the continued use of this form of therapy.

Of the five patients who improved, one (patient 5) became pregnant within a month after her last treatment and has continued to be free from the disease since. It is well known that pregnancy will frequently induce a remission in rheumatoid arthritis. Patient 6 had apparently started on a remission two months before the treatments were given, although they undoubtedly accelerated her improvement. Patient 13 pursued a course of rest and physical therapy of unusual faithfulness at home following the fever treatments. Thus, in three of our five patients who improved it is not possible to ascribe honestly the gain to diathermy. We have not mentioned these facts in an attempt to deprive fever therapy of any value whatever and realize fully that, in the patients who were unchanged or became worse, deleterious factors may well have been at work. But we do wish to reemphasize the difficulty of evaluating properly any form of therapy in rheumatoid arthritis, that its course is variable and subject to remissions and relapses (the reasons for which can often not be traced) and, finally, that it is exceedingly dangerous to single out any temporary improvement as a cure. Furthermore, we agree with others that the mental attitude of the patient is of the utmost importance in many cases in determining the outcome. Such a radical form of therapy as general diathermy cannot help but impress and encourage the patient, especially if there is a marked immediate gain. This is well illustrated in patient 13, who arrived in the hospital discouraged and with little will to improve.

Her formulation of the decision to undergo this new and radical treatment, as well as carrying through the ordeal itself, undoubtedly pointed the way to a successful course of therapy, largely carried on by her husband and herself at home.

Several patients were given a succession of treatments. Patient 2, a man aged 27, with rheumatoid arthritis of five months' duration, showing definite soft tissue changes but no evidence of cartilage destruction and marked vasomotor instability, first had infected tonsils and teeth removed. He was then given two fever treatments of four hours at 105 F, with definite benefit. He was sent home and became worse in the course of a month, with effusions in both knees and limitation of one elbow. He was then given ten biweekly brief treatments of from 103 to 104 F, lasting about three hours, with subjective and objective improvement. When the patient was seen a year later, this improvement had been maintained, but he still showed definite arthritic changes and was unable to work. Another (patient 3) was a man, aged 31, with a severe, crippling type of rheumatoid arthritis of four years' duration, following trauma, with progressive periarticular swelling and effusion, involving multiple joints, with increasing ankylosis. He also showed marked weight loss, muscular wasting and psoriasis. Synovectomy gave typical pathologic findings of rheumatoid arthritis. He was given three treatments at 106 F for four hours. He then gained 9 pounds (4 Kg), with the aid of insulin. Next he was given twelve biweekly briefer treatments at 103 F, lasting about three hours. These were followed by two transfusions. At the end of this time his general condition was excellent, but his arthritis was slowly progressing, and when seen ten months later he was much worse. A third patient (21) was a man, aged 58 in his third attack of rheumatoid arthritis of fifteen months' duration, over a period of seventeen years. During this period he had three nearly complete remissions, lasting respectively six, two and a half and five years. He showed marked limitation with little active inflammation. General treatment was of some benefit. This was followed by one treatment at 104 F for four hours, with marked relief for two days, followed by a relapse, with swelling of his ankles and feet. Next he was given nine treatments at 105 F for four hours at weekly intervals, with relief from pain each time lasting up to about the time of his next treatment, but little permanent gain at the end of the series. He stood the treatments well except that vomiting followed, not helped by rectal dextrose. He was seen frequently during the next fourteen months and, after following a fluctuating course, was about the same as before the fever therapy. He then showed definite gain in the course of a year without further diathermy treatments, as a result, he believed, of the extraction of infected teeth, but in the last six months he has had another relapse. We have mentioned these cases in order to show that even repeated treatments may not give permanent improvement.

What of the five who improved? Is there any way of foretelling which patients might benefit from this treatment? Briefly, they were younger than the others (three were under 30), their arthritis was of shorter duration, they showed in general little or no cartilage destruction or limitation, and, finally, all but two demonstrated more marked vasomotor changes. Furthermore, in the course of the treatment the increase in pulse pressure, which we believe to be an index of vaso-

dilatation, was more marked than in the group that did not improve. We consider therefore that, in common with other measures which help rheumatoid arthritis, such as the use of typhoid vaccine intravenously, physical therapy and possibly salicylates and ammonium orthiodoxyol benzoate, fever therapy acts by increasing the blood supply of the affected tissue. Berris<sup>6</sup> and King<sup>6</sup> agree that the increased peripheral circulation is the important therapeutic factor, while Nicholls and her associates<sup>8</sup> ascribe the temporary decrease in joint swelling to dehydration of the body.

From the results that we have obtained with our twenty-five cases treated with artificial fever, we are forced to conclude that this method is of only temporary benefit. It is possible of course, that patients given fever for ten hours or more, as advised by Neymann and Osborne,<sup>2</sup> will fare better, although the increased duration would tend to multiply the dangers and discomforts. We hope that these authors will extend such observations to a larger series of patients. Again, as suggested by our figures, a selected group of young patients, with slight involvement and arthritis of brief duration, might respond successfully. If so, the results could be interpreted with difficulty, since it is just this group that general therapy usually aids.

We have stated before that our series of cases is limited to rheumatoid arthritis, with hypertrophic and gonorrheal arthritis carefully excluded. We have had some experience in the treatment of the latter disease with artificial fever produced by general diathermy or radiant heat. In general, our results have been excellent and far superior to those obtained in rheumatoid arthritis both in immediate relief of pain and inflammation and in leaving the patient with useful joints. We have seen, however, equally favorable end results in patients treated with fever induced by typhoid vaccine intravenously.

#### SUMMARY AND CONCLUSIONS

1 Twenty-five patients with rheumatoid arthritis were given seventy-one artificial fever treatments by means of general diathermy.

2 The number of treatments given each patient varied from one to fifteen, and the usual temperature maintained was 104 F for four hours.

3 While no patient was seriously injured by this treatment, all looked on it as a harrowing ordeal.

4 Eighty per cent of our cases showed temporary improvement, but in only 20 per cent was this maintained until the end of the follow-up period.

5 When we balance the results obtained against the severity of the treatment, our conclusion is that in rheumatoid arthritis the use of this method is only occasionally justified and should not be used to the exclusion of general treatment.

**Photosynthesis**—In green leaves the energy of sunshine supports a chemical reaction or reactions (photosynthesis) in which organic compounds such as sugars and starches are synthesized from the simple inorganic substances carbon dioxide (carbonic acid) and water, and the energy of a part of the light is, so to speak, locked up in the foodstuffs thus formed—sugars and starches more indirectly, fats, and still more indirectly, the other organic compounds of our foods. Even in the formation of the sugars and starches photosynthesis is probably a rather complicated and indirect process as it occurs in nature so that laboratory syntheses of sugars probably do not actually duplicate the natural process nor really forecast an era of synthetic food—Sherman H. C. Food and Health. New York: Macmillan Company 1934.

## THIOGLYCEROL

### A MORE STABLE SULPHYDRYL COMPOUND FOR USE IN THE HEALING OF WOUNDS

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Reimann<sup>1</sup> in May 1930 reported relatively rapid healing of cutaneous ulcers by means of thiocresol. Later work by Reimann and others seems to confirm his observations. This paper offers observations based on animal experiments and 264 clinical cases treated with Thioglycerol. Thioglycerol seems to have certain advantages over other sulphydryl compounds that have been suggested for the stimulation of wound healing.

Hammett and Reimann,<sup>2</sup> as a result of well controlled experiments on plants, rats and mice and finally on man, concluded that sulphur in the form of the chemical group sulphydryl (SH-) is an essential to cell production. Reimann<sup>3</sup> also showed that animal skin could be thickened and the thickness of human skin grafts increased by the application of thiocresol, 0.25 per cent in hydrous wool fat. Birnbaum<sup>4</sup> reported favorable results from the use of thiocresol on a variety of denuded surfaces and on skin grafts. Brunsting and Simonsen<sup>5</sup> confirmed the observations of Reimann and Hammett concerning the stimulating properties of certain sulphydryl-containing compounds. They found that cysteine, in water solution stimulated granulation tissue and epithelium and seemed to inhibit bacterial growth. Their conclusions were based on more than 200 cases at the Mayo Clinic.

All sulphydryl compounds so far suggested for the stimulation of wound healing have the disadvantage of being very unstable. Their solution must be freshly made and dressings changed frequently. Granulations grow more rapidly than epithelium and must be reduced before epithelium can advance. Search was therefore made for a more stable sulphydryl compound and a simple method of controlling the growth of granulation tissue.

#### THIOGLYCEROL

Thioglycerol ( $\text{CH}_2\text{OHCHOHCH}_2\text{SH}$ ) was produced by Gelormini<sup>6</sup> in June 1931 by treating glycerol alpha chlorhydrine with potassium hydrosulphide under pressure and in alcoholic solution. Thioglycerol deteriorates less than 10 per cent a month at room temperature but liberates sulphydryl more rapidly at body temperature. It has a hydrogen sulphide odor and physical properties similar to those of glycerin.

#### CLINICAL RESULTS

Since June 1931, Thioglycerol has been used in 264 clinical cases (shown in the accompanying table), including a variety of wounds and ulcers. Photographs

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1 Reimann S. P. Use and Reasons for Use of Thiocresol to Stimulate Wound Healing. J. A. M. A. 94:1369 (May 3) 1930.

2 Reimann S. P. Proliferation of Rat and Mouse Epithelium from Sulphydryl Protolasma. 10:82 (June) 1930. Hammett F. S., and Reimann S. P. Cell Proliferation Response to Sulphydryl. In Mammals J. Exper. Med. 60:445 (Oct.) 1929. In Man Proc. Soc. Exper. Biol. & Med. 27:20 (Oct.) 1929. Hammett F. S. The Chemical Stimulus Essential of Growth by Increase in Cell Number. Protolasma 7:297 (April) 1929. The Proliferative Reaction of the Skin to Sulphydryl and Its Biological Significance. Ibid. 13:331 (Aug.) 1931.

3 Reimann S. P. Thiocresol in Wound Healing. Ann. Surg. 93:624 (Feb.) 1931.

4 Birnbaum I. R. Thiocresol in Wound Healing and Skin Grafting. Ann. Surg. 93:467 (Sept.) 1932.

5 Brunsting L. A. and Simonsen Daisy G. Cutaneous Ulcers Treated by the Sulphydryl Containing Amino Acid Cysteine. J. A. M. A. 101:1937 (Dec. 16) 1933.

6 Gelormini O. and Barrus A. W. from the Department of Chemistry Syracuse University unpublished data.

were taken in some cases, in others measurements were made at intervals during the healing process. Only a few with control wounds were available. A 1:5,000 solution of Thioglycerol in glycerin was used in most instances, but the percentage of glycerin was varied

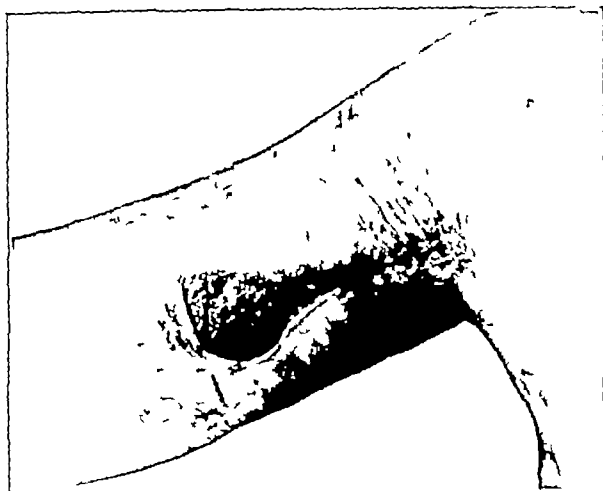


Fig. 1 (case 3)—Burn of the axilla after three weeks' treatment with Thioglycerol

according to the age of the wound and the condition of the granulating surface. Most of the ambulatory cases were treated with Thioglycerol in mucilage of tragacanth. This combination was also used on recent burns and other sensitive surfaces. Hydrous wool fat (lanolin) containing 0.25 per cent of Thioglycerol was used to thicken the epithelium of recently healed ulcers and large, thin (Ollier-Thiersch) grafts, as suggested by Reimann.<sup>3</sup>

#### Healing in Two Hundred and Sixty-Four Clinical Cases Treated with Thioglycerol

	Old Lesions		Recent Lesions		Preliminary Treatment		Sensitive		Satisfactory		Unsatisfactory		
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	
Bed patients	123	83	68	40	32	75	61	3	2.5	113	92	10	8
Ambulatory patients	141	107	76	34	24	96	68	2	1.4	121	86	20	14
Total cases	264	190	72	74	28	171	65	5	1.9	234	89	30	11

In tabulating the results of treatment of the clinical cases, healing was considered satisfactory when failure to heal under ordinary treatment was followed by relatively rapid healing under treatment with Thioglycerol. Sixty-five per cent of the cases required some preliminary treatment such as improvement of drainage or removal of necrotic tissue. Evidence of irritation or sensitivity was present in five cases, or 1.9 per cent. Healing was unsatisfactory in thirty of the 264 cases. Of these, twenty were ambulatory and ten were bed patients. Lack of cooperation was evident in eight of the ambulatory cases. Two bed patients had large, unhealed burns of months' duration. Both of them seemed to be sensitive to sulphidryl, and treatment was discontinued. In the remaining twenty unsatisfactory cases, healing ceased or progressed very slowly as the wound area became small. In the satisfactory cases

gross evidence of epithelial advance was evident within forty-eight hours and was continued unless interrupted by unfavorable conditions. In general, the rate of healing seemed to be proportional to the area of the wound, as shown by Carrel and Hartmann.<sup>7</sup>

Thioglycerol in glycerin or water-soluble jelly has been used to stimulate the healing of extensive, deep burns having islands of epithelium, after the necrotic tissue has separated. The following case is an example.

CASE 1—A woman, aged 28, was severely burned in a fire March 6, 1932. The face and hands received second degree burns. The lower extremities, from the hips to the soles of the feet, were completely involved, more than 70 per cent of the total area being third degree burns. A tannic acid crust was produced on the legs. The crusts were removed because of purulent accumulations beneath them, and sodium hypochlorite (Dakin's) solution was applied to remove remnants of crust. March 18 there was very little healing of the third degree areas. Thioglycerol (1:5,000) in glycerin was then applied on six layers of gauze and covered with waxed paper. Dressings were changed daily. Every third or fourth day, adhesive strapping was substituted for the Thioglycerol. Healing was complete on April 11, and the patient went to a dance ten days later. Examination nine months later showed the scars to be soft and movable. Her sister, two years older, was burned in the same fire. The burns showed almost the same distribution and depth except that there were fewer islands of epithelium. Her legs were grafted on two occasions; large thin grafts being used. Eighty-five per cent of the surfaces were thus covered. Thioglycerol was not used on this patient.



Fig. 2 (case 3)—One year after complete healing

Healing between the grafts was very slow and not complete until May 22. Nine months after healing of the grafts she still complained of swelling and itching of the legs.

Included in this series were several electrical burns and a number of chemical burns. Case 2 is one of electrical burns.

**CASE 2**—A boy, aged 9 years received electrical contact burns on the backs of both feet May 30, 1931. He was admitted to the University Hospital three weeks later because the wounds had not begun to heal. They were free of necrotic tissue, but the extensor tendons were exposed on one foot, while the fifth metacarpal bone and a proximal phalanx of the other foot were partly exposed. Thioglycerol (1:5,000) in pure glycerin was used on one foot and pure glycerin on the other, the dressings being changed once a day. The wound treated with Thioglycerol showed activity at forty-eight hours and was about 40 per cent healed in twelve days. The control wound remained clean and there was a slight advance of epithelium. The treatment was then reversed. Within ten days healing was about even in the two wounds.



Fig. 3 (case 4)—Burn of the leg. Result of fifteen days' treatment with Thioglycerol.

The frequency with which deep burns involving the arm, chest and axilla result in loss of function through scar contracture is well known. Such a case, in which healing occurred without loss of function is illustrated in case 3 (figs. 1 and 2).

**CASE 3**—A girl, aged 8 years, was burned by fire Nov. 1, 1931. She was sent to the hospital November 21 because the wound was not healing. There was a deep burn of the proximal half of the arm, anterior fold of the axilla, and a small part of the chest wall. The Carrel-Dakin technique was used for ten days until necrotic tissue had separated. Thioglycerol was then applied as in the previous cases. Three weeks later (fig. 1) the area was 90 per cent healed. At five weeks, healing was complete and the arm could be thrust upward without limitation. Examination one year later (fig. 2) showed a soft scar without tension.

**CASE 4**—A girl, aged 7 years, caught her leg between a hot radiator and the wall Nov. 19, 1931. When the leg was extricated an extensive third degree burn of the calf involving almost the entire circumference of the leg, was found. Figure 3 shows the degree of healing after fifteen days' treatment with Thioglycerol (1:5,000) in 70 per cent glycerin. The Carrel-Dakin technique was used for six days to remove necrotic tissue before Thioglycerol treatment was started. The area was entirely covered with epithelium December 28, thirty-nine days after the injury.

## ANIMAL EXPERIMENTS

**Technic**—Male white rats weighing about 100 Gm were used. The rats were anesthetized with ether. The abdominal skin was shaved and scrubbed with soap solution and ether. A circular piece of abdominal skin, about 2 cm in diameter was excised from each side of the abdomen with scissors. Each wound was covered with four layers of sterile gauze. Rubber dam was placed over the gauze, fixed to the skin between the wounds with rubber cement and continued around to the back, where it was fastened by lacings. Solutions to be tested were introduced through holes in the rubber. Glycerin solutions were introduced but once in twenty-four hours, other solutions every two hours. Every fourth day the rats were anesthetized, the dressings opened and the wound areas recorded by means of a camera lucida and a planimeter.

**Thiocresol**—Two experiments were carried out, twelve and sixteen white rats being used. One wound was treated with thiocresol 1:10,000 in water solution while physiologic solution of sodium chloride was applied to the control wound. Granulations were not reduced.

1 The wounds treated with thiocresol healed 18 per cent faster than the control wounds.

2 Slight superficial necrosis of the granulations was seen in the wounds treated with thiocresol.

**Glycerin**—Clinical experience with the use of glycerin on granulating wounds suggested that, because of its dehydrating action, glycerin might retard the exuberant growth of granulation tissue. To determine the effect of glycerin on granulating tissue six white rats were used. One was treated with pure glycerin and the other with saline solution.

Granulations grew rapidly in the wounds treated with saline solution. In those treated with glycerin the granulations remained relatively level. Necrosis was absent from both wounds. Glycerin was therefore selected as the vehicle for Thioglycerol experiments.

**Thioglycerol**—Three series of rat experiments, with ten, twelve and sixteen rats were carried out. Thioglycerol was used in pure glycerin and the controls were treated with pure glycerin only. The purpose of the first series was to determine the optimal dilution of Thioglycerol. A dilution of 1:5,000 seemed to give the best results. This dilution was therefore used in the second and third series.

1 A dilution of 1:5,000 seemed optimal.

2 The wounds treated with 1:5,000 Thioglycerol in glycerin healed 21 per cent faster than those treated with glycerin alone.

## CLINICAL RESULTS WITH THIOCRESOL

The clinical use of parathiocresol as suggested by Reimann,<sup>1</sup> was begun in June 1930. Thirty-two patients having sluggish granulating wounds were selected. These wounds were treated with 1:10,000 water solution of thiocresol. The following observations were made: 1 In every case epithelium advanced until unfavorable granulations were reached. 2 Granulations developed so rapidly that the advance of epithelium was checked. 3 After forty-eight hours' treatment, slight superficial necrosis of the granulating surface was evident in twenty-six of the thirty-two wounds. 4 Because of the instability of thiocresol, water solutions must be freshly made and the dressings moistened frequently.

## CLINICAL USE OF THIOGLYCEROL

For the treatment of ambulatory patients, Thioglycerol (1:5,000) in mucilage of tragacanth is used. A layer of the tragacanth mixture one-fourth inch in thickness, is applied directly to the wound on four layers of gauze, covered with some impervious material such as cellophane or rubber, and bandaged in place. This dressing is changed once in twenty-four hours. If the patient is not ambulatory, Thioglycerol (1:5,000) is used in pure glycerin, 70 per cent glycerin



or water solution, depending on the character of the granulating surface. When the granulations are level with the epithelial edge, 70 per cent glycerin is the solvent used. If they are redundant or pale, pure glycerin is used. But if they are below the skin level a water solution of Thioglycerol (1:5000) is injected every two hours through tubes fixed in the dressing. When glycerin is used six layers of gauze are saturated with the solution and covered with impervious material. These dressings are changed once in twenty-four hours.

In both the ambulatory and the bed cases best results will be obtained by the intermittent treatment as suggested by Reimann.<sup>1</sup> This may be done by changing to adhesive strapping glycerin or saline solution for twenty-four hours every two or three days.

Wounds should be laid wide open so that healing may progress from the bottom. No satisfactory solvent of necrotic tissue has been found for use in the ambulatory cases. In hospital cases the Carrel-Dakin technic is used until necrotic tissue is removed. High granulations may be shaved down with a razor blade if they are not too sensitive or silver nitrate may be applied and followed by pepsin-hydrochloric acid solution, as advised by Reimann.<sup>1</sup>

The part should be kept warm, protected from trauma and immobilized if possible. Elevation, elastic pressure or strapping may be indicated to improve circulation. Systemic conditions that may interfere with healing should not be neglected. Large defects will require skin grafting. Very old ulcers with poor local circulation will heal more rapidly after excision. Overhanging edges that have become covered with epithelium may be excised. Granulations must be relatively level, free from necrotic tissue, red and firm.

#### CONTRAINDICATIONS

Sulphydryl compounds should not be used if a malignant condition is suspected. Treatment should be discontinued if signs of skin irritation appear. Prolonged application of sulphydryl compounds to skin grafts may cause excessive thickening of the grafts and contracture of the grafted area.

#### COMMENT

There are many factors in the healing process, which vary not only in different individuals but in the same individual at different times. Careful observation of the healing wound will often lead to a change in treatment. Correction of conditions that retard repair should take precedence over the use of measures to stimulate healing.

Thioglycerol has been used for several months at the Mayo Clinic<sup>8</sup> with satisfactory results.

Sensitivity to sulphydryl was observed in only five of 264 cases. Reimann<sup>9</sup> observed sensitivity in eighteen of 450 cases in which he painted the skin of the arm with 1 per cent alcoholic solution of thiocresol.

Thioglycerol seems to offer the following advantages over other sulphydryl compounds in the stimulation of wound repair:

1 In its original state or dissolved in pure glycerin, Thioglycerol retains its clinical activity for more than six months when kept at room temperature.

2 Dissolved in glycerin or in a water-soluble base, it need be applied but once a day. It is therefore available for ambulatory patients.

3 The use of glycerin as a vehicle seems to hold granulations in check and allow the epithelium to advance.

#### CONCLUSIONS

1 The work of Reimann on the stimulation of wound healing by sulphydryl is confirmed.

2 Thioglycerol is a relatively stable sulphydryl compound that can be used for the stimulation of wound repair in ambulatory as well as in hospital cases.

713 East Genesee Street

## Clinical Notes, Suggestions and New Instruments

### OBSTRUCTION OF A CORONARY ARTERY DUE TO THE PRESSURE FROM A CALCIFIED NODULE IN THE MYOCARDIUM

FREDERICK W. NIEHAUS, M.D., OMAHA

Assistant Professor of Medicine, University of Nebraska College of Medicine

Coronary occlusion due to disease of the coronary arteries has been extensively studied and described. Calcified nodules<sup>1</sup> in the myocardium have also been investigated, even by the less recent pathologists. Monckeberg<sup>2</sup> mentions disturbances of conduction due to such nodules by pressure on or by involvement of a branch of the conduction system. Hochrein<sup>3</sup> points out that calcified stenotic mitral valves, by distorting the sinuses of Valsalva, may more or less interfere with the coronary circulation. A fairly extensive search of the literature

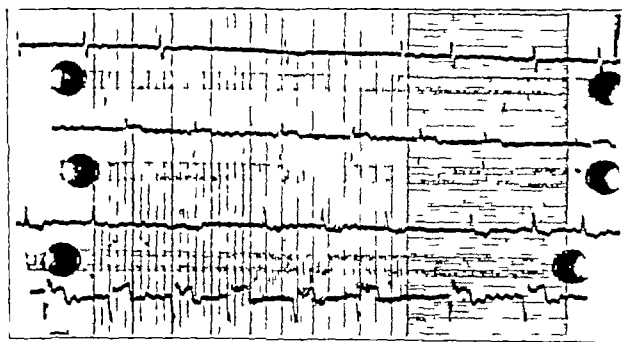


Fig 1—Electrocardiogram of May 17, 1933, showing a marked elevation of the ST segment in the chest lead IV indicating a coronary occlusion. Atrial fibrillation is also present.

fails to reveal a record of an obstruction of a healthy coronary artery due to pressure from a source outside the vascular wall. This seemed justification for recording the following case.

H. T. M., a man, aged 42, admitted to the Lutheran Hospital, May 12, 1933, in the service of Dr. H. A. Wigton, was having delusions of persecution and was restrained with considerable difficulty. His temperature was 100.6 F. Because there was evidence of disturbed cardiac function, the psychosis was regarded as due to a toxemia. For this reason he was referred for a cardiac examination.

May 14 he had a complete hemiplegia, apparently due to a cerebral embolism. The pulse was completely irregular. The rate varied from 50 to 130 per minute.

Examination showed right hemiplegia. The patient was unable to speak distinctly. He apparently was conscious of

1 Benda, C. Jones, L. Monckeberg, J. G., Ribbert, H. and Winkler, K. Herz und Gefässe in Henke, Friedrich and Lubarsch Otto. Handbuch der speziellen pathologischen Anatomie und Histologie. Berlin: Julius Springer, 2:406, 1924.

2 Monckeberg, J. G. Zur Einteilung und Anatomie des Adams Stokeschen Symptomkomplexes. Beitr. z. path. Anat. u. z. allg. Path. 63:1, 1917.

3 Hochrein, Max. Der Coronarkreislauf. Physiologie Pathologie Therapie. Berlin: Julius Springer, 1932.

8 Osterberg, A. E. Personal communication to the author Aug 17, 1934.  
9 Reimann, S. P. Sensitivity to Sulphydryl. Am. J. Clin. Path. 3:111 (March) 1933.

his surroundings. The respirations were rapid, varying from 30 to 40 per minute. The lungs showed a dullness at both bases together with consonating rales. There was a moderate number of coarse rales throughout the chest. The heart was enlarged. The apex was 1 inch outside the midclavicular line. There was considerable enlargement to the left in the third and fourth interspaces. A soft systolic murmur was heard at the mitral area. The first sound at the mitral area was absent.



Fig 2—Teleoroentgenogram of May 17, 1933, showing an enlarged right auricle and pulmonary conus. The pulmonary artery is very prominent. The left auricle is also moderately enlarged.

The second pulmonic sound was extremely accentuated and was also very definitely palpable.

May 23 there was an increased enlargement of the heart to the left. The systolic murmur at the mitral area was louder and longer, together with a definite diastolic rumble at the apex. The electrocardiogram on this date showed a slow fibrillation. The fourth lead (chest) showed a marked elevation of the ST interval (fig 1).

A diagnosis of mitral stenosis, coronary occlusion and pulmonary infarcts was made.

The temperature was elevated from

May 12 to May 27, averaging about 100.5 F. For two days, May 24 and 25, it reached 103.6 F. The pulse remained completely irregular. After complete digitalization the heart rate decreased. The first sound at the mitral area recurred and became accentuated. Following this the fever gradually subsided.

June 7, when he left the hospital, there were no rales in the chest and the temperature was normal. The paralysis had improved so that he had almost complete use of his leg and about 50 per cent use of his arm. Facial paralysis was also much improved.



Fig 3—Mitral valve showing a markedly thickened and calcified posterior cusp and a fibrotic anterior cusp forming a semilunar slit between the free margin.

June 11 he had a short recurrence of acute pulmonary edema and rapid fibrillation. This attack completely subsided in five days. Then for several weeks he was quite comfortable in bed and sat up in a chair several times.

June 24 he had a recurrence of the acute respiratory distress. This gradually increased in intensity with extremely rapid respirations and rapid fibrillation. He died, June 30.

Results of the laboratory examination were as follows:

The urine showed specific gravity, 1.026 with acid reaction, albumin, trace, and sugar negative. Microscopic examination

of a specimen yielded a few white blood cells, and a few red blood cells.

Blood pressure readings were as follows: May 14, 1933, 80/60; May 18, 100/80; May 22, 100/60; and May 30, 90/50.

The blood count, May 13, was: hemoglobin, 94 per cent; red blood cells, 5,200,000; white blood cells, 14,200; polymorphonuclear leukocytes, 78 per cent; lymphocytes, 21 per cent; eosinophils, 1 per cent.

Cultures of the blood were negative. The blood Wassermann reaction was negative.

A teleoroentgenogram (fig 2) showed an enlargement of the right auricle and marked prominence of the pulmonary artery and the pulmonary conus. The left ventricle was also enlarged. The general contour was that of a mitral stenosis and an enlarged left auricle.

At autopsy the heart was markedly enlarged, especially the right side and the left auricle. Almost the entire anterior surface of the heart lay against the chest wall. The pericardium showed a large white superficial plaque, measuring about 2 by 3 cm on the anterior surface of the right ventricle. There was a slight roughening of the pericardium around the large vessels. The pericardial fluid was not increased.

When the right heart was opened there was extreme dilatation. The columnae carneae were extremely conspicuous. The papillary muscles were elongated and hypertrophied. The right auricle was markedly dilated. The tricuspid valve admitted four fingers. The pulmonary valve appeared normal. Both

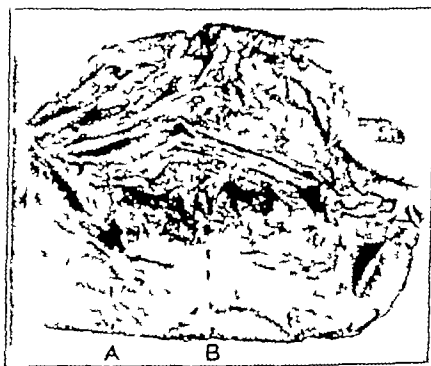


Fig 4—Relation of the calcified nodule in the myocardium and the left coronary artery which was obstructed. A: left coronary artery; B: calcified nodule.

of the latter showed no structural changes. The pulmonary artery was markedly enlarged, so that it abutted against the third costal cartilage, to which it was adherent. The wall was thickened at this point but otherwise appeared normal. The left auricle was widely dilated and hypertrophied. The left ventricle was moderately dilated and the myocardium was extremely flabby, soft and necrotic. It had a dark gray appearance. The fibers seemed to be partially separated. This involved the entire left ventricle with the exception of a strip 2 or 3 cm in width along the septum on the posterior surface. There were several large patches along the left side of the septum which presented the same appearance. The posterior cusp of the mitral valve was completely calcified (fig 3), having a thickness of about 1 cm. The anterior cusp was markedly fibrotic with some calcified nodules. The mitral orifice formed a semilunar slit about 2 cm in length. The consistency of the valve cusps appeared not to permit opening of the valve during diastole.

The aortic valve showed some thickening and calcification. The sclerotic process involved about one half of the width. The cusps were not adherent to each other at their points of attachment. Apparently the valve could not close completely but nearly so. The aorta, except for a few soft yellow plaques, was smooth and elastic.

The orifice of the right coronary artery was patent and the wall was smooth and free from sclerosis and atheromas. The left coronary artery presented a patent orifice and its walls were also free from calcification and atheromas of any of the

larger branches. There was a calcified nodule (fig 4) about the size of a grain of wheat (2 mm by 1 mm) lying just at the upper margin of the left ventricle. This was placed with the long axis at about right angles to the ventricular wall. One end could be palpated just below the anterior cusp of the mitral valve slightly to the left of the juncture of its anterior and posterior cusps. The other end projected through the attenuated layer of the ventricular wall at the auriculoventricular junction so that it pressed against the left coronary artery and thereby obstructed it. At this point the intima of the left coronary artery was a deep red. This change was present throughout the larger branches. These vessels were empty and contained no blood. Apparently with dilatation and fibrillation sufficient pressure was exerted on the coronary artery to obstruct it completely. The clinical course would lead one to believe that earlier this obstruction may have been intermittent.

Microscopic examination of the myocardium of the left ventricle was as follows. The muscular fibers were separated and distinctly less compact. Fragmentation and degeneration of the fibers were conspicuous. This was not a simple lack of continuity due to fixation and cutting, but the loose ends showed poor staining qualities. The cytoplasm was granular or vacuolated. In some places the frayed edges bridged a gap in the muscle fibers. In other places one or several fibers showed a similar degenerative change along their course. Between some fibers there were several small areas of a cellular detritus and a few lymphocytes and polymorphonuclears, apparently the site of serous deposit. The endothelial layer of the larger arteries was largely desquamated and was partially covered with a hemorrhagic exudate.

Other autopsy changes consisted of infarcts of the lungs in various stages of degeneration and a chronic passive congestion of the liver and kidneys.

803 City National Bank Building

#### AN UNUSUAL OVARIAN TUMOR CONTAINING AN ESTROGENIC HORMONE

SAMUEL H. GEIST, M.D., AND FRANK SPIELMAN, M.D.,  
NEW YORK

Löffler and Priesel<sup>1</sup> have described a group of six tumors which because of well defined morphologic characteristics, they concluded arose from cells in the ovarian stroma, representing the forerunners of the theca interna cells.

More recently Melnick and Kanter<sup>2</sup> reported two additional cases and suggested on hypothetical grounds that these tumors contained an estrogenic hormone.

These tumors occur most commonly in the postmenopause and are associated with atypical uterine bleeding. The latter symptom was believed to be due to the hormone activity of the tumor. In a later publication this tumor group will be more extensively discussed but at the present we report a case of this type the ninth case to be recorded and the first in which an estrogenic hormone was demonstrated in the actual tumor tissue.

#### REPORT OF CASE

Mrs. J. H., aged 21, had been married four years and never been pregnant. Her menstrual periods had begun at 11 and up to the age of 16 were regular and normal. From her 16th to her 17th year she bled daily. Since she was 17, up to a few months before admission she had bled every other week, the periods lasting from five to six days. For the past few months she had been bleeding almost daily and for the past four weeks had been amenorrheic.

The physical examination was negative except for the rather excessive breast development and the presence of a firm left

sided pelvic mass the size of a peach. A diagnosis of a solid ovarian tumor was made.

At operation a left salpingo-oophorectomy was done, removing an ovarian tumor, firm, irregular on its surface and about the size of a peach. The uterus was enlarged, soft and succulent. The other ovary seemed grossly normal. Unfortunately no endometrium was obtained.

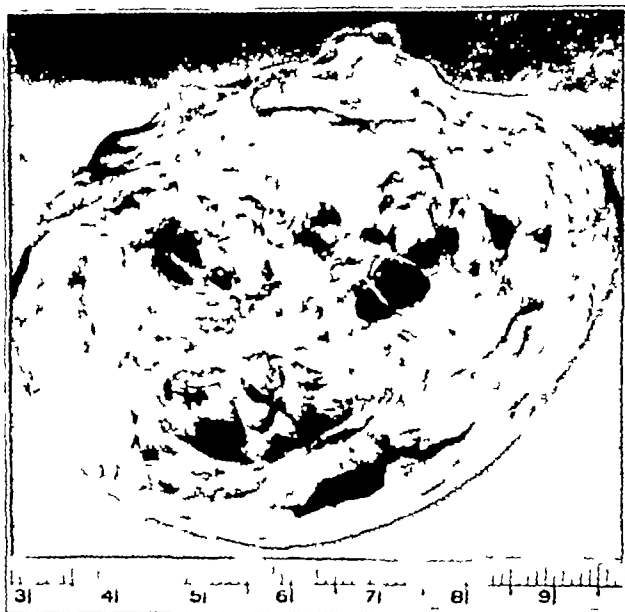


Fig. 1—Gross tumor bisected, showing capsule, degenerative cystic areas and fibrous bundles in solid area to the left.

The tumor (fig. 1) weighed 68 Gm. and measured 7 by 4.5 by 6 cm. It was encapsulated and presented no defect in the capsule. A small simple cyst 1.5 cm. in diameter was present on the surface. The tumor was elastic in consistency and was a yellowish white.

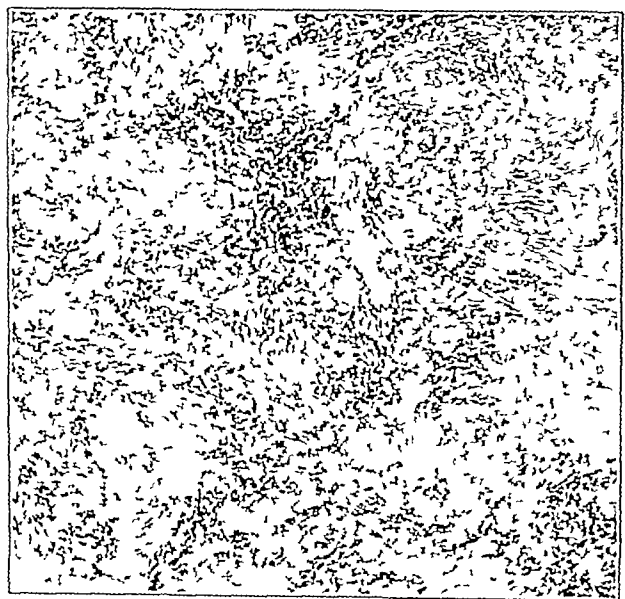


Fig. 2—Connective tissue areas with few spindle cells and one cellular area (upper center about vessel).

On section it was seen to be composed of a firm yellowish gray tissue, lobulated and fibrous. The fibrous tissue septums radiated in all directions, dividing the tumor tissue into islands of varying size. There were numerous cystic areas distributed throughout the growth.

From the Gynecological Service and Laboratory Mount Sinai Hospital.  
1. Löffler E. and Priesel A. Beitr. z. path. Anat. u. z. allg. Path. 90: 199, 1932.  
2. Melnick P. J., and Kanter A. E. Am. J. Obst. & Gynec. 27: 41 (Jan.) 1934.

Histologically the tumor was composed of areas of hyalinized connective tissue (fig 2) that contained comparatively few cells. In some of the areas islands of large plump spindle cells (figs 2 and 3) were present and in others the cells were polygonal (fig 4). The nuclei were rounded or elongated, the cells having an epithelioid appearance. About the vessels there

Thirty-two grams of this tumor was extracted with alcohol and ether the extract was then taken up in oil and titered for the presence of an estrogenic hormone. A positive reaction in the castrated mouse was obtained with 0.75 Gm of tumor tissue. It was thus found that in the 32 Gm extracted 48 mouse units of the hormone was present. This amount more than equals the quantity found in an equal weight of placenta. Associated with this excessive hormone content there was almost constant bleeding and breast hypertrophy.

The fluid from the cystic areas, which apparently represent a degenerative process in an amount up to 0.5 cc., did not contain a mouse unit of hormone.

It is evident that neoplasms may arise from the ovarian stroma of varying histologic appearance, which have the capacity of either storing or producing an estrogenic substance. The granulosa cell tumors form one group and the type here described designated by Löffler and Priesel as fibroxanthor thecocellular or as we prefer to call them theca cell tumor is another.

Following the operative removal of the tumor five months ago the patient has remained well. She had three nor-

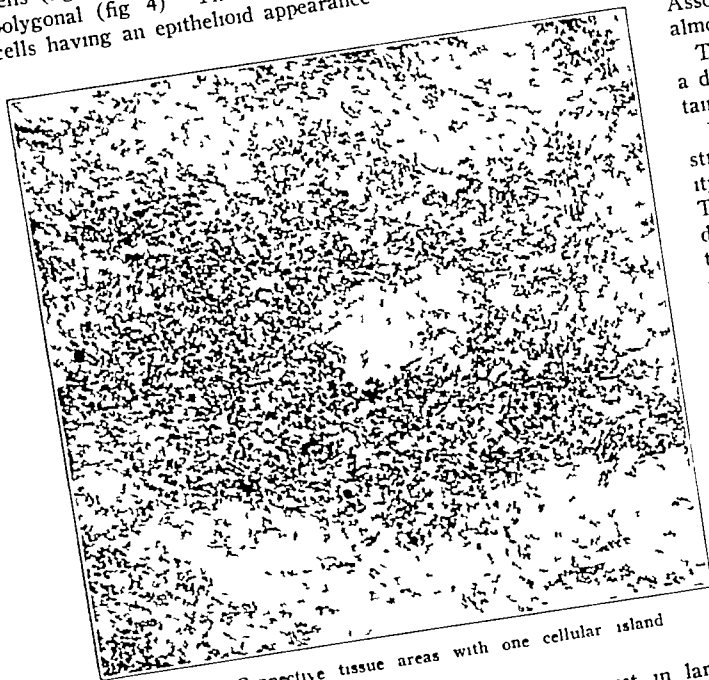


Fig 3—Connective tissue areas with one cellular island

seemed to be a tendency for these cells to persist in large numbers.

The cells in many instances contained varying sized vacuoles. Fat stains showed that the vacuoles were lipid material and

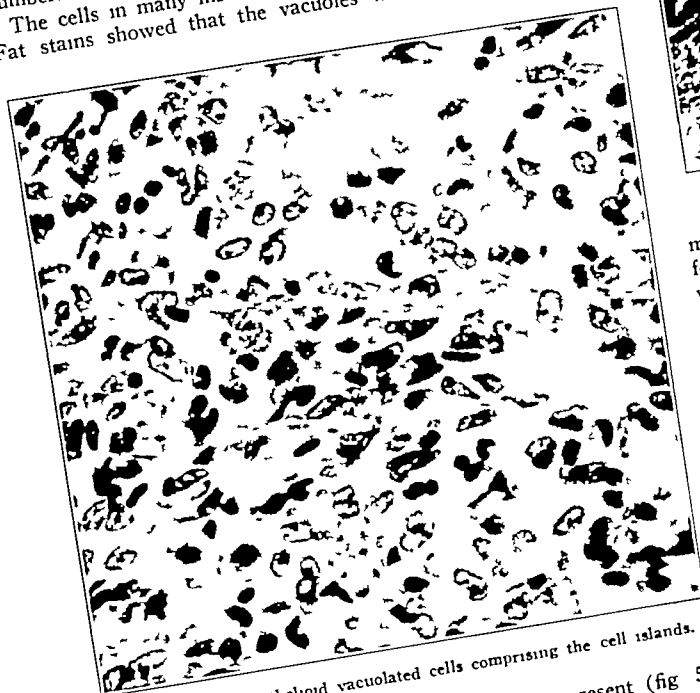


Fig 4—Large epithelioid vacuolated cells comprising the cell islands.

that even between the cells fat droplets were present (fig 5). The polariscopic examination identified much of this lipid material as double refractile, i. e., cholesterol. The gross appearance, the histologic characteristics and the presence of lipid were the same as described by the authors previously mentioned who concluded that these tumors were neoplasms arising from the precursors of the theca interna cells.

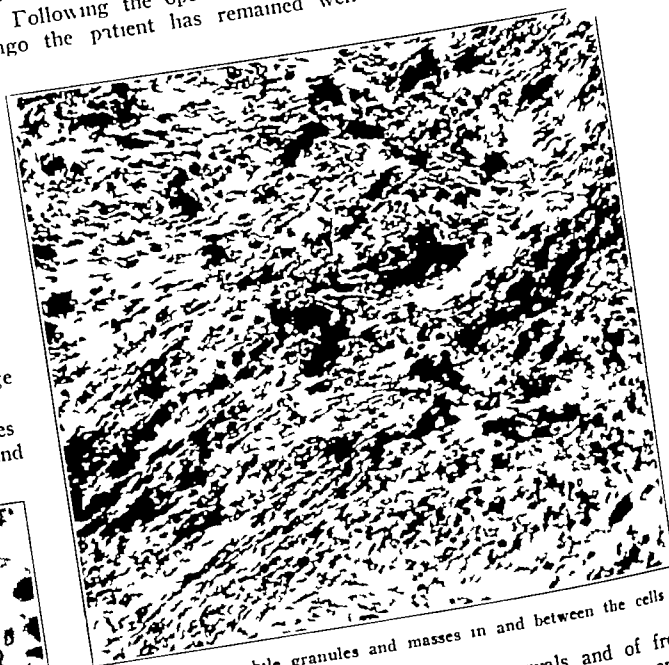


Fig 5—Sudanophile granules and masses in and between the cells menstrual periods at twenty-eight day intervals and of from four to five days duration. The breasts have become somewhat smaller.

#### COMMENT

The presence of so large a quantity of estrogenic hormone within the tumor must lead to the conclusion that this was the factor directly associated with the excessive bleeding which the patient experienced. The prompt return to a normal period type after the removal further suggests a hormone influence. Likewise, the breast hypertrophy may be directly related to the excessive hormone content. As to the tumor itself, the histologic characteristics as well as the presence of lipid place it in the group described by Löffler and Priesel. It is evident that neoplasms giving varied histologic pictures and having the ability either to store or to produce an estrogenic hormone may arise from the ovarian stroma. The granulosa cell tumors which also produce the hormone form one group, and the type here described and called theca tumors forms another.

#### CONCLUSION

Investigations of the hormone activity of ovarian neoplasms has aided in producing a more definite classification of tumors of the ovary and has shed more light on the pathologic physiology involved.

100 East Seventy-Fourth Street

# ABDOMINAL PREGNANCY

REPORT OF A CASE WITH A FULL TERM LIVING INFANT AND RECOVERY OF THE MOTHER

J R EISMAN M.D. AND C F ZIEGLER M.D. PITTSBURGH

Although the occurrence of abdominal pregnancy is frequently reported, it is uncommon to note the birth of a full term living infant delivered from such a gestation. Only three proved cases of abdominal pregnancy have been found among 28,253 deliveries at the Elizabeth Steel Magee Hospital.

By a survey of the literature from 1809 to 1919, and questionnaires to 200 obstetricians, Beck<sup>1</sup> was able to collect only 262 cases of extra-uterine pregnancy after the fifth month with a living infant. Because of its exceptional nature, the case reported here is given in detail.

## REPORT OF CASE

**History.**—M Y, a white woman aged 23, a secundigravida, referred to the service of Dr C E Ziegler at the Elizabeth Steel Magee Hospital by Dr W H Goodpastor Sept 5 1933 had a spontaneous delivery of a full term baby seven years before. Otherwise her history was irrelevant. Her last normal period was Nov 28, 1932 and the estimated date of confinement, Sept 8 1933. During her pregnancy she complained of some discomfort over the symphysis pubis and constipation but no history of pain, bleeding or other symptoms of tubal pregnancy or rupture could be elicited.

**Physical Examination.**—The patient was well developed and nourished and complained of no subjective symptoms or abdominal pain. Examination of the head, neck and chest revealed no pathologic lesions. Pelvic measurements were normal.

The fundus of the uterus was believed to be 25 cm in height. The fetus occupied an oblique position (right scapulo-

By rectal examination a mass was found which occupied the left side of the pelvic inlet. This was about 10 cm in diameter, solid, mobile and at first was believed to be an ovarian tumor or pedunculated uterine fibroid. There was no presenting part in the pelvis.

By vaginal examination, under anesthesia, this mass could not be felt but the posterior culdesac was filled by a semi-



Fig 2.—Lateral view showing the relatively superficial position of the fetus. Fetal parts are not obscured by the normal quantity of amniotic fluid.



Fig 1.—Fetus lying in the right scapulo-dorso-anterior position. Note absence of normal globular uterine shadow.

dorso-anterior) the fetal head lay in the right flank, small parts were easily palpated and fetal heart sounds were clearly heard in the lower right abdominal quadrant. External version was not completed owing to difficulty in dislodging the fetus and elevation of the fetal heart rate by the manipulation.

solid or cystic mass later proved to be placenta. The cervix uteri was long, soft and patulous, but because of impending cesarean section was not explored. Roentgenograms showed the fetus to be lying in a transverse position with the head to the right side and back anterior. The fetal parts were not obscured by the usual amniotic fluid. The rounded outline of the uterus was not visible.

The physical changes of a high transverse presentation of the fetus, superficial fetal parts and heart sounds and detected pelvic mass in conjunction with the roentgenograms led to the diagnosis of abdominal pregnancy. The patient was scheduled for laparotomy the following morning but that evening she complained of abdominal cramps and there was some vaginal bleeding. She was prepared for immediate operation.

**Operation.**—The vagina and abdomen were prepared with tincture of merthiolate. A midline suprapubic incision was made. The peritoneum was opened, with the escape of a large quantity of straw-colored fluid and a large mass believed on first sight to be the uterus was apparent. This, however, had the mottled greenish appearance of the fetal surface of a placenta. Throughout its wall were many fine interlacing blood vessels and through these the fetal parts could be seen.

On closer examination the intact uterus, comparable to that of a six weeks pregnancy, was detected lying behind the symphysis pubis. It was now clear that we were dealing with an abdominal pregnancy. Arising from the vicinity of the right uterine cornu and directed diagonally upward across the amniotic sac was a heavier, more muscular band, probably the thinned out right fallopian tube. The sac was not adherent to adjacent parts except in the right side of the pelvis, in the posterior culdesac and to the descending colon. The right ovary was not seen.

The sac was incised, with the escape of an almost imperceptible amount of amniotic fluid and very little bleeding. A living male infant weighing 7 pounds 2 ounces (3,232 Gm) was

Read before the Allegheny County Medical Society, April 17 1934.  
From the Department of Obstetrics, Elizabeth Steel Magee Hospital.  
1 Beck, A. C. Treatment of Extra Uterine Pregnancy After the Fifth Month. J. A. M. A. 73: 962 (Sept 27) 1919.

extracted by the breech and resuscitated with some difficulty. The membranes of the amniotic sac were extremely thick and tough. The placenta was greatly enlarged and of dumb-bell shape. The lower lobe to which the cord was attached was the larger and was firmly attached to the posterior surface of the uterus and broad ligament and to the right wall of the pelvis. The upper lobe, measuring 16 by 16 by 3 cm., was included in the posterior wall of the sac and had no attachment to any structure other than the remainder of the placenta, and to this by a narrow isthmus of placental tissue. Remnants of the umbilical cord and membranes were removed after clamping and double ligating with number 2 chromic catgut. The

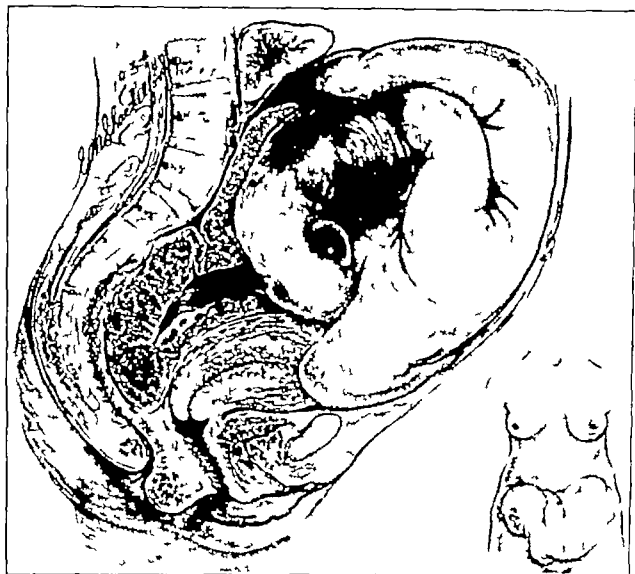


Fig 3—Relative position of fetus, placenta and uterus. The upper portion of the placenta had no maternal attachment.

nonadherent upper lobe of the placenta was amputated after the pedicle was clamped and ligated with sewed in number 2 chromic sutures. The lower lobe of the placenta was undisturbed.

The peritoneum was closed with number 2 chromic catgut, without drainage. Muscle and fascial sutures were of chromic gut. The skin was closed with a plain catgut suture. The patient returned to the ward in good condition.

For two weeks, convalescence was uneventful. After this there was a gradual elevation of temperature, accompanied by definite fulness and extreme tenderness to the right of the incision. This condition was relieved by the evacuation of a large quantity of purulent exudate. Drainage from the wound continued for some days. Because of the placental tissue left within the abdomen it is of interest to know that the Aschheim-Zondek reaction was negative after eight days.

The baby, although at first lethargic, showed no abnormality other than a small hematoma of the left sternomastoid muscle. On discharge from the hospital it weighed 11 pounds 5 ounces (5,132 Gm). A roentgen examination of the injected uterus before discharge from the hospital, December 3, showed an irregular uterine cavity and iodized poppy-seed oil distributed about both sides of the pelvis. The left tube was outlined and was directed upward. Most of the iodized oil was collected in sinuses in the pelvis.

Pelvic examination, Jan 17, 1934, showed the uterus to be enlarged and mobile. The cervix was soft and patulous, and absorption of placenta and exudate has been so complete that no evidence of a pelvic inflammation or fulness could be detected in either side of the pelvis. Injection of the uterus with iodized poppy-seed oil is shown in figure 1.

#### CONCLUSION

The birth of a full time living infant and recovery of the mother after abdominal pregnancy is so rare as to justify reporting every case. Although this instance affords no evi-

dence of early tubal or ovarian implantation, to state that it was primary in type would be purely a conjecture.

Treatment of such a condition should include laparotomy, extraction of the fetus, removal of the membranes and cord after ligation, noninterference with the placenta, and, in the absence of infection, closure of the abdomen without drainage.

3708 Fifth Avenue.

#### GONORRHEAL TENOSYNOVITIS OF THE LONG HEAD OF THE BICEPS BRACHII

DIAGNOSIS MADE BY DEMONSTRATING GONOCOCCI IN THE TENDON SHEATH

ISADORE ZADEK, M.D. NEW YORK

This case illustrates a method of diagnosis that is seldom utilized, namely, the demonstration of organisms in the tissues. I have been unable to find a record of an identical case.

J. L., a woman, aged 22, admitted to the Hospital for Joint Diseases Feb 11, 1934, in the medical service, complained of pain in the left shoulder and chills and fever of twenty-four hours' duration.

She had typhoid at the age of 4 years. She had the usual diseases of childhood. She stated that she had never had syphilis or a gonorrheal infection.

The patient had been married one and a half years and was separated from her husband. She had had two abortions, one at three and a half months and another at five months. They were both spontaneous.

The night previous to admission, February 10, without any premonitory symptoms, she developed chills and fever, followed by pain in the left shoulder and both knees. These joints were not swollen but any attempt at motion was painful. There was no history of any previous joint involvement.



A section of the tendon sheath showing the inflammation and diplococci in the polymorphonuclear leukocytes.

When seen at the Hospital for Joint Diseases the patient complained of pain in the left shoulder. The left shoulder was swollen. Any attempt at motion caused excruciating pain. A greenish purulent vaginal discharge was present. Examinations of smears from this discharge were negative for gonococci.

The patient was treated by rest in bed and local applications and was given codeine and salicylates. There was no cardiac involvement and the case was considered to be an atypical arthritis.

The temperature on admission was 102 F. The next day it dropped to 98.6, February 15 it was 102.8. From February 18 to the 24th the temperature varied between 100 and 101.

The patient failed to improve and was transferred to the orthopedic service of Dr Samuel Kleinberg February 15. At this time the left shoulder was diffusely swollen and was sensitive to pressure anteriorly. Anteroposterior motion of the shoulder was fairly free. Abduction and outward rotation were markedly limited and painful. The condition was considered to be an acute subdeltoid bursitis probably of gonorrheal origin. An attempt was made to aspirate the bursa but no fluid was obtained. A Velpeau bandage was applied.

February 16 the left shoulder was stretched under anesthesia and a plaster of paris shoulder spica was applied with the shoulder in 70 degrees of abduction. The patient felt better but continued to have a fever.

February 12 the white blood cell count was 8000 with polymorphonuclear leukocytes 69 per cent. February 24 the white blood count was 12,800 with polymorphonuclear leukocytes 77 per cent. March 7 the white blood count was 6200 with polymorphonuclear leukocytes 65 per cent the temperature at this time being normal.

February 13 the blood Wassermann and gonorrheal complement fixation tests were negative.

February 26 the patient's temperature rose to 104 F. The shoulder spica was bivalved and removed. A roentgen examination showed an area of rarefaction in the greater tuberosity. It was questionable whether this was of any significance. On this day I explored the shoulder through an anterior incision 3 inches long. The tissues were all quite vascular. The greater tuberosity was explored by turning back a flap of bone with a mallet and chisel. The bone was normal. This flap was replaced and counter sunk. The distended sheath of the long head of the biceps tendon was opened for a distance of 2 inches. It contained a small amount of thin pus. The tendon was found frayed near the upper pole of the bicipital groove. The tendon was white and had lost its glistening appearance. The sheath throughout its exposed area was lined with granulation tissue. A culture of the pus was made and a portion of the sheath was sent to the laboratory for microscopic examination. The wound was packed with petrolatum gauze. The bivalved plaster-of-paris spica was replaced.

The patient's postoperative course was uneventful. She was given a transfusion, March 3, and discharged from the hospital March 21 wearing a plaster-of-paris shoulder spica.

The culture made at the time of operation was negative. The tendon sheath was reported to show granulation tissue infiltrated with various cellular elements.

The patient was followed in the outpatient department May 1. I examined the patient and reviewed her history. I was struck by our suspicions of this being a gonorrheal infection. All our examinations had been inconclusive. The laboratory had retained the tissue removed at operation. New sections were cut from the sheath of the tendon and a gram stain was made which showed numerous pus cells with intracellular gram negative biscuit shaped diplococci.

In brief, this was a case of gonorrheal tenosynovitis of the long head of the biceps brachii in which the diagnosis rested solely on the demonstration of the organisms in the substance of the tendon sheath.

1095 Park Avenue

**Specialists in Ancient Times**—It is likely that many skilful and sagacious medical men practiced in ancient Egypt where—Herodotus tells us—physicians were even more highly specialized than they are today since often they limited themselves to a single organ of the body. There were dentists as well as internists and surgeons. Hippocrates however is the first great physician from whom we have records and writings which show an approach to medical problems entirely analogous to our own. Indeed, his descriptions of cases in the *Epidemion* are so precise that diagnoses more accurate than the ones he made himself can be deduced from his clinical histories.—Zmsser Hans Rats Lice and History Boston Little, Brown & Co, 1935

## Special Articles

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE ADRENAL CORTEX

ROBERT F. LOEB, M.D.  
NEW YORK

NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed the series will be published in book form.—Ed

It has been known for many years that destruction of the adrenal glands in the human being, or complete ablation of these structures in most animal species, results in death. Following the isolation and synthesis of epinephrine, it was shown that this secretion of the adrenal medulla would not maintain life. In human beings suffering from severe Addison's disease, as well as in totally adrenalectomized animals, this hormone, regardless of the dose or means of administration, proved to have little if any therapeutic effect. In experimental animals extirpation of one adrenal and destruction of the medulla in the other led to no apparent deleterious effects, such animals survived indefinitely. Removal or destruction of both cortices, however, in the absence of sufficient accessory tissue, invariably caused death. Thus it was established that another substance present in the cortex of the adrenal gland was essential for life. Further proof of the validity of this idea was provided by the extraction of such a hormone and the demonstration that it would insure the survival of the adrenalectomized animal.

#### PREPARATION AND ASSAY OF CORTICAL HORMONE

In October 1927 Rogoff and Stewart<sup>1</sup> and Hartman<sup>2</sup> independently, published that they had produced extracts of the adrenal cortex which definitely prolonged the lives of adrenalectomized dogs and cats, though the former had reported their observations two years earlier. The method of Rogoff and Stewart consisted of extracting dogs' adrenals with 0.9 per cent salt solution and glycerin, these authors proposed the name "interrenalin" for the hormone of the adrenal cortex essential for life. Hartman's preparation, called "cortin," consisted of a saline extract of beef adrenals, from which most of the protein was removed by iso-electric precipitation.<sup>3</sup> The average survival time of animals

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1 (a) Rogoff J. M. and Stewart G. N. The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Animals. *Science* 66:327 (Oct.) 1927. (b) Studies on Adrenal Insufficiency. V. The Influence of Adrenal Extracts on the Survival Period of Adrenalectomized Dogs. *Am. J. Physiol.* 84:660 (April) 1928. (c) Stewart G. N. and Rogoff J. M. Studies on Adrenal Insufficiency. IX. The Influence of Extracts of Adrenal Cortex (Sheep and Cattle) on the Survival Period of Adrenalectomized Dogs and Cats. *ibid.* 91:254 (Dec.) 1929. (d) Rogoff J. M. Clinical and Experimental Studies on Adrenal Insufficiency and Addison's Disease and the Treatment of Such Conditions by Interrenalin. *Proc. California Acad. Med.* 1930 p. 7. Diagnosis and Treatment of Addison's Disease. *Canad. M. A. J.* 24:43 (Jan.) 1931. Addison's Disease. Further Report on Treatment with Interrenalin (Adrenal Cortical Extract). *J. A. M. A.* 99:1309 (Oct. 15) 1932.

2 Hartman F. A., MacArthur C. G. and Hartman W. E. A Substance Which Prolongs the Life of Adrenalectomized Cats. *Proc. Soc. Exper. Biol. & Med.* 25:69 (Oct.) 1927.

3 Extracts of the adrenal cortex prepared by iso-electric precipitation as described by Hartman have been found by other workers to be practically or entirely inactive.<sup>1c</sup> Subsequent publications by Hartman (*Proc. Soc. Exper. Biol. & Med.* 27:938 [June] 1930, 28:962 [June] 1931) concern extracts prepared by the use of certain lipid solvents (Hartman F. A. U. S. Patent 1914125 [June 13] 1933)—process patent for Cortin and Method of Preparing Same.—Ed



treated with these preparations was at least two and three times that of control animals.<sup>4</sup> Pfiffner and Swingle<sup>5</sup> in 1929 prepared an extract of the cortex of beef adrenal glands by means of organic solvents. This extract, injected in lipid form, extended the life of the adrenalectomized cat from an average duration of seven days to about thirty days,<sup>4</sup> at which time the preparation caused severe irritation of the subcutaneous tissues. In recent years this method of preparation has been improved so that animals will survive for years with the administration of smaller amounts. In the last four years other methods of preparation of the cortical hormone have been developed, and recently Kendall<sup>6</sup> has reported that he has isolated this substance in crystalline form.<sup>7</sup> This preparation is believed to have a molecular weight of 350 and the empirical formula  $C_{20}H_{30}O_6$ . The observations of Kendall have not as yet been confirmed in other laboratories. It is not even certain at the present time that the active principle of extracts of cortical substance used experimentally represents a single chemical unit.

One other substance, vitamin C, was isolated in crystalline form in large amounts from the cortex of the adrenal glands by Szent-Györgyi<sup>8</sup> in 1929. This compound has since been obtained from various other sources and its structure proved by synthesis. Originally it was designated "ascorbic acid", more recently the Council on Pharmacy and Chemistry has proposed the name "cevitamic acid". It is believed that the high concentration of vitamin C in the adrenal cortex may result from storage rather than from local synthesis, and its significance is still uncertain.

The problem of assaying the various preparations of the cortical hormone essential for life is of vital importance both for physiologic study and for clinical therapy. Unfortunately up to the present time only biologic methods can be employed. These have distinct limitations because of the wide individual variations among animals and also because of the great influence of physiologic and environmental factors such as the amount of sodium ingested, the amount of fluid administered or the type of diet employed, which may not be adequately controlled. A number of methods of assay have been suggested, most of these depending on the determination of changes in concentration of some constituents of the blood from a test animal. The cortical hormone has no demonstrable influence on the blood of a normal animal and therefore testing must

be carried out on those completely adrenalectomized. One method of assay consists in the determination of the amount of an extract necessary to prevent an increase of 100 per cent in the blood urea of an adrenalectomized dog in the course of from seven to ten days.<sup>9</sup> The "dog unit" is defined as the minimum daily dose of an extract per kilogram of body weight necessary to prevent this increase in blood urea.<sup>10</sup>

Cortical extracts have usually been administered parenterally,<sup>11</sup> as it has been claimed that these are at least twelve times as efficient by this route as when given orally.<sup>9</sup>

#### FUNCTIONS OF THE CORTICAL HORMONE

There has been much speculation concerning the function of the adrenal cortex. Britton and Silvette<sup>1</sup> have postulated that "the adrenal cortex prepotently regulates carbohydrate metabolism."<sup>12</sup> Swingle and Pfiffner,<sup>12</sup> as well as others, have intimated that the primary function of the adrenal cortex is to regulate the circulating blood volume. In 1931 Swingle<sup>14</sup> wrote "At the outset of this discussion the statement was made that the function of the adrenal cortex is a mystery. And so it is!" Careful clinical and physiologic studies of recent years have not solved the problem, but they suggest that more than one function exists.

Until the cortical hormone or hormones are definitely available in large amounts in crystalline form, the functions of the adrenal cortex will remain shrouded in mystery and confusion.

The study of the sequence of events occurring in human beings and in adrenalectomized animals during the development of acute adrenal insufficiency and subsequently following the administration of cortical extract or sodium chloride or both has, however, contributed a considerable amount of information.

**Sodium Loss and Dehydration**—When the adrenal glands of an animal are removed, or when injections of cortical extract are withdrawn from an adrenalectomized dog, the complete picture of adrenal insufficiency develops in the course of a few days. The time relationships occurring in the development of a number of the physiologic disturbances are shown in the accompanying chart, prepared by Harrop.<sup>15</sup> These changes and others to be enumerated may be correlated, wholly or in part, with the fact that the adrenal gland appears

9 Pfiffner J J, Swingle W W and Vars H M. The Cortical Hormone Requirement of the Adrenalectomized Dog with Special Reference to a Method of Assay. *J Biol Chem* 104:701 (March) 1934.

10 This is not an entirely satisfactory method of assay as several authors have pointed out. It appears that the only adequate criterion now available for the activity of adrenal cortical extracts consists in the property of prolonging the lives of completely adrenalectomized animals for a period well beyond the maximum survival time of control animals.—Ed.

11 Extracts have been prepared that are active by mouth (Rogoff and Stewart<sup>13</sup>). Oral administration has the advantage of avoiding largely or entirely the toxic effects of contaminating substances such as have been reported following parenteral injection by Benham (Benham H W, Fisher Mary and Thurgar C J L. Three Cases of Addison's Disease Treated with an Extract of Suprarenal Cortex, *Lancet* 1:125 [Jan 16] 1932) and by Rowntree (Rowntree, L G and Ball R G. Diseases of the Suprarenal Glands, *Endocrinology* 17:263 [May June] 1933) in human beings and by Rogoff<sup>14</sup> in animals.—Ed.

12 Britton S W and Silvette H. On the Function of the Adrenal Cortex—General Carbohydrate and Circulatory Theories, *Am J Physiol* 107:190 (Jan) 1934. Swingle W W, Pfiffner J J, Vars H M, Bott P A and Perkins W M. The Function of the Adrenal Cortical Hormone and the Cause of Death from Adrenal Insufficiency. *Science* 77:58 (Jan) 1933.

13 Britton and Silvette (*Am J Physiol* 100:701 [May] 1932) have written "Since the cortex represents that part of the organs which is pre-eminently essential to life, the conclusion is derived that the regulation of carbohydrate metabolism may be considered as the prepotent function of the adrenal glands." Presumably prepotent is intended to mean pre-eminently potent. See also footnote 18.—Ed.

14 Swingle W W. The Cortical Hormone of the Adrenal Gland. *Harvey Lectures* series 27 October 1931 p 33.

15 Harrop J A, Weinstein A, Soffer L J and Threscher J H. Studies on the Suprarenal Cortex II. Metabolism, Circulation and Blood Concentration During Suprarenal Insufficiency on the Dog. *J Exper Med* 58:1 (July) 1933.

4 The survival times of treated adrenalectomized animals reported by Stewart and Rogoff<sup>13</sup> considerably exceed the maximum (not only the average) for control animals in their own extensive series. However the average survival time of control adrenalectomized animals reported by Hartman<sup>2</sup> was taken largely from the literature and hence may not properly be compared with the survival times for his treated animals. It should be noted that the survival times reported by different authors are not comparable, survival times of animals under treatment with cortical extract must be compared with those of untreated animals of the same investigator. Thus the longest periods of survival of untreated animals reported in the literature (those of Stewart and Rogoff) exceed in many cases the survival times of treated animals reported by other workers.—Ed.

5 Pfiffner J J, and Swingle, W W. The Preparation of an Active Extract of the Suprarenal Cortex, *Anat. Rec.* 44:225 1929. Swingle, W W and Pfiffner J J. Experiment with an Active Extract of the Suprarenal Cortex *ibid* 44:225 1929.

6 Kendall, E C, Mason H L, McKenzie B F and Myers, C S. Isolation in Crystalline Form of the Hormone Essential to Life from the Suprarenal Cortex. Its Chemical Nature and Physiologic Properties. *Proc Staff Meet Mayo Clin* 9:245 (April 25) 1934.

7 Crystalline products from extracts of the adrenal cortex have also been reported by other investigators notably by Wintersteiner and Pfiffner (*Proc. Soc Biol Chem* April 10-13 1935 page c). However in view of the multiplicity of crystalline fractions reported both by Kendall and by Wintersteiner, and the apparent great variability in the claimed activity of the different fractions none of the crystalline products may as yet be considered to represent the life sustaining hormone of the adrenal cortex.—Ed.

8 Szent-Györgyi, A. On the Chemistry of the Adrenal Cortex. Abstracts of Communications to the Thirteenth International Physiological Congress August 1929 p 265.

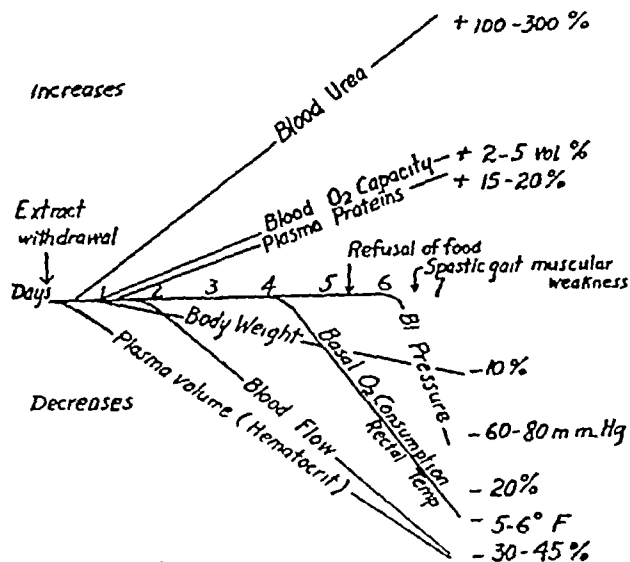
to exert a controlling influence on sodium metabolism.<sup>16</sup> Early in the course of adrenal insufficiency the rate of sodium excretion through the kidney is increased and the concentration of this ion in the blood serum falls. Accompanying the decrease in sodium there is a decline in the concentration of chloride or bicarbonate or both. As sodium is lost from the body there is an increased, though not an equivalently increased, excretion of water. This progressive loss of salt and water leads to the depletion of the circulating fluid volume and of the fluid within the extracellular tissue spaces. The latter in turn leads to a further and critical decrease in blood volume, with the development of a state of shock.

The significance of the disturbance in sodium metabolism in the production of the picture of acute adrenal insufficiency is clearly seen in patients with outspoken Addison's disease. When no change other than the withdrawal of salt from the diet is instituted in the regimen of these patients, there results a characteristic chain of events. When adrenal insufficiency is established, the administration of salt may bring about improvement, just as the administration of cortical extract or salt does in the adrenalectomized animal.

The following changes may be ascribed to the loss of sodium with its accompanying dehydration: (1) decrease in concentration of sodium in the blood with a fall in blood bicarbonate or chloride or both, (2) increase in plasma protein concentration and in the oxygen capacity of the blood, (3) decrease in plasma volume, (4) decrease in rate of blood flow, (5) increase in excretion of chloride, (6) loss of weight. In turn, this resultant state of dehydration and shock is also probably of importance in augmenting the following manifestations of adrenal insufficiency: (7) refusal of food, (8) vomiting, (9) muscular weakness, (10) diminution in blood pressure, (11) diminution in metabolic rate,<sup>16a</sup> (12) increase in total non-protein nitrogen of the blood and often in urea, and increase in phosphate and sulphate in advanced stages, and (13) anuria when shock is extreme.

**Renal Function**—In 1916 Marshall and Davis<sup>17</sup> first demonstrated an increase in blood urea and a decrease in phenolsulphonphthalein excretion following total ablation of the adrenal glands. They suggested that

the secretion "of some substance by the adrenals which is necessary for the maintenance of normal renal function serves as a probable explanation" of the results obtained. Since that time it has been shown that the retention of total nonprotein nitrogen is an early and regular finding in adrenalectomized animals and that this abnormality is also usually encountered in the severe adrenal insufficiency of Addison's disease. Sulphate and phosphate retention also occur as the disorder progresses. It has been shown that at times urea retention occurs while the adrenalectomized animal is still clinically well, while the blood pressure is normal and while the urine volume is even greater than that present before any rise in blood urea occurs. Recent studies have shown that accompanying the increase in blood urea in the adrenalectomized dog whose dosage of cortical extract is reduced there is not only a decrease in phenolsulphonphthalein elimination but also a



Characteristic changes in metabolism, circulation and blood concentration in a group of adrenalectomized animals following withdrawal of extract.

decrease in urea clearance. These changes occur before there is any weakness, lassitude or anorexia and disappear with increasing doses of cortical extract. Thus it is apparent that the disturbances in renal function are dependent on cortical and not on medullary insufficiency. The decrease in renal function may be dependent on an influence of cortical substance on the kidneys directly, dehydration and shock augment the state of renal insufficiency.

The excessive loss of sodium from the body following lack of adequate cortical substance takes place through the kidney and in this sense may be termed a disturbance of renal function. It is of interest that sodium chloride administered orally to the adrenalectomized dog receiving inadequate doses of cortical substance improves renal function in that the blood urea falls and phenolsulphonphthalein excretion rises, as does the urea clearance. Lack of cortical substance causes the following evidences of alteration in renal function: (1) increase in blood urea, creatinine, phosphate and sulphate, (2) decrease in urea clearance, (3) decrease in excretion of phenolsulphonphthalein, and (4) increase in the excretion of sodium.

**Potassium Excretion**—Retention of potassium in the blood is a constant finding in adrenal insufficiency in animals and occurs in severe adrenal crises in human

16 Loeb R. F. Chemical Changes in the Blood in Addison's Disease, *Science* 76: 420 (Nov.) 1932. Effect of Sodium Chloride in the Treatment of a Patient with Addison's Disease. *Proc. Soc. Exper. Biol. & Med.* 30: 808 (March) 1933. Loeb R. F. Atchley, D. W. Benedict, E. M. and Leland J. Electrolyte Balance Studies in Adrenalectomized Dogs with Particular Reference to the Excretion of Sodium. *J. Exper. Med.* 57: 775 (May) 1933. Loeb R. F. and Atchley D. W. The Significance of Salt in the Treatment of Addison's Disease. *M. Clin. North America* 17: 1317 (March) 1934. Loeb R. F. Atchley D. W. and Stahl J. The Role of Sodium in Adrenal Insufficiency to be published. Stewart G. N. Blood Studies in Dogs After Adrenalectomy. *J. Pharmacol. & Exper. Therap.* 29: 373 1926. Rogoff J. M. and Stewart, G. N. Studies on Adrenal Insufficiency in Dogs. II. Blood Studies in Control Animals Not Subjected to Treatment. *Am. J. Physiol.* 78: 683 (Nov.) 1926. Marine David and Baumann E. J. Duration of Life After Suprarenalctomy in Cats and Attempts to Prolong It by Injections of Solutions Containing Sodium Salts, Glucose and Glycerol. *ibid.* 81: 86 (June) 1927. Rogoff J. M. and Stewart, G. N. Studies on Adrenal Insufficiency. IV. The Influence of Intravenous Injections of Ringer's Solution upon the Survival Period of Adrenalectomized Dogs. *ibid.* 84: 649 (April) 1928. Harrop, G. A., Soffer L. J., Ellsworth, R. and Thresher, J. H. Studies on the Suprarenal Cortex. III. Plasma Electrolytes and Electrolyte Excretion During Suprarenal Insufficiency in the Dog. *J. Exper. Med.* 58: 17 (May) 1933. Harrop G. A., Weinstein Albert, Soffer L. J. and Thresher J. H. The Diagnosis and Treatment of Addison's Disease. *J. A. M. A.* 100: 1850 (June 10) 1933. Harrop G. A. The Diagnosis and Treatment of Addison's Disease. Correspondence. *ibid.* 101: 388 (July 2) 1933.

16a It should be pointed out that the studies which indicate a diminution of basal metabolic rate in adrenalectomized animals were made on animals whose survival times of which were very short. The significance of such a decrease in oxygen consumption of moribund animals is conjectural as no decrease in metabolic rate is said to occur during the period of relatively good health. See section on Oxygen Consumption.—Ed.

17 Marshall E. K. and Davis D. M. The Influence of the Adrenals on the Kidneys. *J. Pharmacol. & Exper. Therap.* 8: 525 (Sept.) 1916.

beings Whether this represents merely a manifestation of renal insufficiency or a more general disturbance of potassium exchange through the cell membranes of the body is not known It is conceivable that the increase in blood potassium or an alteration in the sodium-potassium ratio may contribute to the picture of collapse in an adrenal crisis

**Carbohydrate Metabolism**—Disturbances in carbohydrate metabolism have been recognized for many years as playing a prominent part in the syndrome resulting from total ablation of the adrenal glands In Addison's disease, too, abnormalities of carbohydrate behavior such as depression of the blood sugar and increased sensitivity to small doses of insulin have been observed Britton and Silvette<sup>12</sup> have studied this phase of adrenal insufficiency in various animal species They found a decrease in the sugar content of the blood and a decrease in glycogen stores, particularly in the liver They have reported that "emotion, excitement and [epinephrine] injection are practically without effect on the blood [sugar] of adrenalectomized cats tested at various time intervals after operation while the animals still appear in good health" Finally, they state that "with long-continued, twice daily, injections of [dextrose] during the period following adrenalectomy, there also occurs very little storage of glycogen in the liver" Despite this collection of evidence, doubt still exists as to whether these changes are not the result of medullary rather than of cortical deficiency<sup>18</sup> This is particularly true because Britton<sup>19</sup> and others have shown that increased sensitiveness to insulin exists in those animals in which the adrenal medulla has been destroyed without serious damage to the cortex Also, Harrop<sup>20</sup> has shown that increased sensitiveness to insulin persists in adrenalectomized dogs maintained by adequate doses of cortical extract Unfortunately, glycogen determinations on the livers of these animals are not available

The chief differences in carbohydrate disturbances between those animals with the medulla destroyed and those with the entire glands destroyed are found in the glycogen stores and the response to injection of epinephrine The former show no depletion of liver glycogen and give a hyperglycemic response when epinephrine is administered during the hypoglycemic state The latter, as previously stated, apparently have depleted glycogen stores and consequently are unable to exhibit as large an elevation of the blood sugar after injection of epinephrine<sup>20</sup>

18 The concept that the adrenal cortex is especially concerned in the control of carbohydrate metabolism is based chiefly on the observation that adrenal cortical extracts were found to have a greater effect on blood sugar in adrenalectomized animals than the amounts of epinephrine these extracts were said to contain as determined by biologic assay (Britton S W and Silvette Herbert Effect of Cortico-Adrenal Extract on Carbohydrate Metabolism in Normal Animals *Am J Physiol* 100: 693 [May] 1932 The Apparent Prepotent Function of the Adrenal Glands *ibid*, page 701) However adequate attention appears not to have been paid to the possible effect of substances such as histamine (Cleghorn R A Observations on Extracts of Beef Adrenal Cortex and Elasmobranch Internal Body *J Physiol* 75: 413 [Aug] 1932) and choline (Eagle E Presence and Significance of Choline in Cortico Adrenal Extract *Proc. Soc. Exper Biol & Med* 30: 1094 [May] 1933) which have been found in cortical extracts prepared by the Swingle Pfiffer method (which was the method employed by Britton and Silvette). These contaminants would render impossible accurate biologic assay of epinephrine In addition some of the observations appear to have been made on animals under the influence of ether or of amylal either of which may affect the blood sugar level The role of the adrenal cortex in the regulation of carbohydrate metabolism therefore remains undecided as Dr. Loeb has indicated.—Ed

19 Britton S W Geiling E M K and Calvary H O Medullary Adrenal Secretion and Carbohydrate Metabolism, *Am J Physiol* 84: 141 (Feb) 1928 Harrop, G A and Weinstein Albert Studies on the Adrenal Cortex I Cortical Suprarenal Insufficiency and the Action of Cortical Hormone upon the Normal and Suprarenalectomized Dog *J Exper Med* 57: 305 (Feb) 1933

20 This subject is discussed further in the papers in this series by Rogoff (The Adrenal Medulla) and by Best (The Internal Secretion of the Pancreas)—Ed

**Oxygen Consumption**—It is well known that the basal metabolic rate of patients with severe Addison's disease and that of adrenalectomized animals showing signs of severe deficiency is decreased The mechanism of this change is not yet clear, but the fact that it does not occur in animals until about four days after withdrawal of cortical extract suggests that it may be secondary to other disturbances such as dehydration Fall in body temperature parallels the decrease in oxygen consumption and is possibly also dependent on the development of dehydration and shock<sup>10a</sup> The sensitiveness to cold experienced by patients with relatively well "compensated" adrenal insufficiency cannot be explained at the present time

**Adynamia**—Muscular weakness and asthenia are probably the most important manifestations of adrenal insufficiency in man These symptoms may be present to a marked degree even though quantitative measurements of cortical insufficiency as determined by the blood urea, the blood sodium and hemoconcentration may be normal Whether this weakness results from cortical or medullary insufficiency is not certain, despite reports of improvement in patients following the administration of cortical extract On the other hand, it has been shown by Ingle that the capacity for sustained work in adrenalectomized rats is enormously enhanced by cortical extracts, and certainly the adrenalectomized dog receiving adequate doses of this substance shows no evidence of muscular weakness This evidence suggests but does not prove the importance of the adrenal cortex in maintaining muscle strength The underlying mechanism involved in the relationship between muscle weakness and the adrenal glands is not known It is clear that dehydration and shock serve only as contributing factors to weakness, because, as has already been stated, this symptom may be present to a marked degree without loss of base or urea retention Furthermore, strength increases strikingly in the adrenalectomized dog following the administration of cortical extract before obvious changes occur in the blood urea or sodium concentration or in the water content of the blood serum

**Circulatory Collapse**—The importance of salt loss and dehydration has already been stressed as being of significance in promoting the state of shock in adrenal insufficiency Swingle and his collaborators<sup>21</sup> have suggested that the absence of cortical substance produces a state of shock analogous to histamine shock in which capillary permeability is increased The decrease in blood volume under these conditions is supposed to be due to the flow of fluid into the tissue spaces The fact that salt and water are known to be lost from the body through the kidneys in large amounts would make the assumption of Swingle unnecessary<sup>21</sup> In certain instances, however, the loss of base and water does not appear to be great enough to produce the profound peripheral circulatory collapse encountered Consequently the fact must still be borne in mind that adrenal cortical substance may exert some regulatory control of the vascular bed directly

**Hypotension**—Hypotension constitutes a regular finding in cortical insufficiency Its significance is not understood

21 The thesis of Swingle and his collaborators as to the rôle of the adrenal cortical hormone in circulatory shock has been further criticized on several grounds by Freeman (*Science* 77: 211 [Feb 24] 1933) Britton and Silvette (*Science* 77: 366 [April 14] 1933 footnote 12) and J. McKen Cattell (*Science* 77: 428 [May 5] 1933)—Ed

**Pigmentation**—The characteristic pigmentation of the skin and mucous membranes as it occurs in Addison's disease is not encountered in animals adequately treated with cortical extract or in a chronic state of adrenal insufficiency.

In a number of clinical reports on the effect of cortical extract in Addison's disease, it has been stated that the patients become lighter after treatment. This is true. However, in some of the cases observed the change appears to be due not to pigment loss but to rehydration of the tissue spaces with stretching of the skin. This idea receives support from the observation that within from two to five days following salt withdrawal in patients with Addison's disease, pigmentation appears intensified as acute adrenal insufficiency is induced. With the ingestion of salt and improvement pigmentation apparently becomes less intense. It is most unlikely that these rapid changes are dependent on deposition and solution of pigment.

**Gastro-Intestinal Disturbances**—Patients with compensated Addison's disease frequently have a hypochlorhydria, their appetites are capricious and they vomit with apparently very little cause. In adrenalectomized dogs and cats, bloody diarrhea may develop in the course of a few days after the withdrawal of cortical extract. However, there is nothing which need be considered specific of disturbed adrenal physiology in the anorexia, nausea and vomiting occurring in the collapse of severe adrenal insufficiency. The mechanism of these disturbances is not understood.

**Neurologic Disturbances**—Patients in severe adrenal insufficiency frequently show general or focal neurologic disorders including disorientation, confusion, aphasia, convulsions and reflex changes. In untreated adrenalectomized animals, spasticity and weakness of the hind legs are common and convulsions also occur. These disorders may at times be associated with hypoglycemic shock. This as has been intimated, may be referable to medullary insufficiency with the consequent loss of insulin antagonism. On the other hand, neurologic abnormalities may appear in the absence of severe hypoglycemia. These may result from decreased cerebral circulation, a part of the more general picture of dehydration and shock. There is no direct proof for the idea that changes in the central nervous system result from failure of any normal action of cortical substance on brain cells.

**Immune Reactions**—Much has been written concerning the role of the adrenal glands in immune reactions.<sup>22</sup> The susceptibility of adrenalectomized animals to various bacterial toxins and to infections is among the aspects of the problem studied. The consensus suggests increased susceptibility to infection and intoxication in adrenal insufficiency. The chief difficulty in evaluating results obtained from this type of study seems to be in the fact that the subjects for investigation are sick animals, and, therefore, the specificity of adrenal deficiency becomes doubtful. Clinical observation of patients with Addison's disease does not indicate any particular susceptibility to infectious disease.

When infection develops in one of these patients, however, the severity of adrenal insufficiency is augmented.

**Effects of Other Endocrine Glands**—A study of the effect of cortical insufficiency on other endocrine functions in animals is difficult because prolonged severe insufficiency is incompatible with life.<sup>22a</sup> It has already been indicated that up to the present time it has been found impossible to produce any detectable changes in the normal animal by the injection of cortical extract. Nature has, however, produced one experiment in which the products of the adrenal cortex appear to induce certain other endocrine disturbances. With certain tumors of the adrenal gland, hirsutism and amenorrhea develop with regularity, the relationship of these phenomena to basophilic adenoma of the pituitary has been discussed in the first paper in this series, by Evans.

Hartman<sup>23</sup> has recently reported evidence for the presence of a second hormone in the adrenal cortex, "cortilactin", this he considers to be absent from certain cortical extracts and to be essential for lactation in the adrenalectomized animal. Further investigation will be necessary to confirm these results.<sup>24</sup>

As already indicated, until the cortical hormone or hormones are definitely available in sufficient quantities in crystalline form, the endocrinologic relationships as well as the other functions of the adrenal cortex will remain in a state of confusion.

#### THE THERAPEUTIC APPLICATION OF THE CORTICAL HORMONE

The development of cortical extracts has reached a stage at which it is possible to maintain totally adrenalectomized animals in apparently normal health. In this direction a great advance has been made which is encouraging for the future application to human disease.

Despite the earlier reports<sup>25</sup> concerning the use of cortical extracts in the treatment of Addison's disease, the ultimate goal has not been reached. On the basis of animal experimentation this failure in many cases appears to be largely dependent on the fact that the commercial preparations available may be too dilute or that they deteriorate, surely they are too costly to be administered in adequate amounts over long periods of time.

It seems certain that the administration of cortical extracts and of sodium chloride has a definitely beneficial effect in the acute crises of Addison's disease. It is also certain that, while salt alone will prolong life, it will not maintain it indefinitely in the adrenalecto-

<sup>22a</sup> However chronic and subacute adrenal insufficiency may be produced in animals by subtotal ligation of the adrenals as Rogoff has demonstrated (Proc. Soc. Exper. Biol. & Med. **29**:1240 [June, 1932]). Animals with chronic insufficiency have been found to survive up to 14 months. The histologic changes in the adrenals characteristic of Addison's disease have been reproduced in all gradations in some cases infection was superposed on the ischemic glands. Thus a method is available for studying the effects of prolonged adrenal insufficiency both medullary and cortical.—Ed.

<sup>23</sup> Brownell, A. A., Lockwood, J. E., and Hartman, F. A. A Lactation Hormone of the Adrenal Cortex. Proc. Soc. Exper. Biol. & Med. **30**: 783 (March) 1933.

<sup>24</sup> Recent investigators have suggested the presence of still other special hormones in the adrenal cortex. This is based on the finding that certain products (crystalline and noncrystalline) obtained from cortical extracts appear to have special effects in adrenalectomized animals apart from the life sustaining property.<sup>1</sup> However the present evidence is so conflicting and confusing that judgment must be reserved for the present.—Ed.

<sup>25</sup> Rogoff, J. M. and Stewart, G. N. Suprarenal Cortical Extracts in Suprarenal Insufficiency (Addison's Disease). J. A. M. A. **92**: 1569 (May 11) 1929. Rowntree, L. G., Greene, C. H., Ball, R. G., Swingle, W. W. and Pfiffner, J. J. Treatment of Addison's Disease with the Cortical Hormone of the Suprarenal Gland. J. A. M. A. **97**: 1446 (Nov. 14) 1931. Rogoff, J. M. Addison's Disease. Further Report on Treatment with "Interrenalin". J. A. M. A. **99**: 1309 (Oct. 15) 1932. See also footnote 1.

<sup>22</sup> Steinback, M. M. Experimental Tuberculosis in the Albino Rat. The Comparative Effects of Avitaminosis, Suprarenalctomy and Thyroid Parathyroidectomy on Experimental Tuberculosis. Am. Rev. Tuberc. **29**: 52 (July) 1932. Khorazo, D. Agglutinin Production in Suprarenalctomized Rats. J. Immunol. **21**: 151 (Aug.) 1931. Perla, D. and Marmorston-Gottsmann, J. Immunological Studies in Relation to the Suprarenal Gland. IV. The Effect of Repeated Injections of Epinephrine on the Hemolysin Formation in Suprarenalctomized Rats. J. Exper. Med. **50**: 87 (July) 1929. Ecker, E. E. and Rogoff, J. M. Susceptibility of Albino Rats to Tetanus Toxin Following Adrenalectomy. Am. J. Physiol. **80**: 200 (March) 1927.

mized animal. A certain amount of cortical extract is essential. Hence it would seem logical that even small doses of cortical extract would be better than none. Nevertheless, in my limited experience, it has been impossible to demonstrate objective effects (on blood urea and blood sodium) of a commercial preparation of cortical extract given in daily doses up to 10 cc. Also, 25 cc given in one day in addition to salt and dextrose has failed to check progressive adrenal insufficiency. Whether the apparent effect on appetite and sense of well being is more than psychologic is uncertain. It is highly improbable, however, that doses of from 2 to 3 cc given two or three times a week have any significant physiologic effect. The recent studies of Rogoff<sup>24</sup> support this idea.

There is at the present time a tendency toward the widespread and indiscriminate administration of cortical extract in small and infrequent doses to all those who are "weary and heavy laden." While this type of therapy may or may not be harmless, it is neither specific nor critically applied.

## DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1934

### TWELFTH ANNUAL REPORT

This report concerns the ninety-three cities dealt with in the recent article on typhoid,<sup>1</sup> and the rates are calculated on the basis of the population figures used in that article. The number of diphtheria deaths in each city has been reported to us by the respective health departments.<sup>2</sup> Particulars as to the years that are included in the five year averages annotated as "incomplete data" are given in footnotes to tables 1-8 in our previous reports through the one covering 1931 and are itemized at the beginning of the article for 1932.

In the New England cities (table 1) diphtheria continues to decline. In 1934 these fourteen cities had only forty-four deaths from diphtheria, as against seventy in 1933 and ninety-six in 1932. Cambridge, New Bedford, New Haven and Springfield completed the year without a single diphtheria death, and Hartford, Providence and Worcester state that the only deaths were in nonresidents. New Bedford's clear record comes after several years of rather high diphtheria mortality. Boston has the lowest rate in its history (1.1). Waterbury, after its sudden rise in 1933, had a low rate again in 1934, while Lynn and Somerville, after improvement for three years, had setbacks. Lowell's excessive diphtheria mortality of 1932 and 1933 continued in 1934, its rate having

been progressively higher each of these three years. Lowell's rate was the highest in the country in 1934 (15.0), it had been one of the ten highest also in 1932 and 1933. Somerville's 1934 rate (6.6) is also one of the ten highest (table 11). Lowell and Somerville are among the ten cities with highest 1930-1934 averages (table 10). Considering the recent five-year period the

TABLE 1—Death Rates of Fourteen Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930-1934	1934	1933	1929-1933	1929-1934	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
New Haven	0.5	0.0	0.6	1.6	7.1	14.2	14.9	22.7	15.6	54.8	44.5
Bridgeport	1.0	0.7	0.7	11.8	19.6	23.4	23.3	26.8	34.2	63.9	78.3
Hartford	1.1	0.6*	0.0	5.3	11.9	13.8	25.3	25.1	35.8	47.8	120.0
Cambridge	1.2	0.0	1.7	3.2	8.9	12.9	23.8	25.3	46.7	71.9	58.0
Springfield	2.1	0.0	0.0	10.3	15.4	24.9	19.1	31.3	29.6	51.3	68.2
Waterbury	2.4	1.0	5.9	2.6	17.9	23.0	29.6				
Worcester	2.9	1.0*	2.0	8.6	15.5	14.1	21.8	32.2	16.5	50.3	47.8
Boston	3.2	1.1†	3.3	8.3	20.2	26.3	20.0	26.2	53.7	83.9	112.2
Fall River	3.9	1.7†	4.4	12.0	25.5	23.6	24.0	34.4	50.1	43.8	46.9
Lynn	4.7	4.9	1.0	13.5	17.0	17.8	17.2	21.7	88.0	44.0	49.0
New Bedford	4.8	0.0†	5.4	10.9	16.5	17.0	29.6	25.1	53.6	20.0	
Providence	5.0	0.4*	1.2	9.5	15.8	29.3	28.8	30.7	41.2	53.5	55.8
Somerville	9.0	6.6	2.8	5.7	19.7	20.3	21.4	21.5	40.5	57.8	37.4
Lowell	9.4	15.0†	12.0	10.6	16.7	23.5	20.6	31.0	59.3	44.3	36.4

\* All of the diphtheria deaths reported were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau.

improvement in diphtheria in the New England cities is striking (table 16). The group average for 1930-1934 is less than half of that for 1925-1929 (3.38 as compared with 8.34). Thirteen of the fourteen cities (Somerville being the exception, which seems to have had an epidemic in 1930) had lower averages for 1930-1934 than for the preceding quinquennium. In Waterbury the decrease is slight, and the New Haven average remains low (one of the lowest in the country—

TABLE 2—Death Rates of Eighteen Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930-1934	1934	1933	1929-1933	1929-1934	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Syracuse	0.4	0.0	0.0	2.0	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Yonkers	0.6	0.7	0.0	10.4	17.0	17.7	25.3				
Rochester	0.7	0.3	0.0	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Utica	1.2	0.0	1.9	13.4*							
Philadelphia	1.3	1.1	0.7	11.8	16.7	22.7	24.6	34.1	50.0	100.6	119.4
Scranton	1.3	1.4†	0.7	11.7	12.3	22.1	23.4			77.8	48.6†
New York	2.2	1.4	1.2	10.7	14.0	21.8	28.0	40.0	58.0	85.8	134.4
Trenton	2.7	0.8	0.8	4.4	7.3	8.8	12.3	15.8	23.6	92.7	89.7†
Albany	2.9	3.8†	3.1	7.5	12.8	10.4	20.0	31.0	26.9		
Newark	3.0	0.2	0.2	14.5	9.7	14.6	23.3	30.1	43.7	79.1	110.4
Elizabethtown	3.5	2.5	2.5	5.8	10.8	15.1	17.7	27.1	42.3	23.1	
Reading	3.8	5.4	6.2	7.3	21.1	16.9	35.7	29.2	70.1	72.0	94.1
Ellizabethtown	4.5	0.0	0.0	18.2	19.2	19.3	14.8	51.7	42.4	60.5	78.3
Buffalo	4.8	1.0	4.8	9.1	24.0	27.8	22.0	18.4	24.8	53.5	60.9
Pittsburgh	5.0	5.4	2.9	11.5	20.1	22.3	29.3	20.4	36.0	32.9	58.4
Jersey City	6.0	3.4	2.5	11.5	18.4	21.0	33.2	32.6	57.9	63.4	108.6
Paterson	6.3	4.3†	8.6	9.1	18.5	18.5	16.1	25.5	52.9	111.8	143.4
Camden	7.7	5.0	5.9	21.9	20.3	23.2	35.8	48.9	52.6	93.5	194.0

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Diphtheria deaths from Chapin's Municipal Sanitation

§ Incomplete data

¶ Diphtheria deaths for Scranton furnished by Pennsylvania Department of Health, Harrisburg

26 Rogoff J. M. The Adrenal Cortical Hormone. Experiments with a Commercial Adrenal Extract (Eschatin). J. A. M. A. 103: 1764 (Dec. 8) 1934.

The preceding articles were published in THE JOURNAL Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 759; June 7, 1930, p. 1838; May 23, 1931, p. 1768; May 7, 1932, p. 1644; May 20, 1933, p. 1595, and May 26, 1934, p. 1758.

1 Typhoid in the Large Cities of the United States in 1934. J. A. M. A. 104: 2093 (June 8) 1935.

2 It should be noted that the figures include all deaths of diphtheria that have occurred within the city limits of nonresidents as well as residents. In some instances this undoubtedly gives an exaggerated impression of the amount of diphtheria in a community but at present statisticians are agreed that the attempt to eliminate the deaths of non residents would often result in an understatement of the true mortality (Bureau of the Census Mortality Statistics, 1912, p. 13). Cities in which one third or more of the reported diphtheria deaths are stated to have occurred in nonresidents are indicated in tables 1-8. In 1934 there were twenty-five such cities in six of which there were no resident diphtheria deaths. A further discussion of the problem of the nonresident in diphtheria statistics was given in the report covering the year 1931.

table 10), while the Lowell average remains high. But in all the other cities the decrease between the two five-year averages is conspicuous, particularly for the four cities that were at the foot of the list for 1925-1929: the two rates for Bridgeport are 11.8 and 1.0, for Lynn 13.5 and 4.7, for Springfield 10.3 and 2.1, and for Fall River 12.0 and 3.9.

The cities of the Middle Atlantic states (table 2) had a slight increase in diphtheria mortality in 1934

as compared with 1933, with 211 deaths as against 192 (table 16). Even so, its group rate is the lowest in the country (1.63). Eight of the eighteen cities had higher rates in 1934 than in 1933, but no striking increase appears, unless perhaps in Pittsburgh, where the rate is almost double that of the preceding year. Paterson, on the other hand, halved its 1933 rate in

TABLE 3—Death Rates of Nine Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930- 1934	1934	1933	1929- 1929	1929	1915- 1919	1910- 1909	1900- 1904	1890- 1899	1890	
Baltimore	17	0.8	0.7	7.6	11.4	13.5	14.2	16.1	33.0	68.1	70.0
Richmond	3.6	1.61	4.3	0.9	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Miami	3.8	4.6	2.7	5.4							
Washington	3.9	3.21	2.2	7.1	10.5	11.9	8.9	11.2	23.5	50.0	77.0
Norfolk	4.6	2.31	2.3	4.1	4.3	4.1	6.7	17.0			
Tampa	4.8	2.81	4.6	4.6	5.2	0.54					
Wilmington	5.3	1.91	5.6	10.9	11.6	15.2	18.0	27.8	60.9	84.9	83.8
Jacksonville	5.4	7.2	5.0	6.0							
Atlanta	5.7	7.51	12.0	7.0	13.3	10.1	12.5	14.2	11.1	10.6	8.8

† One third or more of the reported diphtheria deaths were stated to be in nonresidents

: Rate computed from population as of April 1 1930 as no estimate for July 1 1933 was made by the Census Bureau

# Incomplete data

TABLE 4—Death Rates of Eighteen Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930- 1934	1934	1933	1925- 1929	1920- 1924	1915- 1919	1910- 1914	1900- 1909	1900- 1899	1890- 1889	1890- 1889
Grand Rapids	0.3	0.0	1.1	2.0	10.6	13.5	20.0	26.6	17.2	32.4	99.2
South Bend.	1.3	0.0	0.0								
Canton	1.7	0.0	0.8	2.9 <sup>1</sup>	17.5	15.1#					
Milwaukee	2.0	1.6 <sup>1</sup>	0.8	8.5	14.1	19.8	27.5	25.4	22.7	51.7	116.2
Cleveland..	2.5	3.0	2.6	15.3	14.7	20.0	24.6	20.8	42.6	45.3	9.7
Akron	2.7	5.3	1.9	4.9	10.4	18.9	27.8	21.5#			
Flint..	2.7	2.4	5.3	4.5	29.9	25.5	12.7	11.0	16.5	6.9	69.2
Toledo	2.8	2.0 <sup>1</sup>	3.0	7.2	22.4	14.1	25.4	20.4	105.8	34.6	39.3
Indianapolis	3.1	3.8	4.0	6.6	11.7	21.4	15.5	15.3	15.5	36.4 <sup>1</sup>	97.3 <sup>1</sup>
Cincinnati	3.2	4.4	3.0	5.2	10.6	13.2	18.9	17.0	17.3	103.7	
Columbus	3.2	4.0	1.5	4.6	8.5	7.6	12.1	10.6	11.6	28.5	55.9
Evansville	3.2	3.8	4.7	3.7	13.9	14.9	16.1	21.2	13.8	18.1	69.7
Fort Wayne	3.5	2.5	3.3	5.1	13.1	6.3					
Youngstown	3.8	0.6*	0.6	10.5	18.5	11.9	40.5	23.5	28.0	17.6	28.4
Dayton.	3.5	3.4	3.8	4.6	9.4	9.8	22.1	13.3	17.2	27.4	82.9
Chicago	4.3	1.2	0.2	11.7	17.5	31.2	37.9	27.0	33.9	69.7	117.3
Detroit	4.6	0.7	3.0	19.7	24.3	32.2	33.3	22.6	88.5	62.9	182.9
Peoria	5.3	2.7	3.6	4.9	7.4	10.5	10.6	10.9	14.0	14.6	68.0

All of the diphtheria deaths reported were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

# Incomplete data

# Incomplete data

1934 Despite the 1934 increase in this group of cities, the five-year averages tell a very cheerful story. Every single city has decidedly decreased its average annual rate in the past five-year period as compared with 1925-1929. While Camden is still at the foot of the list, as it was five years ago, and still has one of the ten highest five-year averages in the country (table 9), its 1930-1934 rate is 7.7, as compared with a 1925-1929 average of 21.9. Newark's rate declines from 14.5 to 3.0, Philadelphia's from 11.8 to 1.3, and Scranton's from 11.7 to 1.3. Syracuse, Yonkers and Rochester have among the ten lowest averages in the country (table 10). The group average for 1930-1934 is about a quarter of the corresponding rate for 1925-1929 (2.50 as against 9.97). The Middle Atlantic group had the next to the highest rate in the country for 1925-1929, for 1930-1934 it has the lowest. Moreover, this lowest group rate for 1930-1934 is only 40 per cent of the lowest rate for 1925-1929 (the Mountain and Pacific rate of 6.28).

The recent five-year average of the cities in the South Atlantic states (table 3) is less than half of their

average for 1925-1929 (3.54 and 7.37), and the five-year averages for seven of the nine cities in the group are likewise lower. The increases for Norfolk and Tampa are slight. Atlanta and Jacksonville, despite lowering their averages, had among the ten highest such rates in the country (table 11). The greatest improvement occurred in Baltimore, where the average declined from 7.6 to 1.7, and in Wilmington (from 10.9 to 5.3). Baltimore had the next to the worst rate in the group for 1925-1929, but its 1930-1934 rate not only leads the group but is one of the best rates among the thirteen cities in the country with more than 500,000 population. San Francisco (1.2) and Philadelphia (1.3) alone having better averages. For the year 1934 for the first time the group rate is below 3.0. Four cities had somewhat higher rates in 1934 than in the previous year, but Wilmington and Atlanta decidedly lowered their rates as compared with 1933, when the diphtheria mortality in both cities seems to have made a sudden rise.

The East North Central cities (table 4) had slightly more diphtheria mortality (eleven more deaths) in 1934 than in 1933, but no important change in rate in any of the individual cities. South Bend had its third successive year without a diphtheria death—a new record among American cities—and also the second-best five-year average in the group. We have no data for South Bend prior to 1930 with which to compare this average. All the other cities except Peoria had

TABLE 5—Death Rates of Six Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930- 1934	1934	1933	1923- 1929	1920- 1924	1915- 1919	1910- 1914	1905- 1909	1900- 1904	1890- 1894	1880- 1884
Birmingham	4.2	2.9	2.9	5.4	5.3	7.2	8.3	6.2	18.4	16.5	26.3
Memphis..	6.0	2.3 <sup>1</sup>	4.5	5.8	9.6	11.2	11.9	18.4	6.9	10.0	28.5
Louisville	6.3	11.3	11.0	4.6	10.4	9.5	9.0			39.0 <sup>1</sup>	49.6 <sup>1</sup>
Chattanooga	6.8	9.7 <sup>1</sup>	8.0	5.9	8.7	8.9					
Nashville	8.2	8.3 <sup>1</sup>	7.6	11.8	8.0	8.9	7.3	10.3	13.9	30.1	23.4
Knoxville	9.6	10.8	8.0	6.3	11.2						

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

§ Diphtheria deaths from Chapin's Municipal Sanitation

\* Incomplete de

† Diphtheria deaths for Chattanooga furnished by the Tennessee Department of Health Nashville

TABLE 6—Death Rates of Nine Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1930- 1934	1934	1933	1925- 1929	1920- 1924	1915- 1919	1910- 1914	1905- 1909	1900- 1904	1895- 1899	1890- 1894
Duluth	0.4	0.0	0.0	2.0	6.0	10.2	8.8	88.2	29.1	7.6	49.5
St Paul	1.1	0.7	1.1	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Minneapolis	1.7	1.0	1.4	11.9	13.4	19.9	23.3	24.4	44.6	34.0	55.0
Kansas City, Mo	3.2	2.2†	2.6	4.7	14.4	22.8	16.7#				
Kansas City, Kan	3.7	4.9	2.4	4.6	9.8	23.1	12.4#				
Des Moines	4.3	4.8	5.5	5.2	15.1	16.6	15.1	23.8#			
St. Louis	4.3	4.6	3.7	10.2	16.1	24.4	23.7	19.4	43.3	62.9	67.7
Wichita	4.6	2.5	2.5	4.2							
Omaha	4.7	2.7†	0.9	6.4	22.9	35.3	15.3	24.5	20.5	28.2	82.9

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

# Incomplete data

lower averages for 1930-1934 than for the preceding quinquennium, remarkable reductions having occurred in the five cities that had the poorest 1925-1929 rates: Detroit (from 197 to 48), Cleveland (from 153 to 25), Chicago (from 117 to 43), Youngstown (from 105 to 33) and Milwaukee (from 85 to 20). The average for the group as a whole for 1930-1934 is less than one-third that for 1925-1929 (3.66 as compared with 11.21).



The cities of the East South Central states (table 5) are the only group in the country which does not show a brilliant lowering of rate in a comparison of the averages for 1925-1929 and 1930-1934. For this group the two averages are almost identical (6.34 and 6.36). Whereas their rate for 1925-1929 was the second best in the country (and practically the same as the best,

TABLE 7—*Death Rates of Eight Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1930-1934	1934	1933	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
New Orleans	5.5	6.8	2.7	8.5	6.5	11.0	10.6	10.2	11.5	17.1	51.3
Houston	5.6	6.8	8.3	8.2	0.4	0.1	7.8	10.5	4.2 <sup>†</sup>	2.4	1.8
San Antonio	5.6	2.0 <sup>†</sup>	6.1	10.3	7.7	8.7	6.7	7.6	17.1	20.0	4.4
Oklahoma City	5.7	4.6	8.9	10.9							
Tulsa	6.8	3.4	0.0	12.5	8.3 <sup>‡</sup>						
Fort Worth	7.2	8.5 <sup>†</sup>	9.4	10.8	1.7 <sup>‡</sup>	2.6 <sup>‡</sup>	2.0	2.8	5.4		
El Paso	8.0	10.4	9.3	7.3	20.0	17.0	29.2				
Dallas	9.7	6.5	12.0	9.8	8.3	7.4	0.9	8.1	16.9	16.0	21.8

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.  
‡ Incomplete data.

TABLE 8—*Death Rates of Eleven Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1930-1934	1934	1933	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Salt Lake City	0.3	0.0	0.0	10.1	12.5	14.5	15.1	34.2	46.0	14.8	50.7 <sup>‡</sup>
Seattle	0.4	0.0	0.0	1.4	6.6	5.5	5.2	12.5	13.4 <sup>‡</sup>	27.2 <sup>‡</sup>	
Spokane	0.7	0.0	0.0	7.5	11.3	4.2	7.0	25.8		50.5 <sup>‡</sup>	18.1
Long Beach	0.8	0.0	0.6	2.6	10.4 <sup>‡</sup>						
San Francisco	1.2	0.1 <sup>*</sup>	1.2	4.6	23.0	17.0	9.2	14.4	44.2	21.0	54.8
Portland	1.3	0.6 <sup>†</sup>	1.0	6.4	11.3	6.0	12.3	12.2	20.2		
Oakland	2.0	2.7	0.7	7.4	18.8	8.1	10.3	16.1	29.1		
San Diego	2.9	1.9 <sup>†</sup>	4.9	6.6	12.2	10.5	8.0	5.8	2.4		
Denver	3.9	4.4	2.0	8.9	23.2	0.7	10.2	20.5	29.6	27.3	180.2
Tacoma	3.9	0.9 <sup>*</sup>	0.9	9.3	12.4	7.7 <sup>‡</sup>					
Los Angeles	4.8	3.0	3.7	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0

\* All of the diphtheria deaths reported were stated to be in nonresidents.

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

‡ Diphtheria deaths from Chapin's Municipal Sanitation.

# Incomplete data.

which was 6.28, for the Mountain and Pacific group) their rate for 1930-1934 is the next to the worst (and virtually the same as the worst, which is 6.55, for the West South Central group). Four of the six cities have higher averages for 1930-1934 than for the preceding period, the largest increase being that for Knoxville (from 6.3 to 9.6), a city that has had one of the ten highest rates in the country for every year beginning with 1931. Birmingham and Nashville have lowered their averages, but still Nashville appears with Knoxville and Chattanooga among the cities with the ten highest (1930-1934) averages (table 9). Comparing the 1934 rates with those for 1933, we find a slight increase in the group rate (7.00), which is the highest in the country, as it was also in 1933 (6.84). Birmingham and Memphis are the only members of the group in which the 1934 rates are not higher than those for 1933. The other four cities had high rates in 1933 and higher in 1934 and hold second, third, fifth and sixth places on the list of ten cities with the highest 1934 rates in the country (table 11).

The cities of the West North Central states (table 6) had a few more diphtheria deaths in 1934 than in 1933, and three of the nine cities had higher rates. Duluth, however, had its second successive year without a diphtheria death the fourth such year in its history. In five-year averages, Wichita is the only city in the group which did not have a lower rate for 1930-1934 than

for the preceding period. The improvement is most conspicuous in Minneapolis, which had the highest 1925-1929 average in the group (11.9), double that of its twin city, St. Paul, the 1930-1934 rate for Minneapolis (1.7) is exactly one-seventh its preceding average and only a trifle higher than the corresponding rate for St. Paul. St. Louis has likewise shown great improvement, its 1930-1934 average being 4.3 as compared with a 1925-1929 average of 10.3. Duluth, for both periods, has one of the best national records (rates of 2.0 and 0.4, table 10). The group rate for the past five years is less than half of the rate for the preceding period and is the third best in the country.

The West South Central cities (table 7) considerably bettered their five-year average in 1930-1934, reducing it from 9.24 to 6.55, but this was a modest improvement compared with the halving and quartering done by six of the other groups, and the West South Central rate for 1930-1934 is the highest group rate in the country. El Paso is the only city in the group with a higher average for 1930-1934 than for 1925-1929, although the two averages for Dallas are practically the same (9.7 and 9.8). For the year 1934 there were 26 fewer diphtheria deaths in this group than in 1933, and notably lower rates are found for Fort Worth, Dallas and San Antonio. Three of the eight cities reported increased rates for 1934, the largest increase being for New Orleans (from 2.7 to 6.8). El Paso and New Orleans have among the ten highest 1934 rates in the country (table 11), and Dallas, El Paso, Fort Worth and Tulsa appear on the list of the ten cities with the highest 1930-1934 averages (table 9).

Four of the Mountain and Pacific cities (table 8) report no diphtheria deaths in 1934. For Salt Lake City, Seattle and Spokane this means two successive

TABLE 9—*Ten Highest Diphtheria Averages for 1930-1934*

Dallas	9.7	El Paso	6.0
Knoxville	9.6	Camden	7.7
Lowell	9.4	Fort Worth	7.2
Somerville	9.0	Chattanooga	6.8
Nashville	8.2	Tulsa	6.8

TABLE 10—*Ten Lowest Diphtheria Averages for 1930-1934*

Grand Rapids	0.3	New Haven	0.5
Louisville	0.3	Yonkers	0.6
Salt Lake City	0.4	Rochester	0.7
Duluth	0.4	Spokane	0.7
Seattle	0.4	Long Beach	0.8
Syracuse	0.4		

TABLE 11—*Ten Cities with Highest Diphtheria Death Rates for 1934*

Lowell	15.0	Nashville	8.3
Louisville	11.3	Atlanta	7.5
Knoxville	10.8	Jacksonville	7.2
El Paso	10.4	New Orleans	6.8
Chattanooga	9.7	Somerville	6.6

years without a death from diphtheria, while Long Beach had only one death (and that in a nonresident) during the same period. San Francisco and Tacoma had only one diphtheria death each in 1934, in both instances in a nonresident. Seven of the eleven cities have 1934 rates below 1.0. Oakland and Denver are the only cities in the group showing an increase in 1934 as compared with 1933. The 1934 group rate is lower than the rate for 1933 (1.74 and 1.99). The group rate for 1930-1934 is less than half of the correspond-



ing rate for 1925-1929, and the 1930-1934 average for every one of the eleven cities is likewise lower than its preceding five-year rate. A striking reduction is that of Salt Lake City (from 10.1 to 0.3), other notable decreases occurred in Spokane, Tacoma, Portland and Denver. Four of the ten cities with best 1930-1934 averages in the country are found in this group. Salt

TABLE 12—Fifteen Cities with No Diphtheria Deaths in 1934

Cambridge	Long Beach	South Bend
Canton	New Bedford	Spokane
Duluth	New Haven	Springfield
Elizabeth	Salt Lake City	Syracuse
Grand Rapids	Seattle	Utica

TABLE 13—Cities Showing a Continuous Decline in Diphtheria Death Rates (1-Year Averages) from 1890 Through 1934\*

Baltimore	Hartford	New York
Cincinnati	Jersey City	Philadelphia

\* These are the same cities that were on the corresponding list in 1929 except for Camden. When the rates for Camden for 1925-1929 were recalculated in 1930 on the basis of the 1930 census, the 1925-1929 rate became larger than the one for 1920-1924. Camden therefore, did not really belong in this list in 1929.

TABLE 14—Number of Cities with Various Diphtheria Death Rates

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5	0 0
1890-1894	64	52	60	61	62	2	0
1895-1899	66	54	53	63	65	1	0
1900-1904	68	22	46	64	66	2	0
1905-1909	72	3	43	66	71	1	0
1910-1914	79	1	36	63	78	1	0
1915-1919	84	0	25	62	81	3	0
1920-1924	88	0	14	65	86	2	0
1925-1929	92	0	1	22	67	25	0
1930	93	0	2	11	32	61	3
1931	93	0	0	3	29	64	4
1932	93	0	0	5	27	66	5
1933	93	0	0	4	21	72	11
1934	93	0	0	4	17	76	16
1930-1934	93	0	0	0	24	69	0

Lake City, Seattle, Spokane and Long Beach (table 10). The group rate (2.69) for 1930-1934 is a close second to the Middle Atlantic rate (2.50), which is the best in the country.

To summarize the diphtheria experience of the ninety-three cities during the past five years. The East South Central group (table 5) had a 1930-1934 rate about the same as its rate for 1925-1929 (table 16), while the other seven groups showed remarkable decreases, their 1930-1934 averages being the following fractions of those for the preceding period: 25 per cent (Middle Atlantic), 33 per cent (East North Central), 41 per cent (New England and West North Central), 43 per cent (Mountain and Pacific), 48 per cent (South Atlantic) and 61 per cent (West South Central). Six of the eight geographic divisions had low 1930-1934 averages, ranging from 2.50 for the Middle Atlantic cities to 3.66 for those of the East North Central states, the East South Central and West South Central averages were 6.36 and 6.55 respectively.

All the cities had 1930-1934 averages below 10.0, and sixty-nine had rates below 5.0 (table 14). Ten cities (not counting South Bend, for which data are lacking) had higher rates for 1930-1934 than for 1925-1929, but in only the following three did the amount of increase exceed 1.0: Somerville, Knoxville, Louisville. Of the

ten cities with highest 1930-1934 averages (table 9), four were in the West South Central states, three in the East South Central, two in New England and one in the Middle Atlantic group. Whereas the lowest 1925-1929 average was 1.4, there were ten rates for 1930-1934 that were below 1.0 (table 10), occurring in the following groups of cities: four in the Mountain and Pacific group, three in the Middle Atlantic cities and one each in New England, the East North Central and West North Central groups. Five of the ten cities with lowest rates for 1930-1934 were on the corresponding list for 1925-1929 (Duluth, Grand Rapids, New Haven, Seattle and Syracuse).

Apparently the tremendous improvement in diphtheria in the large cities, indicated by the comparison of the 1925-1929 and the 1930-1934 averages, became established before 1934. In any case, for the country as a whole the year 1934 had only forty fewer diphtheria deaths than 1933 (table 15), whereas, beginning with 1928 up through 1933, the annual diminution had ranged from 175 to 911 deaths. In 1934 four of the geographic sections had slightly increased rates and the other four had decreases, the decreases for New

TABLE 15—Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1934\*

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 Population
1923	31,060,343	4,078†	13.13
1924	31,722,841	3,439	10.84
1925	32,384,834	5,133	9.67
1926	33,046,827	3,106	9.40
1927	33,709,820	3,493	10.36
1928	34,370,813	3,170	9.24
1929	35,032,806	2,738	7.82
1930	35,694,802	1,827	5.12
1931	36,356,812	1,365	3.74
1932	37,018,812	1,191	3.21
1933	37,684,812	861	2.32
1934	38,346,812	821	2.23‡

\* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.

† Data for North Worth lacking.

‡ The rate for the ninety-three cities in 1934 is 2.26 (population 3,437,812; diphtheria deaths 845). The corresponding rates in 1930, 1931, 1932 and 1933 were respectively 5.12, 3.72, 3.25 and 2.33.

TABLE 16—Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	(1933 ) Popula tion	Diphtheria Deaths		Diphtheria Death Rates			
		1934	1933	1934	1933	1930- 1934	1925- 1929
New England	2 624,505	44	70	1 68	2 66	3 38	8 84
Middle Atlantic	12,952,300	211	102	1 63	1 47	2 60	9 97
South Atlantic	2,367,307	70	83	2 96	3 49	3 54	7 37 *
East North Central	9 643,100	182	171	1 89	1 75	3 66	11 21 *
East South Central	1,242,600	87	85	7 00	6 84	6 36	6 34
West North Central	2 704,500	78	68	2 81	2 50	3 22	7 82
West South Central	1 834,800	106	132	5 48	6 73	6 55	9 24 *
Mountain and Pacific	3,968 400	69	80	1 74	1 99	2 69	6 28

\* Lacks data for 1925 for Jacksonville and Miami.

† Lacks data for South Bend.

‡ Lacks data for Oklahoma City for 1925 and 1926.

England and the West South Central cities being fairly large. Among the ten highest 1934 rates (table 11) are represented two New England cities, two South Atlantic, two West South Central and four East South Central. Of the fifteen cities without a single diphtheria death in 1934, four are in New England, four in the Mountain and Pacific states, three from both the Middle Atlantic and East North Central groups, and one from the West North Central cities. Eight-of

these fifteen cities also had clear records in 1933, for only four cities was 1934 the first year without a death from diphtheria

It is striking that the East South Central cities seem to have shared less than the other geographic divisions in the great reduction in diphtheria mortality in the last five years. In this connection it may be mentioned that a recent study<sup>3</sup> of diphtheria mortality in the white and Negro populations in various American cities indicates that Negroes have a lower mortality from diphtheria than does the white population. From the experience of the other groups of cities dealt with in the present article, diphtheria is proving itself amenable to control measures

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT  
HOWARD A. CARTER Secretary

### VICTOR ELECTROSURGICAL MACHINE ACCEPTABLE

Manufacturer General Electric X-Ray Corporation, Chicago  
This device is recommended for electrosurgery only. It is constructed similarly to the other Victor machines. The spark gaps, transformer, 60 cycle reactance and condensers are of the same construction as in other machines. The construction the mounting and the insulation are satisfactory. A single switch throws the connections from "scalpel" to "coagulation". The switch mounting is firm.

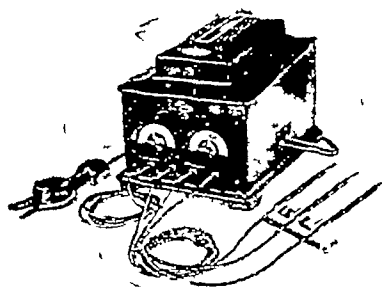


Fig 1—Victor Electrosurgical Machine.

At various loads this unit was tested to determine the power efficiency and frequency. The frequency varies with the variometer setting, staying, however, within a 400 to 1,000 kilocycle per second range. The frequencies are well above neuromuscular response. The efficiency varies from 8 to 30 per cent, depending on the conditions. The high frequency power generated varies from

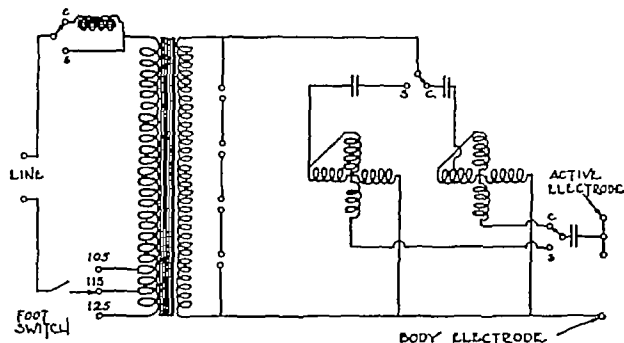


Fig 2—Circuit of Victor Electrosurgical Machine

46 to 177 watts for the "scalpel" connection and from 15 to 90 watts for "coagulation"

In a clinic acceptable to the Council this unit has been tried out under practical conditions in surgery and has been found to come up to expectation.

In view of the foregoing, the Council voted to include the Victor Electrosurgical Machine in its list of acceptable devices

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

#### DEXTROSE (See New and Nonofficial Remedies, 1935, p 280)

The several accepted solutions of dextrose and dextrose in physiologic solution of sodium chloride (The Cutter Laboratory) marketed in 1 000 cc. size Saftiflasks are also supplied in 500 cc. size Saftiflasks

#### DEXTROSE (See New and Nonofficial Remedies, 1935, p 280)

The Cutter Laboratory, Berkeley, Calif

The following dosage forms have been accepted

*Solution Dextrose U S P 2 1/2% in Physiologic Solution of Sodium Chloride in Saftiflask Container.* Each Saftiflask contains 1 000 cc. of a solution containing dextrose U S P 26.25 Gm and sodium chloride, 8.5 Gm

*Solution Dextrose U S P 5% in Physiologic Solution of Sodium Chloride in Saftiflask Container.* Each Saftiflask contains 1 000 cc. of a solution containing dextrose U S P 52.5 Gm and sodium chloride 8.5 Gm

*Solution Dextrose U S P 10% in Physiologic Solution of Sodium Chloride in Saftiflask Container.* Each Saftiflask contains 1 000 cc. of a solution containing dextrose U S P 105 Gm and sodium chloride 8.5 Gm

*Solution Dextrose U S P 20% in Fractionally Distilled Water in Saftiflask Container.* Each Saftiflask contains 1 000 cc. of a solution containing dextrose U S P 210 Gm

*Solution Dextrose U S P 25% in Fractionally Distilled Water in Saftiflask Container.* Each Saftiflask contains 1 000 cc. of a solution containing dextrose U S P 262.5 Gm

#### SKIODAN (See New and Nonofficial Remedies, 1935, p 254)

The following dosage form has been accepted  
*Tablets Skiodan 1 Gm*

### PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT  
PAUL NICHOLAS LEECH Secretary

#### THIOGLYCEROL SOLUTION 1 50 (ABBOTT)

In this issue of THE JOURNAL there is an article by Dr Leon E Sutton on "Thioglycerol—A More Stable Sulphydryl Compound for Use in the Healing of Wounds." At the suggestion of the author, the Abbott Laboratories presented Thioglycerol Solution 1 50 to the Council so that its present status could be reported concurrently with the article.

Thioglycerol Solution 1 50 is one part alpha mono-thioglycerol ( $\text{CH}_2\text{OHCHOHCH}_2\text{SH}$ ) in fifty parts by volume of glycerol

Dr Sutton's article is apparently the first additional report on the use of sulphydryl compounds in the healing of wounds since the publication of an article on cysteine hydrochloride (Brunsting, L. A., and Simonsen, Daisy G. *Cutaneous Ulcers Treated by the Sulphydryl Containing Amino Acid Cysteine* THE JOURNAL, Dec 16, 1933, p 1937). Subsequently the Council issued a preliminary report on cysteine hydrochloride (THE JOURNAL, March 24, 1934, p 929), which declared the available evidence insufficient.

It is claimed that thioglycerol is more stable (less readily changed chemically and hence less readily rendered inactive) than its predecessors thioglucose, which stimulated bacterial growth as well as cell proliferation, thiophenol thioresol, which permitted an exuberance of granulation tissue (Reimann S. P. *Use and Reasons for the Use of Thiocresol to Stimulate Wound Healing* THE JOURNAL, May 3, 1930, p 1369), and cysteine hydrochloride. Thioglycerol Solution 1 50 has a hydrogen sulphide odor, which is avoided with cysteine hydrochloride, but retains an advantage over thiocresol in that it counteracts the formation of excessive granulation tissue.

One part of Thioglycerol Solution 1 50 diluted with 100 parts by volume of glycerin U S P or an aqueous glycerin solution containing 70 per cent glycerin or water is submitted for use in the treatment of sluggish wounds such as those due to burns and in bed sores and other slow healing wounds. This product is definitely contraindicated by the nature of its action in any wound in which there is possibility of neoplasm. Dr Sutton reports satisfactory healing in all but sixteen of 208 cases treated. Thioglycerol has replaced cysteine hydrochloride at the clinic reporting most of the work with the latter product.

In the opinion of the Council further studies should be made on the stability of thioglycerol under usual ordinary pharmaceutical and chemical conditions, further investigations are also needed to determine more accurately its scope of usefulness and its stimulating action of epithelial proliferation while inhibiting excessive granulations. The Council, therefore, decided to postpone further consideration of Thioglycerol Solution 1 50 until this additional evidence becomes available.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG Secretary



### TREESWEET PURE CALIFORNIA ORANGE JUICE

**Manufacturer**—TreeSweet Products Company, Los Angeles  
**Description**—Heated California Valencia orange juice practically equivalent to fresh orange juice in vitamin C content.

**Manufacture**—Selected tree ripened fruit, from orchards not sprayed with arsenical sprays, is washed between brushes, dried, inspected, automatically cut in halves and reamed by hand against revolving burrs. The juice is strained, rapidly heated to such temperature as will insure keeping qualities and avoid unnecessary loss of natural flavor, automatically canned while hot, sealed under vacuum and immediately cooled. Stainless steel tubing is used exclusively throughout the plant.

Analysis (submitted by manufacturer) —		per cent
Moisture		85.9
Total solids		14.1
Ash		0.4
Fat (ether extract)		0.1
Protein (N $\times$ 6.25)		1.1
Reducing sugars as invert sugar		5.6
Sucrose (copper reduction method)		4.8
Crude fiber		0.02
Carbohydrates other than crude fiber (by difference)		11.5
Titratable acidity as citric acid		1.0

**Calories**—0.6 per gram 17 per ounce

**Vitamins**—Biologic tests show that this canned orange juice is equivalent in vitamin C content to freshly extracted orange juice.

**Claims of Manufacturer**—Retains practically all the nutritional values of natural orange juice. For all dietary and table uses.

### CELLU BARTLETT PEARS PACKED IN WATER WITHOUT ADDED SUGAR OR SALT

**Distributor**—The Chicago Dietetic Supply House Inc., Chicago

**Packer**—Eugene Fruit Growers Association, Eugene, Ore.

**Description**—Canned cooked Bartlett pear halves packed in water without added sugar or salt.

**Manufacture**—The method of manufacture is essentially the same as for Cellu Juice-Pak Bartlett Pears (THE JOURNAL,

Aug 4, 1934, page 341), with the exception that the fruit is picked in water.

**Analysis** (submitted by distributor) —

	per cent
Moisture	92.1
Total solids	7.9
Ash	0.2
Fat (ether extract)	0.2
Protein (N $\times$ 6.25)	0.3
Reducing sugars as invert sugar	4.3
Sucrose	0.6
Crude fiber	1.1
Carbohydrates other than crude fiber (by difference)	6.1

**Calories**—0.3 per gram, 9 per ounce

**Claims of Distributor**—For diets in which sweetened fruit is proscribed.

### SUNSHINE BRAND EVAPORATED MILK

**Manufacturer**—The Defiance Milk Products Company, Defiance Ohio

**Description**—Unsweetened, sterilized evaporated milk. The composition and procedure of evaporation and canning are essentially the same as for the usual evaporated milk (THE JOURNAL, April 16, 1932, p 1376).

### CELLU APRICOTS PACKED IN WATER WITHOUT ADDED SUGAR OR SALT

**Distributor**—The Chicago Dietetic Supply House, Inc., Chicago

**Packer**—Hunt Brothers Packing Company, San Francisco

**Description**—Canned cooked halved and stoned apricots packed in water without added sugar or salt.

**Manufacture**—The method of manufacture is essentially the same as for Cellu Juice-Pak Apricots (THE JOURNAL, Sept. 8, 1934 page 755), with the exception that the fruit is packed in water.

**Analysis** (submitted by distributor) —

	per cent
Moisture	91.7
Total solids	8.3
Ash	0.3
Fat (ether extract)	0.1
Protein (N $\times$ 6.25)	0.6
Reducing sugars as invert sugar	3.0
Sucrose	3.4
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	7.0

**Calories**—0.3 per gram 9 per ounce

**Claims of Distributor**—For diets in which sweetened fruit is proscribed.

### HEINZ STRAINED CEREAL

**Manufacturer**—H J Heinz Company, Pittsburgh

**Description**—Strained cooked wheat embryo, farina, cracked whole wheat and rolled oats.

**Manufacture**—Equal weights of wheat embryo, wheat middlings (farina), cracked whole wheat and rolled oats are cooked in water at atmospheric pressure, strained in an atmosphere of steam to remove all coarse particles, adjusted to a definite moisture content, vacuumized to remove air, filled into lacquer-lined cans, sealed under "vacuum" and processed.

**Analysis** (submitted by manufacturer) —

	per cent
Moisture	88.4
Total solids	11.6
Ash	0.3
Fat (ether extraction method)	1.0
Protein (N $\times$ 6.25)	2.9
Reducing sugars as invert sugar	0.7
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	7.2
Calcium (Ca)	0.01
Phosphorus (P)	0.07
Iron (Fe)	0.0005

**Calories**—0.5 per gram 14 per ounce

**Micro-Organisms**—Bacteriologic and incubation tests show the product to be sterile.

**Vitamins**—Vitamin biologic assay shows

13 Sherman units of vitamin B per ounce

7 Sherman Bourquin units of vitamin G per ounce

**Claims of Manufacturer**—Specially intended for infants, children, convalescents and special diets. Only warming is required for serving.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 15, 1935

## THE ORIGIN OF SYPHILIS

Still somewhat shrouded in obscurity, the origin of syphilis continues to be of historical and epidemiologic interest. The chief difficulties in securing an adequate solution seem to be inadequate evidence. The favorite theory has been that Columbus's men brought syphilis to Europe from Hispaniola (Haiti). The usual narration affirms that a new disease appeared at the end of the fifteenth century and spread over Europe. The physicians of the period were undecided as to the nature and cause of this extraordinary malady. Some considered it an epidemic disease caused by severe floods, which had occurred in the time of Alexander VI. Others thought that the disease was caused by a malign influence of the stars. Another and more commonly accepted theory, which was based on the accounts of Fallopius, de la Martiniere, Jacobus Carpus and Oviedo, states that the disease began at the time when Charles VIII, king of France, invaded Italy. When he attacked Naples, at that time guarded by Spanish troops, the latter were already infected through Columbus's returned voyageurs. The disease then spread to the invading French army. When the latter broke up and scattered, the disease attained epidemic proportions all over Europe.

Among modern historians, Iwan Bloch<sup>1</sup> has been the most important advocate for the American origin of syphilis, even to the extent of naming it the American disease. Previously it had been called the French disease, the disease of Naples, the Spanish pox or the Persian fire. Pusey<sup>2</sup> also is convinced that the preponderance of evidence for the American origin is overwhelming. Both the occidental and the oriental literature of antiquity contain descriptions of local genital diseases, but according to Pusey there seems to be no description of the syphilitic syndrome prior to 1493. The spread of syphilis can be traced in the local chronicles of the time. In 1495 it appeared in France, Germany and Switzerland, in 1496 in Holland and

Greece, in 1497 in England and Scotland and in 1499 in Hungary and Russia. Pusey further cites the entire absence of syphilitic bones of pre-Columbian origin in Europe as conclusive evidence of the absence of syphilis in Europe in pre-Columbian times. Virchow said that there was no reliable evidence of syphilitic bones on the European continent. These have been the most widely accepted views.

However, a minority has held opposed views. Gaston Vorberg<sup>3</sup> maintains that the disease did not appear for the first time in Europe at the end of the fifteenth century but was present in Europe before the discovery of America. He finds the explanations of Diaz de Isla and Oviedo untenable. Their fable as to the American origin appeared twenty-five years after the return from Haiti and appeared at the same time as the use of guaiac as a remedy. As evidence of the existence of pre-Columbian syphilis in Europe he presents a Neolithic humerus and ulna found in the Valley of Petit Morin, which are apparently typical specimens of gummatous osteomyelitis. He further mentions the opinion of Ales Hrdlička of the Smithsonian Institution, who after examining thousands of bones decided that there was no trustworthy evidence as to the existence of pre-Columbian syphilis in America. He also emphasizes the extreme susceptibility of the native Indians to the syphilitic infection as contracted from their European conquerors. As a significant historical point, Vorberg points out that none of Columbus's contemporary enemies accused him of having introduced the pestilence. Even Diego Alvarez Chanca, the physician on Columbus's second voyage, is silent about it. R. C. Holcomb<sup>4</sup> in a recent study expresses his skepticism as to the American origin of syphilis. He ascribes the sudden interest in syphilis at the end of the fifteenth century to several factors. One important influence was the European development of the art of printing and the consequent dissemination of knowledge. Another factor was the rise of the surgeon in public esteem. In those days the cultured, scholarly physician did not treat wounds and ulcers, these were left to the lowly barber and wound surgeon. Another difficulty was the confused state of ancient dermatology, which was finally evolving some definite disease entities out of the general hodgepodge. This applies particularly to leprosy, which was a broad term covering a multitude of dermatologic misconceptions. Holcomb cites the old surgeon Michael Angelus Blondus (1542), who believed in the great European antiquity of syphilis and identified it with disease described by Celsus and Paul of Aegina. C. S. Butler,<sup>5</sup> in an amusingly vigorous polemic on the question of the American origin of syphilis, accuses Bloch of slurring over many

<sup>3</sup> Vorberg Gaston. Ueber den Ursprung der Syphilis. Stuttgart, Puitmann 1924.

<sup>4</sup> Holcomb R. C. Christopher Columbus and the American Origin of Syphilis. U. S. Nav. M. Bull. 32: 401 (Oct.) 1934.

<sup>5</sup> Butler C. S. and Biello J. A. The Influence of Ruy Diaz de Isla upon the Question of the American Origin of Syphilis. South M. J. 26: 438 (May) 1933.

<sup>1</sup> Bloch Iwan. Der Ursprung der Syphilis. Jena. Fischer 1901 1911.  
<sup>2</sup> Pusey W. A. The History and Epidemiology of Syphilis. Springfield Ill. Charles C. Thomas 1933.

names of those who wrote concerning it from 1493 and selecting those who favor his views. He further points out that the Romans must necessarily have had syphilis because several of their surgeons, particularly Antyllus, a contemporary of Galen, developed a technic for the cure of aneurysm which held the field until John Hunter's operation was adopted about 1786. Aëtius of Amida in the sixth century A. D. also gave a perfectly good description of aortic aneurysm. Butler has studied Dürer's famous engraving "The First Syphilitic" and emphasizes the importance of the date (1484). He has critically analyzed the book of Ruiz Diaz de Isla and concludes that this author's material has little value in the discussion of the American origin of syphilis. In another recent study, Butler<sup>6</sup> maintains that Aurelius Cornelius Celsus described a type of genital sore that could have meant only the chancre. Though Celsus did not know it was the initial lesion of a constitutional disease, he did know that it was different from another common ulcer of the genitals, which he also describes. Capper<sup>7</sup> declares that the so-called lepers of Biblical times, who were cured in from seven to fourteen days, as well as the lepers of the Middle Ages, were in reality persons with the primary or secondary manifestations of syphilis. He maintains that syphilis among the Romans was described by Celsus, Aretaeus and Aëtius. In these descriptions one recognizes not only chancre and secondary syphilitic lesions but also tertiary manifestations of syphilis, including severe bone pains. Capper believes that syphilis did not exist in America before Columbus's arrival. The epidemic that was raging in Europe following the return of Columbus was due either to some disease or diseases other than syphilis or to syphilis plus the other diseases. Syphilis, however, played a minor part in the ravages resulting from the epidemic.

Another interesting question in the origin of syphilis, which has been neglected, concerns not so much the place as the mode of origin. When the first man came in contact with the first spirochete, a great biologic drama had its origin. Ashmead<sup>8</sup> has called attention to the work of David Forbes of the British Anthropological Society, who wrote that there was a disease of llamas identical with syphilis in man. The bones showed caries, osteitis and periostitis. This disease in llamas was curable by mercurial therapy. Forbes has maintained that syphilis arose in the highlands of Peru among the Indian pack drivers, who were accustomed to unnatural sex relations with llamas. In fact, this unnatural habit was so prevalent in ancient times that a law was evoked which forbade unmarried men to own llamas, and married herdsmen were obliged to bring their wives along. Ancient Peruvian pottery

also gives evidence of these bestial practices. Ashmead has suggested that syphilis in the llama might be a variant as is cowpox in the cow. This disease in llamas might profitably be studied by modern investigators, as the question has apparently been forgotten since the contributions of Forbes and of Ashmead.

The available evidence on the origin of syphilis is thus fragmentary and inadequate. The data afforded by the bone remains are doubtful, since these are frequently of uncertain date and have been altered by exposure to erosion. The historical epidemiology of the disease indicates no definite reference to the syphilitic syndrome as such until the last four years of the fifteenth century. This does not necessarily signify that syphilis first appeared in Europe at that time. What it really demonstrates is the important fact that intelligent observers at that time first became aware that there was a disease of venereal origin which began with a local genital lesion and later evolved into a constitutional infection. It seems rational to suppose that the general cutaneous manifestations had passed unrecognized in the general muddle of dermatologic concepts prevalent at the time (leprosy, mentagra, saphati, scabies, gorre). In modern times Ricord distinguished between gonorrhea and syphilis, which up to that time had been frequently considered as various manifestations of the same disease. It would be equally irrational to state that in Ricord's time two venereal diseases had originated. Similarly illogical would be a theory that tuberculosis had its origin at the time Robert Koch discovered the tubercle bacillus, although the disease was vaguely known for centuries as phthisis, the wasting disease, scrofula, and so on. The confusion has been aided considerably by the multiplicity of names given the disease.

#### NONCARDIAC EDEMA

Information concerning the chemical changes associated with the development of edema is being rapidly accumulated. These changes vary with the etiologic factors involved. In the extrarenal edema of nephrosis, for example, which Leiter<sup>1</sup> reviewed a few years ago, several facts seem well established. Leiter summarized these "aphorisms" as follows: 1. All cases of active nephrosis present a significant proteinuria. 2. During the active stage, all cases of nephrotic edema present low total plasma proteins or low plasma albumin, and hence all present low protein osmotic pressure. 3. Nephrotic edema may disappear spontaneously or be absent in spite of albuminuria and low plasma proteins when the albumin-globulin ratio is high enough to give an osmotic pressure of the serum proteins above 20 cm of water. 4. Nephrotic edema is more likely to yield to various diuretic measures when the plasma albumin is above than when it is below about 2 Gm per hundred

<sup>6</sup> Butler C. S. The Importance of the Chancre on the History of Medicine, U. S. Nav. M. Bull. 32: 270 (July) 1934.  
<sup>7</sup> Capper Aaron. An Epitome of the History of Syphilis. Arch. Dermat. & Syph. 12: 509 (Oct.) 1926.  
<sup>8</sup> Ashmead A. S. On the Question Whether Pre-Columbian Syphilis in America Originated by Unnatural Practices with Female Llamas. Am. J. Dermat. 13: 453 1909.

<sup>1</sup> Leiter Louis. Nephrosis. Medicine 10: 135 (May) 1931.

cubic centimeters 5 Nephrotic edema rarely persists any length of time after albuminuria has decreased markedly 6 The edema fluid in nephrosis, like that in "war edema" and experimental protein depletion, is a low protein filtrate of the plasma not involving the permeability of the capillaries in any way 7 Low plasma proteins are in themselves capable of accounting for the chronicity of nephrotic edema on a purely mechanical basis 8 Low plasma proteins and low protein osmotic pressure are certainly not the only factors in nephrotic edema but are probably the most significant

The experimental edema of proteinemia, whether produced by plasmapheresis or by diet, would seem to present many similarities to the edema of nephrosis. It is therefore especially interesting to examine two recent studies on experimental edema produced in these ways

Kirk's<sup>2</sup> investigations on dogs were undertaken to reveal the chemical changes accompanying edema formation resulting from lowering the serum proteins, especially the albumin fraction. Plasmapheresis was the method adopted to produce low proteinemia. The dogs were bled at intervals for periods varying from eleven to nineteen days, and the total amounts of blood removed varied from 6,620 to 10,090 cc. By this means a definite low proteinemia was produced in the dogs. Inversion of the albumin-globulin ratio did not occur. The regeneration of the serum globulin occurred at a greater rate than that of the albumin fraction after plasmapheresis was ended. Edema formation was associated with lowered serum protein. Increased blood chlorides occurred simultaneously with decreased gastric chlorides as well as lowered free and total gastric acidity. Studies of the serum  $p_H$  revealed no relationship between edema formation and acidosis. It was felt that the primary factor for edema formation is the lowering of the colloidal osmotic pressure of the plasma due to a low proteinemia.

A similar proteinemia in dogs was produced by Weech, Goettsch and Reeves<sup>3</sup> by dietary means. The standard diet used by them results in a progressive decline in the concentration of protein in the serum. A composite curve constructed from the observations on twenty-one animals disclosed a rapid initial fall and a slower subsequent decrease in albumin and total protein and an approximately constant level for globulin, though the latter was subject to wide fluctuations in individual animals.

What, then, are the common denominators of the studies? Loss of protein from the blood, no matter in what way produced, introduces a factor of considerable metabolic importance. This is accompanied by a low protein osmotic pressure, which is probably the principal factor in the development of edema. The rela-

tionship of the albumin-globulin fractions is not quite so clear cut and may perhaps be of less significance. The other coexisting chemical changes have also not been shown to be constant enough to play a significant part in this type of edema. The next step should be the investigation of the factors initiating protein loss other than gross dietary deficiencies like that in so-called war edema.

## Current Comment

### VITAMIN D CONTENT OF CERTAIN MAMMALIAN LIVERS

Little information has heretofore been available on the vitamin D content of mammalian livers. Devaney and Munsell<sup>1</sup> have recently tested this factor in calf, beef, lamb and hog livers. The line test in rats from 4 to 5 weeks old was used in making the assays. At the end of the three weeks dietary depletion period several individuals of each litter were fed liver. At least one animal was given 0.2 unit of the international standard vitamin D, and one was usually continued on the basal diet alone. Allowance was made for the phosphorus in the liver feedings by adding extra calcium in the form of calcium carbonate to the Steenbock diet in amounts large enough to maintain the calcium-phosphorus ratio of the whole diet equal to that of the rachitic diet alone. The vitamin D potency of each type of liver was estimated by using a curve of reference relating degrees of healing to the number of vitamin D units. The comparison thus available showed that beef and hog liver had between 0.4 and 0.5 international unit of vitamin D per gram, while lamb liver had slightly less than 0.2 unit and calf liver only about 0.1 unit. Mammalian liver is thus shown as a possible significant source of vitamin D in addition to its other qualities. The content is, however, negligible in comparison with more familiar sources of vitamin D such as cod liver oil, which contains 85 units per gram, or 315 units per standard teaspoonful.

### MORTALITY IN PEPTIC ULCER

The deaths charged to "ulcer of the stomach" in New York City from 1900 to 1933 forms the subject of a recent comment.<sup>1</sup> The death rate per hundred thousand of population has gone from 3.69 in 1900 to 6.77 in 1933, having reached its peak, 7.51, in 1928. On further examination the surprising fact is disclosed that there has been a definite decline in the death rate among females during this period. A striking change in the ratio between male and female deaths has thus occurred. At the beginning of the century the ratio was nearly 1:1, now it is approximately 5:1. A further apparent change in the mortality from peptic ulcer has been in the age group at which death occurred. Thus now, in sharp contrast with conditions three decades ago, the death rate in males has become high

2 Kirk, E. J. Studies of Edema Especially the Edema of Renal Origin. *Am. J. Clin. Path.* 5: 21 (Jan.) 1935.  
3 Weech, A. A., Goettsch, Elvira and Reeves, E. B. Nutritional Edema in the Dog. *J. Exper. Med.* 61: 299 (March) 1935.

1 Devaney, Grace M., and Munsell, Hazel E. Vitamin D Content of Calf, Beef, Lamb and Hog Liver. *J. Home Economics* April 1935.  
1 Some Puzzling Facts on Peptic Ulcer. *Quart. Bull. City of New York Department of Health* 2: 84 (No. 4) 1934.

at 40, even though the peak remains later in life. The reasons for the marked increase in mortality among males and the relatively earlier ages of death are uncertain. The answer is probably not to be found in consideration of mortality rates alone but must be sought in more inclusive morbidity studies.

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 central standard time). The next two broadcasts will be as follows:

June 20 Burns W. W. Bauer, M.D.  
June 27 Blood and Fire W. W. Bauer, M.D.

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company, each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 o'clock central standard time). The next two broadcasts will be as follows:

June 18 Only One Pair of Eyes W. W. Bauer, M.D.  
June 25 Speaker and topic to be announced.

Note: After these talks, broadcasts on both networks will be discontinued until further notice.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Bill Introduced**—H 523 proposes to limit the retail distribution of articles, devices, drugs and medicinal preparations which may be used as contraceptives or for the prevention of venereal disease to licensed physicians and registered pharmacists.

### CALIFORNIA

**Bill Enacted**—A. 603 has been enacted as c. 269, Laws, 1935, amending the law relating to county hospitals so as to require the admittance of any expectant mother, unable to pay for the necessary care, to any county hospital.

**State Medical Election**—Dr. Edward M. Pallette, Los Angeles, was chosen president-elect of the California Medical Association at the annual meeting, May 13-16, and Dr. Robert A. Peers, Colfax, was installed as president. Coronado was designated as the place for the next annual meeting.

**Society News**—Dr. Hugh Hampton Young, Baltimore, will address the San Francisco County Medical Society, June 28 on "Present Day Surgery of the Prostate."—Dr. Otto A. Houzavicka, San Diego, addressed the San Diego County Medical Society, May 14, on "Infection in the Blood Stream."

**Court Sustains Revocation of License**—The district court of appeal of the second appellate district sustained the California Board of Medical Examiners, March 19, in revoking the license of Dr. Eugene J. Rinaldo. The board revoked the license, Oct. 18, 1932 on the charge that Rinaldo had presented fraudulent credentials for state licensure. In 1933 Superior Judge Wilson overruled the board's decision.

**Bill Passed**—A. 2441 has passed the Assembly, proposing to prohibit the sale of dimorphonol or thyroid and compounds preparations or derivatives thereof, including all such substances as are or may hereafter be trade marked, patented or copyrighted and proprietary medicines, except on the written prescription of a licensed physician or "osteopathic physician duly licensed under the state medical practice act."

## COLORADO

**Society News**—Speakers before the Medical Society of the City and County of Denver, April 2, were Drs. George L. Monson and George F. Netherton, on "Acute Thyroid Crisis Following Thyroidectomy," Clarence B. Ingraham, Jr., "The Problem of Contraception," and Theodore E. Beyer, "Retropharyngeal Abscess." The society was addressed, April 22, by Dr. Herbert McLean Evans, Berkeley, Calif., on "Newer Conceptions of Pituitary Functions."

## CONNECTICUT

**Bill Passed**—H 852 has passed the House and the Senate, proposing to repeal the laws regulating the sale, distribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

**Bills Enacted**—The following bills have been enacted: S 396 requiring both parties to proposed marriages, as a condition precedent to obtaining licenses to wed, to present statements from licensed physicians that both parties have submitted to a Wassermann or Kahn or other similar laboratory blood test and that the result of such test has proved negative, and H 1152, authorizing the revocation of the license of any practitioner of the healing art who fails to file a birth certificate as required by law.

## DISTRICT OF COLUMBIA

**Medical Bills in Congress**—*Bill Introduced* H R 8387, introduced by Representative Fenerty of Pennsylvania, proposes to require the commission on licensure to practice the healing art in the District of Columbia to issue a license to practice the healing art in the District of Columbia to Dr. Ronald A. Cox, Washington.

## IDAHO

**Annual Registration Due July 1**—All practitioners of medicine and surgery holding licenses to practice in Idaho are required by law to register annually on July 1 with the Department of Law Enforcement, and at that time to pay a fee of \$2. If a licensee has not paid the annual registration fee by October 1, his license can be canceled but will be restored within five years thereafter on payment of the delinquent fees and a \$10 penalty. If a license has been canceled for more than five years, it can be reinstated only on the payment of \$25 and on the licensee's passing an examination the nature of which shall be determined by the Department of Law Enforcement.

## ILLINOIS

**Bill Passed**—S 238 has passed the Senate, proposing to so amend the medical practice act as to create a board of chiropractic examiners.

**Bill Introduced**—H 1085, to amend the medical practice act, proposes to raise the examination fee paid by an applicant for a license to \$20 and to raise the fee for a license without examination to \$50.

**Society News**—Dr. Ralph A. Kinsella, St. Louis, discussed "Occlusion of the Coronary Arteries" before the Adams County Medical Society in Quincy, May 15.—Dr. Abraham A. Low, Chicago, assistant state alienist, conducted a psychiatric clinic at the Anna State Hospital, Anna, April 25, before a special meeting of the Union County Medical Society.—At a meeting of the Peoria City Medical Society, June 4, Dr. Philip C. Jeans, Iowa City, discussed recent nutritional trends.—Dr. Clarence O. Sappington, Chicago, addressed the Central States Society of Industrial Medicine and Surgery at Rockford, May 21, on "Occupational Disease Hazards."

**Academy of Science Meeting**—The twenty-eighth annual meeting of the Illinois State Academy of Science was held at Bloomington, May 3-4. The following speakers, among others, participated in a program before the section on medicine and public health:

Dr. Joseph Howard Beard, health officer of the University of Illinois, Urbana, *Rickets—Its Cause, Effect and Prevention*.  
Dr. Clarence O. Sappington, consulting industrial hygienist, Chicago, *Significance of Occupational Diseases*.  
Fred W. Tanner, Ph.D., head department of bacteriology, University of Illinois, *Efforts to Control Quality of Foods in the United States*.  
Robert H. Gault, Ph.D., department of psychology, Northwestern University, Evanston, *Some Implications of Vibrotactile Research*.

**New Society of Bacteriologists**—The Society of Illinois Bacteriologists was organized, May 8, at a meeting in the University of Illinois College of Medicine, Chicago, with Fred W. Tanner, Ph.D., Urbana, professor of bacteriology, University of Illinois, as president, Dr. Frederick O. Tonney, director of research, Chicago Department of Health, vice president, and H. S. Shaughnessy, Ph.D., director of laboratories,



Illinois State Department of Public Health, Springfield secretary A board of eleven governors is to be selected, each representing a particular group of bacteriologists, with one elected at large. Five members will represent universities and other educational institutions. The new society will be the Illinois branch of the Society of American Bacteriologists.

#### Chicago

**Dr Taliaferro Awarded the Chalmers Medal**—The Chalmers Medal of the Royal Society of Tropical Medicine and Hygiene has been awarded to William H Taliaferro, Ph D, associate dean, Division of Biological Sciences, University of Chicago, and chairman of the department of hygiene and bacteriology, "in recognition of his valuable contributions to knowledge of the subject of animal immunity." The Chalmers Medal is granted every two years to a man under 45 years of age who has "contributed signally" to research in tropical medicine. Dr Taliaferro was recently appointed dean of the Division of Biological Sciences, succeeding Frank R Lillie, Ph D.

#### INDIANA

**District Meetings**—The thirty-first annual meeting of the Fourth District Medical Society was addressed in Rising Sun, May 16, among others, by Drs William B Adams, Hanover, on "Glandular Therapy."—At a joint meeting of the Fifth District Medical Society and the Vigo County Medical Society in Terre Haute, May 3, Dr Elmer L Sevringhaus, Madison, spoke on 'Pituitary and Ovarian Relationship in the Human Being'.—Speakers before the Sixth District Medical Society in Rushville, May 9, included Dr Stanley B Gordin, Connersville, on 'Uterine Hemorrhage'.—The Ninth District Medical Society was addressed in Tipton, May 22, among others, by Drs Luke W Hunt, Chicago, on "Scarlet Fever Immunization and Treatment", Aaron E Kanter, Chicago, "Practical Application of Gynecology for the General Practitioner," and George W Crile, Cleveland, "Acute Surgical Abdomen".—At a meeting of the Tenth District Medical Society in East Chicago, May 9, speakers were Drs Lewis M Hurvath, Boston, on 'Mechanism of Heart Beat and Electrocardiography', Ernest E Irons, Chicago, 'Arthritis', David S Hillis, Chicago, 'Treatment of Abortion', Isaac A Abt, Chicago, 'Care of the New-Born', Samuel W Becker, Chicago, 'Treatment of Syphilis,' and Max Cutler, Chicago, 'Newer Work in Treatment of Cancer by Radiation'.—Dr Cutler also addressed the Eleventh District Medical Society in Delphi, May 15, on tumors, and Dr Everett E Padgett, Indianapolis, gallbladder disease.—Dr Thurman R Rice, Indianapolis, among others, addressed the Twelfth District Medical Society in Lake James, May 23, on 'The Art of Living'.

#### IOWA

**State Medical Election**—Dr Prince E Sawyer, Sioux City, was chosen president-elect of the Iowa State Medical Society at its annual meeting in Davenport, May 10. Dr Thomas A Burcham, Des Moines was inducted into the presidency. The next annual session will be held at Des Moines, May 13-15, 1936.

**Dr MacEwen Named Dean of State University**—The appointment of Dr Ewen M MacEwen, professor and head of the department of anatomy, State University of Iowa College of Medicine, Iowa City, as dean, is reported. Since the resignation of Dr Henry S Houghton in 1932, the affairs of the college have been in charge of an interim committee composed of Drs John T McClintock, Howard L Beye and Everett D Plass. Dr Houghton left Iowa to become associate dean of the Division of Biological Sciences and director of the University Clinics of the University of Chicago, he has since resigned at Chicago to become advisory representative of the China Medical Board. Dr MacEwen was born in Greenwich P E I Canada, and is a graduate of the State University of Iowa College of Medicine, class of 1912. He has been head of the department of anatomy since 1931.

#### KENTUCKY

**Society News**—Drs William T McConnell, Louisville, and Robert P Ball Chattanooga, Tenn, addressed the Jefferson County Medical Society, May 6, on 'Obstetrical Work in Louisville Hospitals in 1933' and "X-Ray Examination of the Obstetric Patient, respectively."—At a meeting of the Fifth District Medical Society in Carrollton, May 9 speakers were Drs Fred W Rankin Lexington, on 'Lesions of the Colon and Rectum', Louis G Herrmann, Cincinnati, 'Obstructive Arterial Diseases of the Extremities—Treatment by Passive Vascular Exercises' and Henry Kennon Dunham, Cincinnati, 'Treatment of the Tuberculous Patient in the Home'.

Dr L Wallace Frank addressed the Louisville Surgical Society, May 10, on "Carcinoma of the Lip, Tongue and Oral Cavity".—Dr James R. Stites, Louisville, addressed the Society of Physicians and Surgeons, Louisville, May 16, on transurethral resection.—Dr Louis G Herrmann, Cincinnati, addressed the Louisville Medico-Chirurgical Society, April 12, on "The Physiologic-Pathologic Basis for the Treatment of Peripheral Vascular Diseases".—Drs Perry Bromberg, Nashville, Tenn., and William S Ehrlich, Evansville, Ind., addressed the Christian County Medical Society, Hopkinsville, April 16, on "Significance of Hematuria" and "Future Treatment of Prostatic Hypertrophy," respectively.

#### MICHIGAN

**Personal**—Howard B Lewis, Ph D, director of the University of Michigan College of Pharmacy and professor of physiological chemistry in the medical school, has been elected a member of the National Board of Medical Examiners of the United States, succeeding the late Prof Otto K. O. Folin of Harvard University.—Mr William J Burns, Detroit, executive secretary of the Wayne County Medical Society, was married, May 1, to Miss Josephine Alice Murphy. They left on an airplane for New York, going thence to California via the Panama Canal.—Dr Buell H Vanleuven, councilor of the thirteenth district, was elected mayor of Petoskey recently.—Dr Robert B Harkness, formerly of Houghton, has been named director of the health department of Eaton County.

**Eight Physicians Presented with Life Memberships**—At a testimonial dinner in the Jackson Country Club, Jackson April 11, life memberships in the Jackson County Medical Society were presented by eight physicians and one layman. Mr C B Hayes. The physicians are Drs Joseph C Kugler, Frederick W Rogers, Arthur J Roberts, Henry Gray Glover, William W Lathrop, Walter E Spicer, Jackson, Herbert H Frazier, Hanover, and James McColgan, Grass Lake. Drs Frazier and McColgan were unable to be present. The dinner was in recognition of their long years of service in the practice of medicine. The youngest physician was Dr Frazier, who is 66 years of age, and the oldest, Dr Spicer, 80 years. Tribute was paid to Mr Hayes for his part in forwarding the industrial fortunes of Jackson.

#### NEW YORK

**Health Officers' Conference**—The annual conference of health officers and public health nurses will be held at Saratoga Springs, June 26-28. The State Association of School Physicians and of the American Association for Hygiene and Baths will meet at the same time.

**Machine for Making Artificial Radium**—An appropriation at the University of Rochester will be made to cover the cost of building a machine to manufacture artificial radium, newspapers announce. The device, called a five million volt accelerator, will be the second of its kind in the country and will be assembled during the summer in the Bausch and Lomb Building under the direction of Lee A Dubridge, Ph D. The machine will manufacture artificial radium at less expense than the cost of true radium.

#### New York City

**County Society Library**—The library of the Medical Society of the County of Kings reported that in 1934 readers using its facilities increased to 14,164 from 13,079 in 1933. The number of books consulted was 62,079, and the number taken out for home use was 10,620. During the year 782 volumes were added to the library. It received regularly 1,500 current serial publications.

**Survey of Syphilis**—The New York City Department of Health is cooperating with the U S Public Health Service in making a survey during June on the incidence of syphilis. To assure as complete returns as possible, each physician, hospital and clinic will be provided with suitable instructions and record forms. According to New York *Medical Week* the study will be confidential, intended primarily for statistical purposes and not for the purpose of checking against previous reports submitted by physicians and clinics. Two questions will be asked. The number of early and late cases of syphilis diagnosed for the first time during the month of June and the number of early and late cases diagnosed before June 1 but treated or observed during the month of June.

**Woman's Hospital Eighty Years Old**—The Woman's Hospital founded by Dr J Marion Sims in 1855, marked its eightieth anniversary May 4, by a display of historic instruments and souvenirs. Among them were a medal of the Legion of Honor of France given to Dr Sims by Napoleon III in

recognition of his treatment of the Empress Eugenie and a specimen used during the operation. Portraits of many persons identified with the hospital and a copy of "Frank Leslie's Illustrated Weekly," showing the hospital's celebration of its first anniversary, were also shown. The Woman's Hospital is said to have been the first hospital in the world to be financially sponsored by women for treatment of diseases of women. It has occupied three buildings, the present one dating from 1906.

**Courses for Doctor of Medical Science Degree**—Graduate courses in the departments of forensic medicine, medicine, ophthalmology, pediatrics, radiology and surgery, some of which may lead to the degree of doctor of medical science, are announced by New York University College of Medicine. For admission, the college requires graduation from an approved medical college, completion of internship in an approved hospital, and approval by the department in which the work is to be taken. For the degree the following requirements are listed: (1) Not less than three years' full time work or the equivalent in the university or in laboratories or hospitals recognized by it, with at least one year at New York University, (2) intensive graduate training in the basic sciences and other fields as recommended by the departments concerned, (3) active experience of not less than eighteen months of full time work or the equivalent in wards, clinics and diagnostic laboratories of the clinical specialty in which the work for the degree is being done, (4) satisfactory performance in examinations, and (5) a thesis based on original work. The university announces that courses not leading to the degree are also offered in the departments mentioned.

**Council to Foster Research**—Formation of the Research Council of the Department of Hospitals to foster medical research in the municipal hospitals is announced in New York *Medical Week*. Efforts will be made to improve treatment of chronic diseases through a clinical division under a director to be appointed by the commissioner of hospitals after nomination by the College of Physicians and Surgeons of Columbia University. Mr. Marshall Field is chairman of the council, Mr. George MacDonald, vice chairman and Dr. Bernard Sachs, treasurer. Among twenty-nine other members are the following physicians:

George Bachr	William H. Park	Samuel J. Kopetzky
Ernst P. Boas	Douglas Symmers	James Alexander Miller
Arthur C. deGraff	Luther F. Warren	Walter W. Palmer
John A. Hartwell	Linn J. Boyd	Henry James Spencer
Emanuel Libman	Alfred E. Cohn	Bettina Warburg
Eugene L. Opie	Alphonse R. Dochez	

A public appeal is being made for \$25,000 to initiate the studies but it is hoped the city government will later appropriate funds to continue them.

## OHIO

**Health at Columbus**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million for the week ended June 1, indicate that the highest mortality rate (20.3) appears for Columbus and the rate for the group of cities as a whole, 11.5. The mortality rate for Columbus for the corresponding period last year was 16.3 and for the group of cities, 11.2. The annual rate for eighty-six cities for the twenty-two weeks of 1935 was 12.4 as against a rate of 12.3 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may increase the death rate.

**Graduate Clinic for Academy of Medicine**—The department of postgraduate medicine of the University of Michigan School of Medicine offered its third annual clinic for the Toledo Academy of Medicine, May 22, at the University Hospital Ann Arbor. In the morning, Drs. Willis S. Peck, Cyrus W. Strickler Jr., and Carl F. Huber discussed 'Results of Therapeutic Fever'. Henry Field Jr., 'Fusospirochetal Pneumonia' and Paul S. Barker, 'Pituitary Basophilism'. The following physicians participated in the afternoon session:

Franklin D. Johnston	Value of the Phase Angle in Diagnosing Hyperthyroidism
Reed M. Nesbit	Artificial Acidosis by Diet and Drugs in Treating Urinary Tract Infections
Stanley M. Goldhamer	Presence of the Blood Stimulating Factor in the Gastric Secretion of Patients with Pernicious Anemia
Richard H. Freyberg	Subcutaneous Insulin Injections and Their Reaction to the Stimulation of Appetite
Jerome W. Conn	Treatment of Diabetic Coma with Especial Relation to the Use of Sodium Bicarbonate
Frederick A. Collier	Water Balance in Preoperative and Postoperative Cases

## OKLAHOMA

**Society News**—Dr. Horace Reed, Oklahoma City, addressed the Kingfisher County Medical Society, Kingfisher, recently, on health insurance and socialized medicine. The society adopted a resolution expressing its opposition to the health insurance movement.

**State Medical Election**—Dr. Charles H. Haralson, Tulsa, was chosen president-elect of the Oklahoma State Medical Association at its annual meeting, May 13-15, and Dr. Louis H. Ritzhaupt, Guthrie, was inducted into the presidency. The next annual session will be held at Enid.

## PENNSYLVANIA

**Bill Introduced**—S. 1528 to amend the laws regulating the practice of osteopathy proposes to prohibit an osteopath from using the title 'Doctor' or the abbreviation 'Dr.' before his name without the word 'Osteopath' or 'Osteopathist' or the words 'Osteopathic Physician' immediately following his name.

**Radiological Society Meeting**—The Pennsylvania Radiological Society held its annual meeting in Pittsburgh, May 17-18. A symposium on radiation therapy was presented in the morning by Drs. Zoe Allison Johnston, Pittsburgh, John M. Keichline, Huntington, John F. McCullough, Pittsburgh, and Byron H. Jackson, Scranton, and Dr. Max Kahn, Baltimore. Other speakers included Drs. Josiah R. Eisaman, Pittsburgh, 'Roentgenological Study of the Chest with Iodized Oils', George W. Grier, Pittsburgh, 'Colitis', and Paul G. Bovard, Tarentum, 'Pneumoconiosis'.

## Philadelphia

**Abortionist Sentenced**—T. R. Anderson, a Negro, was sentenced, April 11, to serve from one to five years in the state penitentiary for performing a criminal abortion and practicing medicine without a license.

**Medical College News**—Dr. Esther M. Greisheimer, associate professor of physiology at the University of Minnesota Medical School, gave a series of lectures at the Woman's Medical College of Pennsylvania during April on physiology of the nervous system. Dr. Evelyn M. Anderson of McGill University Faculty of Medicine, Montreal, is guest lecturer during May on physiology of the endocrine system. Dr. David Riesman, Philadelphia, delivered the first Alpha Omega Alpha lecture at the college, April 16, on 'Bases of Medical Ethics'. Dr. Edward Martin, emeritus professor of surgical physiology, University of Pennsylvania School of Medicine, was awarded the honorary degree of doctor of laws by Temple University, June 13. The University of Pennsylvania recently received a portrait of Dr. Philip Syng Physick by Thomas Sully. Dr. Physick was professor of surgery at the university from 1805 to 1819 and professor of anatomy from 1819 to 1831. The portrait was presented by Mrs. John F. Lewis.

## Pittsburgh

**Society News**—Speakers at a meeting of the Pittsburgh Academy of Medicine, May 14, were Drs. Leslie H. Osmond on 'Present Status of Radiation Therapy', James D. Heard 'A Study of Electrocardiograms Derived from Eleven Fetuses Through the Medium of Direct Leads', and Cortlandt W. W. Elkin 'Evolution of Carbohydrate Diets in Diabetes Mellitus'. Dr. George E. Martin has been appointed director of the Pittsburgh Tuberculosis Hospital.

## SOUTH DAKOTA

**State Medical Election**—Dr. James L. Stewart, Nemo, was chosen president-elect of the South Dakota State Medical Association at its annual meeting at Pierre, May 15 and Dr. Albert S. Rider, Flandreau, was installed as president. Dr. Earle A. Pittenger, Aberdeen, was named vice president and Dr. John F. D. Cook, Langford, reelected secretary. The next annual meeting will be held at Sioux Falls. It was tentatively announced that the session would be a joint one with the state dental association.

## TEXAS

**Hospital News**—Three new units at the Veterans' Administration Facility, Waco, will be started about July 1. The administration has made \$1,081,500 available, including \$900,000 for 466 additional beds for white patients, 164 for Negroes and 138 for acute cases, it was stated.

**State Medical Election**—Dr. Howard R. Dudgeon, Waco, was chosen president-elect of the Texas State Medical Association at its annual meeting in Dallas, May 16 and Dr. John

H. Burleson, San Antonio, was inducted into the presidency. Vice presidents are Drs. Olin F. Gober, Temple Oscar M. Marchman, Dallas, and Thomas M. Dorbandt, San Antonio. The next annual session will be held in Houston.

**District Meeting**—The semiannual meeting of the South Texas District Medical Society was held in Beaumont, April 11-12. Among speakers were Drs. Titus H. Harris, Galveston, on "Psychiatry as Related to General Medicine"; Llewellyn H. Ledbetter, Beaumont, "Radiography of the Heart and Great Blood Vessels"; John R. Phillips, Houston, "The Thyroid and Its Surgical Considerations"; and George Sladczyk, Port Arthur, "Problems of Industrial Surgery." Dr. Samuel E. Thompson, Kerrville, spoke on medical economics at a banquet in the evening of April 11.

**Society News**—Drs. William S. Horn and Edwin G. Schwarz, Fort Worth, presented papers before the Tarrant County Medical Society, April 3, on "Pulmonary Indications for Therapeutic Abortion" and "Progress in Active and Passive Immunization of Children," respectively. Speakers before the Wichita County Medical Society, April 9, were Drs. Walter B. Whiting and Robert L. Hargrave, Wichita Falls, on diagnosis of heart disease and fibrosarcoma of the extremities, respectively. The Texas Society for Mental Hygiene was recently organized with Dr. James Shirley Sweeney, Dallas as president of the board of directors. Speakers at a special meeting of the Dallas County Medical Society, Dallas, May 2, were Drs. John O. McReynolds, on "Intra-Ocular Malignant Neoplasms"; Robert L. Moore, "Use of Sodium Lactate in Treatment of Acidosis"; Glenn D. Carlson, "Multiple Myeloma," and Robert H. Milwee, "X-Rays and Radium in Carcinoma of the Cervix and Fungus."

## VIRGINIA

**Society News**—Dr. Lewis E. Jarrett, superintendent of the hospital division, Medical College of Virginia, Richmond, was elected president of the Virginia Hospital Association at its annual meeting in conjunction with the associations of North and South Carolina in Greensboro, N. C., April 12. Drs. Arthur C. Christie and William P. Herbst Jr., Washington, D. C., addressed the Roanoke Academy of Medicine, April 1. Dr. Richard Kovacs, New York, addressed the Richmond Academy of Medicine, April 23, on the present status of physical therapy.

## WASHINGTON

**Society News**—Speakers at the meeting of the King County Medical Society, Seattle, May 20 were Drs. Byrl R. Kirklin and David M. Berkman, Rochester, Minn., on roentgenologic examination of the alimentary tract and treatment of peptic ulcer, respectively.

**Personal**—Dr. Clyde B. Hutt has been named in charge of the city-county health department at Vancouver, succeeding Dr. Robert W. Armstrong, resigned. Dr. Walter Kelton, Seattle, has been appointed surgeon to federal prisoners to succeed Dr. Don H. Palmer, who resigned after several years' service. Dr. Walter C. Aylen has succeeded Dr. William H. Brandt as health officer of Auburn. Dr. Brandt has resigned.

**Annual Graduate Course**—The University of Washington, Seattle, will present its annual graduate course of lectures and clinics, July 15-19. Lecturers will be Drs. Arthur E. Hertzler, Halstead, Kan., who will deal with the thyroid, gastro-intestinal and gynecologic diseases; Oliver H. P. Pepper, Philadelphia, evolution of disease, heredity in diseases of the blood, late effects of congenital lesions trichiniasis, hypotension and Hodgkin's disease; Paul J. Hanzlik, Stanford University, digitalis, hypnotics, new metabolic stimulants and other pharmacologic subjects; and Russell S. Ferguson, New York, on applied urology with special emphasis on malignancy.

## WISCONSIN

**William Snow Miller Lecture**—Leslie B. Arey, Ph.D., Robert Laughlin Rea, professor of anatomy, Northwestern University Medical School, Chicago, delivered the annual William Snow Miller lecture at the University of Wisconsin May 2. His subject was entitled "Factors That Influence the Course of Wound Healing."

**Bill Passed**—A. 422 has passed the Assembly and the Senate proposing to amend the laws relating to the practice of chiropractic so as to raise the annual registration fee required of chiropractors to \$5 and to make the annual registration of a chiropractor contingent on his attending within the preceding year at least one of the two day "educational" programs conducted by the Wisconsin Chiropractic Association.

**Personal**—Dr. Marcos Fernan-Nunez, professor of pathology and bacteriology, Marquette University School of Medicine, Milwaukee, has been elected an academician of the National Academy of Medicine of Spain. Dr. Herman A. Schulz, Edgar, has been appointed coroner of Marathon County, succeeding the late Dr. John R. M. Frawley, Wausau. Dr. William C. Felton has been elected health commissioner of Appleton, succeeding Dr. Frank P. Dohearty, who held the position for seven years.

## PHILIPPINE ISLANDS

**Society News**—Dr. Pedro T. Lantin, Manila, addressed a recent meeting of the Bulacan Medical Society on "Blood Transfusion in the Treatment of Typhoid Fever." Speakers at the annual meeting of the Culion Medical Society in January were Drs. Jose O. Nolasco, Culion, on "The Leprosy Problem in the Philippines and Leprosy in Norway," and Drs. Casimiro B. Lara and Bonifacio de Vera, Culion, "Clinical Observations with Respect to Early Leprosy in Children of Lepers."

## GENERAL

**Bequests and Donations**—The following bequests and donations have recently been announced:

Community Hospital Big Rapids, Mich. \$6,000 by the will of the late Mrs. C. H. Milner.

Under the wills of Louis and Henry L. Weinberger the following will receive \$10,000 each: Eaglesville Sanatorium, Jewish Hospital Association of Philadelphia, Temple University, Lankenau, Jefferson Medical College and University of Pennsylvania and Mount Sinai hospitals. \$2,000 each will go to Women's Homeopathic, Northern Liberties, Northwestern General, St. Luke's and Children's hospitals.

**Memorial to Dr. O'Dwyer**—The eleventh annual meeting of the American Association of the History of Medicine in Atlantic City, May 6, was dedicated to the memory of Joseph O'Dwyer, New York, who, fifty years ago, demonstrated improved laryngeal intubation and published his first article on the new life saving treatment of laryngeal diphtheria. Through the courtesy of Dr. James W. Crane of the University of Western Ontario Medical School, London, and Dr. Jabez H. Elliott, Toronto, there was exhibited at the meeting both Dr. O'Dwyer's "doctor's bag" in which he transported the intubation set and a model of all his instruments. Dr. Chevalier Jackson, Philadelphia, gave the address, reviewing Dr. O'Dwyer's life and his work. Dr. William S. Middleton, Madison, Wis., was elected president. Dr. Walter C. Alvarez, Rochester, Minn., vice president, and Dr. Edward J. G. Beardsley, Philadelphia, secretary. The next meeting will be held in Atlantic City in May 1936.

**Society News**—The new officers of the American Physiological Society are Drs. Frank C. Mann, Rochester, Minn., president; Andrew C. Ivy, Chicago, secretary; and Alexander Forbes, Boston, treasurer. Howard B. Lewis, Ph.D., Ann Arbor, was recently elected president of the American Society of Biological Chemists. Glenn E. Cullen, Ph.D., Cincinnati, vice president; Henry A. Mattill, Ph.D., Iowa City, secretary; and Dr. Cyrus H. Fiske, Boston, treasurer. Officers of the American Society for Pharmacology and Experimental Therapeutics elected at the recent annual meeting are Drs. Velyien E. Henderson, Toronto, president; Oscar H. Plant, Iowa City, vice president; Eugene M. K. Geiling, Baltimore, secretary; and Charles M. M. Gruber, Philadelphia, treasurer. Dr. Oskar Klotz, Toronto, was chosen president of the American Society for Experimental Pathology, recently Dr. Alphonse B. Dochez, New York, and Dr. Shields Warren, Boston, secretary. At the recent annual meeting of the Federation of American Societies for Experimental Biology, Dr. Velyien E. Henderson, Toronto, was named chairman of the executive committee. Dr. Eugene M. K. Geiling, Baltimore, secretary, and Dr. Charles M. M. Gruber, Philadelphia, treasurer. New officers of the Association of American Physicians, elected May 8, are Drs. Rollin T. Woodyatt, Chicago, president; Thomas R. Boggs, Baltimore, vice president; Hugh J. Morgan, Nashville, Tenn., secretary. The next annual session will be held at Atlantic City, May 5-6, 1936.

## LATIN AMERICA

**American Congress of Urology**—The First American Congress of Urology, which was to have been held in Rio de Janeiro, January 21-26, was postponed and is now announced for August, according to information received by the U. S. Department of State. Physicians from the United States are invited to attend.

## FOREIGN

**Society News**—The International League Against Rheumatism will hold its fifth congress at Lund, Sweden in September, 1936. Dr S. Ingvar, professor of internal medicine, University of Lund, has been elected chairman and Dr Kahlmeter, Stockholm, secretary. Further information may be obtained from the secretary of the league, Dr J. van Breemen, Keizersgracht 489, Amsterdam, Holland.

**Congress on Gastro-Enterology in Brussels**—Physicians from the United States who are to attend the First International Congress of Gastro Enterology to be held in Brussels, Belgium August 8 to 10, will make up a party on the S. S. Champlain which is scheduled to sail July 27. Complete information may be obtained from Dr Anthony Bassler, 764 Park Avenue, New York. Registration for the international congress will close on June 30. Application may be made to Dr George L. Laporte, Jr., 129 East Ninety-First Street, New York.

**Congress of Comparative Pathology**—The third International Congress of Comparative Pathology will be held in Athens, Greece, April 15-18, 1936. Subjects on which special reports will be made are nephrosis and amyloidosis, leishmaniasis, and spirochetosis and avitaminosis. The congress will study diseases of man and animals, including the relations existing between diseases of the different species, it will also study plant pathology and the relationship between certain plant and animal diseases. Further information may be obtained from Prof. Anthony Codrums, 40, Didotou Street, Athens.

**Memorial to Leon Bernard**—The Health Organization of the League of Nations has announced the creation of a Leon Bernard Foundation for a prize in social medicine in memory of the late Professor Bernard, permanent representative of France to the health commission of the league. Dr Bernard was especially active in the international fight against tuberculosis and was secretary general of the International Union Against Tuberculosis. Contributions to the foundation are requested. They may be addressed to Dr Ludwik Rajchman, medical director, Health Section, League of Nations, Geneva, Switzerland.

**New Medical Practice Act in Denmark**—The first national law governing medical practice recently went into effect in Denmark, according to a report received by the U. S. Department of State. Beginning January 1, physicians were to be licensed only after having spent a year in a hospital and lying in station, under special circumstances, persons who have obtained the corresponding training in a foreign country may be authorized to practice. Foreigners may not practice unless they have become citizens, have lived in the country at least ten years and have obtained either regular authorization or special permission. Among other provisions of the new regulations are a ruling that physicians may not act or assume the title of specialist unless their qualifications have been recognized by a specialist council. Physicians are not allowed to operate a drug store or to be connected with the manufacture of drugs. They are obliged to extend first aid when called on. The law requires a physician to report to the department of health diseases or mental defects of patients who may constitute a danger to others, he is bound to secrecy, however, concerning professional information unless the law requires him to talk or if he feels it is in the interest of the public welfare to do so. Physicians are forbidden to strike. The law also provides that a physician may charge "a reasonable fee" for his services, furthermore, if a physician associated with a public hospital is entitled to payment the amount is fixed by the regulations of the hospital. Rigid regulations against quackery are included in the new law. According to the report, "a quack doctor who exposes the health of a patient to danger through the treatment of infectious diseases or by operations or through cures at private clinics shall be punished by imprisonment of up to three months." A person who gives the impression through advertising or otherwise that he is a physician is to be fined and a physician who cooperates with a quack is also liable to fines or imprisonment.

## CORRECTION

**Relapsing Fever in the United States**—In the article by Dr James O. Gillespie in THE JOURNAL, May 25 page 1878 appears the statement "A single intravenous injection of neoarsphenamine, 0.1 Gm. for each kilogram of body weight, administered at the onset of a paroxysm, will effect a cure in practically every case." Obviously this should of course, read 0.01 Gm. for each kilogram.

## Foreign Letters

## LONDON

(From Our Regular Correspondent)

May 18, 1935

## Report of Conference on the Reform of Medical Education

The reform of medical education has been under discussion for years. Last year the British Medical Association made a report on the subject (THE JOURNAL, May 26, 1934, p. 1772). There has been published now the report of a conference of representatives nominated by the Universities of Oxford, Cambridge and London, the Royal College of Physicians, the Royal College of Surgeons and the Society of Apothecaries on the medical curriculum all leading teachers of the day. Their recommendations, which follow, will if carried into effect mark an epoch in medical education in this country.

The object is to give the student "such knowledge and such education as will enable him to approach the problems of practice with some degree of confidence and with legitimate hope that his scientific outlook on health and disease will enable him to learn from subsequent observation and experience." The ruinous policy of surcharging the memory with facts is condemned. The course of instruction is divided into three main parts—premedical, preclinical and clinical. In the premedical period the future medical student should not receive special instruction, as is done at present, but should study science with his fellow pupils. It is also recommended that the first M.B. or examination in the basic sciences might be taken before matriculation by means of a higher school certificate. This would ensure the continuance of the general education after matriculation. The minimum length of the medical curriculum should not be extended beyond the present five years. Medical studies proper, i.e. anatomy and physiology, should not be begun before the age of 18.

## THE PRECLINICAL PERIOD

During the first two years of medical studies the work of the student should be arranged by a board of teachers representing anatomy, physiology, chemistry, biochemistry, pharmacology and pathology. During the first four terms of medical studies the student should continue the study of chemistry, work in the dissecting room and department of anatomy, and in the second term begin the study of elementary physiology and biochemistry. During the fifth and sixth terms, while continuing anatomy and physiology, he should be introduced to the principles of general pathology, immunology and bacteriology by a pathologist. The teaching of organic, physical and colloidal chemistry should be determined by a conference between the teachers of physiology, biochemistry and chemistry, due weight being given to the opinions of the teachers of physiology on the special needs of medical students. The teacher of anatomy should be given access to hospital material for the teaching of applied anatomy, with or without the assistance of a clinician. During the second year of medical studies the teacher of physiology, being provided, if necessary for this purpose, with a clinical assistant, should give demonstrations in applied physiology and familiarize the student with use of the stethoscope, ophthalmoscope, laryngoscope and otoscope. During this year the teaching of pharmacology, including toxicology, should be arranged in close cooperation with the teachers of physiology. The student should also attend a short course of elementary medical psychology.

At the end of two years' medical study there should be an examination by a board of representatives of anatomy, physiology, pharmacology and pathology. There should be no separate examination in organic chemistry, but knowledge of this

subject should be tested in the examination in physiology. There should be no separate examination in pharmacology. A reduction should be made in the amount of detail required in the examination in anatomy.

#### THE CLINICAL PERIOD

Throughout the clinical period, pathology should be taught by the pathologist continuously in close association with the bedside study of disease, so that the student will instinctively think in terms of pathology. There should be a short course in public health, including forensic medicine, and the main part of the course should be under the direction of a member of the public health service selected for his ability to teach. Fortnightly demonstration should be given in the wards of a hospital of patients illustrating the common "mental" or "nervous" disorders associated with illness of any kind. In addition, the student should attend at least six demonstrations at a mental hospital and receive instruction in regard to insanity and mental deficiency.

#### Accidental Perforation of the Internal Jugular Vein During Operation

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, Mr. R. Atkinson Stoney reported an unusual accident that occurred during phrenic avulsion under local anesthesia. When the deep fascia covering the scalenus anticus was exposed, the assistant, who was using a blunt hook to retract the omohyoid, changed it to retract the outer border of the sternomastoid and in so doing perforated the internal jugular vein. The hemorrhage was checked by pressure of the vein forward against the sternomastoid. It was found impossible to catch the torn portion of the vein in forceps, but by including a portion of the sternomastoid muscle the vein could be occluded above and below the injury in large clamps. Then the vein was isolated and a double catgut ligature was passed with an aneurysm needle and tied above and below the tear. The nerve was then found and evulsed in the ordinary way. As the patient was not under a general anesthetic and the incision was limited, the difficulty of isolating and tying the vein was considerable. In view of such a possibility, Mr. Stoney thought that it would be advisable to avoid the use of a blunt hook in this operation, since, though the operator had a good view of the internal jugular, his assistant on the other side of the table had not and was liable to overlook the fact that it lay immediately under cover of the posterior border of the sternomastoid and was exposed to injury. The patient suffered no ill effects and the wound healed normally.

#### The Eight Hundredth Anniversary of Maimonides

The Bodleian Library, Oxford, has put on exhibition some famous manuscripts in the handwriting of the philosopher-physician Moses Maimonides, with many translations and first editions to celebrate the eight hundredth anniversary of his birth. Moses ben Maimon, usually called Maimonides, was the most important Jewish scholar of the middle ages. He left Spain in 1160, spent five years at Fez and passed on to Egypt, where he remained until his death at Cairo in 1204. He became celebrated as an authority on Jewish dogma and law, which he was the first to codify in his work *Misneh-Torah*, produced in 1180. But by profession he was a physician and acted in that capacity for Saladin and his sons. He wrote a number of medical books, which appeared in Arabic, though he appears to have used the Hebrew alphabet himself. He is best known by his great philosophical work "Guide for the Perplexed," which was soon translated into Latin and had a considerable influence on medieval philosophy.

The sister University of Cambridge is celebrating the anniversary by an exhibition of manuscripts and early printed editions and also by the following series of lectures: "The Philosophical System of Maimonides and Its Place in the History

of Thought," by Dr. S. Atlas, formerly professor of philosophy at Warsaw, "Maimonides' Theory of the State," by Dr. E. Rosenthal, and "The Place of Maimonides in Medicine and Science," by Dr. A. P. Cawadiaz. The British Museum has also put out an exhibition of the works of Maimonides.

#### PARIS

(From Our Regular Correspondent)

May 10, 1935

#### Identity of Inguinal Lymphogranulomatosis and Certain Forms of Rectocolitis

At the April 9 meeting of the Academy of Medicine, C. Levaditi, Mollaret and Reimé reported the results of an experimental study as an answer to some doubts as to the identity of the etiology of inguinal lymphogranulomatosis and certain proliferative forms of rectocolitis, expressed by Frei at the 1934 session of the French Surgical Congress. Levaditi and his associates demonstrate, in the present paper, the absolute identity between the lymphogranulomatous virus isolated from a case of primary rectocolitis and that isolated from the inguinal lymph nodes in cases of true Nicolas-Favre disease. This identity is corroborated by experiments on animals, such as the chimpanzee and the mouse, which are susceptible to inoculation with the virus, as well as by inoculations of patients suffering from dementia paralytica. The inoculation of the virus obtained in the case of rectocolitis into the inguinal lymph nodes in a case of dementia paralytica resulted in a swelling of the lymph nodes and a perilymphadenitis, with an accompanying specific allergic state toward the antigen prepared by Frei as well as toward an antigen prepared with the virus from a patient with the Nicolas-Favre disease, which had been inoculated successively into monkeys. All these experimental proofs show that the pathogenesis of the Nicolas-Favre disease and certain proliferative forms of rectocolitis is the same. They are both due to the ultravirus of lymphogranulomatosis.

#### A New Protest by Medical Students

A renewed protest of French medical students against the foreign invasion of the profession took place March 29. Instead of riotous demonstrations such as occurred in February, one witnessed a dignified assembly in which the speeches were more temperate in character. Only one incident occurred to mar the occasion. One of the strikers invaded the pharmacology laboratory in the Paris Medical School and was repulsed with a bottle of formaldehyde solution. The report immediately spread to the crowds in front of the building that the person who defended the invasion of the laboratory had been one of the female instructors. When she left the building, unconscious of having been supposed to be the person who liberated the formaldehyde fumes, she was attacked, her clothes were torn off, and she would have been badly beaten had not the police intervened. On the following day, 2,000 students met in the courtyard of the school and in a more calm and dignified manner gathered round their leader, who expressed their grievances. Of 6,000 physicians in the department in which Paris is situated, more than 1,000 were said to be foreigners. Many foreigners had taken advantage of the laxity of the French laws and had not been obliged to comply with the same preliminary requirements, such as the passing of the bachelor of arts examinations, which French students must fulfil before being admitted to the medical schools. Furthermore, many foreign students, when they were admitted, contemplated only passing the final examinations leading to a degree, which did not permit them to practice medicine in France and its colonies. However, through laxity on the part of some of the faculties, this 'honorary' had been allowed to be converted into a "state" diploma.

Foreigners have always been welcomed to France and every possible facility has been placed at their disposal to profit by their stay here.

After parading the streets around the medical school, in the single file so typical of French students, under police escort the assembly returned to the classrooms, hoping that their protests, supported by the warm endorsements of medical societies and the new laws, would have the necessary effect in checking the crowding out of the native by foreign students.

#### Opinion on the Foreign Physicians Question

In the April 21 issue of the *Concours médical* the question that has led to so much acrimonious discussion and to student strikes during the last four months was fully revived by Laville, one of the editors. He quoted previous articles on the same subject by other members of the staff, stating that a foreigner who wished to practice in France must complete the same course of studies and the same length of military service as French citizens.

Furthermore, if the law proposed should be passed a foreigner must have been naturalized a minimum of ten years before graduation. The invasion of the profession by foreigners had become a grave menace to those born in France. The students could not be blamed for making a protest, in view of their future prospects of earning a living in their own country.

Laville stated that France had always received with open arms and was proud to be considered a haven of refuge for Russian aristocrats, antifascist Italians, German Jews and monarchist Spaniards. The French felt themselves honored to have students of all nations take advantage of the educational opportunities. Unfortunately, some of these refugees took advantage of the hospitality extended to them to continue their propaganda and to start riots and other objectionable incidents. Many of these foreigners have not, as in other countries been fused, in the 'melting pot,' to become citizens that France could be proud of. The medical profession is gravely menaced. The younger generation feels it keenly, and hence France must take every possible measure to prevent further abuse of its hospitality. Regrettable as it would seem to many of the profession who feel flattered that French culture should attract so many foreigners, self protection demands stricter measures in the future to prevent French physicians from being crowded out by foreigners who do not intend or are unable to return to their native lands to practice.

#### Measures to Combat the Effects of Gas Attacks

Although the war clouds are dispersed for the present, the people living in Paris and its immediate vicinity will soon be awakened from their lethargy, in the form of demonstrations on May 28 as to the method of dealing with incendiary bombs. All the procedures now employed in Italy will be demonstrated with the aid of the Italian air attaché. Similar meetings have been held in other European countries. A sort of general rehearsal will be staged as to how the civilian population should behave during gas attacks.

Two issues of the *Paris médical*, those of March 30 and April 13, are devoted to 'gaz de combat'. In the first issue Moynier summarizes the present knowledge of the clinical lesions due to gas in war, the treatment of intoxications and the classification of gases employed as suffocants, vesicants, those with general toxic effects and irritant toxic gases, and he presents a plan of organization for the care of civilians and soldiers exposed to gas. In the April 13 issue the elements of military toxicology are discussed by Cordier and Magne, the bases of protection against combat gases by Renault, and the collective protection of civilian populations against gas attacks by Dubrisay.

These articles show that these questions have again assumed the importance they enjoyed during the World War.

#### BERLIN

(From Our Regular Correspondent)

April 8, 1935

#### University Students and University Study

The feeling of unrest that has manifested itself among the students of Germany for some time appears to be gradually subsiding. The authorities are taking a different attitude toward the students and are beginning to insist that the demands of politics and of sports shall not be allowed to interfere with scientific work. The student corporations, or fraternities, have succeeded in resisting the exertion of any undue political influence on their societies, which threatened the very existence of their organizations. Nevertheless, a division within the "corporations" has taken place the dividing line being the degree to which national-socialist principles have been carried out. Recently the 'Gemeinschaft Studentischer Verbände' was created which "approves the principles of the 'corporations' of German students" but supports also the tenets of the national-socialist party. It is hoped that the creation of this "gemeinschaft" will settle all difficulties within the "corporations."

Importance is attached to a number of new decrees promulgated by the minister having jurisdiction. Among other changes he has issued a new penal code applicable to students, whereby the penal power of the German universities is made uniform. As had already been done with reference to the administration of the universities, the rector, or president, has been given a preeminent position of power as the preserver of discipline. According to the new penal code for universities, misdemeanors on the part of students will be punished from the standpoint of honor, the imposition of fines and university-prison (karzer) sentences having been abolished. The impossible penalties are oral reproof, written rebuke, withholding of credit for the current semester, expulsion from the university and, finally, exclusion from study at any German university.

The limitations imposed last year on the admission of graduates from secondary schools to university study (*THE JOURNAL*, March 3, 1934, p. 710) have recently been abolished by the federal minister of education. Now, as before, all such graduates may be admitted to university study. They must, however, first perform their duties in the government labor camps. The reasons assigned for such action are of interest. It is stated that 'the attendance at all German universities has fallen off to such an extent that the restrictions on admission to university study, such as were imposed last year, no longer seem necessary.' Of late (before the issuance of any special order) the restrictions had been applied in a more liberal manner. It is now the plan to make a careful selection of suitable pupils within the schools, concerning which special instructions will be issued later.

In the smaller university towns, in which a large portion of the population is dependent on the students for a living, the decline in attendance resulting from the imposition of too drastic restrictions had awakened great concern, particularly because of the fact that the students who are compelled to supplement their income by doing various forms of work have been inclined to enter a university located in a large city, where opportunities for securing part-time work are more frequent than in the smaller towns. For example, Tübingen, a famous old university town with 23,000 inhabitants had about 3,500 students in the summer semester of 1933 but the number had dropped to 2,500 in the summer of 1934. To combat this tendency, the minister of education has issued an order limiting the number of students to be admitted to the universities located in the large cities. The faculties in the large cities may admit only 70 per cent of the registration recorded for the summer semester of 1934. For the University of Berlin (including the newly annexed schools of agriculture and veterinary science) the maximum is 5,600 students. For Munich it is 5,000. Leipzig 3,100, Münster (West-



phalia) 2 500, Cologne 2 300, Hamburg 1,600 and Frankfurt-on-Main 1,400. In case all applicants cannot be admitted, preference is given to those students in moderate circumstances who desire to study in their home town, in order to keep down expenses. Foreign students are not included in the maximum number that may be admitted.

The number of women students of medicine in the winter semester 1933-1934 showed a decrease of 22 per cent, as against the registration for the previous winter semester.

For the summer semester of 1932 the number of Jewish medical students was 1,893. For the summer semester of 1933, after the installation in power of the national-socialist party, the registration dropped to 916, and for the winter semester of 1933-1934 to 366, or a reduction of 80 per cent under the registration for the summer semester of 1932. According to private estimates there were no more than 200 Jewish medical students in the summer semester of 1934, and since then the number has doubtless been still further reduced. These figures concern only students who belong to the Jewish faith. No statistics on "non-Aryans" have been reported.

Nothing of importance has been announced in regard to the character of the scholarship of medical students under the new regime, but the report of the chairman of the federal board of examiners in jurisprudence, in which he gives his observations on the results of the 1934 examinations in law, is significant for the formation of an opinion on the character of the scholarship in general. About 88 per cent of the candidates passed, to be sure, the prescribed tests but there was an evident reduction in the percentage of students whose performances were above the average, or who displayed a high type of scholarship, and a consequent increase in the number of students who secured a barely passing grade. The majority of the candidates may doubtless be said to have lacked the preparation that might be expected of them. It may be presumed that they did not receive adequate instruction.

A survey of the practical operation of the students' work service may be of interest. Of about 13,000 graduates of the secondary schools, who, by reason of the compulsory students' work service (*THE JOURNAL*, January 12, p. 132), filed requests, this spring, for admission to the labor camps, about 1,000 had to be rejected for the present, because of physical unfitness or because the ranks in the labor camps were already filled. The German student body, in cooperation with the management of the work service, is planning to find employment for the rejected group by organizing work in the rural and the subsistence homestead services.

#### "The Wonders of Life"—An Exhibit

This year's foremost exhibit, organized by the city of Berlin, is called "The Wonders of Life." The exhibit is organized in accordance with four different aspects: (1) the theory of life, (2) the carriers of life, (3) preservation of life, and (4) life's abodes. The preparation of division 1 was entrusted to the Museum of Hygiene in Dresden. With the aid of ingenious models an attempt is made to explain the functions of the various organs. The relations of the organs to one another are clarified by the well known model of the transparent man, which was designed by the Hygiene-Museum. Other models serve other purposes, for example the combined area (100 square meters) of the surface of the lungs is given a graphic demonstration by means of a delicate wire network, while another model that contains 32 cubic meters of air serves as an aid in visualizing the amount of air inspired daily. Similar devices are used to illustrate the circulation of the blood and other functions of the body.

In division 2 the family is represented as the center and the carrier, so to speak, of all manifestations of human life, the individual man is put in the background. This hall was constructed by the national-socialist department of public welfare. A set of chimes announces with the rhythmic repetition of its

nine strokes that every five minutes nine children are born in the German reich. Many charts of the federal bureau of statistics are displayed, among others, a chart illustrating the mode of organization and the services rendered by the Winterhilfs werk, which organization provides for the needs of persons who are destitute in winter. Also the training of the woman for the duties of the home is represented in form and picture: the training of the young woman for the duties of motherhood and the care of a household and family, including infant care and care of the health of a household. Division 3 is devoted to the preservation of life. The negative side (for example, the combating of venereal diseases) has been studiously placed in the background, the chief emphasis being laid on the positive tasks, such as protection of motherhood, care of a family, or occupational health protection. Division 4, Life's Abodes, was prepared by the federal homestead bureau. A homesteader's simple dwelling in natural size is presented. A detailed demonstration of a so called subsistence homestead (*sedlung*), including the planting of the garden, is given. The purpose of the homesteading plan is to afford the city dweller, and particularly the laborer, an opportunity to own his own home, together with a garden plot. In this connection attention is called to the fact that in Berlin there are still 50,000 persons living in unhygienic basement and attic apartments, while approximately 125,000 persons are eking out a miserable existence in their untidy settlements on the outskirts of Berlin.

#### ITALY

(From Our Regular Correspondent)

March 31, 1935

#### The Prevention of Blindness

Professor Federici, the new director of the Clinica oculistica of Bari, gave recently his introductory lecture, in which he illustrated the modern methods for the prevention of blindness. Trachoma, conjunctivitis purulenta neonatorum, syphilis and tuberculosis are the chief causes of blindness. Trachoma is widely diffused in Italy, particularly in the southern provinces and in the islands in which the population is more dense. Trachoma must be regarded as an infectious and contagious disease, although the etiologic agent is not known. The central government and other public bodies have established free dispensaries, amounting in number to 312. In southern Italy alone, about 100,000 trachomatous persons each year receive treatment. The patients who present the gravest symptoms are hospitalized. In the schools the trachomatous children are isolated. The general progress of recent years, including more hygienic dwellings, better drainage, the founding of schools and colonies, and the construction of aqueducts, has rendered great aid. Conjunctivitis purulenta blennorrhagica neonatorum also is usually a reflection of poverty and ignorance. The number of persons who have become blind because of this disease is today much diminished, because of the wide diffusion of dispensaries to combat venereal diseases which are aided by the central government. In the same manner, effective results have been secured in combating syphilis.

The crusade against tuberculosis in Italy is nation wide and is accomplished through the creation of dispensaries. Aside from the fact that the mortality from tuberculosis has been notably reduced (the total annual number of deaths from tuberculosis has dropped from 65,000 to 35,000) there has been also an evident reduction of blindness due to tuberculosis of the eye.

#### The Medicosurgical Society of Padua

The Societa medico-chirurgica di Padova met recently under the chairmanship of Professor Truffi. Frontali spoke on the hemolytic factor in the splenic anemia of infants. In eleven cases he observed that the disease developed almost silently between the sixth and the twelfth month of life, with waxen pallor associated with skeletal changes of a rachitic type. The blood



picture showed reduction of the red corpuscles and the hemo-  
globin, and increase of the white corpuscles. There was also  
erythroblastosis, with some microcytosis. The hemoglobin  
exchange revealed a hyperhemolysis and bilirubinemia, with  
an indirect positive van den Bergh reaction. The corpuscular  
resistance was normal. Frontal assigns importance to a hemo-  
lytic factor in the genesis of splenic anemia even if the corpus-  
cular resistance is not diminished.

Belloni and Zoldan spoke on optic atrophy in tabes, with  
binasal hemianopia and presented a case that appeared to be  
the thirteenth described in the literature. The increase in the  
pressure of the cerebrospinal fluid caused the speakers to take  
account of the theory of Walker and Cushing with respect to  
the genesis of hemianopia as a result of hydrops of the third  
ventricle, but they reached the conclusion that the theory was  
not applicable to their case.

Frontal and Rasi dealt with familial hemorrhagic icterus  
with erythroblastosis and with increased corpuscular resistance.  
In two brothers, one aged 7½ and the other 9 years, the speak-  
ers observed pallor from the first year of life, and a slight  
icterus in the older child, which became exacerbated under the  
influence of intercurrent infectious diseases. Both children pre-  
sented hepatomegaly and splenomegaly, oligocythemia, erythro-  
blastosis, oligochromemia, increased corpuscular resistance and  
increased hemoglobin exchange. The speakers tested the resis-  
tance of the red corpuscles of the two patients as compared  
with the plasma of healthy subjects belonging to the same  
blood group.

This last test furnished evidence of a diminished resistance  
of the healthy red corpuscles when they are measured in con-  
tact with the plasma of the patients. Research to discover in  
what part of the plasma the substance that favors the hemolysis  
is found has shown that the ultrafiltrate that contains the  
crystalloids of the plasma exerts also the hemolyzing influence  
whereas this is not observed in the colloidal portion that  
remains above the filtrate. The speakers concluded that splenic  
anemia of infants may assume, by imperceptible degrees, the  
characteristics of familial hemolytic icterus either with normal  
or with increased corpuscular resistance.

#### Medical Aid for the War Injured

In a recent announcement the Opera nazionale per la pro-  
tezione ed assistenza agli invalidi di guerra stated the condi-  
tions governing medical aid to disabled persons, to their orphans  
and to their children until they reach the age of 15, and in  
exceptional cases until they are 18 years old.

Admission to a hospital will be granted to disabled persons  
only in case the present condition has a direct relation to the  
wounds and diseases for which they obtained a pension. The  
admission, if it is not of an urgent character, must be authorized  
by the Opera, which will not grant it in cases adjudged chronic  
or incurable. The president of the Opera has created a central  
bureau for consultation. The treatment of tuberculosis and  
pretuberculous conditions in the children of the disabled will  
be turned over to the provincial antituberculosis societies or  
to the Opera nazionale per la protezione della maternità e  
infanzia. For adenoidectomies and tonsillectomies, authoriza-  
tion must be secured from the headquarters of the society.  
Balneothermal treatment for disabled persons and their families  
has been abolished. Disabled persons affected with sequels of  
epidemic encephalitis may be admitted to a clinic or specialized  
institute for a maximal period of three months.

#### Personals

Prof. Luigi Torraca, ordinarius in surgical pathology, has  
been called to succeed Pascale Giacomo senator, to the chair  
of clinical surgery at the University of Naples.

Prof. Paolo Garfamì has been appointed director of the  
obstetric-gynecologic clinic of the University of Rome, to fill  
the vacancy caused by the death of Professor Pestalozza.

#### VIENNA

(From Our Regular Correspondent)

March 20, 1935

#### Survey of Laryngeal Cancer in the Hajek Clinic

Professor Dr. Hajek delivered recently, before the Vienna  
Laryngologic Society, an address on laryngeal cancer. During  
the fifteen years (1919-1934) that he served as director of the  
Vienna Laryngorhinologic Clinic, 393 cases came to operation.  
He emphasized that, during the first part of his work, health  
conditions among the population, owing to after-effects of the  
war were bad. The patients who came to the clinic were  
weakened and their teeth were frequently carious. When they  
applied for treatment, the disease was in an advanced stage.  
With regard to the indications for laryngofissure, one had to  
go much further than had been the custom, because many  
patients refused to submit to the more extensive, radical opera-  
tion. Patients above the age of 70, in whom the disease had  
not progressed so far as in the younger patients, were scarcely  
ever subjected to the operation. In seventy-nine of the 393  
cases, laryngofissure was applied, and in 256 cases (fifteen  
women) lateral pharyngotomy was employed. This was a real  
opportunity of obtaining a survey of the operability of laryn-  
geal cancer. Of the seventy-nine patients operated on by  
laryngofissure 15 per cent died postoperatively, within twenty  
days. 32 per cent died within three years, and 40 per cent  
remained well for from three to ten years. Of those who died  
within three years, 40 per cent succumbed to a recurrence.  
40 per cent had to submit to a second operation (this time total  
extirpation), and 10 per cent died from intercurrent diseases.  
In the group that remained well for from three to ten years  
11 per cent lived from three to five years, 54 per cent ten years  
and 34 per cent more than ten years after the operation. Of  
the cases in which the operation was plainly indicated not one  
showed a recurrence within three years. Of the cases with  
mild, extended indications however, 36 per cent presented  
recurrences. Total extirpation was carried out in 279 cases,  
in eighty-nine of which the tumor had not yet gone beyond  
the region of the larynx. The tabulation shows the distribu-  
tion of cases in men according to age groups.

Age groups	30-40	40-50	50-60	60-70	70-80	
	Years	Years	Years	Years	Years	
No. of cases	7	52	102	74	6	Total 241 cases

Of the eighty-nine patients with cancer limited to the larynx,  
19 per cent died postoperatively (within twenty days), 32 per  
cent remained well for three years, 22 per cent of these devel-  
oping recurrences and 34 per cent remained well more than  
three years (with 4 per cent of recurrences), a few more than  
ten years. Of the 152 patients with cancer in and beyond the  
larynx, 25 per cent died postoperatively and 48 per cent remained  
well for three years, with 38 per cent developing recurrences,  
and 17 per cent remained well more than three years, with only  
13 per cent of recurrences within three to ten years. It is  
evident therefore, that total extirpation of cancer, if the patient  
remains well for three years, gives good results. Even in the  
especially malignant cases, in which, however, a complete opera-  
tion with total elimination of glands could be performed, it  
was found that glandular complications need not be regarded  
as an absolute contraindication to the radical operation. Thirty  
per cent of such patients died postoperatively, but 15 per cent  
survived the five-year period. It is true that carcinomas of  
the larynx have been treated with radium and with x-rays,  
but this study is concerned solely with operative therapy. In  
regard to the ray treatment, no final judgment can be rendered  
as yet. Hajek reported his observations also in cases in which  
ligation of the common carotid was required. Of the eight  
patients subjected to this intervention, four died from the  
effects and four survived. In addition to seventy-nine laryngo-  
fissures and 279 total extirpations, there were forty-three cases

that necessitated an incomplete operation. The pathologic changes were so extensive that the radical operation was impossible. The operative results were of course poor. Such cases belong rather to the field of ray treatment. In summing up, Hajek emphasized that the radical operation in cancer of the larynx, when performed by an experienced surgeon, offers favorable changes for recovery. It should be added that, if suitable speech training is applied, it is possible, even in total resection of the larynx, to develop in the patient a usable speaking voice, as Prof. H. Stern in the same clinic has repeatedly demonstrated.

### The Sesquicentennial of the Vienna General Hospital

In May the sesquicentennial anniversary of the famous Vienna General Hospital will be celebrated in a ceremonial manner. All the physicians of the world who received their training in the clinics of this hospital have been invited to participate in the festivities. A large influx of physicians from Europe and overseas is expected. Up to the World War, the Vienna General Hospital was one of the most important centers of medical education in the world—a veritable mecca of physicians. Its foundation goes back to the time of Emperor Joseph II, who was considered the founder of democracy in central Europe and the most liberal and advanced ruler of his day. In 1784 he laid the corner-stone of the building, which he dedicated "zum Wohle und zum Heile des Volkes," as the original inscription over the entrance gate still reads. The celebration should have been held last year, but because of political disturbances it had to be postponed. The hospital in its extent and in its arrangement has remained almost exactly as it was 150 years ago. An architectural feature is the so-called Narrenturm, a circular structure that was originally intended for mental patients—as far back as 1815, but which now is used only as a dormitory and for administration purposes. The circular arrangement of the "cells," as in modern prisons, facilitated the supervision of the mental patients, for at that time no attempts to treat mental patients were made. The "old" general hospital comprises 1,800 beds, but in case of need the capacity can be increased to 2,400. It is closely connected with the new general hospital, which houses chiefly the clinics which were constructed thirty years ago and elaborately, even extravagantly, equipped in the most modern manner. Likewise the old hospital, which in its external form presents the same original appearance, has been transformed in its interior, including the laboratories and scientific institutes, into a thoroughly modern, first-class institution.

### Prof. Dr. Norbert Ortner

The internist Prof. Dr. Norbert Ortner died recently, at the age of 70, from bulbar paralysis, from which he had suffered for years. He began his career as pathologic anatomist at the institute of Professor Weichselbaum but later turned his attention to internal medicine and became the assistant of Professor Neusser. He afterward removed to Innsbruck as professor of internal medicine. His first research was concerned with the pathology of the blood and the circulatory apparatus. His most important works are "Treatment of Internal Diseases," which has been translated into many languages and his book on "Pain." Since 1911 he had been the director of the second medical clinic in the general hospital in Vienna and had played an important part in training a large number of the prominent clinicians in Austria and Germany. His private practice was enormous, his advice being much sought by foreigners. He was physician to the aged emperor Francis Joseph until the latter's death. Three years ago Ortner was compelled to give up his medical practice. Professor Dr. Jagic succeeded him in the direction of the clinic.

## RIO DE JANEIRO

(From Our Regular Correspondent)

March 15, 1935

### Ticks as Transmitters of Typhus

Dr. Toledo Puza recently lectured before the Sociedade de Biologia de São Paulo on the role of ticks in transmission of typhus. He observed outbreaks of exanthematous typhus in rural areas in São Paulo in persons without either head lice or body lice, in whom the disease was related to the bite of ticks. Patients frequently enter the hospital with ticks still adherent to the skin. A woman who for the first time in her life was in a rural district was bitten by a tick. She showed an exanthematous patch around the bite and later developed typhus. Another patient developed typhus one day after his infestation with ticks, showing that the period of incubation in man may be short. The parasites were still adherent to the skin of this patient. These cases are equivalent to experiments on human beings. Dr. F. Lemos Monteiro succeeded in transmitting typhus from infected to normal guinea-pigs by feeding ticks first on the infected and then on the normal animals. He found out that the capacity to infect is transmitted to the eggs and larvae of ticks. Dr. Luis Salles Gomes produced experimental typhus in guinea-pigs by inoculating them with ticks captured near the homes of typhous patients. The clinical observations of the speakers confirming experimental work previously reported indicate that ticks are a common transmitting agent of exanthematous typhus. The prevention of typhus in São Paulo is difficult because of the abundance of ticks in rural areas.

### Serology of Leprosy

Drs. O. G. Bier and Kate Arnold, in a lecture before the Sociedade de Biologia de São Paulo, reported their studies on the specificity of the Rubino test in leprosy. They examined 327 samples of serums. The proportion of positive tests in the different forms of leprosy was as follows: pure nervous leprosy, 29.4 per cent; maculo-anesthetic leprosy, 41.7 per cent; mixed form, 56.5 per cent; tubercular form, 66.6 per cent; incipient cases, 13.8 per cent. Only one positive test was obtained from the study of 945 control serums. In mixed forms, the specificity of the test varies with the intensity of the cutaneous symptoms without any apparent relation to the nervous component. These studies confirm the statements of Rubino, Marchoux and Caro on the necessity of electrolytes for the agglutination and on the exclusive absorption of leprosy agglutinins by a suspension of globules in formaldehyde.

### Changes in Finger Prints of Lepers

Dr. Leonidio Ribeiro has published articles on the changes that leprosy causes on the designs in finger prints of lepers. He has made studies on this subject in the hospitals of the colony for lepers in Curupaty, Jacarépaguá, Rio de Janeiro. The author says that Locard observed white streaks in the finger prints of normal persons in 10 per cent of the cases. Ribeiro found white lines in the finger prints of lepers in 70 per cent of the cases. He concludes that leprosy causes marked changes in the designs of the finger prints.

### Typing of Blood of Indians

Drs. Leonidio Ribeiro, W. Berardinelli and M. Roiter recently made determinations of the blood groups in 100 Guarani Indians of Colonia em Missões, Rio Grande do Sul. In all of them the blood group was of the O type. Snyder observed that 91.3 per cent of pure American Indians belonged to the O type. Vela found 95.5 per cent of Ecuadorian Indians of the O type. The authors pointed out the ethno-anthropological importance of the subject and emphasized the fact that there is a predominance of the group of the O type among pure Indians living in isolated colonies.

## Marriages

JUNIUS ALBION GILES JR., Chapel Hill, N C, to Mrs Mary Tatnall Warner Carpenter of Wilmington, Del, May 24

ROBERT KEMP WILSON, Providence, R I, to Miss Louise Margaret Nelson of Fall River Mass, June 3

WINFIELD SCOTT FARMER, Nashville Tenn, to Miss Ollie McGinness of Carthage, at Spartan, May 4

RUSKIN GREGORY ANDERSON, Spartanburg, S C to Miss Corryne Haskell in Atlanta Ga, May 25

TRYGGVE ALEXANDER HAGERUP, Dodgeville Wis to Miss Ingne Holmboe of Chicago, May 4

JOHN ALFRED MOFFITT to Miss Lily Lee Brown both of Oklahoma City, at Tulsa, May 5

CARL VANN TYNER, Lenoirville, N C to Miss Charlotte Brown of Chapel Hill, June 2

SOLOMON J TUREL, New York, to Miss Rose Lillian Albert of Newark, N J, June 2

ANDREW F BULFER, Chicago, to Miss Julia Sawyer of DuQuoin, Ill, April 24

RICHARD B EASLEY, Huntington W Va, to Miss Mary F Kellam, April 30

## Deaths

Philip William Nathan ☉ New York, University of the City of New York Medical Department, 1893, member of the American Orthopedic Association and fellow of the American College of Surgeons, at one time clinical professor of orthopedic surgery, University and Bellevue Hospital Medical College, veteran of the Spanish-American and World wars, aged 62 at various times on the staffs of the New York Society for the Relief of the Ruptured and Crippled, Beth Israel Hospital, New York Infirmary for Women and Children, Montefiore Hospital for Chronic Diseases and the Mount Sinai Hospital, where he died, April 20, of carcinoma of the pancreas

John Earl Else, Portland Ore, Northwestern University Medical School, Chicago, 1905, member of the Oregon State Medical Society, the North Pacific Surgical Association and the Pacific Coast Surgical Association, past president of the Pacific Northwest Medical Association and the Portland Academy of Medicine, fellow of the American College of Surgeons, emeritus professor of surgery, University of Oregon Medical School, formerly chief of the surgical service of the Multnomah County Hospital and the Doernbecher Memorial Hospital for Children, aged 56, died, May 3, of cardiovascular renal disease

Frank Dyer Sanger, Ruxton, Md, College of Physicians and Surgeons, Baltimore, 1888, member of the Medical and Surgical Faculty of Maryland, professor emeritus of rhinology and laryngology, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, fellow of the American College of Surgeons, consulting laryngologist to the Mercy, Sydenham, Bay View, Bon Secours and Union Memorial hospitals, the Church Home and Infirmary and the Hospital for Women, Baltimore, aged 70, died, May 15

Robert Carroll Howard ☉ New York, Cornell University Medical College, New York, 1911, clinical professor of otology, New York Polyclinic Medical School and Hospital member of the American Laryngological, Rhinological and Otological Society, fellow of the American College of Surgeons, associate attending otologist to the New York Polyclinic Medical School and Hospital, consulting otolaryngologist to St. Elizabeth's Hospital, aged 51, was found dead, May 5, of angina pectoris

Edward Arthur Parker, Brooklyn, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890, member of the Medical Society of the State of New York, at various times on the staffs of the Williamsburgh Maternity Hospital, St. Mary's Hospital and the Brooklyn Eye and Ear Hospital, aged 66, died, May 17, of coronary thrombosis.

Mark Jampolis ☉ Chicago, Northwestern University Medical School, Chicago, 1906 member of the American Academy of Pediatrics, associate in pediatrics at his alma mater, aged 33, on the staffs of the Sarah Morris Hospital for Children, the La Rabida Sanitarium and the Michael Reese Hospital, where he died, May 19, of mesenteric thrombosis

Marion Sparehawk Jordan ☉ Clinton, Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901, past president and secretary of the Clinton County Medical Society, on the staff of the Jane Lamb Memorial Hospital, aged 68, was found dead in bed, April 30, of coronary heart disease.

Donald J O'Connor, Appleton, Wis, Detroit College of Medicine, 1897, during the World War was a member of the Volunteer Service Corps, chief surgeon and consultant of the U S Public Health Service, for many years on the staff of St Elizabeth Hospital, aged 60, died, May 4, of myocarditis and coronary thrombosis

Daniel Joseph McCarthy, Bridgeport, Conn, College of Physicians and Surgeons, Baltimore, 1906, member of the Connecticut State Medical Society, fellow of the American College of Surgeons, aged 52, on the staff of St Vincent's Hospital, where he died, April 23, of lobar pneumonia, chronic endocarditis and gastric ulcer

Cornelius A M Dorrestein ☉ New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1897, senior chief of the gynecological staff, Touro Infirmary, and chairman of the Radium Institute, on the staff of the Charity Hospital, aged 61, died April 16, of heart disease.

George Harris Searcy, Tuscaloosa, Ala, University of Michigan Department of Medicine and Surgery, Ann Arbor 1901 member of the Medical Association of the State of Alabama, aged 58, died, May 6, in the Veterans Administration Facility of hemorrhagic meningoencephalitis

Edward Jones Wannamaker, Orangeburg, S C., University of the City of New York Medical Department, 1888, member of the South Carolina Medical Association, veteran of the Spanish-American War, aged 68, died, May 7, in a hospital at Charleston, of chronic myocarditis

Edmund James Boardman, Winnipeg, Manit, Canada, Manitoba Medical College, Winnipeg, 1907, assistant professor of clinical surgery (urology) at his alma mater, past president of the Manitoba Medical Association, aged 57, died, May 12, in Saskatoon Sask., of angina pectoris

Frank White, Philadelphia, Jefferson Medical College of Philadelphia, 1891, member of the Medical Society of the State of Pennsylvania, formerly on the staff of the American Hospital for Diseases of the Stomach, aged 64, died, March 27 of heart disease

Harold Mark Akey, Merrill, Wis, Marquette University School of Medicine, Milwaukee, 1932, member of the State Medical Society of Wisconsin, aged 27, on the staff of the Holy Cross Hospital, where he died, April 30, of cerebral hemorrhage.

Henry William Dueringer ☉ Oak Park, Ill, Chicago Homeopathic Medical College 1896, served during the World War at one time on the staffs of St Joseph's and Sherman hospitals, Elgin, aged 66, died, May 20, of chronic myocarditis

Albert Harter Lane ☉ Dayton, Ohio Louisville (Ky) Medical College, 1894, past president of the Montgomery County Medical Society, formerly health commissioner of Dayton aged 77, died, May 5, of cerebral hemorrhage.

David Dale ☉ Bellefonte, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1904, served during the World War, on the staff of the Centre County Hospital, aged 59, died, April 22, of cerebral hemorrhage.

John C Joiner, Honey Grove Texas, University of Louisville (Ky) School of Medicine, 1892, member of the State Medical Association of Texas, health officer of Honey Grove, aged 65 died, April 20, of hemiplegia

Frederick Foster Dowds, Mount Vernon, Ohio, Western Reserve University Medical Department, Cleveland, 1912 member of the Ohio State Medical Association, aged 52, died, April 30, of cerebral hemorrhage.

Albert Leroy Doe, Long Beach, Calif, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1904, aged 54, died, March 31, of cerebral hemorrhage and arteriosclerosis

Reginald Arthur Yeld, Edgewood, B C, Canada, M B, in 1898 University of Cambridge Faculty of Medicine, Cambridge, England, and M D, in 1901, aged 61, died, April 3, of lobar pneumonia and influenza

Howard Elmer Campbell ☉ Anita, Iowa, University of the City of New York Medical Department, 1891 past president of the Cass County Medical Society, aged 71, died, April 23, of aplastic anemia

John McGuire, Staten Island, N Y, College of Physicians and Surgeons of Chicago, 1890, aged 74, died, April 9, in the Sailor's Snug Harbor Hospital, of cerebral thrombosis and chronic myocarditis

**James W. Fox**, Hillsdale, N. J., New York Homeopathic Medical College and Hospital, New York 1904, member of the Medical Society of New Jersey, aged 62, died, May 2, of diabetes mellitus

**Vivian Salisbury Way Worden**, Saranac Lake, N. Y., Syracuse University College of Medicine, 1919, member of the American Psychiatric Association, aged 43, died, May 7, of heart disease

**Edward Thomas Kelty**, Tiptonville, Tenn., University of Nashville Medical Department, 1900, member of the Tennessee State Medical Association, aged 61, died, March 30, of heart disease.

**Fern A. Rice**, Delavan, Wis., Bennett College of Eclectic Medicine and Surgery, Chicago, 1889, for many years city health officer, aged 66, died, April 22, of heart disease

**Della Priscilla Pierce**, Kalamazoo, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890, aged 81, died, May 9, of arteriosclerosis

**Howard Wallace Stuch**, Allegan, Mich., University of Virginia Department of Medicine, Charlottesville, 1901, aged 58, died, April 26, of organic heart disease

**Harris Taylor Collier**, McKenzie, Tenn., Tulane University of Louisiana Medical Department, New Orleans 1900, aged 58, died, May 4, of cerebral hemorrhage.

**Daniel D. O'Gorman**, St. Louis, Trinity Medical College, Toronto, Ont., Canada, 1888, aged 70, died, April 27, in St. John's Hospital, of coronary thrombosis

**Charles A. Sellers**, Hartford City, Ind., Fort Wayne College of Medicine, 1904, aged 60, died, April 27, of chronic nephritis, hypertension and cerebral edema

**Roger Eustace Bousfield**, Ellsworth, Maine, Boston University School of Medicine, 1931, aged 33, died, March 20, of diabetes mellitus and chronic myocarditis

**William Cathey Harkey**, Lenexa, Kan., University Medical College of Kansas City (Mo.), 1900, aged 63, died February 7, of carcinoma of the stomach

**William Harvey DeKay**, Hurleyville, N. Y., University of Buffalo School of Medicine, 1875, aged 86, died, March 31, of angina pectoris and arteriosclerosis

**Luther Walton White**, San Antonio, Texas, University of Arkansas School of Medicine, Little Rock, 1909, aged 52, died March 9, of cerebral hemorrhage.

**Rollen Lemuel Shinaberry**, Scranton, Pa., Jefferson Medical College of Philadelphia, 1910, aged 47, died suddenly May 17, of heart disease

**Grafton D. Whitaker**, Kansas City, Kan., Cincinnati College of Medicine and Surgery, 1870, aged 85, died, April 4, of coronary thrombosis

**Harry Aloysius Doherty**, Atlantic City, N. J., Jefferson Medical College of Philadelphia, 1906, aged 62, died April 14, of coronary occlusion

**George Henry Ramsey**, Victoria, B. C., Canada University of Toronto (Ont.) Faculty of Medicine, 1899, aged 71, died, February 22

**Samuel Pool**, Leakesville, Miss. (licensed in Mississippi in 1901), formerly county health officer, aged 78, died, April 13, of hepatic disease.

**George Willford Wood**, Wilmington, Ohio, Homeopathic Hospital College, Cleveland, 1886, aged 78, died, April 1, of pneumonia

**Alburton Alonzo Dewey**, Bristol, Conn., Eclectic Medical Institute, Cincinnati, 1906, aged 60, died, March 16, of coronary occlusion

**Rephaniah Neville**, Mishawaka, Ind. (licensed in Indiana in 1897), Civil War veteran, aged 88, died, April 5, of arteriosclerosis

**Milton V. Dewire**, Sharon, Wis., Rush Medical College, Chicago, 1894, aged 67, died, May 6, of myocarditis and arteriosclerosis

**Daniel V. Ray**, Rossville, Ill., College of Physicians and Surgeons, Keokuk, Iowa, 1892, aged 69, died, April 9, of heart disease.

**Edwin Coleman Brown**, Boston, College of Physicians and Surgeons, Boston, 1894, aged 65, died, April 28, of heart disease.

**Burch C. West**, Richburg, N. Y., University of Pennsylvania Department of Medicine, Philadelphia 1906, aged 55, died, March 22, of colitis

**Ham S. Hampton**, Tampa, Fla., Hospital Medical College Atlanta, Ga., 1910, aged 47, died March 31, of pneumonia

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### NORMAL BLOOD PRESSURE

*To the Editor*—If convenient please answer the following question: Which is the more correct generalization that the normal blood pressure reading should be 100 mm. plus the age of the individual or that it should be 90 mm. plus the age of the individual?

JOHN H. PREWITT (third year student), Lexington, Ky.

ANSWER.—Although the generalizations cited have been popular for many years, neither is correct. What is considered normal is, after all, merely the mean or average of the readings in presumably healthy persons. Thus, as with other "normal" measurements, such as height or weight, the normal falls within a range and is not a single set figure. Age is by no means the only physiologic factor that causes variation of the normal arterial tension; physique, sex, race and climate are persistent factors, and emotions, physical activity, fever, anesthesia, environmental temperature and posture affect the arterial tension transiently without necessarily passing beyond normal limits. The systolic tension is far more labile and variable than the diastolic tension, thus, standards of normality are better fixed by the diastolic than by the systolic pressure.

The average or mean readings for the systolic tension do not increase as rapidly as age. Thus any such rule as mentioned in the query will prove unsatisfactory. The most extensive and accurately determined averages of normal are those prepared for and by life insurance underwriters. The following table reveals the normal averages for white males in the United States; the normal range should include readings 10 mm. in either direction than these averages for the systolic tension and 5 mm. higher and 10 mm. lower than the mean for the diastolic tension.

#### Average Normal Arterial Tension, in Relation to Age, in White Males

Age	Systolic	Diastolic
20	120	79
25	121	80
30	122	81
35	123	82
40	125	83
45	127	84
50	129	85
55	131	86
60	134	87
65	138	89

It is notable that with advancing years the average normal systolic tension increased more rapidly than the diastolic pressure, but much more slowly than the age. The normal pulse pressure increases from 41 mm. at 20 years to 49 mm. at 65 years.

If a reasonably accurate simple generalization is desired the following rule is justified. In normal adults the normal range of the blood pressure is 110-148/70-95 approaching the upper limits in the older age groups. An arterial tension over 150 systolic and/or 100 diastolic is abnormally high. Isolated observations of hypertension, however, do not constitute valid evidence of hypertensive disease because of the many physiologic variables that may alter the tension temporarily.

### CONTAGIOUSNESS OF SYPHILIS

*To the Editor*—A patient came to me recently with a tertiary syphilitic cutaneous lesion. The history is vague concerning any initial lesion. Treatment consisted of six courses of arsenic acid and a heavy metal with iodides over a period of two years. The patient is a woman beyond the menopause—free from any evidence of syphilis at present—beyond a positive Wassermann the cutaneous lesions having disappeared. The spinal fluid is completely negative. Is it permissible for the patient to marry which she desires or to have intercourse if she is free of any contagious lesion? Kindly omit name.

M. D. New York

ANSWER.—It is not clear exactly what is meant by "six courses of arsenic acid." Supposing that this is one of the effective arsphenamines, both the stage of the patient's infection and the treatment given provide as much assurance as there is that she is noninfectious and may marry or have intercourse without the likelihood of transmitting the disease. Absolute and unqualified statements on such a matter while the Wassermann test of the patient's blood is positive cannot be made, and the marital or sexual partner may properly expect to be made acquainted with the situation however remote the risk.

## MASTURBATION IN GIRLS

To the Editor—A girl aged 8 years (whose parents are of middle class and sufficiently intelligent to deplore her affliction), has practiced masturbation since the age of 1 year (according to the mother). As near as I can ascertain, four operations have been performed at various times between 14 months of age and a year ago for what I judge has been separation of the prepuce from the clitoris, especially since on examination, there is considerable scarring in that area with the clitoris completely bound down and out of possible vision. No operative procedure has ever given results. Up to three months ago the child was a constant leader in her school work. At that time and for the first time she had started her practices in the schoolroom until it was necessary to remove her from school. Also at that time her grades in school started on a gradual decline and she has gradually developed a facial expression approaching mild idiocy. She is entirely cooperative at home in attempting to help correct the habit allowing the mother to tie her hands to the bedposts at night without complaint or remonstrance. This was done by the latter as a last desperate measure to correct the condition. The mother also states that an orgasm takes place as a condition of rigidity and muscular spasm terminates the act. Any information as to treatment and prognosis that I may pass on to these parents will be greatly appreciated. Intestinal parasites as a causative agent have been excluded. Please omit name and town if published.

MD Nebraska

ANSWER.—Masturbation in infants and young girls is generally started by some local irritation and, when this irritation has been removed before the habit has become definitely fixed the habit will be as a rule abandoned. The longer one waits, however, the more fixed the habit becomes, the child notes the pleasurable sensation accompanying the act, and the more difficult it is to cure it. In this case it was certainly not good treatment to perform a series of operations on the genitals as this procedure more definitely fixes the attention of the child on the genital organs. Whatever treatment is adopted, the most important thing to remember is to divert the child's attention from these organs. For this reason all restraining apparatus should be avoided, as these constantly keep the child's attention fixed on the habit. At school or in the gymnasium any exercises that tend to produce friction on the parts should be avoided, such as sliding down a pole or sliding on a banister. In doing this, however, the child should not be told to avoid these exercises, but it should be so arranged that she does not get them. In other words, nothing should be said or done that directs the child's attention to the habit. Spanking must be avoided, as in some children this act arouses erotic sensations.

It would be well if possible to avoid all reference to the condition, even if the parents know that the child is masturbating. One should not let the child know that she is being watched. She should avoid tea and coffee and, of course alcoholic beverages. She must avoid all sensual movies without, however, knowing that this is done on purpose. For a short time the internal administration of bromides in proper doses is of value, but the most important measure is to replace some other activity for the masturbation. Any outdoor hobby, such as swimming golfing or tennis is of value. Nothing is so good as hard work so as to keep the child occupied. Any inclination of the child to be by herself should be tactfully discouraged. In the vast majority of cases the foregoing outline will cure the child. Should the psychic element be found to predominate psychoanalysis by an expert medical psychoanalyst would be in order.

## TRAUMA AND HERNIA

To the Editor—I have a patient who was struck by an automobile and rendered unconscious for eight hours. Surface injuries were trivial. He emerged from the accident however, with bilateral direct inguinal hernias—rather large abdominal openings—more like a splitting open of the inguinal canals. He is positive he had no hernia before. Can a person receive bilateral hernias from a trauma like this? Are there any cases in the literature? Where can I get further information on this subject? If published please use initials.

MD New York

ANSWER.—J. J. Moorhead (Traumatic Surgery, ed 2, Philadelphia W. B. Saunders Company, Relation of Trauma to Hernia, *New England J Med* 209 568 [Sept. 21] 1933) states that trauma alone is the rarest cause of hernia and that they are never bilateral. Bull and Coley (quoted by Moorhead) investigated the alleged relation of injury to hernia in 10,000 cases and they regarded two as due to direct violence. C. D. Selby (Direct Abdominal Hernia of Traumatic Origin, *THE JOURNAL*, Nov 3, 1906, p 1495) reported a case of direct hernia following a direct injury. Operation disclosed a tear in the external oblique fascia, the internal oblique and the transversalis muscles.

Direct hernia, which occurs only from 3 to 5 per cent as frequently as the indirect type, is more likely to be due to trauma (Moorhead).

Watson (Hernia, St. Louis, C. V. Mosby Company, pp 603-613) gives a good review of the compensation boards. In some

courts proof must be furnished that the hernia did not exist prior to the accident in a claim for traumatic hernia. However some compensation boards rule that when a strain causes protrusion of the bowels it is a compensable injury even though the protrusion is at a point weakened by congenital malformation or preexisting hernia.

Gorton (Compensable Hernia, *J Indiana M A* 23 521 [Nov.] 1930) states that if a hernia develops as an incident to the man's daily work it should be considered a result of a special anatomic weakness for which the company is in no way responsible. He considers that industrial accidents of various sorts usually lifting or straining, are regarded more frequently as the cause of hernia than the facts warrant, but that many of these industrial accidents are the exciting cause.

The consensus is that there is a preformed sac or a congenital weakness in almost all cases.

A number of factors must be considered in determining what relation if any, an accident bears to the development or aggravation of a hernia. These are the history of the accident, the time intervening the location and extent of the trauma, the type and degree of hernia, and the evidence of local injury.

There is enlargement of the external abdominal ring in 2.2 per cent of men, according to the surgeon general's report from the examination of 2,000,000 drafted men. Erdman (Nelson Loose-Leaf Surgery New York Thomas Nelson & Sons 4 610) thinks that this enlargement may be an important determining factor in the occurrence of primary direct hernia.

The following references will give further information.

St. Jacques Edmond. Accidental Hernias and Their Compensation. *Canad M A J* 22:661 (May) 1930.  
Holland J. H. *New England J Med* 209 579 (Sept. 21) 1933.

## CORD BLADDER—CHRONIC CYSTITIS

To the Editor—1 What is string or cord bladder? How can I get information about care and treatment? 2 In cases of chronic cystitis coming on after prostatectomy and having a duration of some years what would be the probable changes leading to death? Can I get advice as to treatment? 3 Mountain Valley water from Hot Springs Ark. is advertised to neutralize acids that cause irritation. Would this be better than sodium carbonate? 4 One good textbook advises potassium chlorate also a milk diet. My experience with milk is that it causes retention and pain and has to be dropped. Can I get an opinion as to these two substances?

EVERETT FLOOD MD Friendship Maine.

ANSWER.—1 So-called cord bladder is a condition caused by paralysis of the nerves supplying the bladder and is characterized by an atonic condition of the detrusor muscles a variable degree of residual urine, and relaxation of the internal sphincter and prostatic urethra. There is a great difference in treatment of the bladder that is completely paralyzed, as frequently occurs with severe spinal trauma, or only partially, as is often observed with various types of disease involving the spinal cord. Employment of catheter drainage is contraindicated in the former group but is usually advisable in the latter.

A number of articles have been written in regard to the treatment of cord bladder among which may be mentioned

Cumming, R. E. Bladder Paralysis. Etiology Prognosis and Treatment. *J Michigan M Soc* 28 5 (Jan.) 1929.

Braasch W. F. Data with Regard to Lesions of the Nerves of the Urinary Tract, *J Urol* 13 383 (April) 1925.

Cauk J. R. and Greditzer H. G. Observations on the Bladder in Diseases of the Central Nervous System. *Am J Syph* 1 42 (Jan.) 1917.

Corbus B. C. and O'Connor V. J. Tabetic Bladder from the Standpoint of the Urologist. *THE JOURNAL*, Nov. 18 1922 p 1750.

Braasch W. F. and Thompson G. J. Treatment of the Atonic Bladder. *Surg Gynec & Obst* to be published.

2 Chronic cystitis persisting after prostatectomy is often secondary to renal infection, although in many cases it results from a persisting infection in that portion of the prostatic urethra from which the prostate has been enucleated. Although the symptoms of such infection may be trying, it is seldom that it is a major factor in causing a patient's death. However, in case of severe increasing infection leading to pyonephrosis, fatal complications may follow, although this occurs in only a small percentage of cases. The treatment of postoperative cystitis should consist of first determining the type of infection. If bacilluria is present it can be overcome frequently by the ketogenic diet, together with acidification of the urine by some drug such as ammonium chloride or ammonium nitrate. Topical applications to the prostatic urethra and lavage of the bladder with solutions of potassium permanganate, acriflavine, or weak Goulay's solution will be of value in many cases.

3 It is a common fallacy that the reaction of the urine with chronic cystitis is acid and that this is the cause of irritation. Symptoms are almost always due to an inflammatory condition of the mucosa and not to any variation in the degree of acidity of the urine. If alkalization of the urine causes subjective relief,

it is best accomplished by means of some drug such as sodium bicarbonate rather than by attempting to bring it about with any type of water

4 It is open to question whether any drug or milk diet will be of much benefit in chronic infections of the bladder. The best methods of treatment are those described above.

#### ALLERGIC REACTION FROM TOXOID

*To the Editor*—In an answer to a recent query (*THE JOURNAL* January 5, p 68) concerning the probable relationship between an allergic reaction resulting from the administration of alum precipitated toxoid and a previous inoculation with pertussis vaccine it is inferred that the patient was sensitized by the vaccine. Further it is assumed that the blood proteins (probably other than those of human blood although this fact is not definitely established) which may have been contained in the vaccine were the responsible antigenic substances. In order to explain the allergic response which is believed to have resulted from the subsequent injection of alum precipitated toxoid is it not necessary to assume that these two biologicals contained proteins from the same source? As far as I am aware pertussis vaccine is prepared from organisms grown on Bordet medium that has been enriched by the addition of either defibrinated human blood or defibrinated sheep blood. It is possible of course that in spite of the washings to which it is subjected during its preparation the final product might have contained small amounts of the blood. The alum precipitated toxoid as is known does not contain serum in the same sense as the older toxin antitoxin mixtures contained serum. It may however contain small amounts of those proteins derived from the meat usually veal employed in the preparation of the nutrient broth in which the diphtheria organisms are grown. In the absence of definite information as to the nature of the proteins that may have been responsible for the effect observed the conclusions stated in the answer seem to be unwarranted. Please omit name

M D Ohio

*ANSWER*—Shortly after the answer to the query was prepared, an unusual (allergic) reaction following a Schick test came to notice. This reaction bore such a close resemblance to the reaction following the alum toxoid injection that it now seems quite unlikely that the preceding pertussis vaccine injection had anything to do with the reaction that followed the alum toxoid injection. Although many thousands of Schick tests had been done in the department concerned, this was the first time that an allergic reaction had followed a Schick test. It had to be controlled with epinephrine. Since no vaccine injection had preceded the Schick test, it now seems reasonable to assume that in exceptional instances alum toxoid might elicit an allergic reaction. The cause of such reactions is not known.

#### USE OF DIGITALIS POSTOPERATIVELY

*To the Editor*—What is the modern theory with regard to the use of digitalis in other than physiologic doses? It is apparently quite common for the older practitioners in this locality to give digitalis in doses of from 1 to 3 grains (0.065 to 0.2 Gm.) of the powdered leaf in cases of mild cardiac insufficiency commonly observed in old patients postoperatively. Is there any reason to suppose that such doses exert any effect on the heart muscle? I have recently seen a 75 year old man three days after operation with a temperature of 102 and the pulse 130 but regular. The blood pressure was 130 systolic 90 diastolic. Physical examination of the chest showed numerous coarse rales throughout. Medication consisted of 7½ grains (0.5 Gm.) of caffeine every four hours one-thirtieth grain (0.002 Gm.) of strychnine every four hours and 1 cat unit of digitalis subcutaneously every six hours for four doses. Kindly criticize such treatment. Please omit name.

M D Arizona

*ANSWER*—The routine administration of digitalis postoperatively is often practiced, but so far adequate evidence is lacking to prove definitely that such empirical use is really rational or beneficial. Elderly patients without previous congestive failure do not develop heart failure immediately following operation. If circulatory complication develops, it usually consists in varying degrees of failure of the peripheral circulation. In this condition digitalis is not beneficial so far as we know. If there should be true myocardial failure as manifested by pulmonary or peripheral congestive failure following operation, digitalis is indicated. It is doubtful, however whether such small doses as from 0.065 to 0.2 Gm. of powdered leaf administered daily will have any appreciable effect, because this dose is close to the amount eliminated from the human body and hence accumulation would not occur or would develop very slowly. It is recognized on the other hand that considerably smaller amounts of digitalis than those advocated in recent years can improve the failing heart.

In this specific case, digitalis was given in four doses of 0.1 Gm. each of a standard preparation. Such an amount is insufficient to induce with certainty beneficial results in a heart that is failing provided the patient's heart is capable of responding to digitalis. Experience shows that not every instance of heart failure particularly with regular rhythm

responds favorably. As far as additional medication such as caffeine and strychnine, is concerned, the beneficial effect would be on the peripheral circulation. If evidence of circulatory collapse is present, such medication is often beneficial. The routine use of digitalis, caffeine and strychnine postoperatively as a preventive of either myocardial or peripheral circulatory failure is not rational.

Fever and rapid pulse developing postoperatively are usually associated primarily with changes in the peripheral circulation. The level of the blood pressure does not rule out the existence of such a condition as the pressure may previously have been higher. The coarse rales in the lungs may be the result of infection, or of failure of the myocardium. The administration of caffeine and strychnine is therefore rational. If the correspondent believes that the pulmonary signs developed as a result of failure of the heart more prolonged digitalis therapy than that given is also in order.

#### HEARING WATCH TICK AND WHISPERED VOICE

*To the Editor*—Will you kindly give me the interpretation of the following. A patient is not able to hear the tick of a watch at a distance of 2 feet but is able to hear a whispered voice at a distance of 20 feet.

V W JENSEN M.D., Shelby Mich.

*ANSWER*—The tick of certain watches is extremely faint. Furthermore, the sounds produced by watches are in the nature of noises, and it is quite possible that the pitches of some of these sounds is much higher than those of the ordinary whispered voice. Therefore, if the individual had an impairment of hearing for the high tones he might hear the middle tones of the whispered voice but not those of the watch tick. It is also essential to know whether the opposite ear was tightly closed while the ear was being tested with the whispered voice, otherwise the sounds may be carried through the air to the normal ear and heard at a great distance. One should remember that noises are sounds produced by irregular vibrations and not like those of pure tones, which consist of regular even vibrations.

#### PHLEBITIS AFTER INJECTION OF VARICOSE VEIN

*To the Editor*—Following an injection of 3 cc of sodium morrhuate into a varicose vein on the anterior aspect of the middle third of the leg a woman was confined to bed for a month because of pain on walking. Relief from pain is obtained by rest elevation of the limb and ice bags. The injected vein for about 3 inches is prominent and very tender to touch. The reaction is confined to the vein and not to the perivenous tissues. The patient is still confined to bed. What can be done to make her ambulant? The deep veins are patent. Please omit name.

M D New York

*ANSWER*—From the description the case is that of an induced phlebitis which often follows an injection into a vein harboring a latent infection. It is often difficult to diagnose a latent infection before the injection but when the vein is tender and hard, if the temperature of the skin is slightly elevated or if the patient complains of feeling changes of weather in the affected area the diagnosis of a latent infection is probable. Such veins may respond with a marked tubular phlebitis even after a simple puncture. Should the deep vein be patent there is no reason to keep the patient confined in bed. An Unna's boot relieves the pain readily so that the patient may be up and around without much discomfort. If the phlebitis is spreading upward and shows no tendency to quiescence, a high saphenous ligation may be done to prevent further ascension of the clot and to remove increased pressure from the inflamed vein. Occasionally the severe pain is due to a direct involvement of the saphenous nerve in which case the nerve might have to be sectioned at a higher level to relieve pain. A mild dose of x-rays over the inflamed area not exceeding 100 roentgens, is often helpful.

#### AUTOGRAFTS IN BURNS

*To the Editor*—We have a patient in our hospital who had a very extensive burn. We have grafted him a number of times but as yet do not have complete coverage. The skin area available on his own body is practically exhausted and we shall be forced to look elsewhere for grafts. The patient is one of a set of twins and we should like to know whether a graft from his twin brother would be more valuable than a true heterogenous graft.

HARRY C. DeBOURCY M.D. Davenport Iowa

*ANSWER*—Autografts are by far the most uniformly successful, but if these are not available members of the patient's immediate family particularly those of the same blood group should prove the most satisfactory donors of skin. The twin brother if he is of the same blood group as the patient, should prove satisfactory but probably not more so than other brothers or sisters who are of the same group.



DACTYOCYSTITIS AFTER OPERATION FOR  
NASAL POLYPS

To the Editor—I have under my care at present a man who had a rather marked epiphora shortly after an operation for the removal of nasal polyps. At the present time he is suffering from an acute dacryocystitis. I should like your opinion as to whether or not an attempt should be made to open the intranasal end of the tear duct or whether because of the acute dacryocystitis an extirpation of the lacrimal sac should be done after the infection has subsided. Then again is there any explanation as to why excision of the sac diminishes the tearing? Kindly omit name  
M D New Jersey

ANSWER.—It is possible that the nasal operation injured the mucosa at the nasolacrimal opening and partially or completely occluded the passage. If only an edema had been present, the epiphora should have disappeared in ten days. It is possible for the infection to have involved the tear sac, or that the sac infection may have been incidental. We do not advise probing during the acute dacryocystitis. Application of heat until the infection clears is the best treatment. If a large abscess is present, it should be incised. The West or Toti-West operation is done in these cases to make an enlarged permanent opening between the tear sac and the nose. If the sac is removed, the epiphora remains unless a sinus forms between the punctum and the nose, but this is not the rule.

ACTION OF PHYSOSTIGMINE ON PUPIL

To the Editor—Would you please advise me as to whether or not physostigmine when contracting the pupil exerts any action on either the ciliary circular muscular fibers or the longitudinal? If so, which? Please omit name  
M D Ohio

ANSWER.—In his Text Book of Ophthalmology (1935) Duke Elder writes "Eserine [physostigmine] instilled into the conjunctival sac brings about a miosis and a spasm of accommodation, which commence in a few minutes and reach a maximum in about thirty minutes. The effect on the ciliary muscle wears off in about two hours but for some considerable time thereafter the accommodation remains in a hyperexcitable state, so that the slightest voluntary effort throws it into a strong spasm." The miosis lasts longer, from twelve to fourteen hours. Physostigmine stimulates the oculomotor end apparatus. The circular, meridional and radial fibers are affected. Contraction of the last two produces a pull on the choroid and indirectly on the retina, while all fibers take part in opening the canal of Schlemm. On page 61 of his book Duke Elder likens the ciliary muscle under physostigmine to that of the muscle of a hyperopic eye as compared with that of the normal or emmetropic eye.

NO ADDED VALUE TO MENTHOLATED CIGARETS  
FOR ASTHMATIC PATIENTS

To the Editor—Please give me the general consensus as to whether mentholated cigarettes as compared to other cigarettes are beneficial or harmful to a smoker with an irritable throat or a tendency to asthmatic bronchitis.  
M D Pleasantville N J

ANSWER.—There is no definite answer as to the question of the relative good or bad resulting to a smoker from using the various kinds of mentholated and nonmentholated cigarettes.

In a personal communication Yandell Henderson, working in the Laboratory of Applied Physiology at Yale University writes "Investigations which we have carried out show that menthol in cigarettes is entirely without harmful effect. Aside from the cool sensation, mentholated cigarettes are in no respect different from any other."

In general, it might be said that if people with sensitive throats or with a tendency to bronchial asthma or asthmatic bronchitis must smoke they will find little difference in the results from mentholated or nonmentholated cigarettes.

SCIATICA

To the Editor—Will you kindly tell me whether you consider sciatica primary or secondary when due to diabetes, syphilis, focal infection, alcohol and arsenic? Kindly omit name  
M D Indiana

ANSWER.—Sciatica as a prominent symptom can scarcely be spoken of as primary or secondary. The term sciatica signifies a pain along the course of the sciatic nerve and this may be produced by processes either intrinsic or extrinsic to the nerve. Diabetes, syphilis, focal infection, alcohol and arsenic produce intrinsic changes and give signs of a sciatic neuritis.

Pelvic tumors and arthritis of the spine or sacrum affect the nerve extrinsically by distortion or tension and the pain thus induced is usually designated as sciatica.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALABAMA Montgomery June 24-26 Sec Dr J N Baker 519  
Dexter Ave Montgomery

AMERICAN BOARD OF PEDIATRICS St Louis Nov 19 Sec Dr  
C A Aldrich 723 Elm St Winnetka, Ill

ARIZONA Basic Science Tucson, June 18 Sec Dr Robert I  
Nugent Science Hall University of Arizona Tucson Medical Phoenix  
July 2 Sec Dr J H Patterson 826 Security Bldg Phoenix

CALIFORNIA San Francisco July 8-11 and Los Angeles July 22-25  
Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

COLORADO Denver July 2 Sec Dr Harvey W Snyder, 422 State  
Office Bldg, Denver

CONNECTICUT Hartford July 9-10 Endorsement Hartford July 23  
Sec Medical Examining Board Dr Thomas P Murdock, 147 W Main  
St Meriden

DISTRICT OF COLUMBIA Washington July 8-9 Sec Commission on  
Licensure Dr George C Ruhlman 203 District Bldg Washington

FLORIDA Jacksonville June 17-18 Sec. Dr William M Rowlett  
P O Box 786 Tampa

HAWAII Honolulu July 8-11 Sec Dr James A Morgan, 48 Young  
Bldg Honolulu

ILLINOIS Chicago June 25-28 Address Department of Registration  
and Education Springfield

INDIANA Indianapolis June 25-27 Sec Board of Medical Registra-  
tion and Examination, Dr William R Davidson Room 5 State House  
Annex Indianapolis

KANSAS Topeka June 18-19 Sec Board of Medical Registration  
and Examination Dr C H Ewing 609 Broadway Larned

MAINE Augusta July 2-3 Sec Board of Registration of Medicine  
Dr Adam P Leighton Jr 192 State St, Portland

MARYLAND Baltimore June 18-21 Sec Dr John T O'Mara 1211  
Cathedral St Baltimore

MASSACHUSETTS Boston July 9-11 Sec Board of Registration in  
Medicine Dr Stephen Rushmore 413 State House, Boston

MINNESOTA Minneapolis June 18-20 Sec Dr E J Engberg 350  
St Peter St St Paul

MISSISSIPPI Jackson June 25-26 Asst. Sec State Board of Health  
Dr R N Whitfield Jackson

NATIONAL BOARD OF MEDICAL EXAMINERS The examination will be  
held in all centers where there are class A medical schools and five or  
more candidates desiring to take the examination June 24-26 and Sept  
16-18 Ex Sec Mr Everett S Elwood 225 S 15th St. Philadelphia

NEW JERSEY Trenton June 18-19 Sec Dr James J McGuire  
28 W State St Trenton

NEW YORK Albany Buffalo New York and Syracuse June 24-27  
Chief Professional Examinations Bureau Mr Herbert J Hamilton  
Room 315 Education Bldg Albany

NORTH DAKOTA Grand Forks July 2-5 Sec Dr G M Williamson,  
44 S 3d St Grand Forks

PENNSYLVANIA Harrisburg Philadelphia and Pittsburgh July 9-11  
Dir. Bureau of Professional Licens-  
ing Mr W M Denison 400 Education Bldg Harrisburg

RHODE ISLAND Providence July 2-3 Dir, Department of Public  
Health Dr E A McLaughlin 319 State Office Bldg Providence

SOUTH CAROLINA Columbia June 25 Sec Dr A Earle Boozier  
505 Saluda Ave Columbia

SOUTH DAKOTA Rapid City July 16-17 Dir Division of Medical  
Licensure Dr Park B Jenkins Pierre

TEXAS Austin June 18-20 Sec Dr T J Crowe 918 1920  
Mercantile Bldg Dallas

UTAH Salt Lake City July 8-10 Dir Department of Registration  
Mr S W Golding 326 State Capitol Bldg Salt Lake City

VERMONT Burlington June 26-28 Sec Board of Medical Registra-  
tion Dr W Scott Noy Underhill

VIRGINIA Richmond June 19-21 Sec Dr J W Preston, 28 1/2  
Franklin Road Roanoke

WASHINGTON Basic Science Seattle July 11-12 Medical Seattle  
July 15-17 Dir Department of Licenses Mr Harry C Huse Olympia

WEST VIRGINIA Clarksburg July 8 State Health Commissioner Dr  
Arthur E McClue Charleston

WISCONSIN Milwaukee June 25-28 Sec Dr Robert E. Flynn,  
401 Main St LaCrosse

Oklahoma March Examination

Dr. J. M. Byrum, former secretary, Oklahoma State Board of Medical Examiners, reports the oral and written examination held in Oklahoma City, March 12-13, 1935. Four candidates were examined all of whom passed. Eight physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad
University of Illinois College of Medicine		(1934)
Tulane University of Louisiana School of Medicine		(1930)
Creighton University School of Medicine		(1933)
Universität Heidelberg Medizinische Fakultät		(1923)

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Physicians and Surgeons	Arkansas	(1910)	Arkansas
Johns Hopkins University School of Medicine		(1924)	Maryland
University of Minnesota Medical School	(1930)	(1932)	Minnesota
University of Nebraska College of Medicine		(1933)	Nebraska
Western Reserve University School of Medicine		(1928)	Ohio
University of Tennessee College of Medicine		(1930)	Minnesota
(1933) Tennessee			



### California Reciprocity and Endorsement Report

Dr Charles B Pinkham, secretary, California State Board of Medical Examiners, reports 29 physicians licensed by reciprocity and six physicians licensed by endorsement from Jan 2 to Feb 19, 1935. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists		(1932)	Nevada
University of Colorado School of Medicine.		(1926)	Hawaii
(1932) Washington			
University of Georgia Medical Department		(1925)	Georgia
Hahnemann Medical College and Hospital Chicago		(1902)	Illinois
Northwestern Univ Med School (1932) New York		(1933)	Ohio
University of Illinois College of Medicine		(1915)	Michigan
(1932) (1933) Illinois			
Indiana University School of Medicine		(1930)	Minnesota
State University of Iowa College of Medicine		(1923)	
(1928) (1930) (1931) Iowa			
Harvard Univ Medical School (1921) Connecticut		(1924)	Utah
University of Minnesota College of Med and Surg		(1902)	Minnesota
University of Minnesota Medical School		(1919)	Minnesota
St Louis University School of Medicine		(1933)	Missouri
Columbia Univ College of Physicians and Surgeons		(1905)	New York
Long Island College Hospital (1913)		(1915)	New York
University of Cincinnati College of Medicine		(1933)	New York
University of Oklahoma School of Medicine		(1927)	Oklahoma
Hahnemann Med Coll and Hospital of Philadelphia		(1933)	Oregon
University of Tennessee College of Medicine		(1933)	Tennessee
McGill University Faculty of Medicine		(1930)	Connecticut
Magyar Királyi Pázmány Petrus Tudományegyetem			
Orvosi Fakultása Budapest		(1920)	New York
School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	of
Loyola University School of Medicine		(1930)	N B M Ex
Northwestern University Medical School		(1931)	N B M Ex
State University of Iowa College of Medicine		(1905)	U S Army
Washington University School of Medicine		(1929)	N B M Ex
Columbia Univ Coll of Phys and Surg (1929)		(1930)	N B M Ex

### Book Notices

**What You Should Know About Heart Disease** By Harold E B Pardee M.D. Assistant Professor of Clinical Medicine Cornell University Medical School. Second edition. Cloth Price \$1.50 Pp 127 with 4 illustrations Philadelphia Lea & Febiger 1935

This was written to help the heart patient to understand his condition "The better he is able to do this the better he will be able to aid in his own cure by cooperating with the physician who is trying to correct the unpleasant result of the disease." The text is well printed and durably bound. Technical language, in the main, is successfully avoided. Only four explanatory diagrams are employed and the book lacks an index. The first chapter is devoted to the anatomy and physiology of the heart and circulation. The second chapter is a discussion of the causes of heart disease and an explanation of the resultant pathologic changes. Arteriosclerosis, rheumatic fever, syphilis, goiter, lead, alcohol, diabetes and hypertension are included. It is the author's view that tobacco as a cause of heart problems is much maligned. It will disappoint many readers that only a short paragraph is devoted to the nervous heart. The symptoms of heart disease are discussed in detail and the cardiac irregularities and murmurs are explained. The fifth chapter is devoted to prognosis and the next four chapters contain a discussion of methods of treatment. Special attention is given to the treatment of the causative factors, and detailed instructions are given concerning dietary management. Drug therapy includes a discussion of mercury, digitalis and glyceryl trinitrate. The theobromine derivatives, mercurial diuretics and opiates are omitted. The need of recreation is discussed and the advantages of southern climate in rheumatic disease are noted. One chapter is devoted to the selection of occupation by cardiac patients and the problems of marriage and pregnancy. In surgical operations with anesthesia the author suggests starting the operation under chloroform and continuing with ether rather than gas anesthesia. The author clearly makes his point that proper management of a cardiac case is best obtained by full cooperation of the patient with the physician. Lack of accurate knowledge of the cardiac problem by the patient begets unreasonable fear. The book is deserving of recommendation by the physician to his cardiac patients.

**A Textbook on Surgery for Students and Physicians** By W Wayne Babcock A.M. M.D. LL.D. Professor of Surgery and Clinical Surgery in the Temple University. Second edition. Cloth. Price \$10 Pp 131\* with 1040 illustrations Philadelphia & London W B Saunders Company 1935

This edition shows much revision as well as new material. It is a large volume with numerous illustrations. The subject of surgery has grown to proportions demanding treatment in many-volumed systems by numerous collaborators. There remains, however, a definite need for a one volume textbook. The advantages to the student in saving of time is obvious. Babcock's book meets the ideal of economy of time without the sacrifice of quality. It is divided into four parts. The first part, on general surgery, deals with the subjects of inflammation, repair of tissues, hemorrhage, thrombosis and embolism, shock, coma and so on. The second part treats of the surgery of systems. The third part describes surgical technic. The fourth part is devoted to regional surgery. The textbook in its first edition found a wide acceptance among teachers and students. In its revised form it is abreast of the time in every chapter.

**Die künstliche Zwerchfelllähmung bei der Behandlung der Lungen tuberkulose** Von Prof Dr Th. Naegell Oberarzt der Chir. Univ. Klinik Bonn. a. Rh. und Dr H. Schulte Tilges Chefarzt der Heilstätte Rheinland Honnorf/Rhein Nr 54 Tuberkulose Bibliothek Beilhefte zur Zeitschrift für Tuberkulose Herausgegeben von Prof Dr Lydia Rablowsky Boards Price 7.40 marks Pp 61 with 49 illustrations. Leipzig Johann Ambrosius Barth 1935

This treatise systematically and thoroughly discusses the technical and clinical phases concerned with phrenic nerve surgery, considering not only the authors' idea and experiences but also the facts and opinions that have been presented by others in the extensive literature on the subject. The anatomy of the accessory branches and the communications with the sympathetic system are carefully described. Many varying views concerning the part played by the diaphragm in respiration and expectoration and the effect of paralysis on these functions are presented, which indicates that there is no universal agreement on these problems. The technic of the permanent and of the temporary operations is given in detail. The large number of surgical accidents accumulated from the literature emphasizes that the operation is not a simple one, and the late complications suggest that the procedure is not to be undertaken lightly. In considering the indications for the operation the authors quote results of many reported series of cases so that one can judge the type of case in which best results have been obtained and the groups in which less benefit has been derived. The authors feel that it is very difficult to predict in the individual case how much benefit will result, and therefore it may be well to perform a temporary operation first and later make this permanent if a prolonged paralysis seems desirable. They feel that paralysis of the diaphragm judiciously applied is of distinct value in the treatment of pulmonary tuberculosis. Forty-eight roentgenograms demonstrate excellent results following phrenic nerve interruption in the cases of pulmonary tuberculosis. A complete bibliography is given. The work can be recommended as one of the most complete presentations of this subject.

**Nutrition and Physical Fitness** By L. Jean Bogert Ph.D. Consultant in Nutrition Delmonico Institute New York. Second edition. Cloth. Price \$3 Pp 566 with 65 illustrations Philadelphia & London W B Saunders Company 1935

This useful and thoroughly practical book now appears with revisions and amplifications particularly on the subject of vitamins. The dominant trend in the book is still maintained. It is the author's purpose to show mainly how nutritional knowledge may be used intelligently in everyday life for the building of positive health. The book is well balanced and written in a simple and direct manner. The author has anticipated the reader's desire not only for theoretical information concerning nutrition but also for practical data concerning foods and their methods of preparation. The text is divided into five parts, the first three being concerned with the fundamentals. The first part deals with qualitative aspects of the diet, next how this should be supplied in terms of calories and percentage composition and, concluding this section a discussion of how this is made available to the body cells. The last two sections

are practical methods by which such information is applied in normal and special conditions. The last two parts of the book are particularly valuable, as they contain useful information not often presented in such a practical and comprehensive manner. Chapters on menu planning, economics and influences of cooking, food fads and fancies, and trends in American dietary habits are decidedly original and useful discussions. The section on diets for special conditions is clearly presented and well done. The entire book shows careful editing of the authors and timely knowledge of scientific advance in nutrition. The book is especially recommended to the nurses and students of nutrition as a well balanced, modern, critical presentation of the subject. It is too limited in scope and data, however, to serve as a single reference work for physicians.

*Klinik der Erkrankungen des Herzmuskels* \ Fortbildungs Lehrgang in Bad Nauheim 20-23. September 1934. Herausgegeben von der Vereinigung der Bad Nauheimer Ärzte. Paper. Price 10 marks. 1 p. 170 with 63 illustrations. Dresden & Leipzig: Theodor Steinkopff. 1934.

This contains a series of lectures intended for the use of post-graduate students. Various authoritative men, as Krehl, Nonnenbruch and Hochrein, have contributed. Each lecture is a unit yet the whole book gives a good statement of recent advances in the entire field. An accurate degree of emphasis is maintained throughout. Aschoff in one lecture discusses the myocardial disorders not caused by coronary disease. He places great emphasis on the myocardial injury during acute infections and its pathogenesis. The book can be read with profit by men in general practice as well as by specialists.

*Medical Greek and Latin at a Glance*. By Walter R. Agard B. Litt. Professor of Greek, University of Wisconsin. With an Introduction by C. H. Bunting M.D. Professor of Pathology, University of Wisconsin. Photo-Lithoprint Reproduction of Author's Manuscript. Paper. Price \$1.10. Pp. 42. Ann Arbor: Edwards Brothers Inc. 1935.

There has always been a need for a handbook of useful etymological data of Greek and Latin words among most medical students and physicians. While Latin usually is part of pre-medical training, they have little experience with scientific terms. The complexity that Greek introduces for the student is often bewildering. However, such intricate terminology becomes relatively simple by learning a few principles of word construction. This handbook first presents prefixes in both Latin and Greek which are constantly encountered, then the common suffixes, and finally the principles for compounding words. A list of important medical terms derived from Greek and Latin are appended to aid the reader in seeing how compounds are formed. The book is in a sense a key to word formation and not a treatise on Greek and Latin medical terminology. As such, it serves a most useful purpose and should be the property of every medical student and physician who has not had the benefit of a classical education.

*Methodik der Vitaminforschung*. Von Dr. Phil. Christian Bomskov. Chemiker an der Universitätskinderklinik Kiel. Mit einer Einführung von Prof. Dr. med. E. Romlinger. Paper. Price 24 marks. Pp. 301 with 99 illustrations. Leipzig: Georg Thieme. 1935.

The introduction of a textbook on methods and chemistry of the vitamins should be welcomed by all workers in the field. While a book of this character will need frequent revision to meet current advances, it fills a much needed place. Too often the worker in the field of vitamin research must go through a vast amount of current literature in order to get useful data on technic. This monograph is a collection of all current methods on vitamin research. It is exceedingly well organized and edited. The text is replete with valuable protocols, illustrations and graphs, which add considerably to the text. It will be particularly valuable to the novice, as the author has included not only advanced material but such fundamental subjects as selection and care of laboratory animals, their spontaneous diseases, and the feeding of animals used for vitamin research. The author's selection of methods is excellent. When there is any doubt, alternative methods are given. While considerable advance has taken place since the chapter on vitamin C was written, it is still a valuable addition to the book and recent enough for fundamental research. A vast amount of literature, both foreign and American, has been reviewed and the reader will find the bibliography unusually complete and helpful. It is highly recommended to the novice and also the trained worker engaged in vitamin research.

*Studies in Physiological Optics* (Wilmer Institute). December 1928 to October 1934. Volumes I and II. Edited by C. E. Ferree, Director Research Laboratory of Physiological Optics, Wilmer Ophthalmological Institute of the Johns Hopkins University School of Medicine. [Reprints.] Paper. Various pagination with illustrations. Baltimore. 1934.

These are reprints of articles chiefly on visual fields, luminosity and adaptation of the eye to light that have appeared in the *Archives of Ophthalmology*, *American Journal of Ophthalmology*, *Bulletin of the Johns Hopkins Hospital*, *Journal of Experimental Psychology*, *Journal of General Psychology*, the *Personnel Journal*, *American Journal of Psychology*, *Transactions of the Illuminating Engineers Society*, the *Modern Hospital*, the *Nations Schools* and the Physical and Optical Societies Report of Cambridge. The articles are by Ferree and his associates and are assembled in the order of their appearance in the various journals without any comments. The pages of the volumes are not numbered and there is no index. The volumes should more properly be called collected reprints of Ferree and his associates. They serve as a compact reprint file for one especially interested in visual field studies and lighting.

*Nouveau traité de psychologie*. Par Georges Dumas, professeur à la Sorbonne. Tome IV. Les fonctions et les lois générales. Avec la collaboration de Ch. Blondel, professeur à la Faculté des lettres de Strasbourg et al. Cloth. Price 120 francs. Pp. 528 with 26 illustrations. Paris: Félix Alcan. 1934.

This volume of Alcan's monumental treatise on psychology is divided into two parts, the first dealing with the general functions of organization and the second with the general laws of mental activity. Piéron discusses attention its evolution and mechanism, habitude and memory. Association of ideas is treated by Delacroix, schematization by d'Allonnes, and symbolization by Dumas. The disrepute into which the association of ideas has fallen is reflected in the brevity of that section. In the second part of the volume Blondel points out the distinction between normal and pathologic automatism necessitated by the work of the psychiatrist de Clerambault, unfortunately recently deceased. Janet summarizes again his illuminating studies on psychologic tension and its oscillations, so neglected in these days of outrageous symbolization. The volume terminates with studies of mental activity, intellectual work, fatigue and sleep, it is better edited than the previous ones.

*Elementary Human Anatomy Based on Laboratory Studies*. By Katharine Sibley, Professor of Physical Education, School of Education, Syracuse University, Syracuse, New York. Cloth. Price \$4.50. Pp. 360 with 213 illustrations. New York: A. S. Barnes & Company. 1935.

This book is written from the standpoint of physical education and physical therapy. It deals especially with bones, joints and muscles and contains also brief chapters on other systems—nervous, circulatory, digestive, respiratory and the ductless glands. It represents a serious and conscientious effort to present in an orderly way such fundamental facts in the structure of the human body as would be especially interesting to students of physical education. The illustrations have been borrowed for the most part from standard works. They are well selected and instructive. The style is condensed, tabulation being often substituted for descriptive sentences, with the result that sometimes the meaning is a little uncertain. Unfortunately, the book contains mistakes in English, Latin, logic and anatomy.

*Mikrochemie des Blutes*. Von Dr. Friedrich Rappaport, Assistent am Institut für allgemeine und experimentelle Pathologie der Universität Wien. Monographien aus dem Gesamtgebiete der Mikrochemie. Mit einem Vorwort von Prof. Dr. Fritz Silberstein. Paper. Price 15 marks. Pp. 206 with 51 illustrations. Vienna & Leipzig: Emil Halm & Co. 1935.

This concise textbook on microchemical technic as applied to blood is essentially a book of methods. It is written presumably for the laboratory technician. Before the discussion of each method is a brief outline of the underlying principle. The methods are described in a clear and explicit manner, and examples of calculations of the results are given under each description. It is doubtful whether this book will be received in the English speaking countries, where the Folin system of blood analysis is employed. The author has seen fit to replace practically every method that is standard in this country with one of his own choice without any apparent justification. The book is well organized and clearly presented but it is doubtful whether it will be well received here.

**Blood Groups and Blood Transfusion** By Alexander S Wiener A B M D Cloth. Price \$4 Pp 220 with 41 illustrations Springfield Ill & Baltimore Charles C Thomas 1935

The special and most prominent feature of this book is the discussion of the recent developments of the forensic and legal applications of the blood groupings. Of the total pages, not more than half have practical value for the practicing physician but in them practically all that is of value is included. The remainder is an important summary of hematology and blood groups of special value to students interested in the anthropologic, ethnologic and genetic phases of blood groupings.

**Directory of Catholic Hospitals and Allied Agencies of the United States and Canada 1935** Bulletin No 21 Reprinted from Hospital Progress Official Journal of the Catholic Hospital Association Paper Pp 48 St Louis Catholic Hospital Association of the United States and Canada 1935

This is the most complete source of information that is known in the form of an annual census, concerning all Catholic hospitals

## Medicolegal

**Compensation of Physicians Liability of County for Emergency Services Rendered Indigents**—An indigent patient was brought to the office of the plaintiff, a physician. A diagnosis of ruptured appendix was made and the patient was placed in a hospital. The plaintiff communicated immediately with the proper county commissioners, informing them of the critical condition of the patient and requesting an order to operate. The plaintiff was informed that no action could be taken until the commissioners met. Believing that further delay would prove fatal, the plaintiff operated and restored the patient to health. The county board of commissioners refused to pay the bill and the plaintiff sued and obtained judgment against the county in the trial court. The county appealed to the Supreme Court of Nebraska.

In affirming the judgment of the trial court, the Supreme Court said that in an emergency requiring an operation to save the life of an indigent the physician should, if reasonably possible, attempt to communicate with the proper authorities charged with the care of the poor of the county, but if an order to operate should be arbitrarily refused, or if the authorities should be noncommittal, the necessary services may nevertheless be rendered, and the law imposes an obligation on the county to pay the reasonable value thereof—*Miller v Banner County, (Neb.)* 256 N W 639

**Malpractice Burns Following Diathermic Treatment**—The plaintiff sued the defendant-physician for damages for a burn on his back, which he attributed to a diathermic treatment by the defendant. According to the plaintiff's testimony, about two minutes after the plates had been applied and the electric current turned on he complained of heat to the defendant's nurse-employee, who was present in the room with him. A few minutes later he complained again and asked that the current be turned off and that the defendant be called, but the nurse did not heed him. When the defendant came into the room a moment later and removed the plates from the plaintiff's back and abdomen, the plaintiff, according to his testimony, "felt an awful pain as though flesh was coming off" and could smell the burning. The defendant-physician and his nurse testified, however, that the plaintiff did not complain of heat and was not burned in the treatment. From a judgment for the plaintiff, the physician appealed to the Supreme Court of Michigan.

Despite frequent warnings from the trial court that his course was hazardous, the plaintiff presented his case in reverse order producing medical witnesses and asking hypothetical questions before the plaintiff testified. He was allowed to do so on his assurance that evidence of the basic facts for his hypothetical questions would be presented later. Several of his hypothetical questions however, seem to have been based on assumed facts and circumstances not shown by subsequent evi-

dence. The order of proof, said the Supreme Court, on appeal, is largely in the discretion of the trial court, but the practice employed in this case is not to be commended, it prevents opposing counsel from making specific objections to hypothetical questions and hinders the court in its efforts to keep the testimony to the issue. The controlling hypothetical question, to ascertain the duty of the physician under local practice, was grounded on the statement that the patient "repeatedly" complained of being "burned." The plaintiff did not precisely so state. If the case had been presented in an ordinary manner, the question would have been excluded, but the answer given was that the defendant should have shut off the current and investigated by removing the plates. For this and other reasons, judgment was reversed and a new trial ordered—*Sima v Wright (Mich.)*, 256 N W 349

**Malpractice Sloughing of Tissue Following Subcutaneous Injection of Dextrose Solution**—The plaintiff was operated on by Dr Ward for appendicitis. The operation revealed that the appendix had ruptured and that the plaintiff was "in the last throes of peritonitis." In order to save the patient's life, a saline solution containing 10 per cent dextrose was injected in her thighs. The intravenous method of injection could not be used because of the toxic condition of the plaintiff. A sloughing of the tissues resulted. Thereupon the plaintiff sued the hospital, the extern who administered the injections, a nurse who assisted the extern, Dr Ward, the operating physician, and Dr McGavack, the attending physician who administered the anesthetic. A nonsuit was granted as to the nurse. The jury returned a verdict for the hospital and the extern but gave judgment against Drs McGavack and Ward, who thereupon appealed to the district court of appeals, first district division 2, California. There the judgment of the trial court was reversed with directions to enter judgment in favor of the physicians. *Callahan v Hahnemann Hospital et al (Calif.)*, 26 P (2d) 506, abstracted in THE JOURNAL, July 14, 1934, page 134.

The case was transferred to the Supreme Court of California and after careful study of the briefs and arguments that court concluded that the district court of appeals had correctly determined all questions of law and fact. The paramount duty of the physicians under the circumstances of this particular case was to endeavor to save the life of the patient and it was not malpractice to save the patient's life, even though this was accomplished by the injection of a solution containing a higher percentage of dextrose than is ordinarily injected subcutaneously, and even though sloughing resulted at the point of injection. There was no suggestion that the physicians did not possess the requisite skill or that they did not exercise their best judgment. The selection of a method of treatment is a matter of judgment. Physicians are not to be confined in their selection of methods of treatment to the use of those methods if any, which have the universal approval of all members of the profession—*Callahan v Hahnemann Hospital et al (Calif.)* 35 P (2d) 536

## Society Proceedings

### COMING MEETINGS

American Association for the Study of Goiter Salt Lake City June 24-26  
Dr W Blair Mosser 133 Biddle Street Kane, Pa Secretary  
American Child Health Association Iowa City June 19-22 Dr Philip Van Ingen 50 West 50th Street, New York Secretary  
American Urological Association San Francisco, June 25-28 Dr Gilbert J Thomas 1009 Nicollet Avenue Minneapolis Secretary  
Maine Medical Association, York Harbor June 23-25 Miss Rebekah Gardner 22 Arsenal Street, Portland Secretary  
Medical Library Association Rochester N Y June 17-19 Miss Frances N A Whitman 25 Shattuck Street Boston Secretary  
Minnesota State Medical Association Minneapolis June 24-26 Dr E A Meyerding 11 West Summit Avenue St Paul Secretary  
Montana Medical Association of Helena July 2-3 Dr E G Balsam 208 1/4 North Broadway Billings Secretary  
National Tuberculosis Association Saranac Lake N Y June 24-27 Dr Charles J Hatfield Henry Phipps Institute, Philadelphia Secretary  
North Pacific Pediatric Society Seattle August 9-10 Dr F H Douglass 509 Olive Street, Seattle Secretary  
Pacific Northwest Medical Association Spokane Wash June 27-29 Dr C W Countryman 407 Riverside Avenue Spokane, Wash Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### Alabama Medical Association Journal, Montgomery

4: 301-340 (March) 1935

Some of the Common Indications for Splenectomy. *Case Reports*. J. P. Collier, Birmingham—p. 301

\*Management of Varicose Veins and Ulcers. J. S. Bobo, Gradsden—p. 309

Bichloride of Mercury Poisoning. Report of Recovered Case. G. Walsh and C. S. Stuckley, Fairfield—p. 312

Rabies: Prevalence, Treatment, Control. G. A. Demson, Birmingham—p. 314

Method for Sterilizing Shoes Against Fungi. J. L. Callaway, University—p. 319

4: 341-472 (April) 1935

Economic Crises That Affect Medical Practice. B. W. Caldwell, Chicago—p. 341

Treatment of Intractable Pain with Particular Reference to Trigeminal Neuralgia. C. Pilcher, Nashville, Tenn.—p. 346

Allergy from Standpoint of the General Practitioner. C. K. Weil, Montgomery—p. 351

Abdominal Conditions in Infancy and Childhood. Differential Diagnosis. J. H. Baumhauer, Mobile—p. 357

Transperitoneal Removal of Unusual Malignant Tumor of Right Kidney. R. V. Taylor, Jr., Mobile—p. 360

**Management of Varicose Veins**—Bobo, in examining a varicosed leg, places a tourniquet round the lower part of the thigh just tight enough to obstruct venous return in the superficial system and allows the patient to walk about the room for several minutes in order to observe the final test of efficiency in the one system of deep veins. When there is little discomfort no pain or cramps and no marked distention of varices, the deep veins are furnishing sufficient venous return and the varicosed ones should be injected. If there is pain and great distention, beyond the usual size of the varicosities, with marked discoloration of the skin, there is an obstruction to circulation through a failure of the venous blood to find a channel for return and injection is contraindicated. If there is marked back pressure of blood, and the tests confirm the fact that it is from the long saphenous, there is some advantage in ligating it high up on the thigh. This eliminates most of the pressure and the actual downward flow of blood through this vein. The author employs only sodium morrhuate, and quinine and urethane. He has the patient sit on the end of the table with the foot dependent and resting on a small stool. The skin is prepared with alcohol. Injection is made directly into the lower part of the vein. The needle being in the lumen of the vein pressure is made just below its point by the thumb of the left hand and just above by the index finger. If the finger is moved upward, the vein is flattened and the capacity of the venous segment to be injected is markedly diminished, so that a smaller amount of solution can be injected and still come in contact with the whole intima, the amount varying from 3 or 4 minims (0.2 or 0.25 cc) to 1 cc. The needle is withdrawn and the thumb and finger are held in position for two minutes, this being ample time to produce the necessary irritation to the line of the vein. A small compress is placed over the injected site. Two or three injections to each leg are made at a sitting. The patient wears a bandage and reports in one week for further injections. The support should be worn for a month or two after the injections are completed. The author's treatment of varicose ulcers evolves around the Unna paste boot. The boot is applicable to ulcers that are not actively infected but are in a latent stage or in the stage of repair. Case reports are given, showing the value of the treatment.

#### American Journal of Diseases of Children, Chicago

10: 835-1104 (April) 1935

Rheumatic Infections Occurring in the First Three Years of Life. R. McIntosh and C. L. Wood, New York—p. 835

\*Injuries to Vertebrae and Intervertebral Disks Following Lumbar Puncture. C. N. Perse, Chicago—p. 849

Body Build in Infants. VI. Growth of Cardiac Silhouette and Thoraco-Abdominal Cavity. II. Bakwin and Ruth Morris Bakwin, New York—p. 861

Id. VII. Effect of Retarded Growth on Dimensions of Cardiac Silhouette and Thoraco-Abdominal Cavity. II. Bakwin and Ruth Morris Bakwin, New York—p. 870

Id. VIII. Influence of Retarded Growth on Dimensions of Ulna and Radius. II. Bakwin and Ruth Morris Bakwin, New York—p. 876

Studies on Lipoids and Lipoid Diseases. IV. Lipoid Content of Tissues in Cases of Status Epilepticus, Toxic Encephalopathy and Chronic Leptomeningitis. D. M. Cowie and M. Catherine Magee, Ann Arbor, Mich.—p. 884

Virus-Antivirus Mixtures in Smallpox Vaccination. I. A. Frisch, New York—p. 894

Excretion of Drugs in Milk. N. T. Kwit and R. A. Hatcher, New York—p. 900

Teeth in Fetal Rickets. J. J. Wolfe, Peiping, China—p. 905

Dermal Absorption of Vitamin D. P. S. Astrowe and R. A. Morgen, Kansas City, Mo.—p. 912

Complications of Varicella. I. Their Occurrence Among Two Thousand Five Hundred and Thirty-Four Patients. J. G. M. Bullowa and S. M. Wishik, New York—p. 923

Id. II. Surface Complications. S. M. Wishik and J. G. M. Bullowa, New York—p. 927

\*Eosinophilia in Scarlet Fever. I. Diagnostic Aid. S. Friedman, Boston—p. 933

\*Relation Between Infection of Upper Respiratory Tract and Gastro-Intestinal Infection in Infants, with Especial Reference to Role of Bacillus Morganii. I. B. S. Kahn, New York—p. 939

Latent Cardiac Complications Following Sydenham's Chorea. H. Schwarz and S. D. Leader, New York—p. 952

Mineral Metabolism in Osteogenesis Imperfecta. Summary with Report of Case. W. W. Swanson and Vivian Iob, Chicago—p. 958

**Injuries to Vertebrae Following Lumbar Puncture**—Pease states that many persons complain of pain in the lower part of the back following lumbar puncture. A study of twelve cases showed a thinning of the intervertebral disks and a definite sclerosis of the vertebral bodies, the results of loss of material from the nucleus and of irritation of the bone. Five of these occurred following the withdrawal of fluid for diagnosis, five following the intraspinal administration of anti-meningococcus serum, one following an encephalogram and one following the administration of spinal anesthesia. In performing lumbar punctures on cadavers it was learned that one cannot determine when the point of the needle is actually in the neural canal. In some cases there was a slight decrease in resistance when the canal was reached, but this occurred only when the needle was introduced very delicately. However, in the majority of cases it was impossible to determine the position of the point of the needle. Similarly, if the needle was pushed in too far, one could not tell when it struck the intervertebral disk and passed into it. On the other hand, it was not difficult to ascertain the situation when the point of the needle struck a bony portion of the vertebra. Further experimental puncture on cadavers revealed that there were several possible terminations if the needle was pushed beyond the neural canal: the most common sites being the intervertebral disk, a vertebra, interarticular facets and venous sinusoids in the vertebral body. The purpose of the author's discussion is not to discourage lumbar puncture but rather to call attention to the new complications that may be added to the already long list of accidents resulting from the withdrawal of spinal fluid. In performing a lumbar puncture it is possible, unknowingly, to introduce the needle too far, penetrating the intervertebral disk or the vertebra. The sequels from this may be a narrowing of the intervertebral space, which can be demonstrated by roentgenograms. Various types of inflammatory reactions may be set up in the bony and articular elements of the spine.

**Eosinophilia in Scarlet Fever**—To determine how helpful the eosinophil count may be in the early diagnosis of scarlet fever, Friedman made this count in 100 cases of scarlet fever. All counts were made at approximately the same time of day, 3 p. m. Blood smears were made by the slide method and stained with Wright's stain. A single examination of the blood revealed an elevated eosinophil count in 46 per cent of the cases in the early stages of the disease. Most of the elevated counts ranged from 5 to 8 per cent. The highest count recorded was 17 per cent. There was an elevated eosinophil count in 60 per

cent of the mild cases but in only 18.2 per cent of the moderate cases and in none of the severe cases. Forty-two of the forty-six patients giving an elevated eosinophil count in the early stages of the disease had a mild form of the disease. In the early stages, 62.1 per cent of the patients exhibiting a slight or a very slight rash had an elevated eosinophil count, while only 31 per cent of those with a moderate rash and 77 per cent of those with a bright or intense rash had an elevated eosinophil count. The relationship between the degree of constitutional symptoms, as typified by the temperature, and the eosinophil count is similar to the relation between the severity of the case and the eosinophil count. The type of case in which an elevated eosinophil count is most likely to be seen in an early stage of the disease is the mild case with only a slight rash and mild constitutional symptoms.

**Upper Respiratory and Gastro-Intestinal Infection in Infants**—Kahn isolated *Bacillus Morganii* I from the stools of five out of six infants with gastro-enteritis associated with infection of the upper respiratory tract, of fifteen out of twenty-one controls and of fourteen out of thirty-eight infants from a well baby clinic. *Bacillus Morganii* I, *B. paracoli* and *Proteus asiaticus* can be recovered with much greater frequency than previously reported if repeated cultures of the stools are made. *Bacillus Morganii* I, like *B. coli* not normally pathogenic for man, may assume pathogenic characteristics in a small number of cases. The mere recovery of *B. Morganii* I from the diarrheal stool is not proof of its pathogenicity. This is also true for *B. paracoli*, *Proteus asiaticus*, *B. dysenteriae* Schmitz, *B. dispar*, *B. paratyphoid C* and the proteolytic bacteria. Additional evidence must be obtained to prove the pathogenicity of these organisms, namely, agglutination in high dilution with the blood serum of the suspected patient. The close clinical relationship of otitis media and infection of the upper respiratory tract to diarrhea in infants under 2 years of age is probably not due to infection of the intestinal tract with pathogenic organisms in the great majority of cases. The clinical relationship may be the manifestation of allergy or of absorption of toxins from a pathologic process in the upper respiratory tract.

### Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

33 441 588 (April) 1935

- Ossification (So-Called Calcifications) of Normal Laryngeal Cartilages Mistaken for Foreign Body. Correlation of Roentgen and Histologic Findings. W. E. Chamberlain and B. R. Young. Philadelphia—p. 441.
- \*Fusospirochetal Pneumonia. C. B. Peirce and H. Field Jr. Ann Arbor Mich.—p. 451.
- Roentgenologic Determination of Normal and Abnormal Results Following Operation on Stomach and Duodenum. B. R. Kirklin. Rochester Minn.—p. 468.
- Interposition of Colon Following Induced Phrenic Paralysis. P. Slavina, Glen Gardner. N. J.—p. 481.
- \*Roentgenographic Evidence in Tuberosity of Humerus of Recent and Old Injuries to Supraspinatus Tendon Attachment. L. S. Henry, Syracuse. N. Y.—p. 486.
- Certain Aspects of Roentgenology of Spine from Orthopedic Point of View. R. W. Lewis. New York—p. 491.
- Lateral Roentgenography of Neck of Femur. L. Jones. Kansas City, Mo.—p. 504.
- Technic for Roentgen Examination of Lumbosacral Articulation. P. C. Williams and P. E. Wigby. Dallas, Texas—p. 511.
- Oxycephaly. Report of Two Cases. A. Simon. R. Ramos and W. W. Eldridge. Washington, D. C.—p. 516.
- Cineradiography. R. J. Reynolds—p. 522.
- Effect of Roentgen Therapy on Tumors of Kidney. A. E. Bothe, Philadelphia—p. 529.
- Small Platinum Needle Designed for Use of Various Strengths of Radium Element Interstitially. N. Treves. New York—p. 537.

**Fusospirochetal Pneumonia**—Peirce and Field believe that fusospirochetal pneumonia is a disease entity of definite etiology. They present eleven cases. It is characterized by a prodromal period, more or less prolonged, with dry cough, malaise and pleural pain as dominant symptoms. The gravity of the roentgen evidence of a subsequent bronchopneumonia to confluent lobular pneumonia is out of proportion to the relatively mild constitutional reaction. The sputum commonly has a "mousy" rather than a foul odor, is sometimes bloody and contains many fusiform bacilli and spirochetes, in addition to other organisms commonly associated with them in the mouth. Darkfield examination and gentian violet or silver stains of freshly washed specimens are advisable in the suspected case. There is a considerable tendency to exacerbation, spread of involvement, pleural

effusion or atelectasis. Convalescence is commonly slow. Conservative treatment with complete bed rest has yielded excellent results. Bronchiectasis has been observed early in the course of two cases, followed by partial to complete repair. Arsphenamine and neoarsphenamine have not been of marked therapeutic value.

**Injuries to Supraspinatus Tendon Attachment**—Henry feels that many cases of undiagnosed disability of the shoulder are caused by evulsion of the supraspinatus tendon from the greater tuberosity of the humerus and that roentgen evidence should be an aid in helping to establish proper diagnosis. Soft tissue roentgen technic with anteroposterior views with the arm in adduction and complete internal rotation reveals the site of insertion of the supraspinatus tendon in silhouette on the humerus. The pathologic observations follow exactly the anatomic descriptions by Codman and others. They are illustrated by six typical cases. Immediately after injury fine spicules of bone near or on the periosteal outlines of the greater tuberosity are seen at the site of the insertion of the supraspinatus tendon. Within a few weeks, irregular decreases and increases in density of the evulsed surface and rounding of the tuberosity are observed. From six months to a year later, irregular calcification and occasionally cysts with loss of the tuberosity prominence and disappearance of the sulcus make their appearance. Old lesions may also show proliferation of bone in old callus together with loss of the tuberosity prominence (in this view), loss of the sulcus and rearrangement of the trabeculae in the whole tuberosity and somewhat in the adjacent parts of the head of the humerus.

### American Journal of Surgery, New York

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- Teaching of Obstetrics and Gynecology in the United States. H. J. Stander. New York—p. 61.
- Organic Control of Growth and New Growth. W. W. Babcock. Philadelphia—p. 67.
- Appendicitis. Analysis of Thirty Three Hundred and Forty Four Cases, with Remarks on Delayed Operation in Delayed Appendicitis. W. D. Haggard. Nashville, Tenn.—p. 71.
- The Elliott Treatment of Pelvic Inflammatory Disease. Report of One Hundred and One Cases. R. C. Doan and W. M. Simpson. Dayton, Ohio—p. 78.
- \*Complete Thyroidectomy in Advanced Heart Disease with Observations on Its Use in Advanced Arteriosclerosis, Syphilis and Renal Disease. G. H. Pratt. New York—p. 85.
- \*Prevention of Postoperative Embolism and Phlebitis with Description of Apparatus Employed. H. A. Gamble. Greenville, Miss.—p. 93.
- Bizarre Symptoms of Hypothyroidism. J. W. Hinton. New York—p. 96.
- Bilateral Cysts of the Kidney. R. Pollock. New York—p. 101.
- Duodenal Fistula Due to Perinephric Abscess and Following Nephrectomy. Case Report and Review of Literature. N. F. Ockerblad and N. G. Gonzales. Kansas City, Mo.—p. 105.
- Diagnosis of Renal Tuberculosis. C. J. Bucher and T. R. Fetter. Philadelphia—p. 113.
- Influence of Hysterectomy on Endocrine Balance. R. Marx. Los Angeles—p. 117.
- Value of X-Ray in Diagnosis of Acute Abdomen. I. W. Ponemon. Jamaica, N. Y.—p. 122.
- Calcification of Gallbladder. B. C. Russum and F. C. Hill. Omaha—p. 129.
- Omentopexy in Treatment of Cirrhosis of Liver. J. E. Strode. Honolulu, T. H.—p. 135.
- Acute Diverticulitis of Sigmoid. R. E. Weible. Fargo, N. D.—p. 142.
- Simple Expedient for Treatment of Acute and Chronic Synovitis of Knee Joint Following Trauma. C. R. G. Forrester. Chicago—p. 145.
- Giant Cell Tumor of Patella. Complete Review of Literature. Report of Case. S. A. Linde. Baltimore—p. 150.

**Thyroidectomy in Advanced Heart Disease**—Pratt traces the development of complete thyroidectomy for heart disease and makes suggestions for the extension of the procedure to the arteriosclerotic, renal and syphilitic groups, with the presentation of case summaries. He discusses a routine preoperative operative and postoperative regimen and presents results in nineteen cases. He cites the dangers of the procedure, which include mortality during operation, tetany, recurrent laryngeal nerve injury, pulmonary complication, infection and hemorrhage with asphyxia. His observations suggest that in the routine thyroidectomy for goiter more of the gland should be removed. The large proportion of recurrence of the tumor following the old lobectomy emphasized how rapidly the remainder of the gland will hypertrophy. Especially when there is cardiac involvement, it is safer to chance the occasional myxedema than the resultant cardiac disturbance from the hyperplasia of a small piece of retained gland. The continuation or recurrence

of cardiac symptoms after thyroidectomy for toxic goiter is due, the author believes, to this removal of insufficient gland and not to a dysfunction of the adrenals or other internal secreting glands. When the cardiac lesion is advanced, the surgeon should remove all of the gland that he can find and even then the danger will be in the retention of too much tissue. Only cases in which other therapeutic measures have failed are considered eligible for the operative procedure. Acute cases are eliminated. The author does not eliminate the syphilitic or arteriosclerotic types. He believes that the possible benefit of complete thyroidectomy in advanced tuberculosis should be considered and in the light of the present investigations it seems plausible. The restless hyperactive state that often affects the tuberculous patient could certainly be arrested and the myxedematous tendency with slow movements, increase in weight and the desire to rest most of the time should be conducive to pulmonary healing.

**Prevention of Postoperative Embolism and Phlebitis**  
—During the last twelve months, Grumble has employed two measures which in his opinion have had a definite preventive effect on the development of postoperative embolism and phlebitis. 1 The employment of carbon dioxide and oxygen postoperatively, which was originally instituted as a preventive of postoperative pneumonia, he has come to believe serves an equally useful purpose as a measure for preventing the occurrence of phlebitis and pulmonary embolism by the forcing of deep respiration at a period when all vital functions are at a low level. After twenty-four hours carbon dioxide and oxygen are substituted for routine deep breathing exercises. 2 An equally if not more important measure in promoting the flow of venous blood in the lower extremities is the maintenance of the muscle tone and contraction of the muscles of the legs. This is accomplished by the systematic daily use beginning the first day after operation, of a device consisting of two bicycle pedals mounted on a broad base, which can be placed conveniently in the bed for exercising the lower limbs. There has not been a single case of either condition when the two procedures have been employed, whereas in a similar number in which these measures were not employed there has been one fatal case of pulmonary embolism and three cases of phlebitis of the lower extremities. Another advantage of the exerciser is the maintenance of body strength.

## Anatomical Record, Philadelphia

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Method of Establishing Probable Limits of Normal Variation in Weight of Organs Edith Boyd Minneapolis—p 1  
Intra Uterine Growth of Albino Mice in Normal and in Delayed Pregnancy E V Enzmann Cambridge Mass—p 31  
Experimental Ovarian and Resulting Pseudopregnancy in Anestrous Cats M A Foster and F L Hisaw Madison Wis—p 75  
So-Called Neutral Red Vacuum and Golgi Apparatus H C Chang Chicago—p 95

## Archives of Otolaryngology, Chicago

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Abscess of the Brain Report of Five Consecutive Recoveries with Especial Reference to the Mosher Drain and Pneumographic Visualization of Abscess Cavity A Kaplan New York—p 385  
Acute Cerebellar Abscess Report of Case G E Shambaugh Jr Chicago—p 406  
Tracheal Diverticulum Observations on Cadaver and Results of Histologic Study E F Ziegelman San Francisco—p 414  
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Para Esophageal Diaphragmatic Hernia Associated with Intrinsic Lesions in Esophagus Report of Cases P P Vinson and H J Moersch, Rochester Minn—p 437  
Cavernous Sinus Thrombosis of Dental Origin B P Morgenstern, New York—p 442  
Irritation as a Prolonged Palliative in Vasomotor Rhinitis A R Hollender Chicago—p 448  
Irritation Circuit Plans for an Inexpensive Unit D Macfarlan, Philadelphia—p 456  
Association of Toxic Deafness with Toxic Amblyopia Due to Tobacco and Alcohol F D Carroll, New York, and P E Ireland Toronto—p 459

**Acute Cerebellar Abscess**—Shambaugh reports the case of a child who was admitted to the hospital during the eruptive stage of scarlet fever. During hospitalization acute suppurative otitis media developed, complicated by thrombosis of the lateral sinus and followed by the development of a cerebellar abscess. By reviewing the clinical course in this case one can reconstruct

and visualize the pathologic changes that occurred at each stage from the initial cerebral invasion to encapsulation, drainage and recovery. The stage of invasion of the abscess of the brain was characterized by predominating systemic symptoms (fever) from the advancing thrombophlebitis, the symptoms of local cerebral involvement (vomiting) being minimal. The second stage that of early necrosis and encephalitis, was characterized by signs of rapidly increasing intracranial pressure with localizing neurologic signs beginning to appear. The third stage, that of encapsulation was characterized by continued signs of increased intracranial pressure, but with the localizing neurologic signs predominating. The stage of recovery was marked by rapid disappearance of the signs of increased intracranial pressure followed by a more gradual recovery from the neurologic changes. Encapsulation was definitely developed three and one half weeks after the initial cerebral invasion. Repeated aspirations were not sufficient. Constant drainage was necessary. The encephalitis surrounding the abscess was more threatening to life than the abscess itself. Had a larger drain been inserted or any attempt been made to suck out, inspect or pack the abscess cavity, the added encephalitis would probably have been fatal. In cases of acute abscess of the brain, drainage must be established with a minimum of trauma to the tissue. A rubber catheter makes a satisfactory drain, but it must actually penetrate the capsule. A preliminary decompression will relieve the acute symptoms in the early stages and allow delay in exploring until encapsulation and walling off have occurred. By limiting the dural opening to a simple half inch (1.27 cm) incision massive herniation is prevented. The neurologic signs of abscess of the brain were due more to the associated encephalitis than to the actual necrosis of brain tissue, as evidenced by the complete restoration of cerebellar function.

## Arch of Physical Therapy, X-Ray, Radium, Chicago

10:193 256 (April) 1935

Cancer of Nasal Accessory Sinuses Problems in Diagnosis and Management F L Lederer Chicago—p 199  
Electrosurgical Obliteration of Gallbladder M Thorek Chicago—p 207  
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Muscle Examination in Poliomyelitis A M Reichtman and H Sigmond Philadelphia—p 220  
Comparative Analysis of Heat Production Physical Analysis of High Frequency Radio Frequency and Conductive Heat C J Breitwieser and J S Hibben Pasadena, Calif—p 228

**Electrosurgical Obliteration of Gallbladder**—Thorek believes that failures and fatalities in classic cholecystectomy are frequently due to bile leakage, as a result of an inability to obliterate and cover the gallbladder bed, which contains bile capillaries and often larger bile ducts in from 15 to 25 per cent of cases. Electrosurgical obliteration of the gallbladder, when carefully carried out, may be used in simple and complicated cases of gallbladder disease without resorting to drainage. It reduces morbidity and mortality to a minimum and shortens hospitalization. The much dreaded age factor loses its terror. Shock is absent. The term cholecystelectrocoagulectomy is descriptive of the procedure. A prerequisite to the achievement of satisfactory results is a patent common duct. An occluded cystic duct from any cause is an indication for cholecystelectrocoagulectomy. Cholecystelectrocoagulectomy is free from the drawbacks of carbonization and effectively accomplishes destruction of the entire thickness of the gallbladder and gallbladder bed. The surgeon has under control the degree of penetration he wishes to accomplish. The falciform ligament is used as a pedicle or free graft in covering sutured or raw surfaces to great advantage, thus reinforcing and protecting the areas concerned against seepage and safeguarding the processes of repair. Electrocoagulated areas in intra-abdominal organs tend to heal by encapsulation. They do not interfere with wound healing but heal promptly when the wound is closed securely. Therefore, drainage is not only undesirable but is distinctly deleterious. Drainage prolongs the healing process and predisposes to infection. Cholecystelectrocoagulectomy eliminates the necessity of drainage and its unpleasant sequels. This method when properly carried out substitutes for a leaking, unprotected, raw surface in the gallbladder bed a sterile, hyaline, dry protective layer. A series of 118 consecutive, unselected cases were thus treated without a fatality.



**California and Western Medicine, San Francisco**

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- Problem of Prostatism Suprapubic or Perineal Prostatectomy versus Transurethral Resection and Glandular Therapy versus Operation of Any Kind F Hinman San Francisco—p 234
- Tularemia in California H E Miller San Francisco—p 236
- Medical Economic Survey of Sacramento County N Hale, Sacramento—p 241
- Dietary Management in Pregnancy D G Tollefson and Katharine Brown, Los Angeles—p 247
- \*Resection of Stomach for Carcinoma Important Technical Considerations E Holman San Francisco—p 252
- Urinary Calculi, Cause and Treatment M B Wesson San Francisco—p 258

**Resection of Stomach for Carcinoma**—Holman believes that whenever feasible subtotal gastrectomy with complete resection of the lesser curvature is the method most likely to ensure complete removal of the original growth and the involved lymphatic channels and nodes in gastric carcinoma. Formation of a small tubelike stomach from the remaining greater curvature permits reestablishment of gastro intestinal continuity by end-to-side anastomosis with the jejunum. A retrocolic anastomosis is preferable, but no traction at the site of union by the mesocolon is permissible and, when imminent, should be avoided by an antecolic gastro-enterostomy, supplemented by a jejuno-jejunostomy. Avoidance of bleeding at the operation and complete hemostasis by direct ligation of all individual bleeding vessels prevent embarrassing postoperative complications. To improve the results in the treatment of gastric cancer every "corporic" ulcer located off the lesser curvature should be treated, from the moment its presence is demonstrated, as probably neoplastic in origin and therefore subject to subtotal resection, and every gastric ulcer on the lesser curvature should be resected if two months of well controlled medical care does not both relieve symptoms and cause a diminution in the size of the ulcer with ultimate disappearance of the ulcer. Every ulceration on the gastric side of the pylorus, accompanied by symptoms that persist in the face of medical care, should be considered probably neoplastic in origin and therefore subject to resection. It cannot be emphasized too strongly that the absence of anemia, loss of weight and palpable tumor and the presence of a normal gastric acidity are not incompatible with gastric cancer.

**Illinois Medical Journal, Chicago**

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- Modern Diet and the Child Bearing Problem D T Quigley Omaha—p 339
- Present Status of Ocular Surgery O B Nugent Chicago—p 345
- The Benign Meliturias T D Masters Springfield—p 351
- The Clinic Habit C H Parkes Chicago—p 354
- Preparedness for Acid or Alkali Burns of the Eye A B Middleton, Pontiac—p 357
- Statistical Status of Diabetes G H Gowen Chicago—p 360
- Transurethral Prostatic Resection G J Thompson Rochester Minn—p 365
- Calculus Disease of Urinary Tract L A Maslow Chicago—p 367
- Postspinal Anesthetic Headache Review of Literature and Suggestions for Treatment S Peluse Chicago—p 372
- Poisonous Spider Bites in Illinois Case Reports T Kirkwood Lawrenceville—p 377
- Rupture of Quadriceps Tendon Above Patella with Surgical Repair F G Murphy, Chicago—p 379
- Painless Coronary Occlusion F Stenn Chicago—p 381
- Silicosis W Stewart East St Louis—p 382

**Iowa State Medical Society Journal, Des Moines**

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- Nontuberculous Infections of Chest J H Peck Des Moines—p 183
- Surgical Treatment of Pulmonary Infection H L Beye Iowa City—p 187
- Treatment of Empyema R H Lott Carroll—p 190
- Relationship of Bronchoscopy to Thoracic Surgery J A Downing Des Moines—p 192
- Management of Allergic Manifestations of Nose and Throat J J Shea Memphis Tenn—p 193
- Isolated Nonreducible Fracture of Middle Third of Radius A L Jensen, Concord Bluffs—p 196
- Classification of Anemias V E Levine Omaha—p 198
- Modern Conception and Management of Acne Vulgaris M H Noun Des Moines—p 201
- Salient Features in Treatment of Cardiac Failure H W Rathe Waverly—p 203

**Journal of Lab and Clinical Medicine, St. Louis**

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- \*Cholesterol Content of Plasma in Arthritis E F Hartung and M Bruger New York—p 675
- Observations on the Indican Test on Blood and Urine in Renal Insufficiency S H Polayes and Elizabeth Ann Eckert Brooklyn—p 681
- Bacteriostatic and Bactericidal Studies of Various Dyes and Allied Compounds S A Petroff and W S Gump Trudeau N Y—p 689
- \*Blood Wassermann Test in Five Hundred Cases of Neurosyphilis with Positive Cerebrospinal Fluids W C Menninger Topeka Kan and L Bromberg, Chicago—p 698
- Diurnal Variations in Concentration of Red Blood Cells and Hemoglobin J J Short New York—p 708
- The Laboratory as an Approach to Anemic Therapy T G Schnabel, Philadelphia—p 714
- Effect of Jaundice on Intradermally Injected Salt Solution J M Mora and F J Jirka, Chicago—p 719
- Differential Count at High Altitudes R F Peterson, Butte, Mont., and W G Peterson, Warren Minn—p 723
- Are Brucella Abortus Agglutinins in Blood Stream Produced by Active or Passive Immunization? C. Emelia Peterson, San Francisco—p 727
- \*Eosinophilia in Syphilis Comparative Study of Differential Leukocyte Counts in One Hundred Positive and One Hundred Negative Blood Wassermann Cases R H Spangler Philadelphia—p 733
- Simple Micromethod for Determination of Alcohol in Biologic Material R N Harger Indianapolis—p 746
- Stability of Sugar in Cerebrospinal Fluid P G Schube, Boston—p 752
- Antigen Mixing Tube for the Kahn Test R S Spray, Morgantown W Va—p 754
- Determination of Nitrate in Animal Tissues Mary Whelan, Oklahoma City—p 755
- Micro-Kjeldahl Technique for Determining Fibrinogen Helen R. Garbutt and R S Hubbard Buffalo—p 758
- New Clinical Model of Haden Hausser Hemoglobinometer R L Haden, Cleveland—p 762
- Tenth Normal Hydrochloric Acid as Diluting Fluid for Combined Leukocyte and Hemoglobin Determinations C A Pons, Asbury Park, N J and W P Belk Ardmore, Pa—p 766
- Percentage of Hemoglobin Compared to Volume of Erythrocytes Importance of This Relation in Correcting Van Allen Determination of Volume of Platelets K K Nygaard and Doris L. Duxbury, Rochester Minn—p 767

**Cholesterol Content of Plasma in Arthritis**—Hartung and Bruger compared the plasma cholesterol in arthritic patients with cholesterol studies in thirty-three normal subjects. In the rheumatoid group (thirty-three cases) the average age was 39 years, 63 per cent of the patients were women. The mean total cholesterol was  $175.2 \pm 39.5$  mg per hundred cubic centimeters of plasma. When these figures were compared with the control group the results indicated that 49 per cent of the rheumatoid cases gave normal values, 39 per cent showed hypcholesterolemia and 12 per cent showed hypercholesterolemia. The esterified cholesterol showed a normal relation to the total cholesterol, varying from 466 to 768 per cent with a mean of 609 per cent. No absolute correlation was observed between the total plasma cholesterol and the sedimentation rate. In the osteo-arthritis group of fifty-nine patients the average age was 51 years, 90 per cent were women. The mean total cholesterol was  $235.4 \pm 45$  mg per hundred cubic centimeters of plasma. Hypercholesterolemia was observed in 62 per cent, 35 per cent gave normal values and only 3 per cent showed hypcholesterolemia. The cholesterol esters in this group also showed a normal relation to the total cholesterol, varying from 429 to 753 per cent with a mean of 594 per cent. Here again no definite correlation was observed between the sedimentation rate and the total blood cholesterol. The plasma cholesterol tends to be low in rheumatoid arthritis and elevated in osteo-arthritis. These observations lend added proof to the theory that rheumatoid arthritis is an infectious disease and osteo-arthritis a degenerative one.

**Blood Wassermann Test in Neurosyphilis**—Menninger and Bromberg present the status of the blood Wassermann test in 500 cases of clinical neurosyphilis with positive spinal fluids. In the entire group of all clinical types of neurosyphilis, 155 (31 per cent) showed negative blood Wassermann tests early in their study. Twenty-one patients showed a one plus blood Wassermann test, 62 patients showed two plus, 42 patients showed three plus and 220 patients showed a four plus blood Wassermann test. In 297 cases of asymptomatic neurosyphilis, 101 patients showed a negative blood Wassermann test. In 133 cases of tabes dorsalis, 37 patients showed a negative blood Wassermann test. In 38 cases of dementia paralytica, 8 patients showed a negative blood Wassermann test. In 19



cases of dementing paralytic with tabes, 5 patients showed a negative blood Wassermann test. In 13 cases of meningo-vascular neurosyphilis, 4 patients showed a negative blood Wassermann test. The Kahn test was positive in 38 cases showing a negative blood Wassermann reaction. If this number of cases is deducted from the 155 showing a negative blood Wassermann reaction, there remain 117 patients with both the Kahn and Wassermann tests of the blood negative. The investigation shows that no case of syphilis after the early stage can be regarded as completely studied, accurately diagnosed or correctly treated without knowledge of the cerebrospinal fluid observations.

**Eosinophilia in Syphilis**—Spangler made a comparative study of the differential leukocyte counts in 100 men having positive and 100 men with negative blood Wassermann reactions. The study of differential blood counts in patients with positive Wassermann reactions tends to indicate that a moderate eosinophilia occurs and is discoverable, if repeated counts are made at various stages of the patient's response to the specific toxin of the parasite of syphilis, in at least 40 per cent or more of the cases. It seems reasonable to assume therefore, that the eosinophilia occurring in syphilis may be regarded as distinct evidence of the blood's reaction to the sensitizing (toxic) substance of *Spirocheta pallida* and that it is indicative of the patient's development of an allergic cellular mechanism of defense. With the hypothesis that eosinophilia is a criterion of allergy and with the finding of an eosinophilia in individuals with positive Wassermann reactions in various stages of syphilitic infection, the possible immunologic relation of allergy and syphilis would appear to justify careful study. With the admittedly high incidence of unrecognized syphilitic infection and the unknown basic factor of many allergic metabolic disturbances, any clue leading to a definite diagnosis and of possible aid in solving the mechanism involved in the systemic eosinophilogenic response would seem worthy of attention and investigation from an immunologic standpoint. It seems justifiable that a moderate degree of eosinophilia, especially when associated with a lymphocytosis, occurring even periodically in an apparently nonallergic person whose intestinal tract is free from ova and parasites, warrants the taking of Wassermann tests and the making of a persistent search for clinical evidence of syphilis.

## Journal of Nervous and Mental Disease, New York

81 373-488 (April) 1935

- \*Encephalomyelitis Disseminata Following Ascending Neuritis R H Thompson, Philadelphia—p 373
- Epilepsy in Identical Twins Presentation of Three Pairs of Twins R H Guthrie Palmer Mass and W M Lebowitz Chelsea Mass—p 388
- Conceptions and Misconceptions of the Analytic Method Karen Horney New York—p 399
- Congenital Multiple Arteriovenous Aneurysm Intracerebral and Extra cerebral with Psychologic Correlations Case G V N Dearborn New York—p 411
- Tendon Reflexes of the Foot S M Weingrow New York—p 416

**Encephalomyelitis Disseminata Following Ascending Neuritis**—Thompson reports a case in which persistent pain in the left deltoid region began two weeks after the apparent recovery of a purulent infection of the left index finger and hand and changed gradually to a paresthesia of numbness involving the entire left limb. This was indicative of an extension of the infection into the peripheral neural system. Coexisting numbness of the upper portion of the left side of the trunk was a manifestation of extension of the morbid condition farther than the periphery and was the first presumptive evidence of involvement of the spinal cord, i. e., the left posterior column in its outer portion, the fasciculus cuneatus. The further progress of the paresthesia coincided with the anatomic distribution of the fibers within the posterior column. The clinical course implied a progressive segmental invasion of the posterior column of the left side ascending from the posterior roots of the spinal nerves for the neck and upper limb. The paresthesia of numbness, therefore, was of particular localizing value. It marks a lesion beginning in the peripheral portion of the left posterior column and gradually extending transversely inward to involve within approximately fifty-nine days the fibers from the thoracic and caudal end of the left side of

the trunk and the left lower limb. At this time other symptoms of involvements of the left posterior column were noticed: incoordination of the left hand and uncertainty and weakness of the movements of the left lower limb. About six weeks later numbness was noted in the right foot, gradually extending into the leg and then into the thigh, where its progress stopped. That the myelitic process included to a slight degree the left pyramidal pathway is evidenced by the presence of weakness in the left limbs with increased reflex tendon activity and patella and ankle clonus. The sensory examinations revealed intactness of the functions of the spinothalamic pathways. The distribution of the atrophy and the absence of any indication of fibrillary twitching seem to imply that the left brachial and cervical plexuses were the determining cause. The first indication of intracranial neural involvement was the appearance of diplopia about six weeks following the onset of pain in the deltoid region or eight weeks after the subsidence of the infection of the finger. It is still present and is due to weakness of the left external rectus muscle. Clinical and experimental evidence indicates that toxins or infections may pass through large areas of nervous tissue without causing pathologic changes. The process ascending in the perineural lymph spaces has two pathways for further propagation: the axis cylinders and the cerebrospinal fluid, and each avenue of possible distribution has many followers.

## Medical Annals of District of Columbia, Washington

4 93 118 (April) 1935

- Stone in Urinary Tract Remarks on Recent Contributions to Our Knowledge of the Etiology H A Fowler Washington—p 93
- \*Relation of Frontal Lobes to Visceral Function J W Watts Philadelphia—p 99
- Gastrointestinal Disorders in the Psychoses A Simon Washington—p 106
- Adrenal Rest Tumor Report of Unusual Case W C Stirling Washington—p 111

**Relation of Frontal Lobes to Visceral Function**—Watts describes experiments that suggest an explanation of the long recognized visceral symptoms and signs associated with focal seizures in man, especially those which occur in the absence of increased intracranial pressure. He found that the removal of cortical influence by extirpation of both premotor areas results in increased peristalsis and in some instances in intussusception. Faradic stimulation of the premotor area and certain adjoining parts of the cerebral cortex initiates vigorous movements of all parts of the intestine. Evidence is given indicating that cortical representation for the gastro-intestinal tract contains both excitatory and inhibitory components. An epigastric aura and other visceral sensations associated with focal convulsive seizures or occurring independently usually are not so-called referred sensations but result from vigorous and, perhaps, abnormal gastro-intestinal movements. Morbid hunger, associated with brain tumors, cerebral vascular disease and accidental injury to the brain, is probably due to irritation or destruction of the intestinal representation in the cortex or of tracts arising there. Evidence is presented indicating that incontinence of urine and other forms of bladder dysfunction in patients with brain tumor are probably the result of a disturbance of bladder representation in certain parts of the brain or of tracts descending from them.

## Medical Bull of Veterans' Adm, Washington, D C

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- Heart Disease in Ex Members of Military Forces Survey of Six Hundred and Eleven Autopsies P B Matz—p 288
- Sporotrichosis J C Herrick—p 295
- Review of One Thousand Electrocardiograms H F Machlan and O O Williams—p 299
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- Simulated Unilateral Blindness W D Lightfoot—p 309
- Hallucination as True Sensory Phenomenon L M Brown—p 312
- Analysis of Symptoms in Neurasthenia T M Barrett—p 318
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- Cerebral Abscess and Intrathoracic Suppuration F B DeWitt—p 328
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## New England Journal of Medicine, Boston

212: 647-704 (April 11) 1935

- \*Traumatic and Hemorrhagic Shock, Experimental and Clinical Study G K Coonse P S Foisie H F Robertson and O E Aufranc, Boston—p 647
- Separation of Substances in Liver Which Are Reticulocytogenic in the Guinea Pig and Which Are Therapeutically Effective in Experimental Canine Black Tongue Y Subbarow, B M Jacobson and C H Fiske Boston—p 663
- Ovarian Cyst with Twisted Pedicle in Girl of Nine Years of Age C J Kickham Boston—p 665
- Survey of Tonsillectomy and Adenoidectomy in Scarlet Fever G P Hunt Pittsfield Mass—p 665
- Acute Appendicitis in Children Challenge of Its Continuing High Mortality H W Hudson Jr Boston—p 670
- Purulent Infections of Hip Joint Analysis of Sixty Cases F A. Slowick Pittsfield Mass—p 672

**Traumatic and Hemorrhagic Shock.**—Coonse and his co-workers differentiate traumatic from hemorrhagic shock. Traumatic shock is characterized by increasing acidosis and concentration of the blood (a relative increase of cells over serum as measured by hematocrit determination) in acute hemorrhagic shock, acidosis does not develop (the blood may show dilution with relative increase of serum over cells) and the effects are entirely due to loss of circulating blood volume. In slow hemorrhage, the changes more nearly resemble those of traumatic shock. Such cases usually show depression of the higher centers, increasing tissue anoxemia and acidosis. Blood volume loss in both instances plays a significant part. The effectiveness of the peripheral circulation is steadily diminished as the blood volume decreases. Interference with the function of the vital centers rapidly ensues. Depression of the respiratory center decreases the chest and abdominal excursions, resulting in a diminution of the normal negative intrapleural pressure. The return of blood to the heart is diminished as blood collects in the abdominal viscera and large venous radicles and smaller peripheral vessels. The diminished oxygen exchange in the periphery resulting from the altered mechanics of the circulation tends to create a vicious cycle of increasing anoxic acidosis, the vital centers becoming still further depressed. The depressant and toxic effects of laked blood and traumatized muscle on the higher centers have been demonstrated in the experimental animal. Hemolysis has been shown to be consistently present in traumatic shock. Acute hemorrhagic shock is best treated by replacement of the lost volume with whole blood. Less severe cases respond satisfactorily to intravenous saline solution, dextrose or acacia and require no other treatment. Traumatic or slow hemorrhagic shock is best treated by intravenous alkaline solution or its combination with whole blood. Even severe cases of traumatic shock respond well to intravenous alkaline solution, if given in sufficient quantities over a suitable period of time. Such alkaline solutions not only prevent acidosis but serve as direct cell stimulants to the respiratory and other vital centers. Alkali increases the rate of dissociation of oxyhemoglobin and improves the peripheral blood flow. In certain cases, supplementary inhalations of carbon dioxide and oxygen may be indicated for both mechanical and chemical effects.

212: 705-750 (April 18) 1935

- \*Noncalculus Obstructions at Ureteropelvic Junction C Y Bidgood and D J Roberts Hartford Conn—p 705
- Braxton Hicks Version F C Irving Boston—p 718
- Clinical Evaluation of Positive Skin Reaction in Asthma Urticaria Vasomotor Rhinitis and Seasonal Hay Fever A Colmes Boston—p 725
- Fracture of Coracoid Process of Scapula W P Coues Brookline Mass—p 727

212: 751-812 (April 25) 1935

- Renal Infections G G Smith Boston—p 751
- Transplantation of Uninjured Tumor Cells Olive Gates and S Warren Boston—p 759
- Dietary Management of Diabetics at the Diabetic Clinic of Infants and Children's Hospitals Boston Mass A M Butler Boston—p 760
- Physiology Pathology and Treatment of Craniocerebral Injuries W M Craig Rochester Minn—p 777

**Noncalculus Obstructions at Ureteropelvic Junction**

—Bidgood and Roberts state that, because a kidney shows no evidence of function as tested by dye secretion, it cannot be said that it is irreparably damaged. Simultaneous bilateral urine urea determinations are of use in doubtful cases. An accurate test of kidney reserve as an index of its recuperative

ability is desirable but is not available at present. Pelvic injections at operation are of assistance in demonstrating whether or not all factors tending to obstruct have been removed, and, unless every such impediment is removed, failure will often occur. The Rammstedt type of operation for fibrous narrowing of the ureteral lumen presents several advantages over the Heineke-Mikulicz principle. It does not entail the opening of the urinary tract, there is no limit to the length that the incision may be made, and there is no danger of puckering the opposite wall of the ureter. Pelvic infection will often subside spontaneously if free drainage is obtained. Clinical and functional improvement is often more satisfactory than the roentgenologic, in that the dilatation of the pelvis often persists. It is possible that, if a pelvis is dilated sufficiently over a period of time, it loses its muscular tone and will not contract to the usual normal size, even though it is draining well and is dynamically satisfactory. Before any operative procedure is attempted, coned down interval pyelographs of the ureteropelvic junction to determine the emptying time of the pelvis are of value, particularly when used in comparison with a similar study made after such a plastic or other operative procedure. Excretion urography may be an aid in determining the emptying ability of a pelvis, but only when a solitary kidney is present or one acting as such. The postoperative degree of dilatation of the kidney pelvis or calices as noted in a pyelogram is not an accurate criterion of the functioning capacity of the kidney.

## New Jersey Medical Society Journal, Trenton

32: 119-182 (March) 1935

- Meningitis from Petrous Apex and Sphenoidal Basis W P Eagleton Newark—p 125
- Evaluation of Various Procedures of Diphtheria Immunization Resume of Their Advantages and Disadvantages H L Fuerstman Newark—p 126
- Contagiousness of Acute Respiratory Infections in Children from Rhinologic Point of View W J Greenfield Hackensack—p 131
- Diagnostic Value of Optic Neuritis and Choked Disk in Nervous and Mental Diseases A Liva Hackensack—p 136
- Diseases of External Ear C N Dezer Hackensack—p 139
- The New Jersey Medical Society Organizes to Improve Community Health Services L A Wilkes Trenton—p 144
- Industry's Contribution to the Cost of Medical Care Plan for Public Distribution of Medical Service at Reasonable Rates F H Glazebrook Morristown—p 148

## Philippine Journal of Science, Manila

55: 297-402 (Dec.) 1934 Partial Index

- Habitats of Philippine Anopheles Larvae P F Russell New York, and F E Baisas Manila—p 297
- Practical Illustrated Key to Larvae of Philippine Anopheles P F Russell New York, and F E Baisas, Manila—p 307

## Radiology, Syracuse, N Y

24: 391-520 (April) 1935

- \*Roentgen Diagnosis of Chronic Arthritis H P Doub Detroit—p 391
- Surgery as an Adjunct to Treatment of Arthritis W C Campbell Memphis Tenn—p 398
- Relative Value of Radiotherapy Physical Therapy and Hyperpyrexia in Treatment of Arthritic Disturbances J C King Memphis Tenn—p 411
- Medical Aspects of Chronic Arthritis R A Kinsella, St Louis—p 413
- \*Congenital Lung Cysts in Infants and Children S G Schenck and J L Stein Brooklyn—p 420
- Graphic Method for Obtaining Area of Heart Shadow in Roentgen Ray Study of Heart Disease E M Van Buskirk Fort Wayne Ind.—p 433
- Changes in Susceptibility of Drosophila Eggs to X Rays II Correlation of Biologic Activity and Radiosensitivity P S Henshaw New York—p 438
- Pulmonary Metastasis Pathologic Clinical Roentgenologic Study Based on Seventy Eight Cases Seen at Necropsy J T Farrell Jr., Philadelphia—p 444
- Diagnosis of Primary Carcinoma of Lung C H Heacock and J C King Memphis Tenn—p 452
- Roentgen Consideration of Mediastinal Tumors W A Evans and E R Witwer Detroit—p 463
- Extrapulmonary Tumors of Thorax C B Peirce Ann Arbor Mich.—p 467
- Congenital Cyst of Lung J L Dubrow Des Moines Iowa—p 480

**Roentgen Diagnosis of Chronic Arthritis**—Doub states that osteoporosis is one of the prominent roentgen signs of atrophic arthritis, in hypertrophic arthritis eburnation or increased density is usually present. The density of the bones is even greater than that usually seen in normal bones of this

age period, as some grade of osteoporosis is usually seen after middle age. Both show evidence of cartilage destruction with narrowing of the joint space, but this process is more pronounced and occurs earlier in atrophic arthritis. Bone proliferation in atrophic arthritis is usually followed by ankylosis of the joint, while in the hypertrophic form marginalipping is one of the characteristic early roentgen signs and may not indicate the presence of any symptoms at that time. Ankylosis is an infrequent occurrence in hypertrophic arthritis, although extensive bone production may be present about the joints. Mixed types of arthritis are seen frequently. In some cases it is difficult to distinguish between the two types from pathologic specimens, either by gross or by microscopic examination. Some of the pathologic and roentgenologic changes seen at certain stages of chronic arthritis are quite similar to those seen in other types of arthritis. Tuberculous and atrophic arthritis have some points of similarity. Osteoporosis is a definite characteristic of each at certain stages. Cartilage destruction is common to the two, focal areas of bone erosion may occur in each, and pannus formation may be present over the cartilage. Osteoporosis in tuberculous arthritis is likely to be quite intense so that the articular surfaces are seen with difficulty and show a blurred appearance, greater than is usually seen in atrophic arthritis, and suggests that there is an osteolytic agent present. Hemophilic arthritis may present roentgen signs that are similar to those of chronic arthritis. In mild cases there is effusion into the joint space, thickening of the joint capsule and lipping similar to that seen in hypertrophic arthritis. In a more advanced group, cartilaginous destruction is found. This may be local or may involve the entire cartilaginous surface of the joint. There is also bone destruction of punched out areas in the epiphysis, with an intact articular surface due to hemorrhage into the epiphysis, and generalized destruction of the articular surfaces. In some cases the blood clot in the synovial cavity becomes organized and shows calcification, when this occurs, it is pathognomonic of hemophilic arthritis. The roentgen changes in gout may simulate those of chronic arthritis and are well defined rounded areas of destruction in the ends of the bones at the margins of the articular surfaces. There also may be destruction of the articular cartilage and erosion of the articular surfaces of the bones. There is usually not much osteoporosis present. In some of the milder cases there is lipping round the articular surfaces similar to that seen in hypertrophic arthritis. When the larger joints are involved the changes often suggest hypertrophic arthritis, but in these cases roentgenograms of the hands and feet may show the characteristic punched out areas of bone destruction and afford a clue to the etiology of the disease.

**Congenital Lung Cysts in Children**—Schenck and Stein point out that, although the etiology of congenital cysts of the lungs is still obscure, the opinion prevails that it is a congenital malformation or developmental error, which results in a dilatation of the terminal bronchiole filled with a tenacious glairy fluid. If the cyst communicates with an adjacent bronchiole, this fluid is replaced by air and may remain stationary in size, provided the communication is patent during both phases of respiration. If the air is allowed to enter the cystic cavity and the communicating channel collapses or is closed off during the expiratory phase, the cyst enlarges or balloons, thereby producing severe attacks of dyspnea and cyanosis which often terminate in death. A similar mechanism obtains in the case of multiple or honeycombed cysts. The diagnosis is made chiefly from a complete roentgenologic survey, and the condition must be differentiated from general or localized pneumothorax, lung abscess, encapsulated fluid, pneumonia, solid tumors and acquired cystic disease, such as bronchiectasia, echinococcal cyst and hydatid cyst. The prognosis is grave, especially in infants, and only four are known to have made a complete spontaneous recovery. No specific treatment can be offered, although the opinion is expressed that surgical removal will some day be a feasible procedure. The authors cite a case in an infant in which the cyst ruptured into a neighboring bronchus, evacuating its fluid contents, which were replaced by air. Subsequently, the walls of the cyst collapsed and were absorbed, and the infant made a complete recovery.

## Public Health Reports, Washington, D C

50: 503 536 (April 12) 1935

Are Incidence of Illness and Death Considered in Broad Disease Groups Based on Records for Nine Thousand White Families in Fifteen States Visited Periodically for Twelve Months, 1928 to 1931 S D Collins—p 507

## Rhode Island Medical Journal, Providence

18: 51 64 (April) 1935

County Health Units M W Thewlis Wakefield—p 51  
New Economic Problems for the Lying In Hospital H P B Jordan, Providence—p 54

## South Carolina Medical Assn Journal, Greenville

31: 69 94 (April) 1935

Clinical and Pathologic Consideration of More Common Lesions of the Breast W L A Wellbrock, Rochester Minn—p 76  
Gleanings from One Hundred and Forty Six Cesarean Sections W C Hearin Greenville—p 83

## Southern Surgeon, Atlanta, Ga

4: 85 148 (April) 1935

The Relation of the Heart to Surgery S R Roberts, Atlanta Ga—p 85  
\*Gritti-Stokes Amputation for Gangrene of Leg J W Snyder, Miami Fla—p 101  
Unusual Cancers of the Breast D Lewis and C F Geschickter Baltimore—p 112  
Ethier Intraoperatively in Appendiceal Abscess R B McKnight Charlotte N C—p 121  
Tetany Following Thyroidectomy Report of Two Cases with Four Years Observation B H Clifton, Atlanta Ga—p 131

**Gritti-Stokes Amputation for Gangrene of Leg**—Snyder performed the Gritti-Stokes type of amputation in seven cases of gangrene of the leg. Some reason attends this type of procedure in that the larger muscle bodies of the thigh are left undisturbed with no incision across their structures and no disturbance of their circulation. The nutrient artery to the femur enters at a higher level from the profunda femoris and, as division of the femur just above the condyles does not open the marrow cavity of the bone, reasonable assurance of the integrity of the femur may be felt. Sloughing of the stumps of the hamstring muscles is of minor importance, the main question is the viability of the flaps and the patella itself. Apparently the rather free anastomosis about the patella is sufficient to maintain its nutrition and in no case has enough necrosis of the flaps ensued to give concern. In most of these operations the tourniquet has not been applied because of fear of producing damage to the circulation in the thigh. It has not been necessary to secure the patella to the femur with screws or nails, as the tension of the quadriceps acting against the patella seems to hold the patella firmly against the femur. Reinforcing sutures are employed. If union of the patella to the femur fails to occur, the stump will not be a success from the mechanical standpoint, but this has not happened in the author's series. He does not present these cases with the thought that this type of operation will always be a success, but the operation is much less severe on the patient than a mid thigh amputation and produces little if any shock when done under a spinal anesthesia. If successful, it gives the patient a far more satisfactory stump.

## Tennessee State Medical Assn. Journal, Nashville

28: 137 174 (April) 1935

Some Observations Concerning Problems of Medicine in Tennessee J O Manier Nashville—p 137  
Will America Copy Germany's Mistakes? Results of Half a Century's Practice of Social Insurance in the Land of Its Inception German Labor Economist Offers New Plan to Avoid Pitfalls of Old One G Hartz—p 146

## Texas State Journal of Medicine, Fort Worth

30: 741 814 (April) 1935

Corpus Luteum Extract in Treatment of Abortion F B Smith and R A Johnston Houston—p 748  
Dystocia, Fetal and Maternal T F Bunkley Temple—p 751  
Essential Dysmenorrhea W M Bailey Tyler—p 755  
Urinary Antiseptics and Conditions That Favor Their Action A G Cowles San Antonio—p 759  
Fundamental Principles of Plastic Surgery of Face J F Ford Dallas—p 761  
Double Contrast Enema R P O Bannon, Fort Worth—p 763  
Malaria Diagnosis C P Coogle Houston—p 768

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Brain, London

58:1140 (March) 1935

- \*Studies in Neurologic Mechanism of Parathyroid Tetany R. West.  
—p 1  
Localization of Sleep Mechanism S. N. Rowe—p 21  
Cerebral Blood Flow During Sleep in Man F. A. Gibbs, E. L. Gibbs  
and W. G. Lennox—p 44  
Syndrome of Premotor Cortex (Fulton) and Definition of Terms  
Premotor and Motor Consideration of Jackson's View on  
Cortical Representation of Movements F. M. R. Walshe—p 49  
Disorders of Motor Function Following Ablation of Part of Leg Area  
of Cortex in Man F. M. R. Walshe—p 81  
Diabetes Insipidus J. H. Biggart—p 86  
\*Familial Degeneration of Cerebellum in Association with Epilepsy  
Report of Two Cases One with Pathologic Findings F. T. Thorpe  
—p 97  
\*Frontal Lobe in Man Clinical Study of Maximal Removals W. Penfield  
and J. Evans—p 115

**Neurologic Mechanism of Parathyroid Tetany**—West observed (on dogs) that the essential feature of tetany appears to be the action of a circulatory factor peripherally on some site in the muscle to cause repeated contractions of individual muscle fibers and electrical hyperexcitability. Both this fibrillary tetany and the electrical hyperexcitability are influenced by the nerve supply from the central nervous system. Given the integrity of the spinal reflex arc the muscular contractions are synthesized into the characteristic forms of "tonic" and "clonic" tetany. In the presence of only the motor supply from the spinal cord the contractions remain fibrillary in type, but electrical hyperexcitability persists. Complete denervation leads to a continuation of fibrillary tetany and an increased electrical excitability with the onset of tetany. This probably corresponds to a phase of early degeneration at some point of action within the muscle, which maintains its irritability to the circulatory factor of tetany and increases the normal effect of the latter on direct electrical excitability. Subsequent degenerative changes lead successively to the loss of the fibrillary response to the circulatory factor and the institution of a peculiar electrical excitability of degeneration which is independent of tetany. If this interpretation is correct, parathyroid tetany arises essentially from the action of a changed circulation on the muscles. The point of action depends on an intact motor nerve supply for its function and undergoes successive changes of threshold on denervation. An intact spinal reflex is required to convert essential or fibrillary tetany into its elaborate clonic and tonic forms. Impulses from nervous centers higher than the spinal cord are not requisite to these forms of canine tetany.

**Familial Degeneration of Cerebellum in Association with Epilepsy**—Thorpe describes a familial form of primary parenchymatous atrophy of the cerebellar cortex, in which two brothers, at the ages of 41 and 37 respectively, developed a progressive ataxia of the legs and arms and a slow drawing speech. The anatomic basis of the symptoms was ascertained in one of them after a duration of five years and was found to be a pure cortical type of cerebellar atrophy. The cerebellum was reduced in size by approximately one fourth and showed a generalized symmetrical atrophy with marked emphasis on the upper and anterior surface, especially the superior vermis and quadrilateral lobes. Histologically the essential lesion was a diffuse destruction of the cells of Purkinje. This particular type of atrophy has heretofore been described only in non-familial cases unless one includes the Holmes family of four cases, of which the only one in which histologic examination was made showed an olivocerebellar atrophy. Familial degeneration of the cerebellum occurs more often in males, and the onset is between the ages of 32 and 41, whereas nonfamilial forms tend to occur at a much later age. Both forms are assumed to be due to an endogenous degenerative process or abiotrophy, but in the sporadic cases there may be an additional exogenous infective or toxic factor. The frequent combination of cerebellar atrophy and lesions of the spinal cord is mentioned and in the case described a developmental defect of the cord was found which suggests a latent association with Friedreich's disease. The two patients described were subject to epileptic seizures, which had been present for thirty-eight and eighteen years

before the onset of cerebellar ataxia. The cerebellar lesion, however, was not the focal ischemic type which Spielmeyer finds in most epileptic brains but a gross generalized atrophy typical of the primary degenerations. The association of cerebellar atrophy and epilepsy in the two cases is regarded as accidental and merely represents the not uncommon occurrence of a predisposition to two independent nervous disorders in one individual.

**Amputations of Frontal Lobe in Man**—Penfield and Evans describe three cases of tumor in which an infiltrating neoplasm has made it advisable to resect a large block of the frontal lobe. The patients suffered from chronic epilepsy due to a focal lesion of such a type and situation that lobe amputation offered the only hope of relief from the seizures. It was found that large amputations of the frontal lobe, if the precentral gyrus is left intact, produce surprisingly little disturbance of function that can be detected by ordinary methods of examination. There is no disturbance of the control of micturition, no forced grasping, no alteration of tone of the extremities or in the activity of deep or superficial reflexes. In the second case the operative removal affected only the middle third of the left frontal lobe, as the anterior third had already been destroyed by the traumatic injury, if one may arbitrarily so divide the lobe. This removal of the middle third in a right-handed man produced a partial loss of his capacity for mental arithmetic. The patient also had an unexplained absence of dizziness and postpointing after rotation and caloric tests, even though vestibular function was otherwise normal. Detailed studies of sensation showed only changes within the limits of normal spontaneous variation. There was decreased appreciation of figures written on the palm of the contralateral hand, which may perhaps be related to the difficulty that the patient noted in the visualization of figures in "mental arithmetic." The removal of approximately the anterior half or two fifths of the right frontal lobe in the third case was not associated with any detected alteration, neurologic or psychologic. The two larger removals, the first two cases present certain important defects in common and the authors consider these removals to have begun at the time of the origin of the initial lesion and merely to have become complete at the time of operation. Neurologically each was normal. By the ordinary psychometric tests each would have to be judged normal although neither would rank very high. Each patient was lacking in initiative. Each was good natured and cooperative. Insight and capacity for introspection were preserved. Capacity to follow instruction was unimpaired, but initiative and capacity for planned action were clearly defective. This was especially true of the first patient, a woman of 43 in whom the right frontal lobe was extirpated. She had become incapable of discerning for herself possible courses of action so that she might choose. If others presented to her the possibilities she made up her mind quite easily, and when a task lay before her there was no reluctance or hesitation in undertaking it. So far as final conclusions from the first two cases are justifiable it may be stated that maximal amputation of the right or left frontal lobe has for its most important detectable sequel impairment of those mental processes which are pre-requisite to planned initiative.

## British Journal of Radiology, London

8:201-264 (April) 1935

- \*Excretion Urography Based on Three Hundred and Eighty Five Cases Investigated in a Large General Hospital I. B. Barclay and J. B. Baird.—p 201  
Electrical Characteristics of Constant High Voltage Generators for X-Ray Work Part II Practical Observations on Half Wave Generators G. E. Bell—p 218  
X-Ray Appearances Produced by Congenital Cystic Dilatation of Common Bile Duct A. D. Wright—p 227  
Supplementary Note on Biologic Response to Gamma Rays of Radium as Function of Intensity of Radiation F. G. Spear and L. G. Grimmett—p 231  
Radiography of Fine Flaws in Metals A. G. Warren—p 235  
\*Primary Carcinoma of Bronchus Massive Involvement of Heart and Pericardium N. M. Matheson—p 248  
Experimental Realization of International Roentgen Unit. W. H. Love.—p 252

**Excretion Urography**—On the basis of 385 consecutive cases Barclay and Baird show that intravenous urography is a reliable useful and safe method of investigation not only in the elucidation of essentially urologic conditions but also in

absolving the urinary tract in many cases presenting suggestive urologic symptoms. Contrasting intravenous urography with retrograde pyelography as a means of outlining the urinary tract, they state that the instrumental method gives an anatomic picture of the pelvis and calices by artificially distending them to an unknown degree, while the excretion urogram definitely outlines the shape and size of these cavities with physiologic accuracy. It follows, therefore, that the functional activity and the dynamics of the tract are well visualized, in addition to the anatomy as seen by the retrograde procedure. At least three roentgenograms should be taken at intervals of three, ten and thirty minutes after the injection of the dye and should be compared in order to justify accurate interpretation. Early tuberculosis in the kidney frequently gives characteristic appearances, e. g., "fringing" or bulbous deformation of the calix, together with a tortuous elongation of the stem. Undue retention of the dye in the roentgenogram taken thirty minutes after the injection or later strongly suggests infection or possibly an oxaluria or phosphaturia. Some idea of the functional recovery of the kidney can be obtained by urography at intervals of months after operation, e. g., removal of a ureteral calculus.

**Primary Carcinoma of Bronchus**—Matheson reports a case of primary carcinoma of the bronchus in which roentgen examination revealed an enormous enlargement of the pericardium. Paracentesis pericardii, with the withdrawal of hemorrhagic fluid, gave temporary relief. At necropsy the chest was almost completely occupied by a rounded and greatly distended pericardial sac, which pressed the lungs into the upper and outer parts of the thoracic cavity. The heart appeared largely obscured by carcinomatous deposits extending over most of the anterior surface with the exception of a somewhat triangular area of the left ventricle. The myocardium was invaded from without by a growth that involved the outer half of the wall of the right auricle and the outer third of the right ventricular wall. The left auricle and left ventricle showed epicardial deposits with no appreciable extension into the cardiac muscle. Great enlargement of the tracheobronchial lymph nodes was observed and chains of diseased glands extended in front of the vertebral column to become continuous with those glands which had been detected clinically on the left side of the neck. Just distal to the subdivision of the right bronchus was a tumor about 2 inches in diameter, extending chiefly into the adjacent tissue of the lung and adherent to the pericardium at the site where the interior of the pericardial cavity was most extensively diseased. The general characters of this growth were those of a bronchogenic carcinoma. Secondary metastases or tuberculous lesions in the parenchyma or visceral pleura were not observed. A solitary nodule the size of a walnut was found in the left deltoid. The bronchial tumor proved to be a squamous cell carcinoma. The nodule in the deltoid appeared to be a true metastasis.

### Journal of Mental Science, London

81:1 280 (Jan) 1935

- Study of Changes in Function Found in Schizophrenic Thought Disorder  
K. Zucker and W. H. de B. Hubert—p. 1
- Action of Certain Drugs in Schizophrenia H. C. Beccle—p. 46
- Objective Measurement of Mental Stability W. Linn, J. D. M. Griffin  
and G. W. Anderson—p. 61
- Studies in Experimental Psychiatry V. W. and F. Factors in Relation  
to Traits of Personality L. Grace Studman—p. 107
- Perseveration K. H. Rogers—p. 138
- Perseveration and Personality K. H. Rogers—p. 145
- Id. Some Experiments and a Hypothesis R. B. Cattell—p. 151
- Investigation into After Histories of Discharged Mental Patients L. H.  
Wootton and R. W. Armstrong assisted by Dorothy Lilley—p. 168
- Blood Bromine in the Psychoses T. J. Hennelly and E. D. Yates—  
p. 173

**Action of Drugs in Schizophrenia**—Beccle treated thirteen cases of schizophrenia with a combination of gonadal hormones and yohimbine. Of the nine male patients so treated seven were discharged as recovered or greatly improved, one improved to the extent that he is now a useful hospital citizen and one showed no response to the treatment. Of four female cases investigated, recovery occurred in three and one patient was definitely made worse. Gonadal extracts appear to be valuable therapeutic agents in the schizophrenic group of psy-

choses with particular emphasis on the female follicular hormone. It is possible that, in spite of the absence of overt indications of sex gland hypoplasia, such a condition may be present and hence may be an important factor in the preparation of the soil for a schizophrenic psychosis. The higher relative recovery rate in the female cases may be purely coincidental or, more probably, may be due to the fact that in estrogenic material there is a substance of known potency and chemical composition, whereas testicular extracts are variable in their activities. Yohimbine acts as a general central nervous tonic, has a specific influence on the genital apparatus and appears to enhance synergically the action of the gonad hormones. No untoward symptoms were observed after the administration of these preparations, either orally or by subcutaneous or intramuscular injection. The blood phosphorus level appears to be distinctly higher in cases of schizophrenia than in the normal person (improvement in the mental condition being followed by a fall in this level (the inorganic fraction being used as an index). This index appears to be of value in controlling the treatment.

### Lancet, London

1:723 790 (March 30) 1935

- Clinical Science Within the University T. Lewis—p. 723
- The Evolution of Mind II J. S. Bolton—p. 728
- Asphyxia Neonatorum Its Treatment by Tracheal Intubation J. B.  
Blakley and G. F. Gibberd—p. 736
- Osteomalacia in Great Britain Record of Four Cases E. Bulmer—  
p. 740
- Influence of Avertin on Renal Function A. E. Pitt—p. 741

**Asphyxia Neonatorum**—Blakley and Gibberd use a modification of Howarth's Chevalier Jackson's pharyngoscope in the treatment of asphyxia neonatorum by tracheal intubation. The upper respiratory passages having been cleared of mucus, the baby is held with its head overhanging the table on which it lies. The pharyngoscope is introduced over the tongue, to the base of the tongue. The cords are usually relaxed and offer no resistance to the passage of Magill's silk web endotracheal catheter which should be slightly moistened with olive oil. The rest of the apparatus consists of a device for delivering a carbon dioxide-oxygen mixture at a known and easily variable pressure. The whole object of the insufflation is to ensure the primary unfolding of the atelectatic lung, and this requires a pressure in the bronchi equivalent to at least 15 cm. of water. As soon as the primary distention of the alveoli has been accomplished oxygenation of the blood rapidly occurs, so that the medullary center recovers its sensitivity and the flaccid laryngeal muscles recover their tone. Thus it is seldom necessary to leave the catheter in the trachea more than a few minutes, but, if cyanosis recurs subsequently, the operation should be repeated. During insufflation the infant should lie flat on its back at an angle of 15 degrees with the horizontal, head downward. The authors present two results. They have considered the possible dangers of a sudden obstruction to the outflow between the catheter and the larynx, but with the pressures recommended they do not believe that serious damage could occur. They believe that the margin of safety of pressure for forced ventilation by intratracheal insufflation under positive pressure is much greater than the margin of safety when negative pressures are used to expand the whole of the chest wall, as in a Drinker apparatus. The authors do not recommend this method of resuscitation in all cases of asphyxia neonatorum, but, when respiratory movements are not established quickly, or when, because of some mechanical obstruction in the larynx, trachea or bronchi, air is not drawn into the lungs, they believe that the method should be adopted. Other suitable cases are those in which a well developed infant has marked atelectasis and remains blue or has repeated attacks of cyanosis that do not become less frequent with the inhalation of a carbon dioxide and oxygen mixture given by means of a mask or nasal catheter. The proper mixture of gas to introduce into the lungs consists of 5 to 10 per cent carbon dioxide and 90 to 95 per cent oxygen. Pure carbon dioxide must be avoided as lethal if introduced unmixed into the lungs. The real need is for oxygen, the carbon dioxide merely ensures that this gas is not washed out of the blood to so low a level as no longer to be a stimulus to the respiratory center.

## Journal de Chirurgie, Paris

45 513 688 (April) 1935

- Technic of Phrenicectomy with Investigation of Accessory Phrenic and Subclavicular Nerve H Fruchaud and M Thalheimer—p 513  
 \*Hydatid Cysts of Spleen L Sabadin—p 534  
 Crushing of One Tuberosity of Tibia L Sechehay—p 561

**Hydatid Cysts of Spleen.**—Sabadin reports two cases of hydatid cyst of the spleen and discusses the condition in detail. From the anatomic point of view there are two varieties: the abdominal and the thoracic. The characteristic clinical features are the insidious onset, the prolonged evolution of the cysts, the existence of a cystic tumor, a symptomatology sometimes abdominal, sometimes thoracic, and the frequency of complications. From the therapeutic point of view he discusses the advantages of marsupialization either abdominal or trans-thoracic. This fits with established surgical principles, since it is simple and rapid, aims directly at the evacuation of the cyst and avoids serious postoperative risks.

## Paris Médical

1 281 316 (April 6) 1935

- Digestive Pathology in 1935 Annual Review P Carnot and H Gaehlinger—p 281  
 Rectal Localizations of Nicolas Favre Disease B Cunéo—p 294  
 Silent or Almost Silent Gastropathies and Their Importance in General Pathology P Chevallier—p 300  
 \*Treatment of Ulcerative Rectocolitis by Vitamin A J Rachet and A Busson—p 308  
 Hyperchylc Erythremia P Carnot, J Caroli and M Coppo—p 312

**Vitamin A Treatment of Ulcerative Colitis.**—Rachet and Busson used carotene in a solution of deoxygenated olive oil for local application in cases of ulcerative rectocolitis. This method, they believe, is particularly adapted to the localization of the vitamin A factor. Four patients were treated in this manner. Favorable results were definite and could be divided into improvement of the general, the functional and the local anatomic condition. They conclude that this treatment is a definite forward step.

## Schweizerische medizinische Wochenschrift, Basel

65: 353 372 (April 20) 1935

- \*Granulocytopenia, with Especial Consideration of Causal Significance of Amidopyrine and Similar Preparations I D Stein—p 353  
 Apical Pleural Empyema During Childhood J R Dreyfus—p 357  
 Replacement of Faradic Current in Electrodiagnosis and Therapy by Chronaxia Apparatus with High Frequency Contact Breaker K M Walther—p 360  
 Examination of Work Metabolism of Muscle in Situ by Means of Electricity A von Muralt—p 362  
 \*Nitrites in Urine and Their Importance for Diagnosis of Urinary Infections with Bacillus Coli E Jaeggy and W Lanz—p 363

**Granulocytopenia.**—Stein thinks that granulocytopenia is not so much a disease entity as a pathologic reaction to certain irritants. He differentiates three groups of such irritants. Those belonging to the first group, benzene, radium rays and roentgen rays, regularly impair the leukopoietic system. To the second group of irritants belong the toxins of typhoid, measles, influenza and sepsis. These toxins attack the leukopoietic system peripherally as well as centrally. The third group of irritants are certain chemical preparations, such as amidopyrine, which, however, prove harmful only in persons who have a hypersensitivity. The author thinks that amidopyrine and its derivatives are the cause of many cases of agranulocytosis that formerly were considered as cryptogenic or idiopathic. He emphasizes that, if the physician prescribes such preparations, he should be aware of the fact that there are patients who are hypersensitive to these substances. Thus it is necessary to exercise the same precaution in prescribing amidopyrine and the related preparations as in prescribing arsenamine and narcotics. The author regards the administration of pentnucleotide and repeated blood transfusions as the best therapeutic measures during the beginning stage. Later, roentgenotherapy may be applied to the long bones and liver therapy may be tried. All medicaments, with the exception of those that stimulate the leukopoietic system, should be discontinued during the acute stage, for it cannot be foretold how a person's blood system will react to a certain medicament.

**Nitrites in Urine.**—Jaeggy and Lanz demonstrate that the presence of nitrites in the urine is a definite proof of a urinary

infection, particularly an infection with *Bacillus coli*. They describe a simple chemical reaction that will aid the practitioner in the diagnosis. As reagent they use a powder in the preparation of which 6.2 Gm of  $\alpha$ -naphthylamine is mixed with 1 Gm of sulphanilic acid and this mixture is combined with 25 Gm of pulverized citric acid. The moist substance thus obtained is dried in the air or in the desiccator. After drying, it is once more pulverized. This powder, white or light pink, is five times more sensitive than the reagent suggested by Griess and it has the added advantage that it is stable. It reveals the presence of nitrites in a concentration of 1 5,000,000.

## Policlínico, Rome

42 805 856 (April 29) 1935 Practical Section

- \*Direct Medical Treatment of Duodenal Ulcer and of Pain Symptoms of Duodenum G Sabatini—p 805  
 From Cervical Sympathectomy to Total Thyroidectomy in Treatment of Angina Pectoris A Chiasserini—p 813  
 Mediastinal Abscess Rare Case G Fontana—p 818  
 Distinctive Characteristics of Vitamin C E Pittarelli and M Pittarelli—p 826

**Medical Treatment of Duodenal Ulcer.**—Sabatini places the patient on a milk diet for from three to five days. He prescribes six portions of milk (2 liters) daily, one portion every three hours from 8 a. m. to 11 p. m. To the first, third and fifth portion is added a level teaspoonful of barium sulphate. The patient does not take any other liquid or solid food during the treatment, abstains from all medicaments and does not remain in bed. After the treatment the return to a normal diet must be gradual, increasing in food values and in amounts every day. During this period of alimentary repair the author occasionally administers an alkaline mixture composed of bismuth subcarbonate 1, magnesium carbonate 0.3, pepsin hydrochloride acid 0.3 and dry extract of belladonna 0.1 in a capsule. Patients show more tolerance for barium sulphate than for bismuth compounds. The majority of patients were rapidly relieved of pain and of the clinical symptoms of ulcer. The author obtained good results in acute forms of duodenal ulcer and in nonulcerous duodenal syndromes. Barium treatment was not successful in patients presenting advanced changes in the duodenum, callous and deforming ulcers and considerable thickening of the duodenal walls. Good results were obtained in duodenitis and periduodenitis accompanying cholelithiasis. Treatment was found especially valuable during the acute seasonal stages of duodenal ulcer (spring and fall).

## Siglo Médico, Madrid

95: 473 500 (April 27) 1935 Partial Index

- Professional Eczema J M Tome Bona—p 478  
 \*Treatment of Hemoptysis by Subcutaneous Emphysema N Gonzalez de Vega and D Castilla Perez—p 485

**Treatment of Hemoptysis by Subcutaneous Emphysema.**—Gonzalez de Vega and Castilla Perez report satisfactory results from the production of a subcutaneous emphysema in the inferior half of the thorax, by means of subcutaneous injections of air, in the treatment of tuberculous hemoptysis. The injections in their cases were given in amounts varying from 200 to 300 cc of air and performed at the posterior axillary line at the level of the eighth, tenth or eleventh ribs. The authors used a pneumothoracic apparatus, but identical results are obtainable from the use of a Potain insufflating pump or of a large syringe. The method is simple in its technic, efficient in its results and harmless. The only necessary precaution is to inject the air in the inferior half of the thorax in order to prevent the formation of either mediastinal or cervical emphysema. The four patients treated by the authors were suffering from pulmonary tuberculosis of either exudative or dense fibrous type. The subcutaneous injections of air were the only treatment given to two patients, those who were seen by the authors shortly after the appearance of hemoptysis. The remaining two were seen by the authors one and three days, respectively, after the appearance of the hemorrhage. They had been given during those days a hemostatic preparation without any favorable effect. In all four cases the hemoptysis was checked immediately after the injection of air or a few hours later.



# Archiv für Verdauungs-Krankheiten, Berlin

57: 113-224 (March) 1935 Partial Index

- \*Value of Diets with Extreme Variations in Protein and Fat in Treatment of Diabetes Mellitus W von Drigalski—p 113
- Oxalic Acid Metabolism in Patients with Renal Disease R Rittmann and P Unterrichter—p 120
- \*Action of Substances Produced by Roasting of Foods on Gastric Secretion W Heupke—p 149
- Endogenic and Exogenic Factors in Pathogenesis of Gastric Ulcer K Warneke—p 156
- \*Influence of Aminoacetic Acid on Creatinuria in Exophthalmic Goiter W Gros—p 177

**Extreme Variations in Protein and Fat in Diet in Diabetes Mellitus**—In order to determine whether, besides insulin and the usual dietary measures, there are other possibilities that permit a modification of the diabetic metabolism, von Drigalski kept eleven patients with severe or average diabetes mellitus under observation for about eighty days. For sixty days the patients received the usual dietary treatment and after that were given for twenty days diets containing an abundance of proteins or a restricted amount of proteins. The author did not observe any therapeutic effect during this phase of treatment, and in one case he observed an exacerbation. This contradicts the results obtained by other investigators, but he thinks that this contradiction is due to the fact that the other investigators instituted those diets during the first phase of treatment, and he believes that the efficacy of the diets at that time is the result of the strict diet as such. Once the improved tolerance has reached a state of rest and the metabolic condition a certain constancy, the diets with extreme variations are no longer effective. Nevertheless, these diets may prove of practical value in patients who get tired of one diet. The change to another diet keeps the patient in metabolic equilibrium. Moreover, a diet with a high protein content appeases the appetite readily and thus is of value in the treatment of polyphage diabetic patients. However, protein sensitivity should be watched for.

**Action of Products of Roasting on Gastric Secretion**—Heupke points out that the flavors produced by roasting are found in a variety of foods. He investigated the gastric secretion following the intake of roasted and unroasted coffee, of roasted and boiled meats and of other foods. He never observed an increase in the acidity values traceable to the roasting substances alone. In several instances it appeared that the hydrochloric acid secretion was reduced, but in the majority of cases there was no noticeable modification, and the author concludes that the roasting products influence the acid secretion only slightly or not at all. Nevertheless, it cannot be denied that the roasting products do exert certain physiologic actions. Maier was able to show that they increase mental alertness. They also reduce fatigue and prostration and counteract the sensation of hunger. Thus the roasting products influence the nervous system, particularly the sensory nerves. Except for a slight increase in the peristalsis, they have only a slight effect on the motor nerves.

**Influence of Aminoacetic Acid on Creatinuria in Goiter**—Gros points out that the creatinuria existing in certain forms of myopathy has been influenced by the administration of aminoacetic acid. Since there are a number of disturbances (among them exophthalmic goiter) in which an impairment of the muscles is not evident but in which creatinuria exists nevertheless, the author decided to investigate the effect of aminoacetic acid on the creatinuria of these conditions. He made his studies on nine patients with exophthalmic goiter. The daily elimination in the urine of creatine and of creatinine was determined. In accordance with former tests, a reduction in the creatinine content of the urine and a more or less severe creatinuria was observed in all cases. Following the administration of aminoacetic acid the creatinuria increased by 100 per cent or more. The author concludes that in disorders with different clinical aspects there may exist a syndrome of disturbances in the muscle metabolism, which is probably caused by similar anatomic and functional disturbances. The aminoacetic acid medication did not exert any influence on the basal metabolism of the patients with exophthalmic goiter.

# Deutsche medizinische Wochenschrift, Leipzig

61: 613-652 (April 19) 1935 Partial Index

- Fatigue, Sleep and Rest L R Müller—p 613
- \*Hearing and Speech Disturbances II Loebell—p 619
- \*Inguinal Sterilization Menge and F Schultze-Rhonhof—p 621
- Inflammation of Optic Nerve and Choked Disk, Particularly as Regards the Early and Erroneous Diagnoses Heine—p 624

**Hearing and Speech Disturbances**—Loebell shows that severe impairment of hearing is the cause of some forms of stammering and particularly of hisping. This was clearly demonstrated in cases of sigmatism. The author thinks that the hearing capacity should be examined in patients with speech defects and, if necessary, the ear should be treated. The prognosis of certain forms of stammering is largely dependent on the ear defect, that is, it is favorable or unfavorable to the extent to which the defect in hearing can be improved. The author illustrates this with a case of vowel stammering with interdental sigmatism and a case of stammering with tachylalia.

**Inguinal Sterilization**—Menge and Schultze-Rhonhof state that inguinal sterilization with extraperitonealization and suturing of the partially resected uterine tubes into the inguinal canals was first suggested by Menge in 1899. They think that it is the only surgical method for the sterilization of women that has never failed. Their observation covers 107 cases. In some of these women the operation dates back twenty-six years and in others only two years. In all women who could be reached (ninety-three in all) the operation had resulted in permanent sterility. The authors emphasize that only Menge's original method insures against failure and that its modifications, like all other methods of sterilization, have been known to fail at times. They consider the "extended Alexander-Adams operation" an effective method to insure the permanent extraperitonealization of the uterine tubes in the inguinal canals. They further emphasize that Menge's operation never causes difficulties, for all intraperitoneal complications, such as peritonitis and adhesions, are obviated, and there is no danger of ileus, a complication that has been known to follow other methods of sterilization. Other advantages of Menge's operation are that its technic is simple, that it can be completed in a short time and that it can frequently be performed under local anesthesia. The authors advise that the extraperitonealization and suturing of the resected tubes should be preceded by a forward drawing of the round ligaments (up to their proximal end) from the opened peritoneal cone. If this has been done, it is unnecessary to exert traction on the delicate and soft tubal tissue. Exact knowledge of the topography of the external inguinal ring and of the entire inguinal canal is highly important for the success of the operation. The method has the disadvantage that it cannot be used in case of extensive adhesions in the small pelvis with retrofixation of the uterus. However, this disadvantage is of slight practical importance, because such women as a rule, are already sterile. Moreover, thin membranous adhesions in the small pelvis can generally be detached from the inguinal canal by the digital method.

# Jahrbuch für Kinderheilkunde, Berlin

144: 191-254 (April) 1935

- Some Cases of Rare Nondiphtheric Respiratory Stenoses H Zischinsky—p 191
- \*Plasma Phosphatase in Normal and Rachitic Children O Andersen—p 206
- Causal Organism of Impetigo Contagiosa Albo-Staphylogenes (Dohi) H Asano—p 222
- Experimental Studies on Enteric Sodium Chloride Fever A Kálló and G Torök—p 226
- Hormonotherapy of Atrophy in Nurlings P Roboz—p 240

**Plasma Phosphatase in Normal and Rachitic Children**—Andersen reviews former studies on plasma phosphatase and describes his own investigations. In children without signs of bone disease he found that in children up to 3 years of age the average value is 0.25 unit and the marginal values are 0.14 and 0.34 unit, and in children between the ages of 3 and 13 years the average value is 0.15 unit and the marginal values are 0.06 and 0.26 unit. In twenty-one children with rickets (aged between 3 and 27 months) he found the average plasma phosphatase value to be 0.86 unit and the marginal values 0.42 and 1.41 units. He concludes that phosphatase values under



0.3 unit are not increased, that values between 0.3 and 0.4 unit may be increased and that values in excess of 0.4 unit are definitely increased. Thus 0.3 unit may be regarded as the lowest limit of pathologic values. The author observed also that antirachitic treatment produces a reduction in the plasma phosphatase in children with rickets, so that normal values are reached. The reduction in the phosphatase is slower than the increase in the calcium and phosphorus values, and it appears that the phosphatase values adhered more closely to the clinical improvement. There seems to be no direct connection between the absolute phosphatase and calcium values, however, there is a certain relationship between the phosphorus and the plasma phosphatase values, so that in case of low phosphorus values there are, as a rule, high phosphatase values and vice versa. The severity of rickets seems to have no influence on the absolute phosphatase values. In severe cases of rickets there may be high as well as comparatively low values of phosphatase. The author assumes that an increase in the phosphatase without the simultaneous existence of the clinical signs of rickets may indicate a latent D avitaminosis. Moreover, he thinks that the determination of the plasma phosphatase may perhaps prove helpful in detecting the optimal dose of vitamin D in the treatment of rickets.

### Klinische Wochenschrift, Berlin

14: 521 552 (April 13) 1935 Partial Index

- Biologic Significance of Heavy Hydrogen W Brandt—p 521  
 \*Nycturia and Gastric Ulcer A Jores and H Beck—p 526  
 Diuretic Action of Organic Mercury Compounds H U Summert—p 530  
 \*Gonadotropic Factors of Urine During Menopause A Lipschutz—p 532  
 Abnormal Quantities of Nitrogen ( $N_2$ ) in Blood of Patient with Pulmonary Emphysema G Leiner—p 535

**Nycturia and Gastric Ulcer**—Jores and Beck maintain that the quantitative relationship of day and night urine is not the result of night rest and sleep but that the normal restriction of the elimination of urine during the night is a definitely established rhythm, conditioned by mechanism in the central nervous system. That this is so was proved in tests on persons who worked during the night. Observations on these persons indicated that neither sleep nor the lack of fluid intake is the cause for the nocturnal limitation of the secretion of urine, but that hormonervous mechanisms, rhythmic processes, are the determining factors. The authors cite investigators who observed inversion of this normal type of water elimination. The inversion of the normal type is especially frequent in cardiac and renal diseases accompanied by disturbances in the water exchange. Other conditions in which the nocturnal inhibition of diuresis has been found absent and a nycturia present are cerebral syphilis, narcolepsy, epilepsy and emaciation. After the authors accidentally observed nycturia in patients with gastric and duodenal ulcer they decided to study the relations between these two conditions. Tests on thirty-one patients in whom the diagnosis of ulcer had been corroborated by roentgenoscopy disclosed the presence of nycturia in twenty-two, in seven others the nocturnal quantity amounted to more than two thirds of the total daily quantity, and in the remaining two the elimination of the urine was normal. Control tests on twenty-four patients with various disorders disclosed only two patients with nycturia. The authors reach the conclusion that ulcer and nycturia are two distinct manifestations of a disturbance in the hypophyseodiencephalic system. In view of the localization of the center of the water exchange in the diencephalon, the authors call attention to Cushing's observation of the occurrence of intestinal ulcers in case of tumors in that region of the brain, and to the experimental development of gastric ulcers following the injection of large doses of hypophyseal extracts, observed by other investigators. After citing two other interesting cases the authors express the opinion that nycturia is a noteworthy symptom of intestinal ulcers that developed on a nervous basis.

**Gonadotropic Factors of Urine During Menopause**—Lipschutz calls attention to a report by Anselmino and Hoffmann in which those authors proved that Evans' "synergistic" gonadotropic factor of the anterior lobe of the hypophysis appears also in the urine of castrates and of women in the

menopause, and then he discusses his own studies on this problem. He cites his comparative experiments on guinea pigs and rats with the gonadotropic principle of the anterior lobe of the hypophysis. These tests indicated that the so-called synergistic factor of the anterior hypophysis, which appears also in the urine of menopausal women, is identical with the follicle sensitizing factor. The estrogenic factor should be differentiated from it. Moreover, he thinks that the complete gonadotropic complex probably contains three water soluble hormones, namely, the estrogenic, the follicle-sensitizing and the luteinizing factors.

### Medizinische Klinik, Berlin

31: 501 536 (April 18) 1935 Partial Index

- Benign Mixed Tumor of Parotid Gland Chiefly with Intra Oral Localization B Bretnier—p 510  
 \*Dilation of Tracheal and Bronchial Stenoses with Laminaria Pencils K Amersbach—p 511  
 \*Diagnosis of Tumors of Carotid Gland V Schmieden and L Mahler—p 513  
 Behavior of Body Temperature Following Operations Under Local Anesthesia E Hunold and H Loebell—p 514  
 \*Life Saving Action of Ovarian Preparations in Severe Hemorrhages in Patient with Hemophilia K Franke and S Litzner—p 520

**Dilation of Bronchial Stenosis by Laminaria Pencils**—Amersbach shows that the expansible laminaria pencil can be employed for the dilation of bronchial stenoses. This dilation makes it possible to enter the bronchi with wider tubes and it also facilitates the manipulation of instruments in the bronchi. The inclusion of an iron core in the laminaria pencil allows roentgenologic localization of the pencil. The author shows that this is especially helpful in determining the localization of the pencil relative to the foreign body that is to be extracted. He thinks that the laminaria pencil will prove helpful likewise in the dilation of tracheal stenoses.

**Diagnosis of Tumors of Carotid Gland**—Schmieden and Mahler review the literature and list the following points, which Klose mentioned in 1922 in connection with two cases observed in Schmieden's clinic, as a basis for the diagnosis of tumors of the carotid gland: (1) it is localized at the bifurcation of the common carotid artery, (2) laterally the tumor can be moved readily, but vertically it is impossible to move it, (3) it is oval, its surface has flat humps and it is of a firm, elastic consistence, (4) there is expansive pulsation with systolic sounds, but both disappear on compression of the common carotid artery, (5) there are protrusion of the pharyngeal wall and paralysis of the vocal cords, (6) the pupil on the diseased side is contracted in some cases, (7) the growth is slow, (8) palpation of the tumor is painless. Other reports have appeared and all authors agree that the diagnosis of tumors of the carotid gland is difficult. Occasionally a tumor of the carotid gland is discovered, when the disorder has been diagnosed as something else, and, on the other hand, tumors in the bifurcation of the common carotid artery have been found to be of different origin. The authors think that, if the foregoing symptoms are observed in case of a tumor in the region of the cervical triangle at the level of the carotid bifurcation, a tumor of the carotid gland should be thought of. Probability diagnoses that are often made are aneurysm, lymphoma, lympho sarcoma, aberrant struma, cyst of the bronchial canal, bronchogenic carcinoma, Hodgkin's disease or cold abscess. The fact that cases of bilateral tumors of the carotid have been observed and that they occur even in infants and small children is another factor that makes the diagnosis more difficult. The question of the malignant condition of the carotid tumors has not been definitely answered as yet.

**Action of Ovarian Preparations in Hemophilia**—Franke and Litzner report the history of a boy, aged 12, who since the third year of his life suffered from severe hemorrhages. Extravasations developed in various joints and later renal hemorrhages set in. The boy had been treated for several years with hemostyptic tablets containing vitamins A, B, C and D and calcium phosphate. During the severe renal hemorrhages he was given not only this vitamin preparation but other hemostyptics. In an especially severe renal hemorrhage, all these preparations proved ineffective. The boy's life was in danger and it was decided to try an ovarian hormone preparation. The patient was given an intravenous injection of 1 000

units and after one hour he complained of drawing pains in the region of the right kidney. Then colic developed and the urine contained clotted blood. On the following day the injection was repeated and was again followed by colic and by the evacuation of blood clots and normally colored urine. After that there was no recurrence of the renal hemorrhage and another injection three days later caused no pains. Coagulation time and bleeding time were now greatly reduced. The blood status, hemoglobin content and erythrocytes improved rapidly under the influence of iron therapy. The authors are investigating whether the oral administration of ovarian hormone preparations is suitable for the continuous treatment of patients with hemophilia.

### Wiener Archiv für innere Medizin, Vienna

20: 321-480 (April 8) 1935 Partial Index

Physiology and Pathology of Bilirubinemia H. Fellingner and R. Pfeleger —p. 321

Symptomatology and Early Diagnosis of Syphilis of Aorta H. Schlessinger —p. 341

Barbituric Acid and Thyroid I. von Zárday and P. Weiner —p. 353

Problem of Eosinophilia H. Krasso —p. 363

Demonstration of Tubercle Bacilli in Gastric Irrigation Fluid of Children E. Hacker and K. Wallis —p. 379

**Physiology and Pathology of Bilirubinemia**—Fellingner and Pfeleger studied the behavior of serobilirubin in healthy persons as well as in a large number of patients with various disorders. The bilirubin content of the serum was determined while the persons were fasting, during starvation and following the intake of food. The authors found that during starvation the serobilirubin is always increased in healthy persons as well as in those who are ill. The increase develops rather slowly and does not exceed certain maximal values. Following the intake of food, the bilirubin values show a noticeable reduction. The lowest values are not reached until several hours after the meal. It was demonstrated on a large number of patients that persons with high initial values of serobilirubin show the most pronounced fluctuations. However, patients with certain hepatic disturbances are an exception to this rule. The authors think that impairment of the liver cells by hunger, rhythmic changes in the function of the liver and a connection of the serobilirubin fluctuations with the bile secretion help to explain the described observations. Theoretical reasoning and experiments indicate a causal connection between serobilirubin and bile secretion.

**Barbituric Acid and Thyroid**—On the basis of observations on patients and of animal experiments, von Zárday and Weiner conclude that there is an antagonism between the hormone of the thyroid and the barbituric acid preparations, which does not include other soporifics. The cause of this effective antagonism is the fact that both the barbituric acid preparations and thyroxine have their point of attack in the cells of the diencephalon. Because of this antagonism, patients with thyrotoxicosis as well as persons with a hyperthyroid-sympathicotonic constitution require larger doses of barbituric acid preparations to go to sleep than do other persons. In order to determine the correct dosage, it is advisable to give attention to the somatic and psychic signs that permit detection of the neurohormone status of the patient.

**Tubercle Bacilli in Gastric Irrigation Fluid of Children**—Hacker and Wallis point out that demonstration of tubercle bacilli in the sputum is rather difficult in young children because they swallow rather than expectorate the sputum. For this reason, investigators have resorted to examination of the fluid obtained by gastric lavage. The authors examined the gastric irrigation fluid of fifty children for the presence of tubercle bacilli by means of the animal experiment. The time elapsed between the injection of the infective material and the manifestation of the pathologic process varied between sixteen and seventy-six days, the average length being forty days. The experiments revealed that fifteen of the total number of fifty children had an "open" tuberculosis. It was found also that younger children have a positive bacillary test much more often than the older children. However, the greater frequency of the positive tests is not so much the result of the lesser age as such but is rather due to the fact that during this age primary lesions are more frequent which in turn results in a greater tendency of this age group to open forms of tuberculosis.

### Wiener klinische Wochenschrift, Vienna

18: 481-512 (April 19) 1935 Partial Index

\*Hormone Properties of Pineal Body P. Engel —p. 481

Therapeutic Value and Action Mechanism of Gold Preparations, with Special Consideration of Some Chronic Infectious Diseases (Scleromy, Actinomycosis, Filariasis) E. Neuber —p. 486

\*Paravertebral Injection of Alcohol in Angina Pectoris and Other Pain Conditions F. Mandl —p. 490

Hypertension of Traumatic Origin Case A. Weissmann —p. 494

\*Action of High Tension Electric Current (Alternating Current of from 1000 to 3000 Volts) at a Frequency of 50 Cycles on Normal and Alcoholized Rabbits E. O. Manoiloff —p. 495

**Hormone Properties of Pineal Body**—Engel says that some investigators consider the pineal body an endocrine gland while others deny its endocrine function. He describes studies on the influence of pineal extracts on sexual development, the sex hormones, the gonadotropic hormones of the anterior lobe of the hypophysis and the growth of tumors. He calls attention to the toxic actions of the pineal extracts. A survey of the various actions of the pineal body discloses, in addition to a somewhat indistinct action on the processes of cornification and on the growth process, an inhibiting effect on two important hormones of the anterior lobe of the hypophysis, namely, the hormone effecting maturation of the follicle and the hormone producing luteinization. He describes a test for the demonstration of the antigonadotropic hormone of the pineal body and reports his studies on the hormone content of the pineal glands of a number of persons of various age groups, who had died from various disorders. He found that from 29 to 40 rat units was the average antigonadotropic hormone content, but in two cases he found as high as 60 rat units. He studied the antigonadotropic hormone content of the blood and of various organs. These investigations indicated the organ specificity of the substance and its probable transportation by the blood. In discussing the chemical properties of the antigonadotropic substance of the pineal body, the author states that it can be extracted readily by alkaline aqueous solutions from the dry acetone powder. Alcohol, ether or acetone extracts have always proved ineffective. The hormone is not thermostable. Ultrafiltrates retain their antiluteinizing action but apparently not the action directed against the maturation of the follicle. In the course of acid extraction the greatest part of the efficacy is destroyed. The author thinks that the hormone of the pineal gland may eventually find clinical application.

**Paravertebral Alcohol Injection in Angina Pectoris**—Mandl points out that paravertebral injection interrupts the ramus communicans and thus the pain conduction to the visceral organs. The injection of anesthetics proved helpful in surgical anesthesia and for differential diagnostic purposes. It seemed desirable to use a substance that would have a more lasting effect, and alcohol was chosen. The author employed the paravertebral alcohol injection in a large number of patients and stresses that the route of injection should be anesthetized and that the alcohol should be deposited from 0.5 to 1 cm. away from the vertebral column. He injects from 2 to 5 cc. of a 70 or 80 per cent alcohol solution. He enumerates the conditions in which paravertebral alcohol injection is advisable, giving especial attention to angina pectoris. He observed favorable effects of long duration in 50 per cent of the cases of angina pectoris, in 10 per cent of the gastric crises, in 90 per cent of the cases with severe pains in the region of the biliary tract and of the kidney, in 90 per cent of the cases with herpes zoster and in 75 per cent of the vasomotor disturbances. The method was ineffective in spondylarthritides. The author thinks that in disorders in which a surgical intervention may eventually be considered (angina pectoris) the paravertebral alcohol injection should always be tried first, the more so since its results are not much inferior to the surgical interventions on the sympathetic.

**Action of High Tension Electric Current**—Manoiloff describes studies on rabbits, which demonstrated pathologic changes in the nerve cells of rabbits that had been influenced by alcohol. He found that the action of the high tension electric current results in fatality much oftener in alcoholized rabbits than in those that have not been treated with alcohol. He concludes that persons who work with the high tension electric current are always exposed to danger and should avoid the abuse of alcohol.

**Zentralblatt für Gynakologie, Leipzig**

59: 849 912 (April 13) 1935 Partial Index

- Spondylolisthesis K von Ditttrich and S Tapfer—p 950  
 \*Behavior and Clinical Significance of Gonadotropic Hormones in Chorion epithelioma Following Radiologic Treatment W Spitzer—p 859  
 Necessity of Removing Adnexa in Operation of Carcinoma of Body of Uterus E Wallbruch—p 865

**Gonadotropic Hormones in Chorionepithelioma**—Spitzer points out that surgical manipulations may lead to metastasis of chorionepithelioma and that consequently radiologic therapy has been recommended by many authors. Assay of the content of gonadotropic substance in the urine in cases of chorionepithelioma and of cystic mole has been found valuable in diagnosis as well as in determining the efficacy of treatment. Most studies so far have been concerned with the change in content of gonadotropic substance following the surgical removal of chorionepithelioma and not with that following radiologic treatment. The author investigated the latter. A woman, aged 26, with vaginal chorionepithelioma was subjected to a combination radium and roentgen treatment. Reactions II and III of the Aschheim Zondek test, which had previously been positive, became negative. This and the negative histologic results of a biopsy, which was done following the irradiations, indicate that the radiologic treatment effected cure.

**Nederlandsch Tijdschrift voor Geneeskunde, Haarlem**

79: 2035 2186 (May 4) 1935

- Intestinal Resection and Terminal Ileitis H T Deelman—p 2042  
 Senile Cataract in Tropics A W Mulock Houwer—p 2055  
 \*Tropical Sprue, Pregnancy and Eczema P B Van Steenis—p 2062  
 Influence of Heat Irradiation on Permeability of Nose H A E Van Dishoeck—p 2073  
 Investigation of Vitamin E Content of Vibeta Alleged Vitamin E Concentrate P Schoorl—p 2086

**Tropical Sprue, Pregnancy and Eczema**—Van Steenis reports thirty-eight cases of sprue in women thirty-three of whom were married and in the child-bearing period. Twelve of these occurred during pregnancy. Eight were primary cases of sprue during pregnancy and four recurrences of sprue pre-existing during pregnancy. As a rule, the symptoms appeared after the sixth month. General recovery or marked improvement set in after delivery. The symptoms of sprue of pregnancy do not differ materially from those of other cases. As a complication in four of the twelve cases, eczema appeared during the seventh and eighth month respectively of pregnancy and ten days and two months respectively after delivery. In the first three patients it was generalized on the trunk, the extremities and the genitalia, and it subsided shortly after delivery. The author states in conclusion that eczema is not a common complication in sprue or in pregnancy.

**Acta Chirurgica Scandinavica, Stockholm**

76: 227 576 (April 17) 1935 Partial Index

- \*Operative Treatment of Perforation of Ulcer H Schilling—p 249  
 \*Treatment and Prognosis of Hypernephroma P Bull—p 270  
 Accessory Renal Vessels as Cause of Intermittent Hydronephrosis with Sharp Attacks of Pain C Johannessen—p 345  
 Painful Congenital Subluxation of Hip A Øvre—p 369  
 \*Lipogranuloma Foreign Body Inflammation Often Suggesting Tumor H F Harbitz—p 401  
 Traumatic Rupture of Hydronephrosis K Haugseth—p 451

**Operative Treatment of Perforated Ulcer**—Schilling reports 265 cases of perforated gastric and duodenal ulcers collected from the two surgical departments of the Ulleval Communal Hospital in Oslo and in which operation was performed between 1912 and 1934. The gastric ulcers made up two thirds and the duodenal ulcers one third of the material, including the latter, 80 per cent of the ulcers were located near the pylorus. The majority of perforations, 85 per cent, were found in men. A distinct increase in the number of perforations was noticeable in men particularly in young men. There were seventy-one cases from 1912 to 1922 inclusive and 194 cases from 1923 on the rate of perforations among women on the other hand, was lower in the second period than in the first. The treatment was the same in the two departments. The operation was begun with an incision in the right iliac fossa then suture of the perforation and as a rule gastro-enterostomy (in 79 per cent), lavage through both incisions and closure without drainage were performed. Ulcers located far from the

pylorus and those in debilitated patients were treated by suture alone. The results were exceedingly good, the mortality rate being 28 per cent within the six-hour limit and 74 within the twelve-hour limit.

**Treatment and Prognosis of Hypernephroma**—Bull reports thirty-seven cases of hypernephroma, twenty-one in men and sixteen in women, 73 per cent of the patients ranging in age from 40 to 59. One female patient was but 18. There were twenty-six nephrectomies with two deaths (7.7 per cent), one from uremia (ether anesthesia) and one from pulmonary embolism a few hours after the operation. There were twenty extraperitoneal and six transperitoneal nephrectomies. The justification of always commencing the operation with ligation of the renal vessels to prevent, if possible, metastases is discussed. No satisfactory results were obtained by the use of roentgen and radium irradiation. Operation was performed on twenty-three patients more than three years ago, eleven of these, or 47.8 per cent, have lived for more than three years but only five of these eleven are free from recurrence thirteen twelve, eight, eight and three and one-half years after the operation, and two, free from recurrence after seven and four and one-half years, are dead, thus seven of the twenty three, 30.4 per cent, are free from recurrence. Two died of recurrence after six and three-fourths and four years, and two are living with recurrence after three and five-sixths and twelve years. The patient with local recurrence after twelve years had a large cystic growth weighing 10.7 Kg. Thirteen nephrectomized patients, who subsequently died of their recurrences, lived from two and three-fourths months to six and three-fourths years, an average of at least two years after nephrectomy and at least three years from the first clinical symptoms. Ten non-nephrectomized patients lived from one to three and one half years, or an average of two years from the first symptom. One patient with metastasis of the lymph nodes the size of a walnut is still living after thirteen years. All patients with thrombosis of the renal vein (five) have died of recurrences. Atypical hypernephroma gave a worse prognosis than the typical cases. One patient with metastasis of the femur was free from recurrence nearly two years after disarticulation of the femur.

**Lipogranuloma**—Harbitz defines lipogranuloma as a special foreign body inflammation of the adipose tissue with characteristic granulation tissue and development of oil cysts lined with polynuclear cells or syncytia. These cysts are later transformed into serous cysts surrounded by acellular hyaline connective tissue, which may become calcified, or the cysts may obliterate to solid fibrous or calcified lumps with histologic resemblance to psammoma bodies. They have then a characteristic roentgenogram showing ring-shaped or solid small round calcifications most frequently situated in the subcutaneous fat tissue. The author's material consists of seventeen cases of lipogranuloma in the breast and nineteen cases in other localities. Many of the circumscribed lipogranulomas were removed on suggestion of a malignant tumor.

**Hygiea, Stockholm**

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- Volvulus Treated Operatively with Recovery Case. A Rydén—p 257  
 \*Blood Picture and Sedimentation Reaction in Inflammatory Diseases of Eye Cn H Sjögren—p 262

**Blood Picture and Sedimentation Reaction in Inflammatory Diseases of Eye**—Sjögren made an examination of the blood in 200 cases of inflammatory disorders of the eye, 153 of endogenic and 47 of exogenic origin, and carried out the sedimentation reaction in 352 cases, 294 of the endogenic and 58 of the exogenic kind. He says that, while the sedimentation values were increased in about 50 per cent of the endogenic cases shifting to the left occurred in only about 11 per cent, which agrees with the known fact that the latent chronic infections which are the chief etiologic factors in diseases of the eye are more surely reflected in the sedimentation reaction than in the hemogram. A definite relation between diseases of the eye on the one hand and the blood picture and the sedimentation reaction on the other cannot be confirmed. In about half the cases neither the eye disturbance nor the underlying focus in the body is expressed by certain pathologic changes in these reactions. The reactions afford no evidence for differential diagnosis and are of no prognostic significance.

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## RESEARCH IN PSYCHIATRY

### CHAIRMAN'S ADDRESS

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An excellent review of modern trends of research in connection with psychiatry is contained in the Problem of Mental Disorder<sup>1</sup> published by the National Research Council. Some idea of the relative volume of investigations in the different fields can be gained from the report of Whitehorn and Zilboorg<sup>2</sup> for the Committee on Research of the American Psychiatric Association. Using as a basis of comparison the number of pages in three American journals (*American Journal of Psychiatry*, *Archives of Neurology and Psychiatry* and *Journal of Nervous and Mental Disease*) devoted to particular topics of research during the decade 1921-1930, they divided the material into (1) clinical studies, which decreased from 1,622 in the first five years to 1,492 in the second five years, (2) psychologic studies, which increased from 817 to 1,923 pages, (3) physiologic studies, which showed an increase from 247 to 404 pages, (4) studies dealing with the relation of psychiatry to medicine, sociology, law, and other subjects and (5) miscellaneous studies. Both of the last two categories showed some slight decrease in the second half of the decade.

These observations suggest that there has been a decline of activity in clinical studies, attention having been diverted to more abstract psychologic and more concrete physiologic methods. The exact degree of change is of course not reflected in the number of pages of printed material, my own opinion is that the swing to these other fields of study has been much greater than is thus presented. In any case the change is sufficiently great to justify some consideration of its significance and its bearing on progress in psychiatry.

One of the principal points I wish to stress concerns the importance of clinical research, and I shall discuss the relations that exist between clinical psychiatry and the two types of research included by Whitehorn and Zilboorg under the captions psychologic and physiologic. Though it may be unnecessary, it seems well to stress that what I shall say is in no sense critical of the quality of the work in these fields that is being done, nor does it belittle such applicability as the results may have in the practical treatment of patients.

It does, however, seem worth while to raise the question whether these types of study are strictly psychi-

atric, even though they yield results valuable in the clinical application of psychiatry. The answer to this question will necessarily turn to some extent on the interpretation of the word psychiatry. The suffix of the word (Greek, *iatros*) means treatment and at once indicates that psychiatry belongs in the practice of the art of medicine. When one attempts, however, to specify the particular forms of human illness with which it deals one is confronted with a difficult problem. Probably the answer that would be most satisfactory to psychiatrists would be that it includes those forms of illness which present evidences of disturbance in the higher levels of integration of the organism, particularly those into which enter the phenomena of consciousness. That such a definition is too broad, however, becomes clear from the consideration that adjustments at this level are concerned in practically all forms of illness. The body reacts as a whole even to disease of a particular organ, and there are evidences in all illness of disturbance in integration at all levels. I should answer this by saying that psychiatry permeates, or is an aspect of, all medicine. If one attempts to restrict the definition to forms of illness in which such disturbances are primary—that is to say in which disorder of the lower levels is secondary to derangement at the highest levels—it is my belief that sooner or later much of the traditional field of the psychiatrist, including most of the psychoses, will be excluded by the definition. Even the psychoneuroses, full credit being given to the significance of modern dynamic interpretations, need some additional factor for their full understanding, a factor that was expressed by Freud as a constitutional defect. The nature of this defect cannot be defined more exactly, but it may be suggested that it is apt to be found to depend on disturbance of function at lower levels, perhaps even the cellular level.

### PSYCHOLOGIC AND PHYSIOLOGIC METHODS

The suggestion that psychologic research is not psychiatric may be confusing, the view has practical value in considering methods of research, however, though it needs elaboration if it is not to be misunderstood. I would compare the relations between these two disciplines with those which obtain between physiology and medicine in general. Physiology may furnish explanations of the symptoms of disease, but it does not explain the disease even when it provides means of importance in therapy. Insulin is today the best means available for combating the consequences of diabetes, but it is not a remedy for diabetes and does not furnish information as to the ultimate cause of the disease. Psychology, including the special technics of psychoanalysis, does afford an understanding of the mechanisms concerned in the formation of symptoms but cannot supply a complete explanation for the illness expressed in the symptoms. Dynamic psychology can explain the mechanism of a paranoid attitude or a com-

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1. The Problem of Mental Disorder. New York: McGraw-Hill Book Company, 1934.

2. Whitehorn, J. C. and Zilboorg, Gregory. Present Trends in American Psychiatric Research. *Am. J. Psychiat.* 13: 303 (Sept.) 1933.

pulsive phobia but cannot furnish the reason for the adoption of one of these modes of reaction rather than of some more satisfactory form of response. In other words, psychologic studies can explain the form but not the fact of illness, and it is with the latter that psychiatry is ultimately concerned. I do not wish to stress this view unduly, for I recognize that in many cases it is more important therapeutically to understand the mechanisms and their relations with situations to be faced than to know the nature of a deviation in construction of the organism which may not be susceptible of modification when discovered. On the other hand, one should not rest content with even the most complete psychologic interpretation of symptoms if there is any prospect that the underlying cause of the illness may be remedied, and it is this which is the prime objective of psychiatric research.

To express this in another way, therapy based on psychologic principles, valuable as it is, must always remain symptomatic. The danger in the situation is that complaisance in the accomplishments achieved by these methods has and will result in neglect of more fundamental pathologic conditions. This I believe to be especially important in regard to the psychoses, as will become evident from what is to follow.

Turning now to the development of physiologic methods, it may at first glance appear that this type of attack is more directly in line with what I have in mind. However, I would suggest that somewhat similar differences exist here to those which I have already indicated for psychologic methods. A further objection to the use of physiologic methods at the present time consists in the fact that psychiatric knowledge is not ready for it. The only basis for correlations now available is the form of the psychosis, which is a psychologic and not a psychiatric basis. Correlations are being made with types of behavior—personality types—and not with disease entities.

Psychiatry is essentially a clinical subject. Advances in other fields of clinical medicine have led and not followed laboratory discoveries. It seems logical to conclude that this story will be repeated in psychiatry. One of the first desiderata in clinical research is a scientific classification of the phenomena observed. The classification of mental illnesses today is, to use the homely simile of Hughlings Jackson, that of a market gardener in regard to plants. Outstanding surface phenomena are the main basis of grouping. It is necessary to find fundamental and essential elements in order to achieve a classification comparable to that of the botanist. It may be that such criteria are already available but not yet grasped, it may be that they are still to be discovered. Much has been gained from the clear recognition of dynamic factors, at least from the point of view of therapeutic approach, with these as clues it may be that the still elusive principles underlying disease entities will emerge from these methods, but they are not yet evident.

Though it may seem to be a regression, I urge that there is still need of a continuation of the ancient methods of clinical observation, modified and elaborated to comply with advances already made. Probably no one today will accept in its entirety the classification formulated by Kraepelin. Even he, before his death, recognized that the prognostic criterion he used so largely in his earlier efforts failed to provide the goal he sought. Yet it is not questioned that course and outcome are individual characteristics of disease processes. I believe that the aim was sound and may still lead to success, if its implications are considered in the

proper light. The end results of a disease do furnish clues as to the core of the damage or defect. This is well illustrated by the results of studies of aphasia, define the functions that have been destroyed and it becomes possible to formulate the location of the damage. In the same manner, painstaking study of end results in psychiatry by clinical methods will furnish clues to the parts that are damaged. Methods must be devised for isolating and defining functions that are permanently deficient, both in the psychoses and in the psychoneuroses. Since one deals with reactions of the total organism, these methods must be such as to test the behavior of the patient in situations resembling those encountered in life and not merely such as to investigate the function of some organ or system. There is no justification at present for assuming that any part physiologic action, hormonal, metabolic or any other, can be accepted as an indication of the existence of particular changes in biologic reaction, though it is possible that later such may be found.

#### DIFFERENTIATION OF PSYCHOSES

To illustrate the points I am trying to make, it seems well here to discuss briefly some of the forms of mental illness that are too often dealt with as if they were nosologic entities. First may be considered the concept of oscillations of mood as defining a particular form of mental illness, called by Kraepelin manic-depressive. This he considered a fundamental characteristic distinguishing these psychoses from types that tended to end in a peculiar form of deterioration.

Manic-depressive reactions may be considered from two points of view, the one psychiatric and the other psychologic, as I would express it. (1) the seat and nature of the condition causing the disorder in mood, (2) the character of the behavior that expresses the disturbance in mood. It is difficult to avoid the conclusion that, in much of what is written and taught, these two aspects of the problem have been confused. Brief consideration of clinical facts reveals that swings of mood of this kind occur under widely different conditions, some including disease within the body, others involving mainly environmental situations to be adjusted to. For example, there are (a) the manic-depressive psychoses without discovered pathologic changes within the body, (b) swings of mood associated with bodily disease, which is not confined to the nervous system—dementia paralytica, arteriosclerosis, diseases of the thyroid gland, heart disease, and so on. The occurrence of this one feature under such widely different conditions seems to justify the conclusion that it is not a single disease but rather a particular location of damage or defect in the structure of the integrating machinery of the body, probably at a vegetative level. From the point of view contained in the second category mentioned, that of the type of behavior exhibited, however, there is also a wide variation of the form in which the mood is expressed, which may or may not have certain relations to the particular form of the disease that is present, but which more often seems to depend on the type of personality of the patient. One finds oscillations of mood labeled from this point of view as manic-depressive, schizophrenic, delirious and paranoid. There are thus presented numerous problems for psychiatric clinical investigation, and the doubtful value of correlations with physiologic study are strongly emphasized.

Turning now to the group of psychoses labeled schizophrenia or dementia praecox, one finds that somewhat similar comments apply. Here, however, the

problem is even more complex. The occurrence of deterioration is today more or less ignored as a criterion for classification, and inclusion in the group depends on the observation of patterns of behavior that are characterized by excessive use of occult or highly symbolized responses—caricatures apparently of those features of human behavior which render social life possible—the repressive and substitutive types of reaction. One need not question the propriety of classifying psychologically such behavior in one class, but few will disagree with the remark that it is not a nosologic or psychiatric unity. Ignoring the occurrence of schizophrenic behavior in many different forms of disease of the body, just as was true of the manic-depressive reactions, and considering only the group of schizophrenia as currently defined, the variability in course, manifestations and outcome is so great that it seems impossible to consider this group as representing a single disease process. From the point of view of course alone it is well recognized that some cases represent apparently swings of mood with schizoid coloring—currently spoken of as schizophrenia with manic-depressive features, some are acute reactions apparently to external environmental situations, and end in complete recovery, some cases terminate with the phenomena of more or less severe “deterioration.” Too little attention has been given to these terminal states, all show some loss of capacity for integrated behavior, but the capacities lost are not the same in all. I would stress particularly the psychiatric importance of devising methods for defining what has been lost for this I believe will furnish criteria for splitting up this enormous group and possibly even for learning the seat of the damage. In still other cases there are the well known disturbances in muscle tone, which surely cannot be ignored in the effort to establish disease entities.

Throughout all the forms, it is true runs the common factor of the character of the behavior. It seems worth while to insist that this is a psychologic distinction and not a psychiatric one. It concerns not the disease or defect that is present but rather the kind of person who is ill.

From these considerations it seems clear that there is no valid basis in these psychologic differentiations for correlation with special methods of laboratory research, physiologic or pathologic. Healthy persons healthy in the sense that their behavior enables them to meet more or less satisfactorily to themselves and to society the conditions of social life, all present a combination of varying proportions of the factors that have just been considered in the two large categories of named psychoses. All show more or less evident cyclic swinging of mood, the cycles being interrupted, it is true in their regularity by demands for reaction to situations of biologic importance in the surroundings. In all there are more or less well marked the mechanisms of repression, substitution and symbolization which when exaggerated for any reason, constitute the mechanisms underlying the psychologic classification of schizophrenia.

The situation is much the same in regard to the psychoneuroses. Until the advent of modern dynamic concepts of behavior, this group was even less studied than that of the psychoses. Except for a very superficial sorting, little attempt had been made to classify these heterogeneous clinical pictures. There is growing a method of subdivision that is based, even more than is true of the psychoses, on dynamic psychology. This

method of classification has decided advantages from the point of view of therapy. Nevertheless, it is psychologic rather than psychiatric. Included among these conditions, I am convinced, are some which clinical study will demonstrate to possess characteristics, corresponding with course and outcome, that would justify psychiatric subdivision, even if the majority must be grouped in a psychologic manner.

#### FUNCTION OF CLINICAL RESEARCH IN PSYCHIATRY

The statements I have made are certainly not new and probably will be accepted, though perhaps sometimes grudgingly and with reservations due to personal interests and orientation, by all engaged in teaching and research in psychiatry. The formulation in this way is the outcome of an effort to outline for myself the aims and meaning of psychiatric research. I have asked myself: Why do certain conditions give rise to a mental illness, whether psychosis or neurosis, in one person and not in another? Is one to rest satisfied with such vague generalizations as constitutional deficiency or endocrinopathy? Are such factors as lack of courage and lack of energy, regression to a lower level of behavior and retirement to a world of fantasy explanations or are they merely methods of describing what is observed? To me it seems that the prime function of psychiatric research is the discovery of the mechanisms that permit the development of an illness, no matter what the precipitating or concomitant circumstances. The practicing physician will, of course, use for therapeutic purposes all available means of ameliorating and modifying favorably the symptoms of an illness for which he is consulted, even if he does not know the actual cause or nature of the illness. His observations and results, if adequately recorded and evaluated, may furnish clues to the causes. Rational therapy and improvements in methods of prevention become possible only with knowledge of the fundamental etiology. For example, advances in methods of prevention of and treatment for dementia paralytica, with its wide variety of psychologic pictures, have come only with knowledge of the causative agent, it may be emphasized here that this agent was recognized from purely clinical research long before the spirochete was discovered, improved chemical means for combating it followed. Pyrethotherapy likewise was the result of clinical observation, and research is only now endeavoring to unravel the mechanisms through which it operates.

The question will undoubtedly be raised as to what is meant by clinical research. The methods are no different in principle from those employed in other fields of medicine. I do not share the not uncommonly expressed opinion that psychiatry has graduated from the stage of description to that of interpretation. This may be true of psychology, but not of psychiatry. It may be granted that there has been careful and adequate description of the superficial manifestations and spontaneous behavior. What remains to be done concerns the devising of methods of recording the responses to controlled situations, planned with the purpose of defining exactly what integrated functions persist in any given case and what are lost or in abeyance. This is a long, tedious road, requiring persistence, imagination and ingenuity, the usual tools of research, but it is I believe the only road that will lead to a successful classification on an etiologic basis and through this to adequate correlation with other fields of research.

In this connection it seems worth while to recall the plan of analysis followed by Hughlings Jackson in his



studies of what he called the evolution and dissolution of the nervous system. This should be extended to include not the nervous system alone but all integrating mechanisms, the lowest as well as the highest. Studies of the evolution of behavior in the child, already initiated, need to be carried out in detail and by methods which are comparable with those to be used in the clinical study of patients. It seems premature to speak of regressions to a lower level of behavior until something more is known of its progressions. For the studies of dissolution one has available all the experiments of nature which make up all mental illnesses under the heading of psychiatry, including the various conditions of arrested development. This whole field has been only scratched, there is much to be done in actual tilling by devising methods for determining and specifying what is present and what is lost. These methods are essentially clinical. They need to be worked out, at least primarily, through intensive and prolonged studies of individual cases rather than through statistical methods with a mass of material.

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## AIR EMBOLISM

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Air embolism is a rather infrequent complication of various surgical procedures in each of which air is permitted to enter the venous system. Cases of air embolism may be divided into two large groups—one in which air gains entry to the peripheral venous system and the other in which air enters the pulmonary venous circuit.

Air embolism resulting from air entering the peripheral circuit has been encountered in practically every surgical field. The first recorded case was reported in 1818 by Beauchesne,<sup>1</sup> it followed removal of a tumor from the neck and was proved at autopsy. Nordland and his co-workers<sup>2</sup> reported a series of experiments performed on this type of air embolism in dogs. They injected varying amounts of air intravenously and observed that as much as 30 cc could be injected rapidly without any ill effects. As larger amounts were used various clinical effects were noted, characterized by alterations of the blood pressure, cardiac and respiratory irregularities, and finally death. Death was as a rule produced by amounts as large as 160 cc. If the chests of the animals were opened ante mortem the heart was found beating irregularly and ineffectually, and a churning, splashing sound could be heard. Incision into the right ventricle led to a pouring out of frothy blood and a reestablishment of the cardiac rhythm for a short time. When these animals were examined post mortem, the great veins, the right side of the heart and the pulmonary artery were found filled with air bubbles and frothy blood. When smaller amounts are injected, the air is propelled into the pulmonary circuit and gradually absorbed from the

capillaries. A similar effect is obtained when larger amounts are injected over a longer period of time. It was concluded that the cause of death in these cases was inefficacy of the cardiac action, affecting especially the right side of the heart. Owing probably to the easy compressibility of the air, the valves are not properly opened and the circulation comes to a standstill. To this is added the development of an acute hypertension of the lesser circuit due to a very diffuse capillary block of the pulmonary vessels by air bubbles.

These results are similar to those observed clinically. Small amounts of air have been observed repeatedly to be harmless in the human being when injected intravenously during transfusions and other intravenous infusions. Clinically, however, air embolism occurs when large amounts of air are allowed to enter a vein. The requirements for such an occurrence are filled when (a) a vessel is only partly severed, preventing collapse, or even in complete severance when the surrounding tissues are firm, thus preventing venous collapse and retraction, or (b) the venous pressure is negative or the air pressure positive. Probably the most frequent source of air embolism is in the region of the great veins of the neck, following thyroid and other operations. The required conditions are here fulfilled, for (a) the oblique passage of the veins through several layers of firm cervical fascia prevents immediate collapse and retraction, even when the vessel has been completely cut across, and (b) the venous pressure in the great veins of the neck is negative during inspiration, even with the patient in a prone position. When a vein is cut, the first sign is usually a hissing sound in the wound—"sifflement"—as the air is sucked in, clinical evidences manifest themselves variously depending on the amount of air aspirated—dyspnea, cyanosis, coma, cardiac arrhythmia, apnea and death. A murmur—"bruit de soufflement"—has been described over the heart, due to the churning about of the air. (This bruit is constantly found in experimental animals.)

Cases of air embolism have been reported following wounds of the neck, irrigation of the maxillary sinuses, manipulation of the intracranial venous sinuses, fractures affecting the long bones, especially the tibia, manipulation of the pregnant and puerperal uterus, and air injection into the urethra, the bladder and the peritoneum.

Mathe<sup>3</sup> reports a case of fatal air embolism following injection of 300 cc of air into the bladder in a case of bladder tumor. At necropsy, open vessels were found in an ulcer in the tumor, the inferior vena cava, the hepatic veins, the right side of the heart, and the pulmonary vessels contained large amounts of air and frothy blood. He wrote questionnaires to other genito-urinary specialists and found that fatalities or less serious accidents following injections of air into the urethra or bladder were not uncommon, and he advises against the use of air for this purpose.

Gording<sup>4</sup> discusses the question of air embolism following puncture of, and injection of air into, the maxillary sinuses. The entrance of air under high pressure into open ulcerated vessels provides the necessary factors for air embolism, and he believes that he has successfully reproduced the syndrome in animals. He also quotes a case in which the lateral sinus was

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<sup>1</sup> Beauchesne cited by Gough\*

<sup>2</sup> Nordland M. Hall B. E. and St. Cyr K. I. West J. Surg. 39: 581 (Aug.) 1931

<sup>3</sup> Mathe C. P. Surg. Gynec. & Obst. 48: 429 (March) 1929

<sup>4</sup> Gording R. Ann. Otol. Rhin. & Laryng. 29: 293 (June) 1920



opened and air was heard being sucked into this vessel with clinical production of air embolism

Bingel<sup>5</sup> reports the air irrigation of a peritoneal pocket in a case of subphrenic abscess. The patient became comatose and a "water-wheel" murmur was heard over the heart. As a rational therapeutic procedure a needle was introduced into what was thought to be the right heart and 3 cc of air was withdrawn. The patient recovered from the air embolism.

Gough<sup>6</sup> quotes and reports cases occurring in the practice of obstetrics and gynecology. Most cases follow the injection of air (with or without fluid) into the uterus during attempts at criminal abortion. Death frequently follows, and autopsy reveals air in the heart and pulmonary artery. Similar cases may follow removal of a placenta praevia, cesarean section and a douche for adhering placenta. He reports one case in which the patient collapsed and died after an apparently normal delivery. Postmortem examination revealed air in the right heart and pulmonary artery.

Most of the cases that have been reported of air embolism resulting from air entering the pulmonary venous circuit have followed artificial pneumothorax. Other causes are injury to the chest wall and lung, pleural lavage in empyema, possible passage of air through the pulmonary capillaries (or through a patent foramen ovale) when the case is one of air embolism described in the first group, and escape of air from solution in the blood (caisson disease).

#### REPORT OF CASES

CASE 1—S H, a woman, aged 22, Jewish in whom the onset of tuberculosis occurred in August 1933, had a lesion consisting of diffuse caseation with cavitation, through the left lung. Artificial pneumothorax was started in October. The patient was discharged to the clinic for refills in February 1934 with negative sputums and an atelectatic lung. Several firm adhesions were present. In spite of refills the lung reexpanded, owing to an obliterative fibrosis of the pleura. She was returned to Kings County Hospital in August 1934 for reestablishment of pneumothorax, which had been completely absorbed. The first trial to secure a new collapse showed no free pleural space. The next day another attempt was made in another location (August 13). The manometer showed free fluctuations, with pressures of  $-4$   $-2$  cm of water. From 10 to 15 cc of air was introduced and another reading taken. There was no fluctuation. At this point the patient moaned and turned pale. The needle was withdrawn at once. The patient became intensely cyanotic, a stertor developed and then apnea. The pulse could not be felt. Irregular convulsive movements were noted. Therapy included artificial respiration, caffeine and epinephrine intramuscularly, and epinephrine intravenously. After about one-half hour there appeared a complete left hemiplegia, including facial and hypoglossal paralysis and positive Hoffmann and Babinski signs. Consciousness partially reappeared in about one hour. After six hours the only symptoms remaining were slight mental confusion and headache, these were gone the following morning. No further attempts at pneumothorax were thought advisable. In this case, and thoracoplasty was advised.

CASE 2—A W, a man, aged 24, Jewish, in whom the onset of tuberculosis was thought to have occurred in August 1934 but from the fibrotic nature of the lesion as it appeared roentgenographically it was probably present as an asymptomatic lesion for a considerable time. The lesion was a diffuse, but not very dense, fibrocaceous tuberculosis through the left lung with the largest cavity about 2 cm in diameter. Pneumothorax was started October 6, with a great deal of difficulty in finding a free space. November 3 an attempt at pneumothorax gave

no readings. Before any manipulation or introduction of air was resorted to the patient complained of dizziness and weakness and the needle was withdrawn. He then complained of numbness of the right arm and leg. There was no loss of consciousness or disturbance of respiration or cardiac action. Neurologic examination revealed a right-sided hemiplegia, with right-sided hemianesthesia. There was no involvement of the cranial nerves, Babinski sign, or aphasia. The patient was reassured but no other therapy was used. Complete recovery occurred within one hour. A roentgenogram (which had been taken the day before the accident) showed that the small peripheral collapse previously present could no longer be seen. Several cautious attempts at pneumothorax were made later, but no free pleural space could be found.

CASE 3—M E, a woman, aged 30, Norwegian, in whom the onset of tuberculosis occurred in November 1933, had a fibrocaceous lesion of the right upper lobe with several fibrous cavities. Pneumothorax was attempted on several occasions with six punctures all unsuccessful in finding a free space. Another attempt was made Oct 3, 1934. No free space was found, but during the manipulations bright red blood welled up through the needle when the patient coughed. The needle was at once withdrawn and the patient put to bed. She complained at once of feeling dizzy and after three or four minutes presented marked mental confusion, and disorientation, and had crying spells, and hallucinations. These phenomena subsided in about one hour. The following features made us feel that we were dealing with an organic rather than a functional disturbance: (a) The patient had never shown any evidence of psychiatric symptoms previously. (b) The treatment was painless. (c) She did not realize the significance of our being unable to find a free space. (d) She subsequently underwent a thoracoplasty with no evidence of mental disorder. (e) The symptoms appeared a few minutes after a lung puncture and one that had penetrated a pulmonary vein.

CASE 4—H Z, a woman, aged 28, Jewish, in whom the onset of tuberculosis occurred in 1928 had a pneumothorax on the left side discontinued to enable the start of pneumothorax on the right side in September 1934. Each lung presented partial collapse, pleural adhesions being present. The last refill was given Nov 23, 1934, with no unusual reaction. Her condition remained fair until November 26, at which time, without any previous clinical warning, she suddenly became comatose, exhibiting convulsive seizures, coma and cyanosis. She recovered temporarily and was found to be blind. Before careful ocular study could be made, the blindness gradually disappeared. It was followed within the next few minutes by further convulsions and death. Autopsy was not secured. Clinically this case was one of cerebral accident. In the presence of artificial pneumothorax with adhesions, and severe coughing spells, and in the absence of any cardiovascular disease, of syphilis or of a previous neurologic lesion, and in view of the youth of the patient, we feel that the most likely cause of death was air embolism, in spite of the absence of a recent treatment. The mechanism was possibly a small intrapulmonary rupture, or tear of an adhesion with an alveolovascular communication.

CASE 5—C W, a white woman, aged 22, in whom the onset of tuberculosis occurred in January 1933, had pneumothorax started in April 1933 and continued at weekly intervals to the time of her admission. The patient was admitted to Kings County Hospital April 24 1934, with a history of having received a refill that morning and of falling unconscious immediately after getting up from the table. On examination the patient was comatose with occasional clonic and tonic convulsions. There was marked spasticity of the entire body, with exaggerated reflexes and a bilateral Babinski sign. Spinal tap taken at this time was negative. The neurologic diagnosis was decerebrate rigidity. A roentgenogram of the chest taken at this time revealed a small basal partial right pneumothorax with the remaining lung showing a fibrocavitary lesion. The patient remained unconscious for from three to four days and then showed signs of a complete left hemiplegia. The paralysis gradually disappeared, complete recovery having been reached at the end of four weeks. The patient was discharged, June 3

<sup>5</sup> Bingel, Zentralbl. f. Chir. 50 433 (March 17) 1923. Abstr. J. A. M. A. 80:1743 (June 9) 1923.  
<sup>6</sup> Gough, J. A. Surg. Gynec. & Obst. 39 27 (July) 1924.

The following four cases were seen in the private and consulting practice of the senior author

CASE 6—F S., a white woman, aged 22, in whom the onset of tuberculosis occurred in 1929, when seen in July 1931 was emaciated the lungs presented a nodular caseous infiltration of the right upper lobe and cavitation destroying the greater part of the left upper lobe, with caseation to the fourth rib anteriorly. It was felt that the lesion was too extensive and the general condition too poor to resort to pneumothorax at that time. After a period of eight months of bed rest, with marked clinical improvement and fibrotic changes in the lesions, an attempt was made at pneumothorax on the left side. The pleural space was entered without difficulty and seven treatments were given, of 300 cc each. Fluoroscopy showed a small basal pneumothorax. On the eighth treatment the needle entered the pleural space (pressure 0, +2), after 100 cc the pressures were +2, +4. The valve was opened and air was again run in, at this point the patient exclaimed, became in rapid succession pale, unconscious, cyanotic, apneic and pulseless and then died, in spite of the use of artificial respiration and intracardiac epinephrine. Necropsy was not performed. The mechanism in this patient was undoubtedly the partial severance of a vascular adhesion with air forced into the vessel thus exposed.

CASE 7—T L., a white man, aged 35, in whom the onset of tuberculosis occurred in 1930, first seen in July 1931, had a lesion that consisted of a fibrocavitary tuberculosis affecting especially the right upper lobe. Artificial pneumothorax was started in August 1931. The first three treatments of 175, 600 and 600 cc., respectively, were given with little difficulty. On the fourth treatment the pressures were -2, +2, going to -4 with deep inspiration. The manometer was then closed and the air allowed to run in. After about 20 cc. had been given the patient complained of pain in the right leg, he immediately became unconscious, with the development of pallor and then cyanosis, respirations ceased and the pulse became imperceptible. Treatment of artificial respiration and intravenous epinephrine gradually brought about reestablishment of the vital functions. It was then noted that there existed a complete right hemiplegia, at this time (from fifteen to twenty minutes after the accident) the eyegrounds were normal. When consciousness returned the patient was found to have a complete aphasia. These neurologic manifestations all disappeared within the next twenty-four hours. Fluoroscopic examination after recovery showed no pneumothorax, and the conclusion was arrived at that the air must have been injected into the lung during all four treatments, in spite of deceptive manometric oscillations.

CASE 8—E R., a white woman, aged 30, in whom the onset of tuberculosis occurred in 1931, had a left pneumothorax started in 1932 and continued with a partial but apparently satisfactory collapse until May 1934, at which time a spreading lesion was observed on the right. The left lung was allowed to come out and pneumothorax was started on the right. In spite of attempts at a bilateral partial collapse, the left lung became adherent to the periphery and began to reexpand rapidly. August 19 the needle was introduced into the left side of the chest. No readings were obtained. In the midst of the ensuing manipulations, no air was being introduced, the patient cried out and the needle was withdrawn. She became unconscious, very pale, and then cyanotic. The pulse became slow and irregular (from 40 to 50), respirations became slow (from 4 to 5) and irregular and gasping. After a period of from four to five minutes, during which epinephrine and caffeine were used liberally, the patient made a gradual and uneventful recovery. In this case the beveled tip of the needle must have effected a continuous passage between a pulmonary venule and an alveolus.

CASE 9—L L., a white man, aged 19, in whom the onset of tuberculosis occurred in January 1933, was first seen in January 1934. The lesion consisted of a bilateral upper lobe fibrocavitary tuberculosis. Pneumothorax was attempted on the left side in February 1934. After several unsuccessful attempts, scanty oscillations were obtained (0—2). As no better fluctuations could be secured a small amount of air (from 5 to 10 cc.) was introduced. This was followed immediately by restlessness, vomiting, pallor, cyanosis and profuse perspiration. Consciousness was not lost. When his condition was no longer

critical, paralysis of the right leg was noted. This cleared in from two to three hours, leaving no residuum. In this case the needle must have been at least partially in one of the branches of the pulmonary veins.

#### COMMENT

Air embolism occurs about once in every 500 to 1,000 pneumothorax treatments.

*Pathogenesis*—The factors necessary for the production of air embolism of this type are the same as those stated previously. The normal lung is elastic, and the lung and blood vessels tend to be pushed away by the needle rather than to be punctured, and the vessels tend to retract or collapse when punctured. However, when the lung is fibrotic, firm and adherent, with thick, vascular pleural adhesions, collapse becomes much more difficult as does vascular retraction. The second provision—increased air over venous pressure—is normally present. The pressure in the pulmonary veins is normally less than atmospheric, by as much as from 14 to 16 cm. of water<sup>7</sup> and from 5 to 6 cm. less than the intrapulmonary pressure, and this difference is markedly accentuated when the air pressure is increased by the use of the pneumothorax machine or by coughing, or when the venous blood pressure is decreased by forced sudden inspiration. The perforated vessel through which the air enters may be in the lung or in a vascular adhesion. Riviere says that such vessels may enlarge to almost angiomatic dimensions. Schlaepfer<sup>8</sup> attempted to reproduce in dogs the pulmonary conditions of a fibrotic tuberculous process, by artificial vascular obstruction at the hilus and succeeded in the production of vascular adhesions in the pleura, which established anastomoses between the pulmonary and the peripheral venous circuits. Air introduced into such a vessel would then pass through the left side of the heart and thence to the general arterial circulation, as would air introduced into a branch of a pulmonary vein. The air may come from one of four sources: (a) The air may be introduced by the operator from the pneumothorax apparatus, (b) it may be sucked in from the tubing of the manometer, (c) it may be sucked in from an alveolus or bronchiole, the bevel of the needle acting as a connection between the air sac and the blood vessel, or (d) by a similar action it may be sucked or forced in from the pleural space if a partial pneumothorax already exists.

*Clinical Features*—This syndrome has been amply reproduced in animals<sup>9</sup> of all sorts,<sup>9</sup> but in them the features are similar to those in man except that the syndrome can be observed more exactly and dispassionately. The type of case in which air embolism is found, when associated with artificial pneumothorax, is practically always one in which the lung appears more or less fibrotic, and the pleura is, and feels, thickened when perforated. In this group is found the case in which pneumothorax was once given and abandoned, as well as the one in which the lung has been gradually reexpanding owing to an obliterative pleuritis, in spite of continued pneumothorax treatments. If careful roentgen study is not made as the treatments are continued, the latter eventuality may develop with the physician unaware of its occurrence. In these cases, in which as a rule no free space can be found, many punctures are made and often, as well, hazardous attempts at introduction of air in the absence of satis-

7 Riviere, Clive. *The Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis*. New York: Oxford University Press, 1927, chapter 18.

8 Schlaepfer, Karl. *Surg. Gynec. & Obst.* 37: 510 (Oct.) 1923.

9 Wever, E. quoted by Lillingston, C. *Tubercle* 4: 193 (Feb.) 1923.

factory readings. By far the most frequent occurrence is at the induction of the pneumothorax, and especially the third or fourth attempt when there is no established air space.

Before we pass on to a more detailed description of the syndrome it is desirable to mention the other causes of this type of air embolism. Chest injury is one of the less common causes. Cases of air embolism have resulted from pleural lavage in empyema. Schlapfer<sup>10</sup> studied cases of general reaction following pleural lavage, changing chest drainage tubes and the like and came to the conclusion that most of them were true cases of cerebral and peripheral embolism, finding such pathognomonic signs as blindness, hemiplegia and marbling of the skin. Brandes<sup>11</sup> encountered a fatal reaction while injecting bismuth paste into an empyema cavity to outline it. At the autopsy the patient was found to have bismuth in the cerebral vessels, and an open vessel was discovered in the chest cavity. One type of air embolism due to air in the peripheral arteries, not usually considered as air embolism, is caisson disease. In this condition the air is liberated from solution in the blood by a decrease in compressed air pressure. The symptoms are due in 90 per cent of the cases to peripheral air embolism affecting the muscles, in about 10 per cent cerebrospinal involvement is shown by vertigo, paralysis and death. However as already stated, the majority of cases of air embolism are associated with pneumothorax therapy.

Practically always on introduction of the needle the readings are found to be unsatisfactory, resulting in either no fluctuations or those characteristic of intrapulmonary pressures ( $-2$ ,  $+2$ , perhaps going to  $-4$  with deep inspiration or to  $+4$  with cough). Occasionally, however, satisfactory readings of not very great negativity may be obtained, as  $-4$ ,  $-2$ , becoming even more negative with forced inspiration. In the last type of case, when symptoms of embolism follow the injection of even a small amount of air, the possibility of the negativity being due to an intravascular location of the needle tip must be considered, although the probability is greater that the needle, originally intrapleural, is dislodged by a respiratory movement. The symptoms of embolism may manifest themselves before any air is introduced (on which occasions it comes from an alveolus or the pleura) or after a variable amount has been allowed to run in—anywhere from 10 to 500 cc. Similarly, they may appear when the needle is in place, immediately on its withdrawal or after several minutes.

As a warning sign the patient may cough up a small amount of blood, or blood may well up through the needle or may be found on the tip of a stylet introduced to find the cause for the absence of proper fluctuations. The initial symptoms vary from slight to severe. Often the patient will first complain of local pain, of severe coughing or of feeling "queer." The first sign may be pallor or dizziness, followed by coma and sudden death, a neurologic lesion or mental confusion. Objectively the first sign is often pallor, commonly followed by intense cyanosis. Bradycardia, loss of consciousness, convulsive twitching, cardiac irregularities, apnea or respiratory difficulty, urinary and fecal incontinence and vomiting may occur in the severe cases. Focal neurologic signs may appear at once or not until the elapsing of a variable number of minutes. Any part of the brain may be involved, the commonest of the

easily recognized syndromes is hemiplegia. It is claimed that when the patient lies on the right side the left common carotid will be involved most frequently, and vice versa because of the tendency of the air to float uppermost on the blood stream, but this is not borne out by the statistics. Undoubtedly many other areas of focal embolism occur, but, because of the transient nature, the difficulty of diagnosis and the direction of all efforts toward the desperately ill patient, these are usually overlooked. Arcs of skin blanching and marbling as evidences of air embolism are mentioned. In the *Lancet*<sup>12</sup> is reported one case in which two clearly demarcated areas of skin blanching appeared on the left arm evidences of obstruction to two branches of the left brachial artery. The relationship of coronary air embolism to the clinical features and to sudden death is questionable. In animals it has been shown<sup>13</sup> that injections of intracoronary air are capable of causing death. Air in the retinal arteries has been described<sup>14</sup> as visualized with the ophthalmoscope and may be the explanation for the presence of blindness as one of the symptoms of cerebral air embolism. Since time cannot usually be spared to examine the eye grounds in these cases because of the urgency of the general condition the detailed description of the changes is taken from Wever's<sup>9</sup> work on monkeys. When only from 1 to 2 cc of air was injected into the carotid, the retina presented first bubbles and then columns of air in the arteries. These could be seen to lengthen and thin out into silvery streaks as the smaller usually invisible arterioles became distended with air. The veins were then seen to be distended, but no air could be seen, the last mentioned was thought to be due to the presence of many microscopic bubbles that had passed through the capillaries. In some cases temporary mental changes—confusion, emotional disturbances and the like—may be the focal signs. In such instances the symptoms must be very carefully evaluated, to rule out the more common "nervous" manifestations that may follow any more or less painful procedure. The further course of the condition varies with the individual case. In some the condition clears very quickly, while in others recovery may take a period of time varying from hours to many days. Occasionally a permanent defect may result.

**Prognosis**—Air embolism is fatal in percentage varying from 15 to 50. Five of Reyer and Kohl's<sup>14</sup> ten patients died (50 per cent), only two of our nine patients died (22 per cent). On the other hand, the prognosis of the patient who survives the first ten or fifteen minutes after the accident is good, and after one hour has elapsed the danger is very slight, even in the face of persistent coma or paralysis. The prognosis of recovery of the focal neurologic lesions is also good.

**Pathology**—Some cases have come to autopsy without any definite changes, the air escaping, or perhaps being divided up in the capillaries and arterioles. Other cases show air in the cerebral vessels. In this connection it is well to mention Riviere's<sup>15</sup> warning that air may normally be present in the pial veins. Some pathologists advocate doing the head under water, better to detect the presence of air. The skull should be opened with the greatest of care. Bishop's<sup>16</sup> case,

12 Walker V B *Lancet* 1 636 (March 25) 1933

13 Ruskstein George *Experimental Air Embolism of the Coronary Arteries* J A M A 86 26 (Jan 3) 1931

14 Reyer G W, and Kohl H W *Air Embolism Complicating Thoracic Surgery*, J A M A 87 1626 (Nov 13) 1926

15 Riviere *The Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis* p 213

16 Bishop H A *Annu Rev Tuberc* 10: 591 (Jan) 1925

10 Schlapfer, Karl *Bull Johns Hopkins Hosp* 33: 321 (Sept) 1922

11 Quoted by Schlapfer<sup>10</sup>

showed air in all the vessels of the right side of the brain. Saugman<sup>11</sup> also reports such cases. The pathologist must be careful not to mistake air introduced by decomposition, or from without, for air embolism.

**Therapy**—This feature is logically divided into two parts, prophylaxis and actual therapy. Of these, the former is of much more importance. The following are some of the many suggestions made by various operators.

Air should not be given unless the fluctuations are those of intrapleural pressures, use of a blunt needle, on the initial treatment especially, to lessen the chance of pulmonary or vascular puncture, use of very fine needles with short bevels to lessen the trauma, use of wide-bore needles to make the chance of entering a vessel slighter, use of air under negative pressure to lessen the chance of forcing it into a vessel, use of a very short and thin manometer tubing to lessen the chance of air being sucked out of this tube into a blood vessel, use of a manometer with a tambour instead of a water manometer to lessen the chance of suction of air from the manometer tube, use of specially constructed syringes, use of oxygen or carbon dioxide instead of air, especially for the initial treatment, prevention of coughing and deep breathing during the initial treatment, keeping the patient's head below the rest of the body during the initial treatment, keeping the patient on the table for from ten to fifteen minutes after a treatment, and especially when it is felt that the lung has been punctured, or blood has been seen on the needle or stylet.

The latter two provisions are suggested by Reyer and Kohl, because many patients develop symptoms only when the head is raised as the patient starts to get off the table. This was also found true in dogs<sup>10</sup> which developed cerebral embolism only when the head was elevated. Clinically, however, cases have occurred with great frequency with the needle yet in the chest and the head lower than the chest. J. B. Murphy<sup>11</sup> suggested cutting down on the pleura in every case to prevent the development of air embolism. It is difficult to analyze and evaluate most of these devices, as each has some theoretical or actual reason. Most important of the precautions to be followed are as follows: (a) Unless on fluoroscopy or recent roentgenogram the lung is seen to be well away from the chest wall, no air should be given until free characteristic intrapleural oscillations can be secured. (b) The greatest of care must be used on the initial treatment, as well as in those patients in whom difficulty has been experienced. A blunt needle is desirable. The readings should be taken every 5 to 10 cc for the first 50 cc at least to preclude the possibility of the needle tip originally intrapleural having penetrated the lung. The needle, when once in the pleural space, should be held firmly to prevent its dislodgment. The slightest untoward movement or sign on the part of the patient should result in the withdrawal of the needle. If a free space is not found at once the operator should be especially on guard for the development of air embolism. Epinephrine should be near at hand. The first treatments should be given, or at least supervised, by one who has a great deal of experience with artificial pneumothorax therapy.

Therapy after cerebral embolism has occurred is symptomatic and may vary from simple reassurance to epinephrine (intravenously or intracardiac if necessary), caffeine, artificial respiration and the like depending on the manifestations in the individual

case. If there are no other contraindications, artificial pneumothorax may later again be resorted to.

**Diagnosis and Differential Diagnosis**—To the physician who is familiar with the syndrome, the sudden appearance of symptoms during or immediately after a treatment will present little or no diagnostic difficulty. Air embolism bears no resemblance to tuberculous meningitis or tuberculoma. The only question of differentiation arises in the consideration of such functional disturbances as fainting or hysteria, and in the consideration of pleural shock. We might also mention in passing the possibility of the concomitant occurrence of a cerebral vascular accident simulating air embolism, also, when diagnostic or therapeutic pneumothorax is performed for such pulmonary diseases as abscess, bronchiectasis or tumor, a cerebral embolus (not air embolus) might result.

The question of pleural shock deserves separate consideration. Pleural shock (pleural reflex, pleural eclampsia, pleural epilepsy) is a syndrome caused by irritation or puncture of the pleura and is characterized by the appearance of a group of symptoms not unlike those of air embolism. It occurs almost only when the pleura is healthy or only slightly diseased. Forlanini<sup>11</sup> believed that all severe reactions were pleural shock, not air embolism. Many cases of so-called pleural shock are vague and ill defined and are much more accurately interpreted as fainting spells, as the effect of extreme nervousness as an excessive reaction to pain, and in cases in which there appear focal neurologic signs, as air embolism. Wever<sup>9</sup> showed that small amounts of air injected into the carotids of dogs produced the symptoms of "pleural shock," while larger doses produced true air embolism. We have already seen the mechanism whereby air embolism may occur without the injection of air, and it has been demonstrated<sup>11</sup> that cerebral embolus may complicate pleural lavage. There are, however, apparently authenticated cases of pleural shock in which the syndrome was repeated on each successive puncture of the pleura.<sup>7</sup> This would certainly seem extremely improbable if air embolism were the cause. Symptoms may appear while the pleura is being punctured or while the needle is being withdrawn. The attacks, if recurrent, often tend to become worse with each successive puncture. Any case presenting focal neurologic signs or evidence of embolism elsewhere (air in the retinal vessels or focal blanching of the skin) is certainly air embolism. Similarly, if the phenomenon occurs immediately on the injection of air, or when the needle is stationary, or when the pleura is known to be badly diseased and thickened, or when evidence of vascular puncture is secured by immediate hemoptysis, or when blood is welling up through the needle or is found on the end of the needle or stylet, air embolism is far more probable. In some cases the differentiation is impossible. The indicated therapy is the same in the two cases. If pleural shock is definitely diagnosed and recurs even once, such a patient should not receive further attempts at pneumothorax.

#### SUMMARY

Air embolism is a definite, diagnosable, clinical entity. It is logically divided into two groups, one in which air enters one of the peripheral veins and the other in which air enters the pulmonary circuit. In the first group symptoms arise from the presence of air in the right side of the heart and in the second from the presence of air in the cerebral vessels.

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INFECTION OF THE URINARY  
TRACT IN DIABETESTHOMAS P. SHARKEY, MD  
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The inherent susceptibility of the diabetic patient to infection is not only manifested by the frequency with which skin infections are found but further exemplified in the high incidence and serious character of infection of the urinary tract. Almost one in every five diabetic patients coming to autopsy at the New England Deaconess Hospital since 1919 has shown some infectious process in the urinary tract. In 196, purulent infection of the urinary tract was present in thirty-five, or 18 per cent. All other types of nephritis and specific infections have been excluded. This high incidence is not confined to autopsy material, for such infections are frequently found in ward patients.

The tables show the distribution of infection of the urinary tract in the thirty-five patients who came to postmortem examination. In this series there were twenty females and fifteen males. The proportion of females to males in the entire 196 cases is approximately the same, and the proportionate incidence of urinary tract infection is about equal for the two sexes.

The average age at death was 58.3 years. The youngest patient was a youth aged 19, admitted to the hospital in acidosis with right paranephric abscess, which ruptured through the diaphragm into the right thoracic cavity. The oldest patient was a woman, aged 77, admitted with occlusion of the femoral artery and left pyelitis. While some of the most extensive infections occurred in younger individuals, the incidence of infections of the urinary tract was greatest in persons past middle life.

The average duration of diabetes for the entire group was 9.7 years, owing to the inclusion of several cases of extremely long duration. The striking feature was the presence of severe kidney or bladder infection in cases with a relatively short duration of diabetes, seventeen of the thirty-five patients had diabetes for less than five years, and ten had diabetes less than three years. The increased susceptibility to infection in the diabetic patient must originate soon after the onset of the disease, as is demonstrated not only in this group but also in those patients in whom the onset of diabetes is soon followed by skin infections.

Infection of the urinary tract in the autopsy series fell into three main etiologic groups: (1) hematogenous, (2) ascending and (3) unknown.

Group 1 provided by far the largest number of patients, including twenty-six cases, or an incidence of 74 per cent of the thirty-five cases. This is undoubtedly accounted for in part by the presence of severe infections with virulent organisms, especially staphylococci and streptococci. It seems apparent that an analysis of ward patients would reveal a higher incidence of ascending urinary infections with *Bacillus coli*.

A wide variety of associated infections is seen in table 1, in which the term "skin infection" is used to include furuncles, carbuncles, subcutaneous abscesses and infections associated with peripheral gangrene.

Eighteen of the cases fall into this class (3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 16, 18, 19, 21, 22, 24, 21b and 25). Staphylococci and streptococci were the most frequent bacterial species found in the skin infections, the former predominating. In this group hematogenous dissemination of bacteria to the kidneys was the usual mechanism of infection. Staphylococci were demonstrated in the blood in ten cases before death (3, 4, 5, 8, 13, 16, 21, 19, 22 and 9). Streptococci were demonstrated in the blood in one case before death (6), and pathologic changes consistent with streptococcal septicemia were found in another (25). Death was ascribed to sepsis in two other cases in this group, and, although laboratory confirmation was lacking, bacteremia was probably present (cases 11 and 16).

Other infections in group 1 include appendical abscess, two cases (1 and 14), primary pneumonia, two cases (2 and 23), bronchiectatic abscesses, one case (12), prostatic abscess, one case (15), otitis media, one case (17), and periurethral abscess, one case (20). In this group of cases streptococci were demonstrated in the blood in one case (23) and staphylococci in one case (15). Postmortem evidence of septicemia was observed in one case (14). Ten of the twenty cases with renal infection showed gross renal abscesses, an incidence consistent with the nature of the invading organisms.

Five cases of cystitis without renal infection occurred in this group, four of which were associated with chronic infections elsewhere (16, 17, 18 and 25) and one with a subacute process (1). No obstructive or static cause for the cystitis was demonstrated at autopsy. One patient died from metastatic abscesses from a gangrenous leg, another from toxemia secondary to a gangrenous leg, another from septicemia secondary to a gangrenous leg, another from pneumococcal meningitis and another from generalized peritonitis. Several of the latter cases might have been included in the "unknown etiologic group," but they were included in group 1 since peripheral infection was definitely present and evidence of toxemia or septicemia existed in the majority.

Ascending urinary tract infection was not commonly observed in the autopsies, as is seen in table 2. The majority at autopsy showed no obstructive lesion in the urinary tract. In three cases the obstruction was due to calculi, in one to urethral stricture and in one to prostatic hypertrophy. Two of the patients with calculi had typical ureteral colic and one passed "gravel." Only one case in the entire series showed urinary tract infection secondary to prostatic enlargement. Considering the fact that the average age at death for the males in the autopsy series was over 60 years, this seems unusual. However, among hospitalized diabetic patients, infection of the urinary tract secondary to prostatic obstruction is relatively rare.

An analysis of ward patients reveals a higher incidence of *Bacillus coli* infection, following obstructive lesions, catheterizations, and conditions producing stasis in the bladder, in the latter instance cystoceles in female patients constitute a not generally recognized reservoir of infection.

In three cases of pyelitis without pathologic evidence of parenchymal renal infiltration, cystitis was absent in two (6 and 11). All these cases were associated with infection elsewhere in the body, one with gangrene of the lower extremity, one with bronchiectatic abscesses, and one with a carbuncle, the last patient died of

staphylococcic septicemia. Hematogenous implantation of bacteria was the most likely source for the renal infection.

Group 3 constitutes the most baffling one in the series in that no known etiologic factor could be demonstrated at autopsy. This group makes up a considerable portion of hospitalized cases and gives the clinician and urologist no end of concern in that there is no surety in the frequently mild and usually symptomless cases that invasion and destruction of the renal parenchyma is not taking place.

Five such cases are represented in table 3 (31, 32, 33, 34 and 35). In four of these cases renal infection was the immediate cause of death (31, 33, 34 and 35) and possibly in the other case provided an indirect cause of death. Two of these cases showed evidence of septicemia at autopsy secondary to the renal infection (34 and 35). No symptoms pointing to renal infection were present in any of these cases except one in which pain in the side was noted two weeks before hospital admission. Two of these cases were admitted to the hospital with unexplained fever and each subsequently showed local kidney tenderness to bimanual palpation.

A small but interesting group of patients constitute a clinical entity not yet confirmed by pathologic study.

TABLE 1—Hematogenous Infection of the Urinary Tract

Case	Sex	Age	Duration of Diabetes, Years	Peripheral Infection	Pathologic Lesions
1	♀	53	14.6	Appendical abscess peritonitis	Fibrinous cystitis
2	♀	50	4.0	Bronchopneumonia	Pyelonephritis perinephritic abscess
3	♂	48	3.3	Furuncle of shoulder	Pyelonephritis renal abscesses
4	♀	58	4.2	Infected gangrenous toe	Acute cystitis
5	♀	53	2.1	Labial abscess	Pyelonephritis renal abscesses
6	♂	57	3.0	Carbuncle of neck	Left pyelitis
7	♀	77	13.2	Bronchopneumonia, femoral occlusion gangrene	Pyelonephritis renal abscesses
8	♂	56	23.2	Carbuncle of neck	Pyelitis cystitis
9	♀	63	0.7	Carbuncle	Pyelonephritis acute cystitis
10	♂	54	1.1	Gas bacillus gangrene	Pyelonephritis renal abscesses cystitis
11	♂	70	15.5	Infection of finger	Bilateral pyelitis
12	♀	43	1.3	Bronchiectatic abscess	Pyelonephritis renal abscesses
13	♀	55	3.3	Infection of hand	Pyelonephritis renal abscesses cystitis
14	♀	67	10.4	Appendical abscess	Pyelonephritis renal abscesses cystitis
15	♂	61	2.1	Prostatic abscess	Pyelonephritis renal abscesses
16	♀	52	5.9	Gangrene of foot	Chronic cystitis
17	♀	69	1.5	Otitis media meningitis	Cystitis
18	♂	73	10.9	Gangrene of leg	Cystitis
19	♂	68	25.4	Gangrene of leg	Pyelonephritis
20	♂	75	0.4	Periurethral abscess	Pyelonephritis cystitis
21	♀	76	19.7	Cellulitis of scalp	Pyelonephritis renal abscesses cystitis
22	♂	72	18.9	Carbuncle of back	Pyelonephritis renal abscesses
23	♀	68	0.1	Pneumonia empyema	Right pyonephrosis pyo-ureter cystitis
24	♀	24	11.3	Subcutaneous abscesses	Pyelonephritis amyloidosis cystitis
25	♂	72	31.2	Gangrene of foot	Hemorrhagic cystitis

These patients have unexplained paralysis of the bladder usually associated with absence or diminution of patellar and achilles tendon reflexes, disturbances in peripheral sensation and sometimes peripheral polyneuritis. Motor weakness and trophic lesions are uncommon. Those cases associated with motor weakness have frequently been described as *tabes peripherica diabetica* and *pseudotabes diabetica*. The coexistence of arteriosclerosis in such cases is common. Degenera-

tive changes, probably on an arteriosclerotic basis, have been found by Warren in the spinal cords of some diabetic patients. One such case with unexplained bladder paralysis and urinary tract infection came to autopsy but the spinal cord showed no degenerative changes, however, extreme generalized arteriosclerosis was found.

Woltman and Wilder<sup>1</sup> reviewed forty-two cases in which neuropathologic changes were described in diabetic patients, in twenty-eight of which the spinal

TABLE 2—Ascending Infections with Obstruction

Case	Sex	Age	Duration of Diabetes, Years	Obstructive Lesion	Pathologic Lesions
26	♀	63	28.1	Left renal calculus	Left hydronephrosis, pyelonephritis
27	♂	63	3.3	Left ureteral calculus	Left pyonephrosis pyo-ureter prostaticitis
28	♂	69	8.0	Prostatic hypertrophy	Cystitis
29	♂	46	9.5	Urethral stricture	Pyelonephritis cystitis
30	♀	40	0.1	Left renal calculi	Left pyonephrosis and pyo-ureter

cord was examined. They do not believe that the degenerative cord changes were of the type found in pernicious anemia as described by Sandmeyer,<sup>2</sup> Leyden and Goldscheider<sup>3</sup> and Naunyn.<sup>4</sup> The same authors presented ten cases of diabetic neuritis, with post-mortem neuropathologic studies in three cases. The degenerative changes noted in the three spinal cords were slight, and most of it could be explained on a basis of senility and arteriosclerosis. They believe that the lateral columns are seldom, if ever involved in diabetes and that the mechanism of the production of the lesions reported as occurring in the posterior columns must be different from those which occur in pernicious anemia. The recent literature on neuropathologic changes observed in diabetes is scant, especially as regards degenerative cord changes. Until more of these cases have been studied at autopsy, the etiology of this type of bladder paralysis will remain obscure.

In table 4 are listed three patients admitted in diabetic coma and four in acidosis. In three of these cases urinary tract infection was of a relatively acute type (2, 5 and 32). On the first admission of case 35, in acidosis, white blood cells appeared in the urine, and in two months death had occurred from septicemia secondary to multiple renal abscesses. Septicemia occurred in two other cases (5 and 21) and active urinary tract infection was present in all of these coma cases.

## COMMENT

The frequency of urinary tract infection in diabetes not only is demonstrated in an analysis of 196 autopsies on diabetic patients since 1919 but is found to be of common occurrence in hospitalized patients. The nature of the disease and the inherent susceptibility of the tissues to infection in the diabetic patient make him an easy prey to urinary tract infection.

Infection of the urinary tract is most apt to occur in the uncontrolled or inadequately controlled case of diabetes. This is particularly true when the urinary tract infection was secondary to infection elsewhere in

1. Woltman H. W. and Wilder R. M. Diabetes Mellitus. Pathological Changes in the Spinal Cord and Peripheral Nerves. Arch. Int. Med. 44: 576-603 (Oct. 1929).

2. Sandmeyer Wilhelm. Beiträge zur pathologischen Anatomie des Diabetes Mellitus. Deutsches Arch. f. klin. Med. 50: 381-1892.

3. Leyden and Goldscheider. Die Erkrankungen des Rückenmarks und der Medulla oblongata. In Nothnagel Herman. Spezielle Pathologie und Therapie. Vienna. Holder Pichler Tempisky A.-G. 10: 500-1900.

4. Naunyn Bernard. Der Diabetes mellitus. In Nothnagel Herman. Spezielle Pathologie und Therapie. Vienna. Holder Pichler Tempisky A.-G. 7: 251-1900.



the body, especially in cases of skin infection in the uncontrolled case of diabetes with subsequent development of bacteremia. As an example, case 24 might be cited, a woman aged 24, with uncontrolled diabetes of ten years' duration developed skin and subcutaneous abscesses, which led to severe bilateral pyelonephritis and terminal meningitis. That this is not an infallible rule, however, is seen in hospital patients who developed ascending urinary tract infections in the presence of urinary stasis even when the diabetes has been under fairly good control.

The paucity of symptoms in these autopsies and in those admitted to the hospital wards, even with severe and extensive urinary tract infection, is striking. Some of our most severe cases have presented a noticeable absence of symptoms referable to the urinary tract. Patient 35 was admitted recently to the hospital with the symptoms and signs of encephalitis. No symptoms were present that suggested urinary tract infection, and the presence of a few leukocytes in the uncatheterized urine was regarded as of no significance. On readmission two months later the left kidney was enlarged and tender, and marked pyuria was found. Septicopyemia developed and the patient died. Autopsy revealed severe bilateral pyelonephritis with multiple renal abscesses and marked purulent cystitis.

Ketonuria has been shown by Rector and Wheeler<sup>5</sup> to have a most striking sedative action on the bladder mucosa, despite the fact that the urine shows as many bacteria and pus cells as before ketosis developed. The relative absence of symptoms in our diabetic patients with urinary tract infection and acidosis may possibly be explained on this basis, since many of our patients are admitted to the hospital with both conditions. However, the absence of symptoms is not thus explained in the group without acidosis. Here the diabetes itself may be the primary factor, especially since it is known that sensory disturbance, even anesthesia, is not uncommon in every case at least once a week. Repeated microscopic examinations of the urine of patients with unexplained fever has frequently led to an early diagnosis of urinary tract infections.

marked and the presence in the urine of a large quantity of sugar is accepted as the cause for the frequency of urination, dysuria, nocturia and local irritation. It is important to emphasize that the analysis of the diabetic urine is not complete without microscopic examination of the sediment.

It is the practice in the New England Deaconess Hospital to have a complete examination of the urine

TABLE 4—Cases of Diabetic Coma and Renal Infection and of Acidosis Without Actual Coma

Case	Sex	Age	Duration of Diabetes	Clinical		Autopsy
			Years			
				Diabetic Coma and Renal Infection		
2	♀	56	40	Cold	bronchopneu- monia	Pyelonephritis acute cystitis
6	♀	33	21	Peripheral	abscesses	Acute focal nephritis cystitis
32	♀	47	3.0			Pyelonephritis
				Acidosis Without Actual Coma		
17	♀	60				Cystitis
21	♀	76				Pyelonephritis
35	♀	65				Pyelonephritis renal abscesses cystitis
31	♂	19				Paranephritic abscess

made in every case at least once a week. Repeated microscopic examinations of the urine of patients with unexplained fever has frequently led to an early diagnosis of urinary tract infections.

Physical examination is commonly negative in these cases, but, when renal infection has occurred, kidney enlargement may sometimes be discovered. Local tenderness over the renal areas is often present on bimanual examination. Fever with or without kidney enlargement, but accompanied by local kidney tenderness on bimanual examination even in the absence of symptoms, should direct attention to the urinary tract. The chronicity of urinary tract infection with the tendency to acute exacerbations is an unfortunate feature of the disease in some cases of diabetes. In the autopsy series, pus was known to be continuously present in the urine in one case during a period of eighteen years. This is likewise seen in the clinical cases when the patient survived sepsis secondary to infection elsewhere in the body, only to be left with chronic debilitating renal infection (two cases) which, if it does not eventually directly lead to death, indirectly predisposes the patient to death by increasing his susceptibility to other types of infection.

With the increased susceptibility of the diabetic patient to infection, one is constantly in a quandary as to whether one should catheterize the patient and if so, when. In cases of an emergency nature, such as acute retention, there may be no alternative. When possible, we have refrained from catheterizing our patients for fear of urinary tract infection. Following operations or conditions associated with inability of the patient to void, we have endeavored whenever possible to control the insulin dosage by frequent micro blood sugar determinations until the patient is able to void voluntarily. When catheterization is not of an emergency nature and is done solely for diagnostic purposes, it has been our practice to administer sodium acid phosphate and methenamine for forty-eight hours before and at least forty-eight hours after catheterization. In the treatment of diabetic coma, catheterization is avoided if possible. Sometimes it is necessary and in those cases a retention catheter is preferred to frequent catheterizations.

TABLE 3—Infections of the Urinary Tract with Unknown Etiology

Case	Sex	Age	Duration of Diabetes Years	Pathologic Lesions	
				Pathologic Lesions	
31	♂	19	0.9	Right paranephritic abscess	rupture into thoracic cavity
22	♀	47	3.0	Bilateral pyelonephritis	
33	♀	31	7.6	Pyelonephritis renal abscesses	cystitis
34	♀	12	12.5	Pyelonephritis, renal abscesses	cystitis
35	♀	65	18.1	Pyelonephritis renal abscesses	cystitis

mon in the patient with diabetes. This is particularly realized when one sees minor surgery being done without anesthesia on the feet of some diabetic patients. First and second degree burns of the skin from local application of excessive heat, and gangrene, occurring from baking the feet in an oven at a sufficient temperature to produce destruction of the skin, are not infrequently observed. Unexplained fever in our diabetic patients has led to the discovery of "silent urinary tract infections" by repeated microscopic examinations of the urine.

When mild symptoms referable to the urinary tract are present in the diabetic patient they may frequently be mistaken for those of diabetes per se by the patient and the physician. Not uncommonly, during periods of urinary tract infection, hyperglycemia becomes more

<sup>5</sup> Rector J. M. and Wheeler, W. E. The Use of the Ketogenic Diet in Chronic Pyuria. New England J. Med. 211:143-147 (July 26) 1934



The management of urinary tract infection in the diabetic patient should be directed toward general and local treatment. The most important factor under general treatment is the control of the diabetes. The influence of uncontrolled diabetes on infection and of infection on diabetes is too well known to merit further discussion. The source of infection should be eliminated if possible. Incision and adequate drainage of furuncles, abscesses and carbuncles at the optimal time is of the greatest possible importance. Proper surgical care of the septic foot is required. In spite of all precautions, invasion of the blood stream may occur and hematogenous dissemination to the kidneys may result. The not infrequent admission of emergency surgical cases of long duration, in which operation has not been done because of diabetes, is often inexcusable. The treatment of anemia or any other concomitant factor that tends to lower bodily resistance is likewise important.

Local treatment usually requires the cooperation of a skilled urologist. With the aid of Dr. Harvard Crabtree these patients are usually given a trial with sodium acid phosphate and methenamine and sometimes with phenylazo-2-6-diamino-pyridine monohydrochloride, fluids are forced and the patient is observed. In pyelitis and pyelonephritis, when improvement is not manifested in a few days drainage and irrigation is performed by retrograde catheterization. Catheterization is avoided whenever possible. Surgery for perirenal abscess when indicated, has been done. The tendency for abscess to occur in the kidneys of diabetic patients with staphylococci and streptococcal infections has been noted in the autopsy series. Only rarely however, is there an indication for surgery, since the lesions are usually bilateral. Bladder irrigations are performed in cases of protracted cystitis and in some cases of acute hemorrhagic cystitis. Response to treatment in the majority of these cases is slow. Frequent microscopic examination and culture of the urine are the best criteria to determine the extent of the infection and the adequacy and duration of treatment.

Since the recent discovery by Helmholtz<sup>6</sup> that ketonuria exerts a bacteriostatic or bactericidal effect on certain types of bacteria, especially *B. coli*, there has been an increasing number of cases reported of the treatment of urinary tract infection by ketonuria, especially in England and the United States. Fuller<sup>7</sup> attributes this bacteriostatic or bactericidal effect of ketonuric urine to the presence of beta-oxybutyric acid, which ordinarily constitutes from 70 to 75 per cent of the ketone bodies, he showed that this effect increased in proportion to the acidity of the urine. This form of treatment is particularly efficient in infections due to *B. coli*. Acidification of the urine to the same  $p_H$  values does not produce the same bactericidal effect. The average reaction of the urine of a patient on a mixed diet is between  $p_H$  6.0 and 7.0. According to Schohl and Janney,<sup>8</sup> optimal growth of *B. coli* occurs at these values, but they are inhibited from growing in the urine at a  $p_H$  of from 4.6 to 5.0 on the acid side and from 9.2 to 9.6 on the alkaline side. According to Band and his associates,<sup>9</sup> a  $p_H$  of 4.8 can sometimes be reached

in the urine in a ketogenic diet, at which point the growth of *B. coli* is stopped. Rector and Wheeler<sup>5</sup> advocate the restriction of the fluid intake in the patient on this regimen.

The production of ketosis in the treatment of urinary tract infection is a distinct advancement in the therapy of this condition. We have not found in the literature reports of any diabetic cases in which this treatment was undertaken. The inadequacy of present-day therapy in this type of infection might justify its use in selected cases. The concurrence of urinary tract infection with acidosis and coma in some of our cases may be due to the nature of the invading organism and to increased tissue susceptibility to infection in the diabetic patient. How much ketosis would offset the latter factor could be determined only by actual trial. We have not seen many reports on the carbon dioxide combining power of the blood in these cases, but it would be advisable to follow this closely in the diabetic case. Strict hospital observation would be required in this form of therapy for diabetes. In diabetic patients the presence of infection and restriction of fluid intake may act unfavorably on the major disease.

The clinical and autopsy data of two illustrative cases are cited.

CASE 35—A woman, aged 65, who had had diabetes for 18½ years, was admitted to the hospital early in February 1934, after neglected treatment for ten years, with low-grade fever, acidosis and symptoms suggestive of encephalitis. On admission the blood sugar was 0.46 per cent, plasma carbon dioxide combining power, 36 volumes per cent, and nonprotein nitrogen 45 mg, only a few white cells were found in the urine. The spinal fluid Wassermann and colloidal gold reactions were negative. In the middle of February the urine showed a considerable number of white cells, but this was not considered to be a cause of her symptoms. During this time no symptoms referable to the urinary tract were present. The average diet was carbohydrate 100 Gm, protein, 30 Gm. and fat, 50 Gm. relatively low figures because of the condition of the patient. The insulin dosage varied from 30 to 50 units daily. She was dismissed from the hospital the latter part of February, presumably improved.

She was readmitted in April with an abscess of the left thigh, which was incised and drained. The urine contained large numbers of white blood cells, and the left kidney was large and tender on palpation. The nonprotein nitrogen had risen to 99 mg per hundred cubic centimeters. Retrograde catheterization revealed pus in both kidneys more marked in the left. She continued to pursue a downhill course despite all treatment and a metastatic infection of the left eye developed. Clinical and laboratory examinations suggested a large abscess of the left kidney and she was operated on in May. Death occurred within twenty-four hours following the operation. The nonprotein nitrogen at the time of death was 57 mg per hundred cubic centimeters.

Autopsy revealed evidence of septicemia with extensive purulent bilateral pyelonephritis with multiple renal abscesses and purulent cystitis. The abscess in the left kidney, drained at the time of operation measured 3 cm in diameter.

CASE 24—A white woman, aged 25, with a duration of diabetes of 11½ years, had been in diabetic coma twice and acidosis eight times owing to neglect on her part. She had been admitted to the hospital five times for incision and drainage of abscesses. Many white blood cells were seen in the urine in April and May 1929, but no symptoms were present referable to the urinary tract. She was readmitted in June 1933, with a perirenal abscess. Physical examination revealed tenderness over both kidneys. The urine showed many white blood cells. She had repeated chills and high fever.

Retrograde catheterization was done which revealed bilateral pyelonephritis. The patient was in the hospital from June to December 1933 during which time she was treated for the urinary tract infection. Repeated blood transfusions were

6 Helmholtz, H. F. The Ketogenic Diet in the Treatment of Pyuria of Children with Anomalies of the Urinary Tract. *Proc. Staff Meet., Mayo Clin.* 6: 609 (Oct. 14) 1931. Experimental Studies in Urinary Infections of the Bacillary Type. *J. Urol.* 31: 173 (Feb.) 1934.

7 Fuller, A. T. The Ketogenic Diet—The Nature of the Bactericidal Agent. *Lancet* 1: 855 (April 22) 1933.

8 Schohl and Janney, quoted by Clark, A. L. Escherichia Coli Bacilluria Under Ketogenic Treatment. *Proc. Staff Meet., Mayo Clin.* 6: 605 (Oct. 14) 1931.

9 Band, B., Dunlop, D. M., and Dick, I. L. Chronic Pyelocystitis with Particular Reference to the Ketogenic Diet Treatment. *Proc. Roy. Soc. Med.* 26: 217 (Jan.) 1933.

necessary in an effort to combat constant severe secondary anemia. The patient was expected to die of septicemia during this course in the hospital. In December 1933 she was improved and was dismissed from the hospital.

She was readmitted to the hospital in January 1934 with bilateral otitis media which seemed to respond well to paracentesis. In February a perianal abscess developed which required incision and drainage. She was dismissed from the hospital in February and returned again in March with mastoiditis. Meningitis developed and she died.

Autopsy revealed that the immediate cause of death was pneumococcal meningitis. The kidneys showed bilateral pyelonephritis with evidence of extensive repair and diffuse renal amyloidosis. Purulent exudate was also present. The prolonged renal infection was undoubtedly the indirect cause of death leading to lowered resistance and increased susceptibility to infection.

These two cases taught us a great deal. Both patients were women, at the opposite ends of life. Both had diabetes of long duration and each neglected her treatment for long periods. Neither was admitted for urinary tract infection and in the first case the diagnosis was missed on the initial admission. Symptoms that would attract attention to the urinary tract were absent in each. Etiologic factors in the first case were not known. In the second, renal infection very likely occurred secondary to multiple peripheral abscesses. The course of the disease in the first was rapid, in the latter case slow. An increased number of white cells in the urine having been noted four years prior to her admission in June 1933. Treatment consisted of forcing of fluid acidification of the urine, use of urinary antiseptics, retrograde catheterization with irrigations and frequent blood transfusions. In the first case treatment was of no avail. In the second, while extensive renal repair was seen at autopsy and constant treatment was carried out under hospital supervision for seven months, the patient succumbed to an intercurrent infection.

#### SUMMARY

In a clinical and pathologic study of the incidence of urinary tract infection in 196 diabetic cases, 18 per cent revealed at autopsy evidence of urinary tract infection, which could be divided into three main groups: hematogenous, ascending and unknown. Seventy per cent of the cases fell into the hematogenous group, in which infection of the urinary tract was secondary to infection elsewhere in the body. Ascending infection was secondary to obstructive lesions in the urinary tract. In a small group of patients in whom severe renal infection was present, it was impossible to ascertain the etiologic factors.

#### CONCLUSIONS

- 1 Urinary tract infection commonly occurs as a complication of diabetes. This is especially true in cases of uncontrolled or inadequately controlled diabetes.
- 2 Symptoms referable to the urinary tract are frequently absent in these cases.
- 3 Catheterization is sometimes responsible for the development of urinary tract infection.
- 4 The tendency of the urinary tract infections in diabetic patients to recurrence and chronicity is common.
- 5 The occurrence of unexplained fever in diabetic patients should prompt an investigation of the possibility of urinary tract infection.

81 Bay State Road

## ILEUS ASSOCIATED WITH TRANSIENT RENAL INSUFFICIENCY

### A TRUE ENTERORENAL SYNDROME

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We have observed a group of elderly patients who had signs and symptoms of obstruction of the colon, which were accompanied by an elevation of the blood urea and a decreased urinary output. The onset of the signs and symptoms of obstruction of the lower part of the intestine in these cases was sudden enough to make it urgent to decide whether or not surgical treatment should be advised. We are reporting the pertinent facts in the history, examination, laboratory data and progress in ten such cases, followed by a discussion of the data relating to diagnosis, etiology and treatment.

#### REPORT OF CASES

CASE 1—A man aged 54, was admitted directly to the hospital on account of abdominal distention, dyspnea and discomfort. Ten years prior to his admission to the hospital he had been operated on for disease of the gallbladder. Following the operation, a postoperative hernia had developed. However, since the operation on the gallbladder he had had attacks of abdominal distention and discomfort which would last for a few hours and would disappear after he had taken a cathartic and an enema. During the past three weeks these remedial measures had failed and the distention and abdominal discomfort had persisted.

On general examination he was found to be well developed and somewhat overweight. The temperature was 101 F. The skin and tongue were dry in appearance. The heart was enlarged and there was a regular rate and rhythm to the heart sounds. The lungs contained musical rales throughout. There was a moderate degree of arteriosclerosis. The abdomen was rather distended and tender. There were no palpable masses. The rectal examination did not reveal anything abnormal.

To avoid repetition, the blood pressures, blood chemistry and urinalysis of this case, as well as those which follow, are given in the accompanying table.

Hot stupes were applied to the abdomen, 3,000 cc or more of fluids was administered by mouth and, if necessary, these measures were supplemented by intravenous injections and warm rectal irrigations with physiologic solution of sodium chloride. During the first two days the urinary output was less than 500 cc daily. However at the end of five days the urinary output was within normal limits, the blood urea had dropped from 88 to 28 mg per hundred cubic centimeters of whole blood, and daily bowel movements had been established.

CASE 2—A man, aged 56, had generally been healthy except for an attack of abdominal pain and distention two years prior to his admission to the hospital. At the time of this attack the abdomen had been explored surgically and only "adhesions" had been found. The convalescence had been normal and he had had no further trouble until three days before his admission to the hospital after he registered at the clinic. Four days before his admission he had had stools that had been watery and explosive in character. The next day the abdomen had become distended and he had had colicky pains in the abdomen, which had become worse. Two days after onset of the present illness, enemas had failed to effect a bowel movement or the passage of flatus. However, just before his admission to the hospital he had passed a small amount of flatus.

Physical examination disclosed that the patient was well developed and well nourished. There was no fever. The abdomen was moderately distended and no masses could be

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palpated Rectal examination did not disclose anything unusual There was a moderate degree of arteriosclerosis

Hot abdominal stipes were applied continuously The fluid intake was kept at 3,000 cc or more, and a 10 per cent solution of dextrose in physiologic solution of sodium chloride was administered intravenously when necessary Warm rectal irrigations were given twice daily At the end of five days of such treatment, the blood urea had dropped from 52 to 36 mg per hundred cubic centimeters of whole blood Roentgenologic studies of the gastro intestinal tract did not disclose anything abnormal

CASE 3—A priest, aged 58, was admitted directly to the hospital He had had good health until two years before, when he had had an acute attack of appendicitis Appendectomy had been performed and he had made an uneventful recovery He had been well for ten months and then he had begun to have continuous pain in the upper part of the abdomen He was not certain but thought this abdominal pain had been made worse by exercise Occasionally he had had some nausea and vomiting These difficulties had cleared up so that during the six months prior to the present illness he had not had any discomfort One week before his admission to the hospital he had begun to have abdominal distention He had taken a mild purgative, which had been ineffective The following day he had taken an enema, which had returned clear After he had taken the enema, the abdomen had become more distended

best heard in the mitral area A moderate degree of arteriosclerosis was present The abdomen was greatly distended but there were no palpable masses An exploratory laparotomy was performed and no evidence of obstruction was found The lower part of the ileum and first part of the colon were dilated

CASE 5—A man, aged 65, had had good health until about a year before, when he had begun to have a "dragging" pain in the left lower quadrant of the abdomen and difficulty in obtaining a daily bowel movement It had been necessary to resort to purgatives, and continuously increasing dosage had been necessary to get results During the past eight weeks he had had intermittent attacks of abdominal distention and discomfort Each successive attack had become more severe until the distention and discomfort had been present constantly

Physical examination revealed that the patient was large and had a rounded, distended abdomen There was definite tenderness of the abdomen, but no masses were discovered The tongue was dry and coated and there was a foul odor to the breath Examination of the eyes revealed arcus senilis There was no fever There was a moderate degree of arteriosclerosis The heart and lungs were within normal limits The rectum contained hard, fecal material, which was broken up and removed digitally Roentgenologic studies of the gastro intestinal tract did not disclose anything abnormal

Hot abdominal stipes were applied, warm rectal irrigations were given and the fluid intake was maintained at 3,000 or

#### Laboratory Data in Cases of Ileus Associated with Transient Renal Insufficiency

Case	Age	Sex	Blood Pressure mm of Mercury		Arterio- sclerosis	Blood				Urine		
			Sys- tolic	Diastolic		Urea Mg per 100 Cc of Whole Blood	Chlorides Mg per 100 Cc of Plasma	Carbon Dioxide Combining Power Cc per 100 Cc of Plasma	Hemo- globin	Albu- min	Pus	Erythro- cytes
1	54	♂	160	110	Moderate	88	609	62.0	90	1	0	0
2	56	♂	115	80	Moderate	62	691	59.8	84	1	2	0
3	58	♂	110	80	Moderate	64	610	59.1	78	1	1	0
4	61	♂	125	90	Moderate	84	684	47.5	96	2	1	0
5	65	♂	175	120	Moderate	71	615	50.1	78	1	1	1
6	73	♂	105	80	Moderate	108	614	56.0	84	2	2	0
7	66	♂	140	90	Moderate	60	620	50.1	66	1	1	0
8	72	♂	145	65	Moderate	126	620	50.2	66	5	3	1
9	82	♂	225	130	Advanced	62	610	62.0	72	2	3	1
10	84	♂	160	100	Advanced	54	530	50.4	73	2	2	0

On general examination the patient was found to be well developed and healthy appearing The pupils reacted to light and in accommodation The tongue was dry and the thyroid gland was not enlarged He did not have any fever The heart and lungs were normal The abdomen was moderately distended but there were no palpable masses Rectal examination revealed nothing unusual There was a moderate degree of arteriosclerosis

Exploratory laparotomy was performed immediately but no obstruction was found There was considerable dilatation of the ascending and transverse colon. The gallbladder was filled with stones and was removed

The patient was seen six years later and had been well until recently, when a frank renal insufficiency had developed

CASE 4—A man, aged 61, had had good health until two weeks before the onset of the present illness, when he had had a mild attack of abdominal distention, which had lasted only an hour or two and which had not been followed by any apparent sequelae On the day before his admission to the hospital he had eaten a light breakfast and had had a normal bowel movement About one hour later he had begun to belch and the abdomen had become distended and had caused discomfort The discomfort soon had become generalized and had been accompanied by crampy pains The abdominal distention had increased and had been accompanied by vomiting The family physician had given enemas without producing the desired results The abdomen had become more distended

On general examination he was found to be obese and he appeared rather ill and drowsy The drowsiness was apparently the result of a hypodermic injection of morphine There was no fever The heart rate was about 100 beats per minute however, the pulse was regular and of good quality The heart was somewhat enlarged, there was a systolic murmur which was

more cubic centimeters daily During the first three days the urinary output was below 1,000 cc for each twenty-four hours Seven days after his admission to the hospital, the blood urea had fallen from 71 to 26 mg per hundred cubic centimeters of whole blood Five months later he apparently was in good health

CASE 6—A man, aged 73, who had abdominal pain and distention, hiccup and anuria, was admitted directly to the hospital, Aug 1 1934 In the past he had had good health June 29, 1934, he had submitted to repair of bilateral inguinal hernia He had received a daily enema for the first ten days after operation, and since this time he had been unable to secure an adequate bowel movement without the aid of an enema Since July 28 he had been unable to obtain any fecal material with the enemas July 29 the abdomen had been "bloated," and following the evening meal there had been cramps in the lower part of the abdomen, and occasional vomiting By the following day the abdominal pain and distention and the vomiting had increased considerably and he had been unable to void urine The physician had been unable to obtain urine with a metal catheter or to obtain flatus or feces with an enema, which had been supervised personally Cramps in the legs were at times rather pronounced

The patient was well developed and did not have any fever The pulse rate was 108 beats per minute There was a moderate degree of arteriosclerosis The systolic blood pressure was 105 mm of mercury and the diastolic blood pressure 80 mm There was hiccuping and the abdomen was distended and tender, but there were no masses in the abdomen Examination of the rectum did not reveal anything abnormal

Hot abdominal stipes were applied warm saline irrigations given and the fluids kept to 3,000 cc daily A diet low in residue was given Ten days after his admission to the hos

pital, the urinary output had increased from less than 800 cc daily to 2500 cc in each twenty-four hours. The blood urea had dropped from 60 to 30 mg per hundred cubic centimeters of whole blood. Roentgenologic studies of the gastro intestinal tract did not reveal anything abnormal. Six months later he was in good general health.

**CASE 7**—A man aged 66, had been in good health until one year before examination when he had had some "gras on the stomach. For six months he had had colicky pains in the region of the umbilicus and he had felt that cathartics were necessary. For five months there had been daily distress in the lower part of the abdomen. The appetite had been poor and he had lost weight. In spite of daily cathartics, the constipation had become more obstinate.

The patient was poorly nourished. He did not have any fever. The pupils reacted to light and in accommodation. The heart was not enlarged and the cardiac sounds were normal.

The usual regimen of hot abdominal stupes, warm rectal irrigations with physiologic solution of sodium chloride and the maintenance of the fluid intake at 3000 cc or more for each twenty-four hours was instituted. The urinary output rose from less than 1000 cc daily to 1500 cc or more in each twenty-four hours. A diet that was low in residue was prescribed and in twelve days the value for the urea was 40 mg per hundred cubic centimeters of whole blood, whereas on admission there had been 126 mg of urea per hundred cubic centimeters of whole blood. Roentgenologic studies of the gastro-intestinal tract did not reveal anything abnormal.

**CASE 8**—A woman, aged 72, was admitted to the hospital seriously ill. One week prior to her admission to the hospital she had had pain in the lower part of the abdomen and distention, which had been followed two days later by nausea and occasional vomiting. Three days after onset of the present illness, the vomiting had become so severe that it probably was stercoraceous. After one day the vomiting had ceased and since then she had had severe hiccups. During the first five days of the illness she had not had a bowel movement and, so far as the family knew, she had not passed any flatus. Her general health before the present illness had been moderately good, with the exception of slight loss of weight and occasional headaches.

General examination revealed that the patient was rather frail. There was no fever, but the pulse rate was 120 per minute. The pupils reacted, the tongue was dry and rough and the heart and lungs were essentially normal. There was an arteriosclerosis of moderate degree. The abdomen was greatly distended and tender but there were no masses in the abdomen. Rectal and pelvic examinations did not reveal anything abnormal. The reflexes were equal and there was no edema.

Hot abdominal stupes and warm rectal irrigations relieved the distention in a few days. The patient appeared to be improved. However, after a few days the urinary output decreased, the blood urea rose to 220 mg per hundred cubic centimeters of whole blood, and nine days after her admission to the hospital she died.

**CASE 9**—A man, aged 82 had been in good health until two days prior to his admission, when he had had nausea which had been followed by vomiting and colicky abdominal pains. For years he had had constipation and had not had a bowel movement without the use of purgatives. For two days prior to the onset of the present illness he had not had a bowel movement and enemas had been of no avail. His appetite had been good but he had lost 20 pounds (9 Kg) during the past year.

He was generally well developed but poorly nourished. There was no fever, the pulse rate was 100 beats per minute, the systolic blood pressure was 225 mm of mercury and the diastolic 130 mm. There was a rather marked arteriosclerosis. The pupils reacted sluggishly to light. The lungs were clear. The heart was somewhat enlarged but there were no significant murmurs. The abdomen was distended but without palpable masses or localized tenderness. Rectal examination did not reveal anything abnormal. The reflexes were equal and there was no edema.

Continuous hot abdominal stupes, rectal irrigations maintenance of the fluid intake at 3000 cc or more daily, and the

low residue diet quickly relieved the abdominal symptoms. The blood urea dropped from 62 to 40 mg per hundred cubic centimeters of whole blood. However, the patient died suddenly on the third day after his admission to the hospital, probably as a result of coronary heart disease. Necropsy was not obtained.

**CASE 10**—A man aged 84, was admitted directly to the hospital. For twenty-five years he had occasionally resorted to a catheter for the relief of a urinary obstruction. After a few days of catheterization he usually had been able to void again. Following self catheterization one month before, the left testicle had become swollen.

He had had regular bowel habits until three days prior to his admission to the hospital, when the abdomen had become distended and had caused discomfort. He had taken an enema without results. The following day he had taken repeated enemas and a dose of castor oil, which had produced nausea, vomiting, hiccups and more marked abdominal distention.

He was generally well developed and well nourished. The skin and mucous membranes were of good color. The pupils were small probably as a result of a dose of morphine. The temperature was normal. The heart and lungs were essentially normal. The abdomen was greatly distended and tender, but no masses could be palpated. There was a moderate ventral hernia but there were no incarcerated loops of intestine. There also were moderately large inguinal hernias which were well supported by trusses. The rectal examination revealed prostatic hypertrophy.

Hot abdominal stupes, warm rectal irrigations and a low residue diet were administered, and 3000 cc or more of fluid was given daily. In five days the abdominal symptoms had subsided. The urinary output which had been less than 500 cc daily at the time of his admission to the hospital, had returned to normal. The blood urea had dropped from 54 to 24 mg per hundred cubic centimeters of whole blood. Roentgenologic studies of the gastro intestinal tract did not disclose anything abnormal. The prostatic obstruction was relieved surgically and five months later the patient's health was good.

#### COMMENT

The laboratory data of these cases are given in the table. The patients were all men except one, classified as patient 8. They were all middle aged or getting well into old age. In cases 2, 4 and 6 the blood pressure was normal, in the rest of the cases it was definitely elevated. Arteriosclerosis was present in moderate to advanced degrees in all the cases. The blood urea determination on whole blood gave values that were higher than normal, if all these determinations had been made on the days on which the patients were admitted to the hospital, some of these values probably would have been higher. The values for the blood chlorides were high normal in all cases except case 10. In this case, chemical analysis of the blood was not made until the abdominal symptoms were subsiding. Severe degrees of anemia were not found in any of these cases. There was a moderate degree of anemia in cases 7 and 8. Case 1 was the only case in which the urine did not contain pus. Moderate or definite albuminuria was present in all the cases. Cases 5, 8 and 9 presented definite hematuria.

The absence of anemia in most of the cases probably indicated that the hyperazotemia had been present only a short time. The tendency to high concentrations of chlorides and normal carbon dioxide combining power of the blood distinguish this condition from obstruction of the upper part of the intestine, in which concentrations of urea in the blood are increased, the chlorides of the blood are decreased, and the carbon dioxide combining power of the blood is markedly increased. All the patients had arteriosclerosis, which was usually accompanied by hypertension and always by albuminuria. Erythrocytes were present in the urine in

cases 5, 7 and 9, and moderate to great numbers of leukocytes were present in the urine in all the cases except case 1. Aside from the fact that pyuria may indicate genito-urinary infection, the significance of the pyuria is not known. There was nothing to suggest a clinical picture of cystitis, pyelitis or pyelonephritis in any of the cases except case 8, in which the patient had had pyelitis many years before. This patient may have had a symptomless pyelitis or pyelonephritis ever since, but if she did she was unaware of it. Transient degrees of obstruction to a free flow of urine from an enlargement of the prostate gland, which is sufficient to produce stasis and a low grade symptomless cystitis, pyelitis or pyelonephritis, are possible in the rest of the cases. However, in the absence of such a history in all except case 10, this is not in keeping with clinical experience.

All these patients excreted less than normal amounts of urine during the first days of their stay in the hospital. Dehydration doubtless was a factor in the production of the oliguria, however, their illness was of too short duration to produce a degree of dehydration that would be sufficient to send the urinary excretion to such low levels. All the patients had been on regular, soft or liquid diets before coming to the hospital and in none of these cases was the nausea and vomiting severe enough to cause the patient to refrain from taking fluids by mouth. The oliguria is best explained on the basis of temporary partial suspension of renal function. In view of these considerations, it is reasonable to believe that these patients had decreased renal reserves. The kidneys were able to maintain normal excretory functions when no added loads were to be borne, but, with an added load, a temporary partial suspension of function occurred, with subsequent oliguria.

The mechanism that produced the signs and symptoms of obstruction of the lower part of the intestine is not easily explained. Renal insufficiency is not an adequate explanation, because the failure of renal function is not usually accompanied by symptoms of intestinal obstruction. It also is important to point out the fact that colonic obstruction of long standing does not produce changes in the blood chemistry if renal function is normal. Stones in the kidneys or ureters may produce colics which are difficult to distinguish from those which arise in the intestine. Such colics may be accompanied by deranged intestinal action and slight degrees of abdominal distention, but these symptoms never are as severe as they are in intestinal obstruction. It is of interest here to point out the similarity of this condition to that which frequently is seen after major surgical operations on a kidney. A few days after the operation the abdomen may become somewhat distended, so much so that intestinal obstruction may be feared.

An easy assumption would be that an enterocolitis was present in these cases and that bacteria or bacterial toxins pass from the colon to the kidney through the blood stream and secondarily involve a transient renal insufficiency. An enterocolitis is usually accompanied by fever and diarrhea, abdominal distention is not present. In long-standing infections of the colon, in which numerous ulcerations occur, as in chronic ulcerative colitis, abdominal distention, unless there is a perforation, is not a prominent symptom and renal insufficiency is rare. There are no data to support the view that this enterorenal syndrome is produced by infections in either the kidneys or the intestine, singly or combined. As a matter of fact, local disease in

either the kidneys or the intestine cannot be held responsible for the clinical picture.

There was definite arteriosclerosis present in all the cases. To assume that the renal insufficiency was produced by the arteriosclerosis is in keeping with clinical and pathologic experience. It is also conceivable to assume that both the ileus and the transient renal insufficiency were the result of synchronous local vascular disturbances in the kidneys and intestine or were the result of reflex action of the central nervous system. In the cases in which an exploratory laparotomy was performed there was a dilatation in the lower part of the ileum and right half of the colon, but no detectable circulatory disturbance. The absence of circulatory changes in the intestine is not convincing enough to assume that the syndrome was not the result of circulatory changes that were produced by vascular disease. The two exploratory operations were most valuable in the formation of a mental picture of what was going on in the abdomen, and in ruling out gross pathologic changes.

There was accompanying disease of the gallbladder in the two cases in which exploratory operations were performed. In case 3 the gallbladder was discovered to be filled with stones at the time of exploration, and it was therefore removed. Cholecystitis is often accompanied by gaseous distention of the abdomen. It must be admitted that the pathologic changes in the biliary tract may have been responsible for some of the symptoms in these two cases. However, in making further clinical studies a certain amount of data indicates that this transient train of symptoms is often superimposed on more definite and important organic diseases of the colon.

From a surgical point of view this clinical syndrome presents a problem of considerable interest and importance. Diseases in general fall into three main groups: those definitely nonsurgical, those definitely surgical, and those questionably surgical. Conditions of the type under discussion, when first seen by the consultant, seem to be without doubt surgical, and, unless one is watchful, the abdomen actually may be opened and explored to the chagrin of the surgeon; further study, on the other hand, will reveal that the condition is after all a matter for medical management—an ileus, to be sure, but one that has as its basis an upset of the chemical balance, which is the result of a multiplicity of causes. These causes may be summed up to be the result of senescent changes in all the organs, changes that are of such a nature that the patient skates continually on thin ice. The bodily reserve is diminished, this is particularly true of the systems whose function it is to eliminate body waste.

Because this syndrome concerns not only one part of the colon but all of it, there are complex factors which simulate acute obstruction of the small intestine. It must be recalled that a patient can go for days or even weeks with an almost total obstruction of the transverse, descending or sigmoid flexure of the colon, or of the rectum without very severe obstructive symptoms, and that in these cases the onset is rather sudden.

It is true that the physician cannot afford to miss the diagnosis of acute intestinal obstruction and that there may be an occasional case in which immediate operation is imperative. On the other hand, cases of this nature are necessarily bad risks and this must be kept in mind. With the perfection of the nonsurgical treatment, these patients may be tided over the acute intestinal obstruction with a medical decompression,

which has been described so well by Wangenstein, and there is rarely the necessity for immediate operation. By supplying fluids by the intravenous and subcutaneous routes, these patients can be kept comfortable and their chemical upset readjusted, studies can be continued, and in the event that operation is actually indicated, it can be carried out at considerably less risk. It will be found, however, in cases which fall within the realm of the type under discussion, that the patients will continue to improve under medical management, under readjustment of their chemical balance, that the syndrome is not directly the result of gross pathologic changes, and, last but not least, that operation can be avoided to the satisfaction of both the patient and the surgeon.

#### SUMMARY AND CONCLUSIONS

1 In ten cases, which are presented, there were symptoms suggesting obstruction of the lower part of the small intestine or of the colon.

2 These patients had an elevation of the concentration of urea in the blood, but in contrast to the alterations of blood chemistry, which usually occur in obstruction of the upper part of the small intestine, the values for the chlorides were high and the carbon dioxide combining power was normal.

3 If a patient presents the signs and symptoms of acute obstruction of the colon and if the value for the blood urea is high, the routine method of conservative administration of fluids and warm rectal irrigations should be followed, and stipes should be applied to the abdomen.

#### TREATMENT OF THE STUTTER TYPE PERSONALITY IN A MEDICAL- SOCIAL CLINIC

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The National Hospital for Speech Disorders opened its doors seventeen years ago. Thousands of young men and women have availed themselves of our clinical services, 70 per cent of whom were given free treatment. Incidentally, since I opened the clinic we have handled over 15,000 stutterers, besides several thousand nonstuttering speech defectives.

Stuttering is herein defined as that speech phenomenon which is characterized (1) by tonic and clonic spasms of the vocal tract, which (2) result in conversational difficulty characterized by hesitancy. Theoretically, it is assumed that the stutterer type personality in one born with a special organic structure having constitutional factors which all but parallel the constitutional factors of the nonstutterer type. The stutter type is an extremely sensitive personality, in which the emotional range always overreaches that of the nonstutterer type. This human organism is not always destined to stuttering speech. Only an environment of opposition accentuating the native conflicts to which one is conditioned can evoke stuttering in its various forms, a neutral or favorable environment does not provoke or condition the individual to stuttering. The oppositional environment may be encountered either in early childhood or in adulthood. Consequently, a particular kind of unfavorable environment may evoke stuttering from this organic stutter type

either in childhood or in adult life. A specially created environment, such as our medical-social clinic, which is favorable, is the means by which the patient is unconditioned. That is, he is brought back to his initial stage or prestuttering state of security. My paper deals with the description of this special environment and the method of unconditioning the stutterer.

Years of observation and work have convinced me that stutterers are not speech defectives as conventionally understood. They can all speak normally under certain conditions. Their intermittent spasmodic speech is not the result of defective oralization but is conditioned in the stutter type of personality by highly emotionalized states of mind. They are agitated human organisms exhibiting a lack of forcefulness and decisiveness. Uncannily, they are moved back and forth across the borderline between emotional balance and emotional imbalance. The stutter type is further recognized by an incoordinated energy output. Their efforts, although numerous, are scattered. They shuttle from one thing to another. The usual result is ineffective social adjustment. All this is surmounted by extreme feelings of inferiority, culminating in chronic fear.

Opinions emanating from different points of view are centering on the fact that it is an emotional personality problem. For instance, Blanton,<sup>1</sup> Brown,<sup>2</sup> Solomon,<sup>3</sup> Clark,<sup>4</sup> and West<sup>5</sup> say that stuttering is an emotional and personality disorder. Years ago I<sup>6</sup> stated that the problem is centered in the field of human emotions.

The adult stutterer usually gives a history of having been a nervous, fearful child, an unduly irritable excitable child, often living in a psychoneurotic parental atmosphere surcharged with nervous tension. Such is the fertile soil or the agar-agar in which the stutter type is cultured.

From early childhood, conflicting emotions rule the stutterer's mind. His normal impulses are inhibited. He is a victim of dread, even terror, so that in the plastic years his doom is practically sealed. His personality development undergoes an ebb and flow that tends toward disintegration. In adult life the fears, morbidities and desolation associated with speech spread into every field of thought and activity. No one knows him as he really is. The attributes of his personality make no impression, because his stuttering is the focal point of interest. In short, stuttering is a pernicious living thorn in the flesh, which numbs the heart, distorts the processes of mind, paralyzes normal impulses with a searing sense of inadequacy, and imprisons human lives in hopelessness and uselessness, forever haunted by the victim's own unbearable sense of futility.

The following letter, to the editor of an evening paper,<sup>7</sup> adds a graphic note to the stutterer's economic plight.

Sir: I am a stutterer, a year out of college. Searching for work proved fruitless. What chance has a stutterer? I want work, to earn the food I eat, the clothing I wear, and a bed.

<sup>1</sup> Blanton Smiley. *Speech Disorders*. *Ment. Hyg.* 13:740 (Oct) 1929.

<sup>2</sup> Brown F. W. The Problem of Stuttering, read before the annual meeting of the American Society for the Study of Disorders of Speech, Chicago, Jan. 1, 1931.

<sup>3</sup> Solomon Meyer. Stuttering: Its Nature and Mechanism, read before the twenty-second annual meeting of the American Psychopathological Association Atlantic City, N. J., June 8, 1932.

<sup>4</sup> Clark L. P. The Mental Treatment of Stammering, read before the New York Psychiatric Society, Nov. 1, 1933.

<sup>5</sup> West Robert. Stuttering as a Normal Reaction to an Abnormal Situation, read at the annual meeting of the American Society for the Study of Disorders of Speech in New York, Dec. 23, 1933.

<sup>6</sup> Greene, J. S. The Problem of the Stutterer, read before the annual meeting of the Medical Society of the State of New York, New York, May 23, 1923.

<sup>7</sup> Stutterer, John. Letter to the editor. *New York Evening Post*, editorial page, July 13, 1934.



and room But it seems utterly hopeless for me to meet the standards imposed by the merciless competition today Am I and other stutterers, doomed to a life eliminated from gainful activity? What hope is there for me to play a man's part?

JOHN STUTTERER

John Stutterer's plaint has echoed down through the ages Only recently Dr Albright, a Haverford College archeologist, brought from the ruins of the biblical town Beth Shemish a prayer on a small clay tablet reading as follows "Oh God, cut through the backbone of my stammering I desire that thou shalt remove the spring of the impediment"

Thus, the antiquity of stuttering is beyond question, because the antiquity of human emotions is beyond question Just as long as there are people whose emotions are intense, whose chronic fear reactions are dominant, so long will there be people of the stutter type and so long will they challenge ingenuity to get them out of their difficulty I feel sure that one cannot fully realize what stuttering speech means and does to an individual unless one has had an opportunity over a long period of time to deal with thousands of these cases

In and around greater New York alone the challenge is staggering Out of the six million population there are approximately 20,000 stutterers The report of the White House Conference on Child Health and Protection<sup>8</sup> shows that 200,000 children stutter and that only one out of ten recovers during the elementary school period This immediately gives one an idea of the prospective number of young persons continually filtering in and increasing the vast army of adult stutterers Numerically there is a tremendous disproportion between physicians interested in this work and the patients in need of help

The treatment of stuttering has always been a baffling task because the basic problem of the stutterer was not viewed in the correct perspective Not only has the general problem been ill defined but the methods of treatment have been poorly unified It was concluded that an amalgamated therapy was essential Consequently, treatment had to be carried out both in the concrete and in the abstract form, physical and psychic, along broader lines These forms are carried out very satisfactorily through a special group approach, working from the general to the specific, from the group to the individual, or vice versa

Our medical-social clinic therapy has undergone many modifications and extensions It is best described as a composite therapy of a medical, psychologic, reeducational and social nature, the essential feature of which is the group approach<sup>9</sup> The aim is to treat the stutterer's whole personality The group psychology has proved practical because, beyond a certain point, the individual problems of the stutter type become the problems of all

With children, speech training and methods of correction are carried out under medical supervision in school-clinic classes, in the form of a socializing task Concerning adults the volume of work points in only one direction In order to give equal opportunity to all, these patients must be dealt with *en masse* Social clinics under medical supervision, as community projects, will prove to be, as I have found, the most effective medium

In our clinic the initial interview with a stutterer, experience has taught us, is of far reaching importance The results of his entire course of treatment quite often depend on his initial contacts On his arrival we start rebuilding his personality at once Vainly he has been making the rounds of physicians, psychologists, schools and cults Consequently, he carries a chip on his shoulder and views one with suspicion In spite of that fact, he is made to feel that our medical-social clinic is not "just another place"

He is next given a physical examination Defects and poor hygiene are noted, recommendations are made by the physician in charge, and everything is done to improve his physical status

He is then, thirdly, given a speech test For that purpose we have a fully equipped radio department The patient speaks into a microphone answers questions or reads, and a record of his defective speech is made on a disk This recording serves a double purpose First, we know his speech condition before treatment is begun Second, subsequent records are made after a period of treatment, showing his improvement and the effect of the medical-social clinic modus operandi

Fourthly, he is examined by a psychologist Specialized tests given the patient afford us an idea of the individual's mental capacities Also, we try to obtain the degree of control and intensity of the individual's emotions To date we have no really accurate way of measuring emotions as we do intelligence, still, through a series of specialized tests, which we have devised, we are able to obtain an index of the stutterer's chronically exaggerated emotional status

The idea that a stutterer has an exceptionally high intelligence quotient is very prevalent, especially with the mothers of stuttering children This misconception is often used as a defense or compensatory mechanism and is just a case of reflected glory One stutterer (like A B P or S M or the late A B) may throw off enough rays of intellectual glory to illuminate thousands of other less prominent stutterers who are just regulation individuals

Concerning the superintellectuality of stutterers, West, Travis and Camp<sup>10</sup> found that the median intelligence quotient for stutterers was 96.5, and that, as a special group, they were not mentally retarded

Our studies, based on the Otis self-administering intelligence test, are in agreement with these statements Our mean intelligence quotient for the group is  $102.68 \pm 1.1$  and is slightly higher than the mean intelligence quotient for the nonstuttering population It was found also that the mean intelligence quotient of the males was 104, which is not significantly different from our total mean

Our broad amalgamating approach is eclectic We have proved to our satisfaction that it is inadvisable to adopt one therapy to the exclusion of all other procedures

In viewing stuttering as an emotional and personality disorder, we find that reeducational speech work per se is not enough Scientific treatment must develop a voluntarily controlled fulness and power in the weak and incompletely developed organizing parts of the personality How to integrate the disorganized individual is the problem Integration must take place so that the vital personality traits are placed in their proper relationship Throughout the treatment the

<sup>8</sup> Child Health and Protection White House Conference Proceedings 1930  
<sup>9</sup> Greene J S I Was a Stutterer New York, Grafton Press 1933

<sup>10</sup> West Travis and Camp The Handicapped Child White House Conference Reports 1931



interest of the doctor and the patient must be focused on the total personality

This does not mean that it is unnecessary to do anything for the stutterer's speech. According to some theoretical, psychologic and psychiatric points of view, stutterers should be cured without speech work. Practically, that is not so. Although there may not be any inherent virtue in speech work still it is the only medium for correcting vocal tract remediable maladjustments. Also, negative speech habits that have become ingrained must be corrected.<sup>11</sup> One cannot talk a stutterer out of his habit spasms. Technical faults respond to reeducational pressures, not to theoretical discourse alone. Concentration on style or good speech acts as a distraction, so that fear is relegated during the development of good speech habits. The physiology of breathing is easily explained and comprehended, so that a normal calm manner of breathing is readily adopted. Breath control is a wonderful factor in emotional control.

If the patient understands the simple anatomic and physiologic functions of the vocal tract, it is very effective in removing many mysterious speech interferences. When the stutterer's spasms of abdomen, chest, throat or mouth are viewed in their proper light, his reason comes to the fore. Physical obstructions to speech are reduced in number, and relaxation is effected.

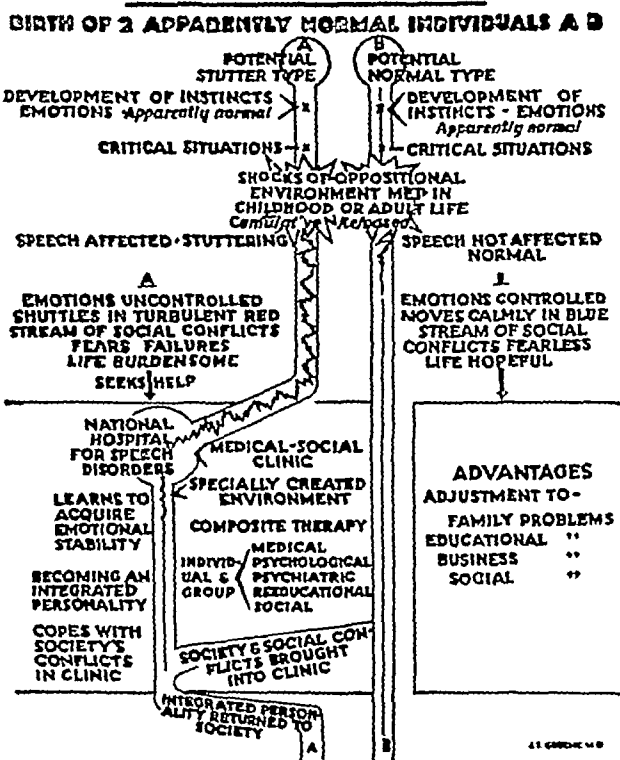
Alternating group and individual reading is an excellent means of gaining confidence. Emotions are tranquilized. Thoughts are formulated without fear. Haste is gradually eliminated and finally discontinued.

Muscular relaxation and coordination are important group activities which stutterers find hard to effect. Stutterers, depending on the degree of their excessive and inconsistent discharge of emotions, show pronounced differences when compared to nonstutterers in their responses to muscular contraction and relaxation. They belong to a naturally retarded performance group. They demonstrate stuttering not only in their speech but in other ways as well. Their movements are jerky instead of regular, excessive or diminished. Shortly after awakening, some stutterers are unable to bring their speech mechanism into action. In fact, they are muscularly in a state of twilight sleep. They speak worse than usual, and often, until they get themselves muscularly warmed up, are hardly able to speak. In others, the chronic emotional and muscular tensions are so pronounced that the stutterer seems to be made of one piece—set and rigid. This rigidity is readily noticed when he tries to speak. The majority bring into play unnecessary and excessive muscle movements—a faulty muscle balance. There is considerable difficulty in controlling fine and gross muscle movements.

A mother frequently complains that her stuttering child talks badly, walks badly and does all things more or less badly. He is the fearful and clumsy one in the family. Adults complain of jerky muscular movements and an inefficient energy expenditure. Their golf and tennis is not spectacular. They drive their automobiles in a spasmodic style. We have had, like others,<sup>12</sup> stuttering musicians. A violinist may get glued to a note and repeat it several times spasmodically. A piano player's finger seems to stutter repeatedly on a note before striking the next one. A typist may likewise stutter on her machine.

All this inefficiency prescribes the necessity of reorganizing the stutterer. For this purpose we have introduced group activities of rhythmic coordination exercises to music. Groups are taught to combine and alternate muscular contractions with progressive degrees of relaxation. Thus they learn to counteract an excess of incoordinated activity and bring quiet, peace and tranquility to the nervous system. They gradually become inculcated with a sense of rhythm and harmony, which is seen in diminished tension and gracefulness of movements. They acquire a certain amount of abandon which in turn is reflected in their speech. The major problem, however, is to change the personality and develop emotional control.

### PLAN OF RECONSTRUCTION OF THE STUTTER-TYPE IN A MEDICAL-SOCIAL CLINIC



Plan of reconstruction of the stutter type in a medical social clinic

Every stutterer's life is one of introversion, repression and frustrated desires. Infantile attitudes and conflicts remain with him. He finds no satisfactory solution for his problem. The psychiatrist's task is to discover the underlying chain of causes. He must replace the infantile attitude with an adult personality. We found that a departure from the traditional therapy was necessary. The problem is rather intricate and not easy.

Psychoanalytic treatment of the usual type wherein one tries to verbalize thoughts is an almost impossible task for a stutterer. The fostering of freedom and rapport between the analyst and the stutterer, consequently, is more than usually drawn out. Our patients who have been subjected to psychoanalysis before coming to us state that the process is long and costly and is not productive of desired results. The patient, while the analyst sits silently by, struggles with his free associations and finds transference difficult. Moreover, the analyst seldom reaches the constructive phase of

<sup>11</sup> Dunlap Knight, *Habits—Their Making and Unmaking*. New York, Liveright Publishing Corporation 1932.  
<sup>12</sup> Blumel, C. S., *Mental Aspects of Stammering*. Baltimore, Williams & Wilkins Company 1930.

his treatment. Since his procedure is only psychic, it is not complete without the physical reeducational therapy. This especially holds true if the psychoanalyst does not consider all immediate and secondary intrinsic speech difficulties.

I know of many stutterers who, during analysis, kept asking themselves "When will the doctor do something for my speech?" In every stutterer's case his defective verbal production is a fixed living thing, and, as pointed out, every form of treatment must consider that phase in actual practice, our psychiatric treatment does so.

Our specially created atmosphere<sup>13</sup> is one in which informality, encouragement and sympathy hold sway, one which radiates calm, peace and tranquillity. The stutterer is put at his ease in such a way that perhaps for the very first time in his life he appreciates a hitherto unknown spiritual peace. In such an atmosphere his psychoneurotic symptoms, which complement his stuttering speech, respond readily to direct and indirect suggestion. Old habits of a nonsocial, egocentric, fearful individual are broken down. Feelings of shame and secretiveness are brought out into the open. To effect this, we have introduced a special procedure in our psychiatry. I call it "open door" or group psychiatry, and it has proved to be very practical and beneficial. The patient consults with the doctor in a large room, the door remaining open. It is possible to insure a sense of intimacy and privacy by placing the desk at the far corner of the room. In spite of the fact that it is an open room, it is amazing how quickly the patient adjusts himself to this open door psychiatry and is not perturbed. Minor emotional disturbances and even major conflicts are successfully resolved. However, when deemed necessary, a closed door interview is given, so that unconscious difficulties that have been evaded are gotten under control.

The open door method has one valuable asset. It makes it possible for the doctor to call in other patients, who happen to pass the open door, and utilize them in various ways. Their presence is most helpful, when necessary, they serve as eager listeners or participate in the discussion. The personal aspect of secret problems is eliminated and the patient realizes that these problems are not his alone but belong to the stuttering fraternity as a whole. Almost unbelievable reconstruction takes place within a short time and an integrated personality then comes into being.

The importance of social therapy, which goes a long way toward adjustment, is very pronounced, especially for working boys and girls who attend our evening clinics. These clinics have been carried on since the opening of the institution. Since stutterers are afraid "to go places and do things," in brief, are afraid of social contacts, we reverse the situation by bringing society to the stutterer.

In our medical-social clinic, all patients automatically become members of our clubs. No matter what their interests, we try to furnish the outlet so that self-expression becomes a matter of course. We have debating and literary clubs, a dramatic club, a class in language and word study, one in eukinetics, a choral singing club, and other enterprises. The activities arising from these are periodic dinners, entertainments, dances, outings and the like. All of these specially created socializing agencies tend to bring about a complete metamorphosis in the stutterer's life, so that he can cope with oppositional environments.

Besides the regular medical, psychologic and reeducational activities, Wednesday evening is devoted to an important meeting of the entire clinic, forming an association called the Greene-Ephphatha Club. It takes the form of a business meeting with a planned program and has a chairman, secretary and minutes. Topics are assigned or chosen. The speeches are short and all voluntary. It takes courage to volunteer, consequently, as a therapeutic procedure, it is of great value. Occasional criticism and constant encouragement is the order. A few remarks on the outstanding feature of the evening or on some aspect of the stutterer's personality made by the director concludes the meeting. There is an intangible something at these meetings that gives the stutterer an exalted, enthusiastic attitude and a definite feeling of social security which is difficult to describe. Into these meetings is put a great deal of practical psychology, so that each patient in the presence of his fellow stutterers, where there is always some one worse than he is, goes through a speech crisis, which is a spiritual uplift. He thereby gets his first hold of confidence in a speech situation of a vital nature. Here he emerges from his introverted shell in a form of spiritual conversion, faith and belief in himself become crystallized. It establishes the foundation that reconditions him to subsequent social contacts.

Our dramatic club gives the patients additional opportunities for social adjustment. They are trained to acquire stage poise in order to achieve that fluid flow of personal adjustment necessary to changing conditions. We have developed latent talent. A group of ex-stutterers are now giving little plays in the different settlement houses around town.

#### CONCLUSION

- 1 The stutter type personality is born with a highly emotionalized organic structure.
- 2 Only an oppositional environment to which he becomes conditioned may evoke stuttering, which is not a speech defect but a physical protest of an instinctive fear emotion.
- 3 The stutterer's problem is primarily one of psychologic reconstruction, emotional control, and integration.
- 4 The vast number of stutterers requires special group treatment in a specially created environment wherein they acquire a spiritual tranquillity.
- 5 The most practical agency for unconditioning the stutterer is one encompassing medical, psychologic, psychiatric, reeducational and social therapies, which I have developed in our medical-social clinic.

NOTE.—A practical demonstration of the work of the medical-social clinic was given through the presentation of ten patients. They gave short impromptu talks on topics suggested to them by the audience. These patients demonstrated the permanence of their cure, having received treatment as far back as sixteen years, fourteen years, twelve years, and so on down to six months.

126 East Thirtieth Street

**History of Dementia Paralytica**—The literature dealing with the history of dementia paralytica usually credits the first description of the pathology of the disease to John Haslam the first satisfactory recognition of the disorder to A. L. J. Bayle and the relationship of the disease to syphilis to Esmarch and Jessen. These studies seem to be the three pillars on which the subsequent development of knowledge concerning this disease has been built—Moore, Merrill and Solomon, H. C. Contributions of Haslam Bayle, and Esmarch and Jessen to the History of Neurosyphilis, *Arch. Neurol. & Psychiat.* 32:804 (Oct.) 1934.

VALUE AND LIMITATIONS OF SPINAL  
PUNCTURE IN CEREBRAL HEMOR-  
RHAGE OF THE NEW-BORNABRAHAM LEVINSON, M D  
CHICAGO

During the past few years, numerous investigators have studied the value of spinal puncture in the diagnosis and treatment of cerebral hemorrhage in the new-born. Sharpe concludes that bloody fluid is an indication of cerebral hemorrhage, that clear fluid practically excludes such a diagnosis, and that whenever the cerebrospinal fluid is bloody, repeated punctures should be done. In a recent report he<sup>1</sup> says

If free blood is present in the cerebrospinal fluid, repeated lumbar punctures of spinal drainage are immediately instituted, just as in adults and children with head injuries, in order to permit the free blood to escape and thus avoid the great danger not only of death but in some cases the even more tragic result of spasticity and retarded mentality. If the diagnostic lumbar puncture reveals clear cerebrospinal fluid, the physician knows almost certainly that no intracranial hemorrhage has occurred and that the signs were most probably due to a temporary cerebral edema of varying degree.

Investigations indicate that fresh blood in the cerebrospinal fluid of the new-born, especially if the color remains constant in successive portions of the fluid, suggests the existence of a cerebral hemorrhage, but that bloody fluid is not a positive diagnostic criterion, since the blood may be due to puncture trauma. Clear cerebrospinal fluid, on the other hand, does not exclude cerebral hemorrhage, especially of the ventricles.

It is difficult to determine the importance of xanthochromia, or yellowish discoloration of the cerebrospinal fluid, in cerebral hemorrhage. Greengard, Liffendahl and I<sup>2</sup> found that 88 per cent of more than 100 new-born infants had xanthochromic fluid, the benzidine and van den Bergh tests were negative in most of these. In some of the cases in which xanthochromic fluid was obtained during life, cerebral hemorrhage was found post mortem, in others, cerebral hemorrhage was not found. I believe that xanthochromia with a positive benzidine test speaks for a cerebral hemorrhage and that without such a positive reaction no diagnosis of cerebral hemorrhage can be made, as only meningeal congestion may be the cause.

There was also a variation in the amount and pressure of cerebrospinal fluid removed from patients with cerebral hemorrhage in the series studied, 5 cc being taken as the greatest normal amount and 6 mm of mercury as the maximum normal pressure, in new-born infants. In most cases of cerebral hemorrhage the amount obtainable and the pressure were increased.

I believe that, at the present state of our knowledge, bloody cerebrospinal fluid is not pathognomonic of cerebral hemorrhage. Of greater value in diagnosis is clear xanthochromic fluid with a positive benzidine test, and increased amount and pressure. However, since even clear cerebrospinal fluid does not exclude cerebral hemorrhage, the diagnostic value of lumbar puncture in cerebral hemorrhage is limited.

In order to evaluate the therapeutic importance of spinal puncture in cerebral hemorrhage of the new-born, it is necessary to consider the pathology and symptomatology of cerebral hemorrhage in the new-born.

The hemorrhage varies in location and extent. The most frequent site of hemorrhage is the subarachnoid space. Meningeal hemorrhage was present in all the cases that Saphir and I<sup>3</sup> studied irrespective of involvement of any other part (table 1). In prematurely born infants the hemorrhage is often around the pons and cerebellum.

Do all patients with cerebral hemorrhage die or develop diplegia, hydrocephalus or idiocy? Our records indicate that such is not the case (table 2). Of 292 infants with cerebral hemorrhage among 1,527 prematurely born infants admitted to the Sarah Morris Hospital for Children from 1927 to 1934 inclusive, 173 died but 119 survived. About 60 per cent of those who survived had no evidence of brain injury, as shown by Hess, Mohr and Bartelme<sup>4</sup> and their associates.

If one remembers that most instances of cerebral hemorrhage of the new-born are limited to the meninges and that in only a very small number is there bleeding into the cerebral substance proper, one can also see

TABLE 1—Cerebrospinal Fluid in the New-Born

	Normal	Cerebral Hemorrhage
Amount obtainable	0.5 to 5 cc	Usually increased
Pressure	1 to 6 mm of mercury	Usually increased
Color	Clear or xanthochromic	Xanthochromic or bloody but may be clear
Cells	0 to 3 lymphocytes	Usually increased red and white blood cells
Benzidine test	Negative	Positive in bloody fluid in both uncentrifuged and centrifuged supernatant portions Usually positive in xanthochromic fluid Negative in clear fluid

how recovery may occur without leaving a scar. Saphir and I studied the question of meningeal reaction in cerebral hemorrhage. We found no leukocytic reactions in any of our cases, either in the meninges or in the brain. Only occasionally was there an increase in endothelial cells in the meninges. We therefore believe that in some cases the cerebral hemorrhage is absorbed without scarring.

The symptoms of cerebral hemorrhage during the neonatal period are not always the same. They may be classified into two types—irritative and somnolent—although some infants exhibit a combination of the two types.

The irritative type is characterized by great restlessness, a high-pitched cerebral cry, moaning, and a pained expression. The extremities may be spastic immediately after birth, although the spasticity may not be manifested for some time later. Facial paralysis may be present, although it should be remembered that not every instance of facial asymmetry or even every convulsion in the new-born means intracranial hemorrhage. Nystagmus may be present. The anterior fontanel not infrequently bulges in this type of hemorrhage.

3 Levinson Abraham and Saphir, Otto. Meninges in Intracranial Hemorrhage of the New Born, *Am J Dis Child* 45: 973-984 (May) 1935.

4 Hess J H, Mohr, G J and Bartelme Phyllis F. The Physical and Mental Growth of Prematurely Born Children. Chicago: University of Chicago Press 1934.

From the Sarah Morris Hospital for Children of the Michael Reese Hospital.

1 Sharpe William. Repeated Lumbar Punctures of Spinal Drainage. Diagnostic and Therapeutic Value in Traumatic and Allied Lesions of the Central Nervous System. *J A. M. A.* 104: 959-963 (March 23) 1935.

2 Levinson Abraham, Greengard Joseph and Liffendahl R A. Cerebrospinal Fluid in the New Born. *Am J Dis Child* 32: 208 (Aug) 1926.

The somnolent type of cerebral hemorrhage, which is most frequent in prematurely born infants, is characterized by apathy, a subnormal temperature, difficulty in swallowing, fleeting cyanosis, and sometimes a depressed fontanel.

Infants suffering from cerebral hemorrhage refuse food entirely or take very little nourishment. Because such infants do not take food well, they become dehydrated very rapidly.

With the exception of the fleeting cyanosis, the skin of infants suffering from cerebral hemorrhage is usually dusky red, the duskiess being constant and most apparent on the trunk, the face at times being even pale. If there are active symptoms of cerebral hemorrhage, the duskiess may persist for days or even weeks. Retinal hemorrhages are sometimes present, these often result in optic atrophy.

If the cerebral hemorrhage is part of a hemorrhagic diathesis, there may be bleeding from the umbilicus, mouth and rectum. The coagulation and bleeding time of the blood are prolonged in these cases.

It is thus seen that not all cases of cerebral hemorrhage are of the same type, clinically or pathologically, further, that some meningeal hemorrhage may absorb without leaving any scar, even if no treatment is used. I therefore believe that in the somnolent type of cerebral hemorrhage spinal puncture is not necessary and, if done once, should not be repeated. In the irritative type, however, spinal puncture should be done for therapeutic purposes and may even be repeated.

The most important part of the treatment in cases that have been diagnosed as, or are suspected of being, cerebral hemorrhage is, I believe, complete rest. The infant should not be permitted to nurse from the mother but should receive the feedings by bottle, spoon or

the baby. Oxygen by catheter is useful, but the supply of oxygen is uncertain, a small oxygen tent may be useful. Hess has recently devised a flow meter for administering oxygen to prematurely born infants in the incubator. I use oxygen without carbon dioxide in my cases.

If the patient has convulsions, sedatives, such as sodium bromide or sodium amytal should be given rectally. Introduction of a hypertonic solution of sodium chloride or from 10 to 15 per cent dextrose solutions, intramuscularly, may also be used for relief of increased intracranial pressure.

30 North Michigan Avenue

## U S P ETHER FROM LARGE DRUMS AND ETHER FROM SMALL CANS LABELED "FOR ANESTHESIA"

COMPARISON IN SEVEN HUNDRED AND TWO  
OPERATIONS

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The United States Pharmacopeia, in the article on ether, (U S P X) makes the following statement in italics: "Caution—Ether to be used for anesthesia must be preserved only in small, well-closed containers, and is not to be used for this purpose, if the original container has been opened longer than twenty-four hours."

This statement gives official sanction to the general practice in this country of using anesthetic ether chiefly in small cans of one-fourth and one-half pound. What remains in the can is usually regarded as unfit for anesthesia on the following day. Ordinary U S P ether has been in use for many years in the laboratory of pharmacology of Cornell University Medical College for anesthesia in animals. Although this ether was taken from cans which had been opened many times, no ill effects were observed, but a systematic study of the question was not made.

Why should ether be considered unfit for anesthesia twenty-four hours after the container is opened? In a recent study<sup>1</sup> an answer to this question was sought from (a) the results of chemical tests for deterioration and (b) the experience of anesthetists.

The results of that investigation failed to reveal sufficient evidence to justify the twenty-four hour clause. The inquiry among surgeons and anesthetists disclosed that adherence to the practice directed by the United States Pharmacopeia has been so general that one does not readily find an anesthetist who has made observations sufficiently controlled to afford an acceptable judgment regarding U S P ether taken from metal containers which had been opened several days prior to their use for anesthesia. Several anesthetists declared that they had used ether from cans that had been opened several days and that they had not observed any special danger in its use. On the other hand, many feel that such ether is undesirable, and among these the most divergent opinions prevail regarding the nature of the danger. Some state that the ether becomes very

TABLE 2—Pathologic Changes in Forty-Five Cases of Intracranial Hemorrhage of the New-Born

Location of Hemorrhage	
Meningeal	45
Ventricular	16
Intracerebral	2
Type of Meningeal Hemorrhage	
Subarachnoid	45
Subdural	27
Tentorial tear	6
Falk tear	4

TABLE 3—Incidence of Cerebral Hemorrhage in Prematurely Born Infants Admitted to the Sarah Morris Hospital, 1927-1934 Inclusive

Total admissions	1,527
Cases of cerebral hemorrhage	292
Deaths	178
Survivals	119

dropper. The feeding portions should be small, so that the baby will not be fatigued and cyanosis thus be produced. If breast milk is not available, diluted milk should be given. Physiologic solution of sodium chloride should be given subcutaneously for dehydration. The body heat should be maintained by keeping the infant in an incubator or by applying external heat by means of hot water bottles. Intramuscular blood is an accepted procedure.

In fleeting cyanosis either oxygen or a mixture of 95 per cent oxygen and 5 per cent carbon dioxide has been advocated. The Henderson apparatus would be very useful for this purpose, but the mask is too heavy for

<sup>1</sup>From the Department of Surgery and the Department of Pharmacology of Cornell University Medical College.

The authors are indebted to Dr. William DeWitt Andrus for his cooperation in carrying out this study.  
<sup>1</sup>Gold, Harry and Gold, David. Stability of U S P Ether After the Metal Container Is Opened. J. A. M. A. 102:817-820 (March 17) 1934.

irritant, some, that it becomes very toxic so that extremely small quantities produce symptoms of collapse, others state that they have found it loses some of its anesthetic properties so that with it satisfactory anesthesia cannot be induced. The view regarding the dangers of ether for anesthesia from a container that has been opened for some time seemed to be based chiefly on reports in the literature describing toxic reactions produced by samples of impure ether which failed to comply with the present U S P standards.

The literature on the subject of deterioration of ether as determined by chemical tests also failed to supply a rational basis for the twenty-four clause Baskerville,<sup>2</sup> who more than twenty years ago made some notable contributions to the chemistry of the oxidation of ether urged the use of ether from small containers so that the entire contents might be used at one time because of the possible danger of deterioration after opening of the container. His emphasis on rapid deterioration was not justified by his own experiments, as in them ether was exposed for periods of months under extreme conditions before the tests for deterioration were made. No reports could be found in the literature to show that opening the container leads to rapid chemical deterioration of U S P ether in metal cans, although the literature abounds in warnings against the danger of using ether for anesthesia which has been kept under those conditions.

In the previous study<sup>1</sup> it was shown that ether, whether labeled "U S P" or "for anesthesia," does not deteriorate rapidly under ordinary conditions when the metal cans are opened, part of the contents removed and the remainder stoppered with cork, even though no precautions are taken against exposure to air other than stoppering. Although the containers had been opened and again stoppered many times during periods of from several days to several months, the U S P X tests were negative for aldehydes, peroxides and acids. These results were obtained with a group of more than fifty specimens of ether supplied in containers varying from quarter-pound cans to 55-pound drums by five manufacturers or distributors. In many cases the labels stated that the cans were copper lined, were so treated as to become "catalytically inert," or contained a coil of steel wire to inhibit oxidation. In the case of the steel drums, as well as many of the tin cans, no special claims regarding the quality of the containers were made. The results were identical in all.

It should be stressed that the foregoing statements regarding the stability of U S P ether apply to the product as supplied in metal containers at the present time by the outstanding manufacturers in this country, to whom a large share of the credit is due for the work that has made such relatively stable ether available on a large scale.

Since a 27-pound or 55-pound drum of ether would last only a week or two in the average hospital, there seemed to be no justification for purchasing ether in hundreds of quarter-pound or half-pound tins at a cost five or six times that of ether in a large drum, which could easily be supplied to the operating rooms daily in quarter-pound tins by the hospital pharmacist. A smaller container such as a 5-pound tin, which is easier and somewhat safer to handle, might in some cases prove more desirable than the larger drum.

However even though ether labeled U S P is the official ether of anesthetic quality, the view prevails that

such ether is not suitable for anesthesia and that an especially purified ether is necessary for this purpose. To distinguish these two types of ether, the words "for anesthesia" appear on the cans of anesthetic ether. In the minds of many, this would exclude the ether in drums from use for anesthesia because it bears only the label "U S P" and not "for anesthesia." Therefore, before anesthetists could feel free to use U S P ether for anesthetic purposes, obtained from a large drum, it was necessary to have the answer to another question, namely, is there any difference that can be detected in patients between the effects of U S P ether taken from large drums which are opened from time to time and the effects of ether labeled "for anesthesia" taken from small containers opened less than twenty-four hours?

This formed the subject of the present investigation, which was carried out on surgical patients in the New York Hospital.

#### PLAN OF INVESTIGATION

The study was made with the "blind test." Those administering the anesthetics to the surgical patients were unaware of the source of the ether and identified the specimens in terms of code numbers in their records. The daily orders for ether were filled in the department of pharmacology. The supply was delivered to the operating rooms in quarter-pound and half-pound cans of ether bearing a special uniform label with the date and time the can was filled and a consecutive code number. All the cans were tightly stoppered with ordinary cork. Ether remaining in the small can after twenty-four hours of the time it was filled was not used for anesthesia during this study, thus affording more uniform and comparable conditions for the comparison of the two types of ether. At irregular intervals the drum ether was tested by the U S P X tests for peroxides, aldehydes and acid (litmus test). In addition, all ether was tested daily by other extremely delicate tests<sup>3</sup> for both peroxides (solution of potassium iodide) and aldehydes (Nessler's reagent).

The U S P bulk ether as supplied by a well known manufacturer was bought in 55-pound drums. For convenience of filling the daily supply of quarter-pound and half-pound cans, the ether in the drum was transferred to 5-pound tins which had previously contained ordinary U S P ether (supplied by Emer and Amend). These were thoroughly rinsed with the fresh drum ether, then filled with the latter, stoppered with cork, placed on a shelf in a dark room and stored at room temperature. This ether was compared with the ether labeled "for anesthesia," which was obtained in quarter-pound and half-pound sealed cans manufactured by the Mallinckrodt Chemical Works, Merck & Co and E R Squibb & Sons. The necessary number of cans were opened for the daily supply and the contents transferred to the quarter-pound cans bearing the uniform label, after they were thoroughly rinsed with the fresh ether. In general, the two types of ether were alternated daily, although no fixed order was followed, in order to avoid the danger of possible detection by the anesthetist.

<sup>3</sup> In the test for peroxides 1 cc of a colorless 10 per cent solution of potassium iodide was added to 10 cc of the ether in a glass stoppered cylinder previously rinsed with the ether. The absence of a yellow color after shaking from time to time during five minutes indicates that not more than a trace of peroxide, if any is present (result designated negative). In the test for aldehydes 3 cc of Nessler's solution (U S P A) was added to 20 cc of the ether in a glass stoppered cylinder previously rinsed with the ether. The absence of almost immediate change in color after shaking and allowing layers to separate indicates that not more than a trace of aldehyde, if any is present (result designated negative).

<sup>2</sup> Baskerville Charles. Ethyl Ether for Anesthetic Purposes. *Am Druggist & Pharmaceut. Rec.* 5: 162 1910.

A complete record of all cans of ether sent to the operating rooms was kept in the department of pharmacology. In addition to this open record, a sealed envelop containing a duplicate record was sent to the anesthetist with the daily supply of ether. These sealed envelops were opened for the purpose of identifying the specimens of ether only after the work had been completed and the results had been analyzed from records which gave no clue as to the source of the ether.

TABLE 1—Types of Operations in the Cases in Which a Mixture of Anesthetic Agents Was Used

Operation	U S P Drum Ether	Small Can Ether Labeled 'for Anesthesia'
1 Appendicectomies	68	64
2 Biliary tract operations	22	27
3 Major gynecologic operations	16	22
4 Prostate and bladder operations	7	4
5 Kidney and ureter operations	5	2
6 Gastric operations	11	14
7 Intestinal resections	2	6
8 Nose and throat operations (tonsils adenoids antrums etc)	40	60
9 Thyroid operations	5	4
10 Exploratory laparotomies	14	7
11 Radical breast operations	4	2
12 Brain operations	1	0
13 Splenectomies	1	0

The anesthetics comprising this study were conducted by nine experienced anesthetists. A group of 113 patients received ether alone and in these the open cone drop method was used. A group of 589 patients were anesthetized by a mixture of anesthetics comprising various combinations of tribrom-ethanol, ethylene, nitrous oxide and ether. In a large proportion of the latter group some form of rebreathing method was used for the administration of the ether. A record of the anesthesia was made by the anesthetist on a special form provided for each patient. It was filled out at the time of the operation and further notes were added as the additional observations were made. These special charts were employed for the analysis of the data when the work was completed. This form supplied the following significant data: the diagnosis, the type of operation, the name of the anesthetist and surgeon, the physical status of the patient before operation, the drugs given prior to anesthesia and the time of their administration, the amounts of anesthetics other than ether, the amount of ether used and the code number of the specimen, the character and duration of the induction stage, the stage of maintenance and the stage of recovery, and postoperative complications up to the time of discharge from the hospital. Special attention was paid to such factors as coughing, excessive mucus, undue struggling, vomiting, cyanosis, signs of collapse, unduly prolonged induction stage, and difficulty in obtaining sufficient anesthesia or relaxation.

These special charts also provided a space for a general estimate by the anesthetist of the quality of the anesthesia in the individual patients, which was recorded immediately after the operation and was expressed as "satisfactory" or "unsatisfactory." These designations were intended to express a judgment on the part of the anesthetist which would take into account factors which might reasonably influence the character of the anesthesia, as the temperament of the patient, the character of the operation, and the type of preliminary medication. Anesthetics in which the induction, the maintenance and the recovery were smooth and uncomplicated by struggling, coughing, vomiting or other special reactions made up by far the larger part of the group of "satisfactory" anesthetics. However, some cases pre-

sented special and undesirable reactions were also placed in the group of "satisfactory" anesthetics. The plan may be made clearer by a few illustrations.

An anesthesia was described as "satisfactory" when a patient who was unduly nervous struggled violently during the induction but passed through the other stages of anesthesia without any special symptoms. If vomiting occurred during the induction stage in a patient who had received suitable preoperative preparation, the anesthesia was judged "unsatisfactory," whereas if vomiting occurred in an emergency operation in which the stomach was not empty the anesthesia was considered "satisfactory," provided it was normal in other respects. If cyanosis developed during the stage of extremely deep anesthesia purposely induced as is sometimes requested by the surgeon during a difficult cholecystectomy, the anesthesia was not judged "unsatisfactory," whereas if the anesthetist found it impossible to induce a normal depth of anesthesia without cyanosis the anesthesia was considered "unsatisfactory."

With the exception of the foregoing cases, anesthetics were regarded as "unsatisfactory" if the anesthetist's efforts to maintain smooth, even and uncomplicated anesthesia proved unavailing. In the designation "unsatisfactory" it is not intended to imply that the special symptoms were due to the anesthesia alone or to the ether alone, for differences in susceptibility of patients were not excluded, and other anesthetics in addition to ether were used in a large proportion of the cases. Nevertheless ether was present in these mixed anesthetics, and it was felt that, if significant differences between drum ether and ether labeled "for anesthesia" exist, they would be revealed in the records which give an account of the foregoing observations. We realize that the subjective elements involved in the

TABLE 2—Types of Operations in the Cases in Which Ether Was the Sole Anesthetic Agent

Operation	U S P Drum Ether	Small Can Ether Labeled 'for Anesthesia'
Tonsillectomies	6	8
Appendicectomies	1	1
Closed reduction (humerus)	0	1
Incision and drainage of abscess	4	4
Circumcisions	40	15
Cholecystectomies	0	3
Exploratory laparotomy	0	1
Dilation of rectal sphincter	0	2
Osteotomies	0	1
Prostatectomies	0	1
Mastoidectomies	2	4
Ventriculogram	0	1
Excision of parotid gland	0	1
Excision of nevi back and chest	0	1
Hernia	0	1
Thyroidectomy	0	1
Rib resection	0	1
Excision of cyst of elbow	0	2
Cystoscopies	3	2
Craniotomy	0	1
Laminectomy	1	0
Repair of hydrocele	1	0
Suture tendon	1	0
Resection of rectum	1	0
Muscle biopsy	1	0
Splenectomy	1	0

classification of anesthetics as "satisfactory" and "unsatisfactory" introduce variable factors with a considerable margin of error and that under ordinary circumstances opinions which are based on such estimates are vitiated by the bias of the anesthetist who knows the source of the ether. The significant point of this study is that the general appraisals were made entirely free of possible prejudices and preconceived notions regarding the relative value of different types of ether, since those who made them had no knowledge of the source of the ether.



## RESULTS

The analyses are based on the results obtained in 702 surgical patients. There were nine additional patients who were not included because the records were not sufficiently complete. In all, 349 patients received the drum ether and 353 the small can ether labeled "for anesthesia." Table 1 shows the distribution of the more common types of operations in patients who received drum ether and those who received small can ether labeled "for anesthesia," in the group of mixed anesthetics. Table 2 shows a similar analysis in the group of 113 cases in which ether was the sole

TABLE 3—Distribution of Cases of Vomiting During the Induction and Maintenance Stages of Anesthesia

Type of Anesthesia	Number of Cases
All anesthetics	30
Mixed anesthetics	29
Small can ether (mixed anesthesia)	19
Drum ether (mixed anesthesia)	10
Small can ether alone	1
Drum ether alone	0

anesthetic agent. While the types of operations were not equally distributed between the groups of patients receiving the two types of ether, there is a large enough representation of the more common operations in the two groups to justify the deductions that are made in this study.

Table 3 shows the distribution of the cases of vomiting during the induction and the maintenance stages of anesthesia in the total number of 702 patients. As may be seen, there were in all thirty patients who vomited during one or the other of these stages, and those receiving the small can ether labeled "for anesthesia" constituted twenty of these thirty cases. The number of cases is much too small for the results to have any statistical value, but as far as they go they do not give any suggestion that ether taken from a large drum is more irritant and more apt to induce vomiting than ether labeled "for anesthesia."

An attempt was made to ascertain whether there is any difference between the quantities of the two types of ether necessary for anesthesia. There are so many variable factors in an analysis of this kind that again the statistical value of the figures obtained in a relatively small group of cases is open to question, especially in the group in which ether was not the sole anesthetic agent. We examined the results in the group of 113 patients who received ether alone, and we present them for what they are worth. The amount was recorded in forty-four cases in which the small can ether labeled "for anesthesia" was used and in fifty-nine cases in which the drum ether was used. The amount of small can ether ranged in the different cases from 0.25 ounce to 10.5 ounces, with an average of 3.26 ounces. The amount of drum ether ranged from 0.25 ounce to 9 ounces, with an average of 2.16 ounces. It seems extremely unlikely that these figures represent actual differences in the anesthetic potency of the two types of ether. In any case, however, they lend no support to the view commonly expressed that ether taken from a can which has been opened some time loses much of its power to induce anesthesia.

An analysis of the data on the postoperative complications revealed comparable conditions with the two types of ether. There were nine deaths in the group receiving drum ether and seven deaths in the group receiving small can ether labeled "for anesthesia." The nature of the complication in the fatal as well as in

the nonfatal cases is presented in table 4. The only death caused by a pulmonary complication occurred in the group which received the ether labeled "for anesthesia." Since it was due to a pulmonary infarction, it is extremely doubtful whether the ether was responsible for it. Excluding this case, there were no deaths in the whole series which could by any possibility be charged to either type of ether. There were six cases (all nonfatal) of postoperative pulmonary complications in the group receiving drum ether, and four cases (three nonfatal and one fatal) in the group receiving small can ether labeled "for anesthesia." If the two cases of bronchitis that occurred in patients who gave a history of chronic cough before the anesthetic was administered are omitted, the results in regard to postoperative pulmonary complications are essentially identical for the two types of ether.

Two additional groups of data have been analyzed, which present the most significant facts of the present study, namely, the chemical tests of the drum ether and the relative incidence of "satisfactory" and "unsatisfactory" anesthetics in the cases in which the two kinds of ether were given. The results of the chemical tests are presented in table 5. The contents of three 55-pound drums of U S P ether had been transferred to twenty-five 5-pound tins, which were opened from time to time for the filling of the quarter-pound cans. The number of times the tins were opened and the intervals between the first opening and the last testing are stated in the table. Extremely delicate tests, capable of detecting traces of aldehydes and peroxides, gave negative results as long as sixty-eight days after the tins were first opened. Not one of the twenty-five

TABLE 4—Postoperative Complications with the U S P Drum Ether and Small Can Ether Labeled "for Anesthesia"

	U S P Drum Ether	Small Can Ether Labeled for Anesthesia
Total number of post operative pulmonary complications	15	10
Total number of deaths	9	7
Causes of death	<ol style="list-style-type: none"> <li>1 Peritonitis and hemorrhage</li> <li>2 Peritonitis</li> <li>3 Peritonitis</li> <li>4 Peritonitis</li> <li>5 Carcinomatosis</li> <li>6 Septicemia</li> <li>7 Shock death on second day after operation*</li> <li>8 Gas gangrene</li> <li>9 Intestinal obstruction</li> </ol>	<ol style="list-style-type: none"> <li>1 Shock and hemorrhage</li> <li>2 Peritonitis</li> <li>3 Coronary thrombosis</li> <li>4 Heart failure</li> <li>5 Pulmonary embolus</li> <li>6 Uremia</li> <li>7 Septicemia</li> </ol>
Nature of nonfatal pulmonary complications	<ol style="list-style-type: none"> <li>1 Septic pulmonary infarction with empyema</li> <li>2 Pulmonary infarction</li> <li>3 Bronchitis†</li> <li>4 Bronchitis†</li> <li>5 Bronchitis</li> <li>6 Pulmonary atelectasis</li> </ol>	<ol style="list-style-type: none"> <li>1 Pleural effusion</li> <li>2 Pulmonary infarction</li> <li>3 Pneumonia with pleural effusion</li> </ol>

\* The patient was 44 years old the operation of two hours forty three minutes duration for resection of a pancreatic tumor.

† These patients gave a history of a chronic cough before the operation.

tins showed signs of chemical deterioration of the ether. These confirmed the results obtained in the previous study.<sup>1</sup>

In table 6 the incidence of "satisfactory" and "unsatisfactory" anesthetics in the cases in which U S P drum ether was the agent is compared with that in the cases in which small can ether labeled "for anesthesia" was used. As has already been stated, these designations expressed a judgment of the anesthetist as



to the quality of the anesthesia made at the time of the operation and without knowledge of the source of the ether. It is clear from this table that the results are identical with the two kinds of ether.

The results obtained in three cases illustrate in a striking manner how differences in the behavior of the patient may be a source of error in judging the quality

TABLE 5—Results of Tests for Deterioration of Drum Ether After the Container Was Opened

Number of the Five Pound Tin	Number of Times Tin Was Opened	Interval (Days) Between Date When Tin Was Filled and Date When Last Opened	Tests for Deterioration Products
Ether from First Drum			
1	7	14	N
2	7	20	N
3	6	36	N
4	5	42	N
5	6	40	N
6	4	53	N
7	4	62	N
8	2	68	N
Ether from Second Drum			
1	3	3	N
2	5	15	N
3	4	23	N
4	3	20	N
5	4	37	N
6	4	46	N
7	3	53	N
8	4	63	N
9	1	64	N
Ether from Third Drum			
1	4	4	N
2	5	11	N
3	5	21	N
4	5	30	N
5	4	37	N
6	5	46	N
7	3	51	N
8	5	60	N

of an anesthetic agent. One of these came to operation on two occasions, during both of which small can ether labeled "for anesthesia" was administered. After the first operation performed for adhesions, recovery was uneventful, whereas after the second one, for intestinal obstruction, a postoperative pulmonary infarction developed. In the second patient a convulsive seizure developed during the induction stage, although the period of

TABLE 6—Incidence of "Satisfactory" and "Unsatisfactory" Anesthetics in Cases in Which U S P Drum Ether Was Used with That in Cases in Which Small Can Ether Labeled for Anesthesia Was Used

	U S P Drum Ether		Small Can Ether Labeled for Anesthesia	
	Number	Per Cent	Number	Per Cent
Ether alone (113 cases)				
Total cases	62		51	
Satisfactory	61		48	
Unsatisfactory	1		3	
Mixed anesthesia (680 cases)				
Total cases	287		302	
Satisfactory	248	86.7	250	85.7
Unsatisfactory	39	13.3	48	14.0
All anesthesia (702 cases)				
Total cases	349		353	
Satisfactory	309	88.5	307	86.9
Unsatisfactory	40	11.5	46	13.1

maintenance was even and uneventful. The ether in this case was from a quarter-pound tin labeled "for anesthesia" similar to that used in many other cases in this study. In the third case it was found impossible to obtain sufficient relaxation to perform a hemorhoidectomy during anesthesia with nitrous oxide and 6 ounces of drum ether. Small can ether labeled "for

anesthesia" was then substituted, but the anesthesia was discontinued when relaxation was not obtained after 6 ounces of this had been administered.

#### SUMMARY AND CONCLUSIONS

1 This study shows that U S P ether as supplied at the present time in large metal containers does not undergo rapid chemical deterioration when the container is opened. Deterioration products were not found even sixty-eight days after the container was first opened. These results confirm a previous report.<sup>1</sup>

2 The study of 702 surgical anesthetics shows, furthermore, that the anesthetist is unable to distinguish the effects of U S P drum ether from those of ether obtained in small cans labeled "for anesthesia," by the reactions of surgical patients, provided the anesthetist does not know the source of the ether he is using. Under those conditions, the anesthetist was unable to distinguish, for example, the ether in a quarter-pound tin labeled "for anesthesia" from ether taken from a 55-pound drum sixty days after it had first been opened.

3 The U S P drum ether that we used in the present study was therefore as satisfactory for anesthesia as the ether in small tins labeled "for anesthesia." We believe that this statement is applicable to U S P ether in large containers from at least five other sources, which, although not labeled "for anesthesia," was found in a previous study<sup>1</sup> to be similarly resistant to chemical deterioration after the containers were opened.

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### Clinical Notes, Suggestions and New Instruments

#### HYPERPARATHYROIDISM CLINICAL PICTURE IN THE FAR ADVANCED STAGE

##### SECOND REPORT

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In 1931 we<sup>1</sup> presented a case of hyperparathyroidism that had advanced to such a stage that every bone showed cysts and decalcification, and some of the long bones, especially the femurs, almost complete demineralization. Owing to the numerous fractures early in the disease, and the extreme softness of the bones later, marked deformities had occurred, leaving the patient a hopeless cripple. When the decision had been made to do an exploratory operation with the objective of finding a parathyroid tumor, no other hope was entertained than to stop the progress of the disease. Not only was this hope realized but the patient has been restored to a degree that seemed unbelievable at the time of his first operation. Since the case forcefully illustrates what can be expected from the surgical treatment of hyperparathyroidism arising from an adenoma of this gland, the history subsequent to the first publication is presented.

##### SUMMARY OF CASE

J. M., a well developed man, 6 feet (183 cm) tall and weighing 200 pounds (90.7 Kg), was well up to the age of 21 (1925). A roentgenogram of the knee at that time showed beginning bone changes. A year later he sustained spontaneous fractures of both femurs and the right humerus. After six months of hospital treatment, he was discharged with the diagnosis of

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1. Quick A. J. and Hunsberger Ambrose. Hyperparathyroidism: The Clinical Picture in the Far Advanced Stage. J. A. M. A. 96:745 (March 7) 1931.

multiple giant cell tumors. Two years later, in June 1929, he was admitted to the Philadelphia General Hospital. At this time the skeletal system was distorted and deformed, and his total length was reduced to 45 inches (83.8 cm). The pathologic changes were limited almost entirely to the osseous system, with cystic degeneration of every bone. The urine

showed a fixed specific gravity, a trace of albumin, and a high concentration of calcium. The blood calcium was consistently high (average about 15 mg per hundred cubic centimeters of blood) and the blood phosphorus low (about 3 mg). Feb 28 1930, an exploratory operation was done and a parathyroid tumor was found. Because of the operative difficulties, it is probable that not all of the tumor was removed. After three months the blood calcium was again up to 15 mg per hundred cubic centimeters. Superficial roentgen therapy was found ineffective. A second operation was done, June 5. A tumor somewhat larger than the first was found at the site of the first adenoma. Immediately

ulation alone sufficed. It was interesting that these long bones were not only angulated but actually twisted. On manipulation there was no cracking or breaking, merely a crunching, as of grinding together loose hard gravel. The leg was put in a plaster cast and the cast reapplied in May. In August the left tibia and fibula were corrected and reset.

Since the blood calcium again became abnormally high, another exploratory operation was indicated and done in March 1932. An incision was made through the old scar, and on retraction of the tissues a tumor was exposed, which was removed by blunt dissection. The tumor was irregular and lobulated and measured 3 by 2 by 1 mm. Microscopic examination of the section of the tumor showed essentially the same structure as the two previous tumors. Following the operation no serious drop in blood calcium occurred. It was 11.9 mg immediately before the operation and 8 mg the following day.

With the prospects of a permanent cure the patient was fitted with a pair of braces January 1933, and by the end of July was able with the aid of crutches to take daily walks. He was discharged from the hospital October 10. At this time the blood calcium was 10.4 mg and the roentgenographic report stated that there was a marked cystic condition of all the bones but that evidence of recalcification and new bone formation was present.

#### COMMENT

This case has been exceedingly instructive not only because it has demonstrated one of the most advanced stages of hyperparathyroidism but also because it has emphasized the effectiveness of treatment. It required three operations and the removal of three tumors before the blood calcium remained normal. Whether the two subsequent tumors originated from the primary adenoma or developed separately cannot be decided definitely, but it is probable the first supposition is the more likely. The case emphasizes the need for complete removal of the tumor and the advisability of a second exploratory operation if signs of hyperparathyroidism persist.

Although it is unfortunate that the disease was not arrested until such extreme deformities had occurred, there can be no question that the patient has been greatly benefited. It is doubtful whether the patient would still be living without the operations. Even in the six months at the hospital before the first operation the rapid progress of the disease was easily discernible clinically and by the increasing decalcification of all the bones. It has been possible to stop the progress of the disease and to correct somewhat the deformities. Thus, this patient, who was formerly a helpless bedridden creature, has been sufficiently restored so that he no longer requires hospital care.



Fig 1—The patient before the onset of the disease at the age of 17

after the operation a marked hypocalcemia occurred, and the patient was on the verge of tetany. This was controlled by calcium chloride and viosterol. The blood calcium became normal in eighteen days and the patient seemed apparently cured.



Fig 2—The patient three years after the onset of the disease at the age of 26

#### SUBSEQUENT HISTORY

Since it seemed certain that the disease had been permanently arrested efforts were made to correct some of the patient's deformities and the first operation was done in February 1931. An incision was made over the anterior surface of the right leg over the region of the greatest curvature. Although it was planned to straighten the bones by means of an osteotome it was found that this was unnecessary and that manual manip-



Fig 3—The patient three years after the final and complete removal of a parathyroid tumor. He is now able to walk with the aid of crutches.

**Special Article****GLANDULAR PHYSIOLOGY AND THERAPY****THE PHYSIOLOGY AND PRINCIPAL  
INTERRELATIONS OF  
THE THYROID**DAVID MARINE, M.D.  
NEW YORK

NOTE.—This article and the articles in the previous issues of THE JOURNAL are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed, the series will be published in book form.—Ed

The greatest advances in thyroid physiology during the last decade have been made in the chemistry of thyroxine<sup>1</sup> and in the interrelations of the thyroid with other organs both of internal and of external secretion, although in the latter field only a good beginning has as yet been made.

The fact that the principal function of the thyroid is to increase oxidative processes in the body further indicates that all body activities are influenced by the state of thyroid function and vice versa. Although the major serious disabilities due to disturbance in thyroid function are known, it is to be expected that as the interrelations are further worked out many lesser disabilities may be proved to have a definite relation to the thyroid.

In reviewing the function of the thyroid, certain general facts must be borne in mind. First, the thyroid ancestrally belongs to the alimentary tract. Second, the organ is endowed with tremendous capacities for increasing and decreasing its functional activity, as indicated by changes in weight, microscopic appearance, iodine content and blood supply. Third, hyperplasia indicates hyperactivity but not necessarily hyperfunction. Myxedema and cretinoid states may occur in individuals and animals with typical hyperplasia. It is more accurate to consider all functional hyperplasia as indicating relative or absolute iodine deficiencies and colloid goiter as the recovered, resting and physiologically normal stage.<sup>2</sup>

**EFFECTS OF REMOVAL**

Definite knowledge of the physiology of the thyroid may be said to have begun with Sir William Gull's report in 1874.<sup>3</sup> He definitely connected atrophy of the thyroid, which he had observed in several middle aged women, with loss of hair, thickening and dryness of the skin, and great loss of mental and physical vigor. William Ord designated this condition as myxedema in 1878 because he thought that the thickening of the subcutaneous tissues was due to mucin formation. In 1882 the Reverdin brothers<sup>4</sup> and in 1883 Theodore Kocher<sup>5</sup> reported on the effects of total thyroidectomy for the cure of goiter in man, thus experimentally confirming Gull's discovery. The Reverdin brothers desig-

nated the condition they had produced as operative myxedema and Kocher as cachexia strumipriva. Following these reports many species of animals were subjected to thyroidectomy. Thyroidectomized dogs and cats usually developed parathyroid tetany, while in rabbits, sheep or goats very little obvious effects were noted, and it was not until the rediscovery of the external parathyroids in the rabbit by Gley<sup>6</sup> in 1891 that a real separation of parathyroid and thyroid functions was possible. Gley's observation disproved the prevailing view that the acute symptoms which frequently followed thyroidectomy were due to thyroid removal. Since 1891 many species of animals have been subjected to thyroidectomy in which the parathyroid factor has been excluded. In 1895 Magnus-Levy,<sup>7</sup> using the newly developed calorimeter, discovered that in Gull's disease the heat production was lowered as much as 40 per cent. Later a similar lowering of metabolism was found to be the characteristic effect of thyroidectomy in animals. The fall in heat production begins in most mammals between the fifth and the seventh day after thyroidectomy, in the rabbit this reaches its lowest level (from 30 to 40 per cent) between the twentieth and the thirtieth day, and in man about the sixtieth day. This low level of metabolism may be maintained for years, or as accessory thyroids or fragments regenerate the metabolism may rise, but usually not to a normal level. While qualitatively the symptoms following thyroidectomy are similar in both young and adult animals, the visible manifestations are strikingly more prominent in animals thyroidectomized during the growing period. On inspection, adult rabbits, sheep and goats may show very little change, which led the earlier workers to the belief that thyroidectomy was without much effect. Measurements of heat production in such animals, however, show the usual marked decrease. In the young this lowering of metabolism leads to stunted physical, mental and sexual development. The thyroid, therefore, appears to be not essential for vegetative life.

**BIOCHEMISTRY**

The next most important advance in thyroid physiology was the demonstration in 1891 by Murray<sup>8</sup> of the remarkable curative effects of injections of a glycerin extract of fresh sheep thyroid in a case of Gull's disease. (This was an advanced case of five years' duration when treatment with thyroid was begun. The patient, a woman, died in 1919 at the age of 74, health having been maintained on thyroid medication for twenty-eight years<sup>9</sup>.) Murray's observation was quickly followed in 1892 by the independent observations of Howitz,<sup>10</sup> Mackenzie<sup>11</sup> and Fox<sup>12</sup> that thyroid substance, whether fresh, dried or cooked, was equally efficacious when administered by mouth.

In 1894 Emminghaus and Reinhold<sup>13</sup> showed that thyroid feeding produced a marked reduction in the size of certain types of goiter. These discoveries greatly stimulated the efforts of biochemists to isolate the active substance. Attempts to demonstrate iodine in the thyroid gland had been made many times since Comindet in 1820 first demonstrated its therapeutic value

From the Montefiore Hospital  
1 Harrington C. R. The Thyroid Gland Its Chemistry and Physiology, London Oxford University Press 1933  
2 Marine, David and Lenhart, C. H. Bull. Johns Hopkins Hosp 20 131 1909  
3 Gull William Tr. Chir. Soc. London 7 180 1874  
4 Reverdin J. L. and Reverdin A. Rev. méd. de la Suisse Rom. 3 169 233 309 1883  
5 Kocher Theodore Arch. f. klin. Chir. 29:254 1883

6 Gley E. Compt. rend. Soc. de biol. 43 841 843 1891  
7 Magnus Levy A. Berlin klin. Wchnschr. 32 650 1895  
8 Murray G. R. Brit. M. J. 2 796 1891  
9 Murray G. R. Brit. M. J. 1 359 (March 13) 1920  
10 Howitz F. Ugesk. f. læger 28:109 1892  
11 Mackenzie H. W. G. Lancet 2:999 1892  
12 Fox, E. L. Brit. M. J. 2 941 1892  
13 Reinhold G. Munchen med. Wchnschr. 41 613 1894

in the treatment of goiter, but owing to faulty methods these efforts failed. The new stimulation aroused by Murray's observation prompted the work of Hutchison<sup>14</sup> in Great Britain, Fränkel<sup>15</sup> in Austria, Drechsel<sup>16</sup> and Oswald<sup>17</sup> in Switzerland and Baumann<sup>18</sup> and his co-workers in Freiburg, which culminated in the announcement by Baumann in 1895 that iodine in a firm organic combination was a normal constituent of the mammalian thyroid. He obtained by acid hydrolysis (10 per cent sulphuric acid) a brownish powder containing as much as 93 per cent of iodine, which he named iodothyrim. Later work showed that this method destroyed most of the specific iodine compound. Baumann and his pupils showed that iodine was present in the thyroid of dogs in variable amounts and that feeding iodine increased the store. They also showed that a meat diet reduced the iodine store. Oswald<sup>19</sup> in 1899 observed that the iodine was contained in the colloid and that the colloid was a globulin, he introduced the terms "thyroglobulin" and "iodothyroglobulin." He showed that the iodine content of the thyroid varied in general with the amount of visible colloid. The studies of Marine and Williams<sup>20</sup> and Marine and Lenhart<sup>21</sup> further advanced the knowledge of the relation of iodine to thyroid structure by showing that the iodine store in general varied inversely with the degree of active hyperplasia, in extreme degrees of thyroid hyperplasia the iodine store was exhausted. At that time the opinion was widely held that iodine was excreted into the thyroid gland as part of an alleged detoxicating function. The globulin content of the thyroid is roughly the same whether the gland is hyperplastic or colloid. In the hyperplastic state the thyroglobulin is in the cells and is iodine poor, while in the colloid state the thyroglobulin is mainly in the follicles and is usually iodine rich.

The maximum iodine store in the mammalian thyroid may be raised to 5 or 6 mg per gram of dry substance. In the accompanying table the relation of the iodine store to histologic structure of several species is given.

Relation of Iodine Store to Histologic Structure

	Normal	Hyperplastic Stage			Colloid or Resting Stage
		Early	Moderate	Marked	
Man	2.17*	0.88	0.71	0.32	2.00
Dog	3.32	0.02	0.37	0.11	1.00
Sheep	2.47		0.40	0.01	3.00
Ox	3.46	1.03		0.19	
Pig	2.51	1.10			2.35

\* Iodine in milligrams per gram of dried gland

The normal human thyroid weighs from 20 to 25 Gm and the maximum iodine storage is from 20 to 25 mg, while the average normal total store is from 10 to 15 mg. Fenger<sup>22</sup> showed that iodine was normally present in the fetal thyroid, he was able to demonstrate it in the fetal calf as early as the third month. There is also a definite seasonal variation in the iodine store,

this is lower in the early spring and higher in the late summer.<sup>23</sup> Iodine fed to pregnant mothers is quickly stored in the fetal thyroid. Surviving thyroid *in vitro*<sup>24</sup> shows the same marked ability to take out and store iodine from the circulating fluid as is seen in the thyroid *in vivo*. So far as is known, the thyroid is the only organ capable of elaborating an iodine-containing hormone. Iodine is present in the anterior pituitary and in the ovary in significant amounts, but owing to the close physiologic relationship between anterior pituitary, ovary and thyroid its presence there could be of thyroidal origin.

Further attempts by many workers to isolate the iodine-containing hormone resulted in Kendall's<sup>25</sup> announcement in 1916 that by means of alkaline hydrolysis he had isolated a crystalline compound containing 65 per cent of iodine, which produced the same pharmacologic effects as desiccated thyroid. His attempts to determine its structure were unsuccessful. In 1926 Harington,<sup>26</sup> by improving the method of extraction from the thyroid, was able to accumulate sufficient quantities of thyroxine to determine its empirical formula as  $C_{15}H_{11}O_4NI_4$  and its structural formula as 3,5,3',5' tetraiodothyronine. This work established that the mother substance of natural thyroxine is *L*-tyrosine. In 1927 Harington and Barger<sup>27</sup> synthesized this compound and showed that it had the same pharmacologic properties as natural thyroxine. Thyroxine appears to be only the active chemical group of the true hormone, which is probably iodothyroglobulin (Oswald). There are slight but definite pharmacologic differences (especially time) between thyroxine and iodothyroglobulin.

Harington also showed that the acid soluble fraction or physiologically inactive iodine noted earlier by Kendall was di-iodotyrosine. Foster<sup>28</sup> (1929) confirmed this and was able to recover 30 per cent of the total thyroid iodine as di-iodotyrosine. Harington has estimated that on an average 40 per cent of normal thyroid iodine is in the form of thyroxine and 60 per cent as di-iodotyrosine. Obviously in abnormal states of the thyroid there must be great variations in the proportions of these two compounds present, for the reason that di-iodotyrosine, though physiologically inactive, is a stage in the synthesis of thyroxine in the thyroid. The synthesis of thyroxine requires hours, while the storage of iodine in the thyroid, both *in vivo* and *in vitro*, is almost instantaneous. The form in which iodine is so quickly stored has not been determined. It is, however, firmly bound and prolonged perfusion does not wash it out if the cells are surviving (Marine and Feiss). The first evidence of thyroxine formation in the dog's thyroid, using the Gudernatsch tadpole test, was obtained by Marine and Rogoff<sup>29</sup> in about eight hours after the intravenous injection of potassium iodide.

As already mentioned, the most important single contribution to knowledge of the physiology of the thyroid was obtained by Magnus-Levy<sup>7</sup> in 1895, when he demonstrated that in Gull's disease the metabolism was greatly reduced and that treatment with desiccated

14 Hutchison R. *J Physiol.* 20:474 1896. Practitioner 66:402, 1901.

15 Frankel S. *Wien med Blatte* 18:759 1895.

16 Drechsel E. *Centralbl. f Physiol* 9:705 1895 1896.

17 Oswald A. *Beitr z chem, Phys u Path (Hofmeister s)* 2:545 1902.

18 Baumann E. *Ztschr f physiol Chem* 21:319 1896.

19 Oswald A. *Ztschr f physiol Chem* 32:121 1901.

20 Marine David and Williams W W. *The Relation of Iodine to the Structure of the Thyroid Gland Arch Int Med* 1:349 (May) 1908.

21 Marine David and Lenhart C. H. *Further Observations on the Relation of Iodine to the Structure of the Thyroid Gland in the Sheep, Dog, Hog and Ox Arch. Int. Med* 3:66 (Feb.) 1909.

22 Fenger F. *J Biol Chem* 14:397 1913.

23 Seidell A and Fenger F. *J Biol Chem* 13:517 1913.

24 Marine David, and Feiss, H O. *J Pharmacol & Exper Therap* 7:557 1915.

25 Kendall, E. C. *Collected Papers of the Mayo Clinic* 8:513 1916.

26 Harington, C R. *Biochem J* 20:293 300 1926.

27 Harington, C R and Barger, G. *Biochem J* 21:169 1927.

28 Foster G L. *J Biol Chem* 83:345 (Aug) 1929.

29 Marine David, and Rogoff J M. *J Pharmacol & Exper Therap* 8:439 (Aug) 1916.

thyroid raised the metabolic rate to normal or above. Magnus-Levy also discovered that the respiratory exchange in exophthalmic goiter was notably increased. Friedrich Muller<sup>30</sup> two years earlier had shown that the nitrogen metabolism was significantly increased in exophthalmic goiter. The most characteristic physiologic effects of iodothyroglobulin or its active chemical group thyroxine is that it increases, after a latent period of twelve hours or more, the oxidation in the body of proteins, fats and carbohydrates and that it also increases the excretion of certain minerals, notably calcium and magnesium.<sup>31</sup> H. Zondek has shown that calcium diminishes the effect of thyroxine on tadpoles. The means by which thyroxine increases oxidative processes in the cells is unknown. Rohrer<sup>32</sup> first showed that the oxygen consumption of minced liver, kidney and muscle of rats previously fed with thyroid substance was increased while Ahlgren<sup>33</sup> showed that isolated muscle from thyroidectomized animals consumed much less oxygen than normal. There is considerable evidence that epinephrine and thyroxine may work together in this process.

Gudernatsch<sup>34</sup> discovered that when small amounts of thyroid substance were fed to tadpoles there was a rapid loss in weight and metamorphosis in from four to five days. This test still remains the most sensitive test for the thyroid hormone. Other forms of iodine may hasten metamorphosis to a slight degree but never to a degree that could be confused with thyroxine action. The acetonitrile (methyl cyanide) test<sup>35</sup> depends on the protection that the thyroid hormone gives to white mice against this drug. It is not specific, since thyroid feeding decreases the resistance of rats, rabbits and guinea-pigs to acetonitrile.

The effect of thyroid administration on the heart and circulation has been studied by von Furth,<sup>36</sup> von Cyon,<sup>37</sup> Oswald<sup>38</sup> and more recently by Carter and his co-workers.<sup>39</sup> Purified solutions of iodothyroglobulin injected intravenously cause only slight lowering of blood pressure, but the heart rate is notably increased after a latent period. Oswald believes that thyroid increases the irritability of all sympathetic nerve endings. The more recent experiments of Lewis and McEachern<sup>40</sup> indicate that the tachycardia of thyroxine-treated rabbits continues for hours after the heart has been transferred to Ringer-Locke's solution. The relation of thyroid to antibody immunity has been extensively studied and while the results are somewhat contradictory they do not warrant any direct association of thyroid with antibody formation. However, the lowering of the iodine store and the tendency to thyroid hypertrophy in many of the infectious diseases clearly indicate that the thyroid is an important indirect factor in resistance to infections.

#### DIET

Diet notably affects both the structure and the chemistry of the thyroid. Baumann in 1896 and many others

have noted in dogs that fresh meats cause hypertrophy of the thyroid, while sea fish increase the iodine store and reduce the size of the gland. Watson also found that a meat diet caused hypertrophy and hyperplasia of the thyroid cells in rats. Marine and Lenhart showed that liver, particularly pig's liver, was the most potent of a great variety of meats in causing thyroid hypertrophy in dogs and cats and also that this food was an important factor in the causation of goiter in brook trout. McCarrison and later Mellanby have shown that fats also promote thyroid hypertrophy. As thyroid hyperplasia is now believed to be secondary to the depletion of the iodine store, these facts indicate that diets rich in proteins and fats increase the rate of discharge of thyroxine and suggest that thyroid activity is more necessary in the oxidation of fats and proteins than of carbohydrates. Inanition brings about involution of the thyroid, i. e., a decrease in the size of the epithelial cells, a decrease in the blood supply, and an increase in the colloid and in the iodine store—evidence of decreased functional activity.

The experiments of Baumann and Hunt<sup>41</sup> demonstrated that the thyroid secretion is necessary for the specific dynamic action of foods. In thyroidectomized rabbits it disappears completely after about sixty-five days and can be restored in such rabbits by feeding desiccated thyroid.

#### INTERRELATIONS

This is both the oldest (sex glands) and the newest field of thyroid physiology, and in recent years important contributions have been made, especially as regards the relation of the thyroid to the anterior pituitary.

**Thyroid-Pituitary**—The major contributions in this field are those of Smith<sup>42</sup> and Allen<sup>43</sup> who first devised methods of removing the pituitary in tadpoles and in rats (Smith) without injuring adjacent brain structures, and by means of these methods demonstrated that the anterior pituitary was truly a master gland in that it controlled the functional state of many organs (thyroid, sex glands, adrenals and the like).

It had long been known to students of goiter that individuals or animals with large parenchymatous goiters (Niepce,<sup>44</sup> Schönmann<sup>45</sup>) have greatly enlarged anterior pituitaries. Rogowitsch<sup>46</sup> was the first experimentally to produce hypertrophy of the anterior pituitary by removal of the thyroid in rabbits. The pituitary hypertrophy after thyroidectomy is much greater, the younger the animal used. Doubtless many of the failures to confirm Rogowitsch's observation are due to the fact that adult animals were used. Histologically all elements of the anterior pituitary become hypertrophic, but the most striking single change is the disappearance of the eosinophil granules. Smith first noted in tadpoles and later in rats that hypophysectomy caused a marked involution of the thyroid, the injection of fresh anterior pituitary substance restored such atrophic thyroids to normal and even produced hypertrophy in these glands. Schockaert, Uhlenhuth, Loeb and many others showed that emulsions of fresh anterior pituitary acid and alkaline extracts of anterior pituitary powder in normal young susceptible animals

- 30 Muller, Friedrich. *Deutsch. Arch. f. klin. Med.* **51**: 335 1893
- 31 Aub, J. C., Bauer, W., Heath, C. and Ropes, M. *J. Clin. Investigation* **7**: 97 (April) 1929
- 32 Rohrer, A. *Biochem. Ztschr.* **145**: 154 1924
- 33 Ahlgren, G. *Skandinav. Arch. Physiol. (suppl.)* **47**: 1 1925
- 34 Gudernatsch, J. F. *Am. J. Anat.* **15**: 431 1914
- 35 Hunt, Reid. *J. Biol. Chem.* **1**: 33 1905
- 36 von Furth, Otto. *Ergebn. d. Physiol.* **8**: 524 1909
- 37 von Cyon, E. *Arch. f. d. ges. Physiol. (Pflüger's)* **128**: 575 1911
- 38 Oswald, A. *Arch. f. d. ges. Physiol. (Pflüger's)* **164**: 506 1906
- 39 Andrus, E. C. and McEachern, D. *Cardiac Manifestations of Hyperthyroidism*. *Am. J. M. Sc.* **183**: 741 (June) 1932
- 40 Lewis, J. K. and McEachern, D. *Bull. Johns Hopkins Hosp.* **48**: 228 (April) 1931

- 41 Baumann, E. J. and Hunt, L. *J. Biol. Chem.* **64**: 709 (July) 1925
- 42 Smith, P. E. *Proc. Soc. Exper. Biol. & Med.* **16**: 81 1918 1919
- 43 Allen, B. M. *Am. J. Anat.* **45**: 205 (March) 1930
- 44 Niepce, B. *Biol. Bull. Boston* **32**: 117 1917
- 45 Schönmann, A. *Traité du goitre et du crétinisme*. Paris 1851
- 46 Rogowitsch, A. *Virchows Arch. f. path. Anat.* **129**: 310 1892
- 47 Rogowitsch, A. *Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's)* **4**: 453 1889

(adults are much less reactive and there are great species differences as well<sup>47</sup>) causes a marked hypertrophy and hyperplasia of the thyroid, beginning within a few hours after injection. There is a rapid loss of the iodine store in the gland, there is an increase in blood iodine, in the metabolic rate, and in the excretion of calcium and creatine (Collip), and exophthalmos develops.

This thyroid stimulating substance in the anterior pituitary must be sharply distinguished from several other specific factors of the anterior pituitary which similarly stimulate body growth, the gonads, the adrenal cortex and probably many other organs as well. Loeser,<sup>48</sup> Anderson and Collip<sup>49</sup> and others have separated the specific thyroid stimulating factor from the other factors and confirmed and extended previous work. It was early observed by many workers that the daily administration of the thyrotropic factor to rats, guinea-pigs or rabbits brought about in from thirty to forty days a resistance to the thyroid stimulating factor, and the thyroid slowly regressed to its quiescent or colloid state again.<sup>49a</sup> (This immunity or resistance has been demonstrated for other 'tropic' factors of the anterior pituitary as well.) Collip and Anderson<sup>50</sup> have shown that the serum of such recovered animals contained an antistubstance which, while not preventing the thyroid hyperplasia following the injection of the thyrotropic factor, did prevent the characteristic increase in metabolism, calcium excretion and the like. It was early pointed out that the symptoms temporarily produced in laboratory animals by injection of the thyrotropic factor were strikingly similar to those of exophthalmic goiter in man, and this suggests that possibly exophthalmic goiter occurs when the capacity to produce antihormone is impaired. Sufficient work already appears to have been done with the thyrotropic factor to justify the conclusion that the thyroid may be directly stimulated only by this anterior pituitary substance. Exhaustion of this factor is probably the immediate cause of the thyroid atrophy in some cases of Gull's disease. On the other hand the cause of endemic cretinism in animals, and probably in man as well, is primarily thyroid insufficiency since it can be cured and prevented in a single gestation by the administration of iodine.

The relation of thyroid secretion to the development of the exophthalmos of exophthalmic goiter has long been a controversial question. Prevailing opinion favored the view that it was in some way connected with hypersecretion by the thyroid. Recent work by Marine and Rosen<sup>51</sup> has shown that such a view must be modified, since thyroidectomy notably facilitates the production of exophthalmos. At least two factors are necessary for its production (1) a relative or absolutely deficient thyroid secretion and (2) an excess of the thyrotropic factor. This would explain why iodine administration with intact thyroid or desiccated thyroid administration after thyroidectomy prevents the occur-

rence of exophthalmos, even when large amounts of the thyrotropic factor are administered. This would also explain why thyroid insufficiency alone, as in Gull's disease, is usually not associated with exophthalmos, because the thyroid atrophy in this disease appears to be primarily dependent on an insufficiency of the thyrotropic factor. Recently we have found a great diminution in the thyroid stimulating factor of the anterior pituitary from a patient with Gull's disease. The thyrotropic factor of the anterior pituitary stimulates thyroid transplants in any part of the body to approximately the same degree that the nontransplanted thyroid is stimulated. Recently Eitel, Krebs and Loeser<sup>52</sup> have demonstrated that the thyrotropic factor stimulates surviving thyroid cells in vitro. Such studies further confirm the view that the thyrotropic factor acts directly on the gland cells and that specific or intact nerve connections are unnecessary, either for secretory or for excretory activity of the gland.<sup>53</sup> The pituitary influence also probably explains why normally the growth of thyroid transplants or the degree of thyroid regeneration is in proportion to the amount of thyroid removed.

**Thyroid-Sex Glands**—This interrelationship has been recognized for centuries because of the enlargement of the thyroid during menstruation and pregnancy and the increased frequency of goiter during puberty, pregnancy and the menopause. It is known that the ovary and hypophysis stand next to the thyroid as regards iodine store. The nature of this relationship is still uncertain, but the recent work with the pituitary suggests that this organ is the necessary intermediate. Total removal of the sex glands in the dog, rabbit and rat usually leads to a slow involution of the thyroid in about one month and to slight reduction of total metabolism, indicating a depression of thyroid function. Several observers have reported a slight hypertrophy immediately after gonadectomy. Abelin<sup>54</sup> and others have shown that thyroid feeding has an inhibitory effect on estrus. Da Costa and Carlson<sup>55</sup> found that desiccated thyroid in large doses retarded sexual maturation of white rats of both sexes while small doses of thyroid tended to accelerate it. Schockaert<sup>56</sup> noted that emulsions of anterior hypophysis caused a greater hypertrophy of the accessory male sex glands after thyroidectomy than before. Many observers have noted that the prolonged injection of estrogenic substance causes a flattening of the thyroid epithelium and an increase in colloid, a few have reported opposite effects. The more recent observations of Pincus and Werthessen<sup>57</sup> and of Tagliaferro<sup>58</sup> may correlate these conflicting results. The latter found that thyroid enlargement occurred in rats and guinea-pigs following injections of estrogenic substance continued for five or ten days, whereas when the injections were continued for twenty days or more the opposite effect (involution) was observed.

It appears that the effects of the thyroid on the gonads and vice versa could be explained as effects

47 Aron M. *Compt rend Soc de biol* 110 716 (July) 192  
48 Loeser A. *Arch f exper Path u Pharmacol* 163: 530 1931  
49 Anderson Evelyn M. and Collip J B. *Thyrotropic Hormone of Anterior Pituitary* *Proc Soc Exper Biol & Med.* 30 680 (Feb) 1933  
49a This discovery makes it necessary to distinguish between activators and true internal secretions. Since Bayliss and Starling first applied the term hormone to one of these activators, secretin it would be logical to reserve the term for those factors which excite various organs to increased secretion of their specific products and against which the body produces antihormones.  
50 Collip J B. and Anderson Evelyn M. *Lancet* 1 76 (Jan 13) 1934  
51 Marine David and Rosen S H. *Am J M Sc* 188 565 (Oct) 1934

52 Eitel H. Krebs H A. and Loeser A. *Klin Wchnschr* 12 615 (April 22) 1933  
53 Manley O T. and Marine David. *Proc Soc Exper Biol & Med* 12 202 1915  
54 Abelin I. and Wiedmer E. *Arch f exper Path. u Pharmacol* 168 584 1932  
55 Da Costa E. and Carlson, A J. *Am J Physiol* 104 247 (April) 1933  
56 Schockaert J. *Compt. rend Soc de biol* 108 431 (Oct 23) 1931  
57 Pincus G. and Werthessen, N. *Am J Physiol* 103 631 (March) 1933  
58 Tagliaferro P. *Folia gynaec* 30 597, 1933

mediated through the anterior pituitary. There is abundant evidence that the response of the pituitary to thyroidectomy is not limited to stimulating an increased production of the thyrotropic hormone but that there is an increase in the growth hormone and the gonadotropic factors as well, vice versa, a depression of the thyrotropic factor by the administration of thyroxine probably depresses the gonadotropic factor. In rabbits that have been thyroidectomized at puberty (4 to 5 months) there is frequently noted an increase in sexual activity. So also injecting large doses of estrogenic substance appears to decrease the amount of gonadotropic factor produced by the pituitary as well as depressing the thyroid glands. These effects are understandable if one assumes that the same pituitary cell produces more than one hormonal factor, there is evidence that the eosinophilic cells may be responsible for the secretion of the thyrotropic and growth promoting factors.

**Thyroid-Thymus**—Gudernatsch<sup>54</sup> noted that thymus feeding greatly delayed the onset of metamorphosis in tadpoles and that it offered some protection against thyroid feeding. Hoskins<sup>59</sup> obtained an increase in weight of the thymus at birth in guinea-pigs whose mothers were fed desiccated thyroid. Thyroidectomy definitely hastens thymus involution<sup>60</sup>. Feeding desiccated thyroid causes regeneration of such atrophic thymuses. In conditions in which thyroid activity is increased, as in exophthalmic goiter and acromegaly, there is usually thymus hypertrophy. These effects could be interpreted as indicating some kind of antagonism between the thyroid and the thymus.

**Thyroid-Pancreas**—Falta<sup>61</sup> (1905) thought that the thyroid and pancreas were antagonistic. He found that thyroidectomized dogs were less sensitive to the hyperglycemic action of epinephrine than normal animals. This has been confirmed by Bodansky<sup>62</sup> (1923) and by Burn and Marks<sup>63</sup> (1925). Bodansky reported that thyroidectomized sheep were more sensitive to insulin than normal animals. This observation has been generally confirmed. Conversely, it has been shown that feeding thyroid or thyroxine to thyroidectomized rabbits decreases the hypoglycemic action of insulin. Bodansky believes that the thyroid hormone promotes glycogenolysis and that it is because of this action that the hypoglycemic action of insulin is increased after thyroidectomy and decreased by thyroid feeding. The effect of thyroid feeding probably is due in part to its sensitizing effect on epinephrine stimulation of the sympathetic nervous system.

**Thyroid-Liver**—Liver injury in exophthalmic goiter (mild, moderate and severe fibrosis, depletion of glycogen and, in severe cases, focal necrosis, jaundice and subacute yellow atrophy), although long known, has attracted more attention of late. Gerlei<sup>64</sup> obtained some confirmatory evidence of this sequence experimentally in the rabbit. He found that the injection of 4 mg of thyroxine daily (rabbits are very susceptible to the action of thyroxine) usually led to death in from five to seven days. These animals showed severe degenera-

tive lesions in the liver, beginning with cell necrosis in the central portion of the lobule and extending peripherally and involving the whole lobule. With the fusion of these lobular necroses large areas may be affected, and this condition may resemble acute yellow atrophy. Experimentally it has been abundantly confirmed that prolonged excessive thyroid feeding greatly reduces the glycogen store in the liver. This depletion of glycogen appears to depend on its increased utilization rather than on any immediate impairment of storage capacity by the liver. Conversely, thyroidectomy increases the glycogen storage in rabbit liver leading to a characteristic nutmeg appearance. Epinephrine probably is a necessary adjunct in the increased mobilization of glycogen in hyperthyroid states.

**Thyroid-Chromaffin System**—Epinephrine markedly constricts the thyroid veins following its intravenous injection<sup>65</sup>. Eppinger, Falta and Rudinger<sup>66</sup> first suggested an interrelationship. They assumed that epinephrine directly stimulated the thyroid gland. In 1911 Asher and Flack<sup>67</sup> showed that the blood pressure response in rabbits to a given dose of epinephrine was greater after stimulation of the thyroid nerves with intact thyroid than before. This has received confirmation from several sources, particularly by Cannon and his co-workers. Oswald<sup>68</sup> has shown that a similar increase in the blood pressure response to epinephrine may be obtained by the intravenous injection of iodothyroglobulin and that the effect is proportional to the iodine content of the thyroglobulin. Blau and McNamara<sup>69</sup> obtained the same effect by using thyroxine, Bergwall and Kuschinsky<sup>70</sup> obtained this effect with thyroxine after adrenalectomy. The Goetsch epinephrine test in exophthalmic goiter is a clinical application of this increased sensitiveness to epinephrine. All these observations would support the original view of Asher and Flack that the thyroid hormone increases the irritability of the sympathetic nervous system or sensitizes in some way the tissues innervated by it, so that they are more susceptible to stimulation by epinephrine. On the other hand, Zunz and La Barre<sup>71</sup> have reported that injections of from 1 to 3 mg of thyroxine in dogs caused a gradual hyperglycemia in the course of from three to six hours and that this did not occur when the adrenal veins were ligated just prior to the injection of thyroxine. These observations would suggest a direct stimulation of the chromaffin system by thyroxine.

**Thyroid-Adrenal Cortex**—Golyakowski<sup>72</sup> observed an increased output of carbon dioxide in dogs following the mass ligation of most of the adrenal vessels. Marine and Baumann<sup>73</sup>, working with rabbits, reported a definite increase in heat production in thirty-one out of thirty-nine rabbits from which both adrenal glands were partially removed, and in six out of fifteen rabbits whose adrenal function had been crippled by freezing

59 Hoskins R G Am J Physiol 26 426 1910  
60 Jeandeluz, P Lucien M and Parisot J Compt rend Soc de biol 66 942 1909 Marine David Manley O T and Baumann E J J Exper Med 40: 429 (Oct) 1924  
61 Falta W Med Klin 6 40 1910  
62 Bodansky A Proc Soc Exper Biol & Med 21 46 1923  
63 Burn J H and Marks H P J Physiol 60 131 (July) 1925  
64 Gerlei F Ann. d anat path 10: 555 (May) 1933

65 Gunning R E L Am J Physiol 44: 215 (Sept) 1917  
66 Eppinger, H, Falta W and Rudinger C Ztschr f klin Med 66: 1, 1908  
67 Asher L and Flack M Ztschr f Biol 55 83 1911  
68 Oswald A Centralbl f Physiol 30: 509 1915  
69 Blau, N F and McNamara Helena Proc. Soc Exper Biol & Med 27 997 (June) 1930  
70 Bergwall A and Kuschinsky G Arch f exper Path u Pharmacol 162 169 1931  
71 Zunz E and La Barre J Compt rend Soc de biol 110 95 (May 20) 1932  
72 Golyakowski S I Vrach 20 1017 1899  
73 Marine David and Baumann E J J Metab Research 2 1 (July) 1922



the glands This increase in heat production usually began between the third and the sixth day following adrenal injury and lasted from a few days to a month or more In a few cases heat production was increased more than 60 per cent above normal It was felt that infection and trauma could be excluded If, however, the thyroid gland was removed and the metabolism allowed to fall to the myxedema level prior to the injury of the adrenal glands, this increase in heat production did not occur Scott<sup>74</sup> obtained a few instances of increased heat production in cats with injured adrenals, but it was difficult to get sufficient but sublethal injury of the adrenal in this animal Davis and Hastings<sup>75</sup> have recently shown that adrenalectomized mice, after a latent period of about forty days, show an increased total metabolism and an increase in the metabolism of excised abdominal muscle as well They also confirm the observations of Marine and Baumann that a previous thyroidectomy prevents this rise in metabolism The most logical interpretation of these results is that the adrenal cortex (and the sex glands), acting through the anterior pituitary, normally exercise some regulatory or inhibitory control over thyroid function, when this control is sufficiently depressed or withdrawn, the activity of the thyroid is temporarily increased The only substance yet known common to both adrenal cortex and sex glands that appears capable of depressing the thyroid function by way of the pituitary is estrogenic substance, and this possibility is being further investigated

It should also be pointed out that there is some evidence that the adrenal cortex exercises an inhibitory control over other organ functions as well as the thyroid, for example, the increased sexual activity and priapism that commonly occurs in rabbits and rats a few days after adrenalectomy

In this connection also the normal involutionary destruction of the reticular and fascicular zones of the adrenal cortex in infants beginning about the eighth day after birth should be mentioned<sup>76</sup>

The demonstration by Smith that a somewhat similar lesion regularly occurs in the adrenal cortex after hypophysectomy and the demonstration by Collip, Anderson and Thomson<sup>77</sup> of a specific adrenotropic factor in the anterior pituitary suggest that this normal adrenal involution in infants is due to the withdrawal of the maternal adrenotropic factor The physiologic significance of the relatively large adrenal cortex of human fetuses and its partial destruction beginning in the second week after birth is unknown It has, however, been established that coincident with this destructive lesion of the cortex there is an increase in heat production,<sup>78</sup> and it is possible that it may have the same physiologic significance as the increased heat production in rabbits, cats, rats and mice following experimental injury or removal of the adrenal cortex

**Thyroid-Kidney (Diuresis)**—During the last forty years, clinicians have frequently reported improved water elimination in certain forms of nephritis by the

administration of desiccated thyroid and more recently of thyroxine, alone or combined with parathyroid extract This form of therapy has been used particularly in the so-called lipid nephrosis No explanation for the effects noted has been forthcoming beyond the possibility that these drugs increased the mobilization and excretion of calcium

The recent revival of work on the pituitary gland has brought out other facts, which also suggest that the thyroid is involved in water excretion through the kidney Transient polyuria was almost constantly obtained by the earlier workers using the transdural method of approaching the hypophysis It was found that sectioning of the stalk alone, trauma of the adjacent hypothalamus and particularly injuries in the region of the supra-opticus nuclei led to polyuria

Teel<sup>79</sup> first noted polyuria in dogs given daily injections of an alkaline extract of fresh anterior pituitary Polyuria and glycosuria lasting a week or two has been obtained by many workers in dogs, rabbits and rats injected with salt solution emulsions or with alkaline and acid extracts of the anterior pituitary

Barnes, Regan and Bueno<sup>80</sup> noted polyuria in dogs following the injection of extracts of anterior pituitary, beginning usually on the second day and returning to normal in ten days In thyroidectomized dogs this polyuria did not occur Biasotti<sup>81</sup> confirmed both these observations and added that castration or section of the splanchnics did not affect the polyuria He also confirmed the increased urinary output in normal dogs following the administration of very large doses of desiccated thyroid During the past four years, Rosen and I<sup>82</sup> have studied several instances of polyuria in rabbits which developed in connection with our experiments on goiter produced by cyanide and alfalfa hay All the instances observed were in young male adults with large goiters, and the polyuria began within two days after starting small doses of potassium iodide (1.25 mg, three times weekly) All goitrous rabbits thus treated, as first shown by Webster and Chesney,<sup>83</sup> develop an intense hyperthyroidism (sometimes fatal) with great loss of weight In one instance in which potassium iodide was given, the polyuria persisted for three months, at which time a thyroidectomy was performed The polyuria (as high as 800 cc daily) gradually receded to a daily average of 50 cc during the next ten days and remained down for several weeks, although the rabbit was receiving potassium iodide (1.25 mg, three times weekly) Desiccated thyroid was started in doses of 0.1 Gm, three times weekly, and the polyuria recurred on the second day of the treatment In none of these cases has the polyuria been associated with glycosuria as is the case when anterior pituitary extracts are used Desiccated thyroid or iodine in twice these amounts has not appreciably increased the urine output in my nongoitrous, thyroid intact rabbits Normal rabbits subjected to thyroidectomy are more sensitive to thyroid feeding than rabbits with intact thyroids, but this increased sensitivity is slight in comparison to that of rabbits that had goiter prior to thyroidectomy

74 Scott, W. J. M. *J. Exper. Med.* **36**: 199 (Aug.) 1922

75 Davis, J. E. and Hastings, A. B. *Am. J. Physiol.* **105**

110 (July) 1933

76 Thomas, E. *Beitr. z. path. Anat. u. z. allg. Path.* **50**: 283 1911

Lewis, R. W. and Pappenheimer, A. M. *J. M. Research* **34**: 81 (March) 1916

77 Collip, J. B., Anderson, Evelyn M. and Thomson, D. L. *Lancet* **2**: 347 (Aug. 12) 1933

78 Marine, David, Lowe, B. H. and Cipra, A. *J. Metab. Research* **2**: 329 (Sept.) 1922

79 Teel, H. M. *Diuresis in Dogs from Neutralized Alkaline Extracts of the Anterior Hypophysis* *J. A. M. A.* **63**: 760 (Sept. 7) 1929

80 Barnes, B. O., Regan, J. F. and Bueno, J. G. *Am. J. Physiol.* **105**: 559 (Sept.) 1933

81 Biasotti, A. *Compt. rend. Soc. de biol.* **115**: 329 1934

82 Marine, David, and Rosen, S. H. *Unpublished data*

83 Webster, B. and Chesney, A. M. *Bull. Johns Hopkins Hosp.* **43**: 291 (Nov.) 1928

## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTIONS WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

**BETA-LACTOSE** —  $C_{12}H_{22}O_{11}$  — A disaccharide obtained by allowing a solution of lactose to crystallize above 93° C.

**Actions and Uses**—Like its more common isomer, lactose-U S P, beta-lactose is used as a diluent and as a food, particularly in modified milk for infants, also as a supplementary food for adults. However, it possesses greater solubility and a higher degree of sweetness than lactose-U S P. Beta-lactose provides a favorable medium for the growth of the *B. acidophilus*.

**Dosage**—The same as for lactose-U S P.

Manufactured by the National Milk Sugar Co. Inc. New York U S patent 1956 811 (May 1 1934 expires 1951).

Beta lactose occurs as small odorless white rhombic crystals. It is freely soluble in either hot or cold water but alpha lactose is liable to separate when strong solutions are allowed to stand. It is almost insoluble in alcohol and definitely insoluble in ether and chloroform.

The specific rotation  $[\alpha]_D^{25}$  of a 10 per cent solution at 25° C. measured not more than three minutes after the water is first added to the substance ranges between +35 and +38. After standing twenty four hours, the specific rotation  $[\alpha]_D^{25}$  ranges between 52.5 and 55.5.

Add an equal volume of sodium hydroxide solution to a hot 20 per cent solution of beta lactose and warm the mixture; the liquid turns yellow and finally brownish red on subsequent addition of a few drops of cupric sulphate solution a precipitate of cuprous oxide occurs. Add to 5 Gm. of beta lactose sufficient water to make 25 cc. of solution; the solid dissolves in less than five minutes.

Dissolve 3 Gm. of beta lactose in 10 cc. of boiling distilled water; the solution is clear, colorless, odorless and neutral to litmus paper.

Transfer 1 Gm. of beta lactose to an Erlenmeyer flask and boil for ten minutes with 15 cc. of alcohol under a reflux condenser; allow to stand five hours or longer at room temperature; filter; evaporate 10 cc. of the filtrate to dryness on the steam bath; the residue weighs not more than 0.007 Gm. (sucrose dextrose).

A 5 per cent aqueous solution of beta lactose meets the U S P X requirements for heavy metals (U S P X, p. 439).

Dissolve 1 Gm. of beta lactose in 50 cc. of distilled water; boil for one minute; cool, add a drop of iodine solution; the solution is not colored red, green or blue (starch, dextrin).

Transfer about 2 Gm. of beta lactose accurately weighed in a wide mouth weighing bottle to a desiccator containing a 60 per cent solution of calcium nitrate; when constant weight is attained transfer to an oven at 70° C. until constant weight is again attained; finally transfer to a vacuum oven at 100° C. and a pressure of 2 cm. of mercury until constant weight is attained. The loss obtained by use of the vacuum oven is not more than 0.18 per cent.

**NOVOCAIN** (See New and Nonofficial Remedies, 1935, p. 63)

The following dosage forms have been accepted:

*Ampules Sterile Crystals Novocain for Spinal Anesthesia 50 mg*  
*Ampules Sterile Crystals Novocain for Spinal Anesthesia 100 mg*  
*Ampules Sterile Crystals Novocain for Spinal Anesthesia 120 mg*  
*Ampules Sterile Crystals Novocain for Spinal Anesthesia 150 mg*  
*Ampules Sterile Crystals Novocain for Spinal Anesthesia 200 mg*

*Ampules Sterile Solution Novocain 20 per cent 15 cc.* This solution must be diluted before it is used.

*Ampules Sterile Solution Novocain 20 per cent 5 cc.* This solution must be diluted before it is used.

*Ampules Sterile Solution Novocain 20 per cent with 1 Suprarenin Synthetic Bitartrate 1 9000 15 cc.* Novocain 0.3 Gm. and 1-suprarenin synthetic bitartrate 0.165 mg. in distilled water to make 15 cc. This solution must be diluted before it is used.

*Ampules Sterile Solution Novocain 20 per cent with 1 Suprarenin Synthetic Bitartrate 1 9000 5 cc.* Novocain 1 Gm. and 1-suprarenin synthetic bitartrate 0.55 mg. in distilled water to make 5 cc. This solution must be diluted before it is used.

*Ampules Novocain Solution 1 per cent 2 cc.* Novocain 0.02 Gm. sodium chloride 0.12 Gm. in distilled water to make 2 cc.

*Ampules Novocain Solution 1 per cent with 1 Suprarenin Synthetic Bitartrate 1 50000 2 cc.* Novocain 0.02 Gm. 1-suprarenin synthetic bitartrate 0.04 mg. sodium chloride 0.009 Gm. potassium sulphate 0.008 Gm. in distilled water to make 2 cc.

*Ampules Novocain Solution 1 per cent with 1 Suprarenin Synthetic Bitartrate 1 50000 6 cc.* Novocain 0.06 Gm. 1-suprarenin synthetic bitartrate 0.12 mg. sodium chloride 0.027 Gm. potassium sulphate 0.024 Gm. in distilled water to make 6 cc.

*Ampules Novocain Solution 2 per cent with 1 Suprarenin Synthetic Bitartrate 1 50000 1 cc.* Novocain 0.02 Gm. 1-suprarenin synthetic bitartrate 0.02 mg. in distilled water to make 1 cc.

*Ampules Novocain Solution 2 per cent with 1 Suprarenin Synthetic Bitartrate 1 20000 1 cc.* Novocain 0.02 Gm. 1-suprarenin synthetic bitartrate 0.05 mg. in distilled water to make 1 cc.

*Ampules Novocain Solution 2 per cent with 1 Suprarenin Synthetic Bitartrate 1 50000 3 cc.* Novocain 0.06 Gm. 1-suprarenin synthetic bitartrate 0.06 mg. sodium chloride 0.0135 Gm. potassium sulphate 0.012 Gm. in distilled water to make 3 cc.

*Ampules Novocain Solution 2 per cent with 1 Suprarenin Synthetic Bitartrate 1 20000 3 cc.* Novocain 0.06 Gm. 1-suprarenin synthetic bitartrate 0.15 mg. sodium chloride 0.0135 Gm. potassium sulphate 0.012 Gm. in distilled water to make 3 cc.

*Ampules Novocain Solution 2 per cent with 1 Suprarenin Synthetic Bitartrate 1 20000, 6 cc.* Novocain 0.12 Gm. 1-suprarenin synthetic bitartrate 0.3 mg. in distilled water to make 6 cc.

*Ampules Ephedrine Novocain Solution 1 cc.* Novocain 1 per cent and ephedrine hydrochloride-N N R 5 per cent.

*Ampules Ephedrine Novocain Solution 2 cc.* Novocain 1 per cent and ephedrine hydrochloride-N N R 5 per cent.

*Tablets Novocain 1 grain*  
*Novocain (0.08 Gm.) and 1 Suprarenin Synthetic Bitartrate (0.06 mg.) Hypodermic Tablets* Novocain 0.08 Gm. and 1-suprarenin synthetic bitartrate 0.06 mg.

*Tablets Novocain 0.01 Gm. with 1 Suprarenin Synthetic Bitartrate 0.2 mg.*

**EPHEDRINE HEMIHYDRATE** (See THE JOURNAL, May 11, 1935, p. 1707)

**Ephedrine Alkaloid-Merck**—A brand of ephedrine hemihydrate-N N R.

Manufactured by Merck & Co. Inc. Rahway N. J. No U S patent or trademark.

**EPHEDRINE HYDROCHLORIDE** (See New and Nonofficial Remedies, 1935 p. 201)

**Ephedrine Hydrochloride-Merck**—A brand of ephedrine hydrochloride-N N R.

Manufactured by Merck & Co. Inc. Rahway N. J. No U S patent or trademark.

**EPHEDRINE SULPHATE** (See New and Nonofficial Remedies, 1935 p. 202)

**Ephedrine Sulphate-Merck**—A brand of ephedrine sulphate-N N R.

Manufactured by Merck & Co. Inc. Rahway N. J. No U S patent or trademark.

### REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

PAUL NICHOLAS LEECH, Secretary

### SCOTT'S EMULSION OF COD LIVER OIL OMITTED FROM N N R AND SCOTT'S COD LIVER OIL CONCENTRATE TABLETS UNACCEPTABLE FOR N N R

Scott's Emulsion of Cod Liver Oil (formerly marketed under the noninformative name "Scott's Emulsion") was accepted in 1932 for inclusion in New and Nonofficial Remedies as a dosage form of Scott's Norwegian Cod Liver Oil (Plain). As a condition of acceptance, Scott & Bowne adopted the more informative name, eliminated the therapeutically worthless calcium and sodium hypophosphites from the formula, and eliminated therapeutic claims for these constituents from the advertising. As accepted by the Council, the statement of composition was:

Scott's emulsion of cod liver oil is prepared from Scott's Norwegian cod liver oil (plain) 27.9 per cent (30 per cent by volume) glycerin 12.5 per cent acacia 1.56 per cent tragacanth 1.46 per cent flavoring 0.15 per cent agar 0.03 per cent and water to make 100 per cent.

In 1933 the firm informed the Council that complaints were being received that the product as prepared under the new formula was not satisfactory; the absence of the hypophosphites causing the emulsion to be less stable. The firm was granted permission to replace the hypophosphites as a pharmaceutical measure on condition that no therapeutic claims were made on the basis of their presence. The firm agreed to this and the formula was changed to:

	27.90% by weight
Cod Liver Oil	27.90%
Glycerine	12.50%
Gum Arabic	1.56%
Gum Tragacanth	1.46%
Essential Oils (Flavoring)	16%
Calcium Hypophosphite	78%
Sodium Hypophosphite	39%
Agar Agar	07%
Distilled Water	55.18%
	100.00%

Meanwhile Scott & Bowne had presented its Cod Liver Oil Concentrate Tablets for the Council's consideration. This product was found acceptable provided certain changes were made in the trade packages and provided evidence should be presented to support the claim that the tablets are "protected against deterioration."

Recently the firm informed the Council that the Department of Agriculture had ruled the name "Scott's Emulsion of Cod Liver Oil" not permissible, since the product has not the composition of the official emulsion of cod liver oil. Thus being under the necessity of changing either the name or the composition of the product, the firm informed the Council that it felt obliged to return to the old name, "Scott's Emulsion," retaining the present composition. The firm informed the Council that the department had stated that the name "Scott's Emulsion" would not infringe on any of its regulations. The uninformative name is, of course, contrary to the Council's rule. The firm, however, would make no other change, although it was informed of a communication to the Council from a representative of the department to the effect that a name such as "Scott's Emulsion of 30% Cod Liver Oil" would be equally acceptable.

The firm informed the Council that its Cod Liver Oil Concentrate Tablets were to be advertised in connection with the emulsion and has taken no steps to make the product otherwise acceptable.

The Council was therefore obliged to omit Scott's Emulsion of Cod Liver Oil (now "Scott's Emulsion") from New and Nonofficial Remedies and to declare Scott's Cod Liver Oil Concentrate Tablets unacceptable for New and Nonofficial Remedies.

## Committee on Foods

### ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.



RAYMOND HERTWIG, Secretary

- 1 HOVDEN'S STEAM GRILLED SARDINES IN OLIVE OIL AND TOMATO SAUCE
- 2 HOVDEN'S CALIFORNIA SARDINES BONELESS PEELED PACKED IN OLIVE OIL
- 3 HOVDEN'S CALIFORNIA SARDINES FRENCH STYLE PACKED IN OLIVE OIL
- 4 HOVDEN'S CALIFORNIA SARDINES GARNISHED PACKED IN OLIVE OIL
- 5 HOVDEN'S CALIFORNIA SARDINES FILETS SMOKED BONELESS PACKED IN OLIVE OIL
- 6 PREFET BONELESS PEELED SARDINES IN OLIVE OIL
- 7 PREFET FRENCH STYLE SARDINES PACKED IN OLIVE OIL
- 8 PREFET GARNISHED SARDINES IN OLIVE OIL
- 9 PREFET FANCY FILET OF SARDINES SMOKED BONELESS IN OLIVE OIL
- 10 PREFET CALIFORNIA SARDINES PACKED IN OLIVE OIL AND TOMATO SAUCE
- 11 PREFET CALIFORNIA SARDINES PACKED IN OLIVE OIL AND MUSTARD SAUCE

Packer—K. Hovden Company, Monterey Calif

Distributor of Prefet Brands—Pacific Packers Association, Monterey, Calif (subsidiary of K. Hovden Company)

Description—(1) and (10) Canned steam grilled sardines (*Clupea caeruleus*, blue sardines) with tomato sauce, salt and olive oil, the same as Portola Sardines (Pilchards) Steam Grilled—In Tomato Sauce and Olive Oil (THE JOURNAL, June 4, 1932, p 1991)

(2) and (6) Cooked, peeled and boneless Pilchard sardines packed in olive oil in tins, the same as Boneless Peeled Portola Sardines (In Olive Oil) (THE JOURNAL, June 18, 1932, p 2211)

(3) and (7) Cooked immature sardines packed in olive oil, the same as Portola French Style Sardines (In Olive Oil) (THE JOURNAL, July 9, 1932, p 135)

(4) and (8) Cooked immature sardines packed in olive oil with slices of pickle, carrot and pimiento, in tins, the same as Portola Garnished Sardines (In Olive Oil) (THE JOURNAL, July 16 1932, p 225)

(5) and (9) Cooked, boneless smoked Pilchard sardines packed in olive oil in tins, the same as Portola Filet of Sardines (In Olive Oil) (THE JOURNAL, July 2, 1932, p 35)

(11) Same as (1) except that mustard sauce replaces tomato sauce

### PURINA WHOLE WHEAT BREAD

Distributor—National Tea Company, Chicago

Description—A whole wheat bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p 889), prepared from whole wheat flour, water, vegetable shortening, honey, corn sugar, yeast, salt and malt extract

Analysis (submitted by distributor)—

	per cent
Moisture	36.3
Ash	2.0
Fat (ether extraction method)	6.1
Protein (N × 6.25)	9.9
Crude fiber	1.5
Carbohydrates other than crude fiber (by difference)	44.2

Calories—2.7 per gram 77 per ounce

Claims of Distributor—Conforms to the United States Department of Agriculture definition and standard for whole wheat bread

### CELLU YELLOW CLING PEACHES PACKED IN WATER WITHOUT ADDED SUGAR OR SALT

Distributor—The Chicago Dietetic Supply House, Inc., Chicago

Packer—Hunt Brothers Packing Company, San Francisco

Description—Canned cooked pitted yellow cling peach halves, packed in water without added sugar or salt

Manufacture—The method of manufacture is essentially the same as for Cellu Juice-Pak Cling Peaches (THE JOURNAL, Aug 25, 1934, page 564), with the exception that the fruit is packed in water

Analysis (submitted by distributor)—

	per cent
Moisture	92.9
Total solids	7.1
Ash	0.3
Fat (ether extract)	0.1
Protein (N × 6.25)	0.2
Reducing sugars as invert sugar	2.5
Sucrose	2.5
Crude fiber	0.2
Carbohydrates other than crude fiber (by difference)	6.3

Calories—0.3 per gram 9 per ounce.

Claims of Distributor—For diets in which sweetened fruit is proscribed

### CUBE FLAVORED JELL-WELL GELATINE DESSERT CONCORD GRAPE FLAVOR

Manufacturer—Jell-Well Dessert Company, Los Angeles

Description—Gelatin dessert mixture sucrose, gelatin, tartaric acid, salt, cream of tartar, U S Department of Agriculture certified color and Concord grape concentrate. The flavor is sealed in cubes of sugar

Manufacture—Sugar, gelatin, tartaric acid, cream of tartar and salt are mixed and automatically weighed into packages along with two cubes prepared by mixing sugar and grape concentrate. The cubes are coated with crystallized sugar to prevent loss of volatile flavor

Analysis—See Jell-Well Gelatine Desserts (THE JOURNAL, Dec 31, 1932, p 2266)

Calories—3.8 per gram, 108 per ounce.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 22, 1935

## THE 1935 ANNUAL SESSION

The annual session of the American Medical Association held in Atlantic City last week shattered all records for medical meetings held anywhere in the world. The registration, numbering 8,469, included more physicians than have ever before been assembled for a convention at one time. The exhibits, both technical and scientific, were larger and covered a greater variety of medical topics than have ever previously been shown in any exhibits of similar character. The House of Delegates functioned with extraordinary dispatch and revealed even to the uninformed observer the unanimity of the medical profession in its point of view regarding social tendencies affecting medical practice. Unquestionably the Atlantic City session will go down in history as one of the most successful ever held and will mark a new peak at which future sessions may aim.

The meeting began on Monday, June 10, in the midst of a downpour, which it is understood marked a record in precipitation of water for the New Jersey coast. Yet this flood was no deterrent to the attendance, since the number of physicians registering on the first day was the greatest ever recorded for the first day of any medical meeting. No doubt the downpour served a useful purpose in causing the vast majority of those who registered to spend their full time in the great Atlantic City auditorium, which again, in the vast expanse of its floor space and meeting places, overwhelms that of other auditoriums in the country.

On Monday noon the official bodies of the Canadian Medical Association tendered a luncheon to the Board of Trustees and officers of the American Medical Association, at which a gavel was presented to the American organization. This gavel, of unique appearance and history, will be described in forthcoming accounts of the annual session. The golf tournament scheduled for Monday was necessarily postponed until Tuesday.

On Monday afternoon and throughout Tuesday the general scientific meetings attracted thousands of physicians, who received during this time a postgraduate

education in many special subjects given by lecturers who had been especially selected by the Council on Scientific Assembly for this purpose.

On Monday night the New Jersey medical profession tendered a dinner and entertainment to the House of Delegates and officers of the Association. At this dinner, Senator James Hamilton Lewis, who had come to Atlantic City to confer with officers of the Association, spoke inspiringly for world peace and emphasized the great importance of the medical profession in molding public opinion. Indeed, he said to the profession that its members might well determine the policy of the nation on any subject to which they gave their earnest thought and effort.

The opening general meeting on Tuesday night included an attendance of more than seven thousand, and it is estimated by Atlantic City physicians that from two to three thousand additional persons were unable to gain admission to the hall. At this extraordinary meeting, an address was spoken by former senator and ambassador Walter Edge, welcoming addresses were made by the mayor of the city and representatives of the New Jersey profession, and the presidential addresses were delivered by Drs. Meakins and McLester. The last mentioned addresses likewise appear in this issue of THE JOURNAL. The mayor of Atlantic City tendered a gold emblem to the Association as a permanent token of invitation. The music for this occasion was provided by the Westminster Chorus of Princeton, N. J., and although the meeting lasted well beyond 11 o'clock the audience insisted on numerous encores, so that midnight approached before the meeting adjourned.

On Wednesday, Thursday and Friday vast numbers of physicians continued to pour into Atlantic City, coming by motor car, by rail, by airplane and by every other method of transportation to accumulate the attendance to which reference has already been made. An analysis of this attendance will be published presently in connection with the report of the meetings of the House of Delegates.

The elections in the House of Delegates were spirited and indicated that the delegates had given most serious consideration to the issues involved in determining their choice. On Thursday night the President's reception, tendered to the presidents of the American and Canadian medical associations, attracted a vast multitude of physicians and congested all the available space for dancing and entertainment in the headquarters hotel.

The press of the United States sent representatives especially for this session, so that the publicity reached throughout the world. Moreover, radio broadcasting systems made available the time for lectures as well as for news reports from this session.

An unusual feature was the attendance as a guest of Dr. Allan Roy Daffoe, he was most courteous in visiting various meetings and created a veritable sensation

by his appearance at the annual luncheon of the Woman's Auxiliary. The Woman's Auxiliary likewise had one of the most successful assemblages in its history. Atlantic City offers unusual opportunities for entertainment and for vacation. For this reason, great numbers of those visiting the annual session brought their wives and children. No doubt many a young boy and girl received at this annual session impressions that will lead to a choice of medicine as a profession in the coming years.

The annual session of 1935 closed on a note of quite general satisfaction. It served to bring together more closely the medical professions of two great neighboring nations. It helped to inform the medical profession and the public generally that the physicians of the United States still feel that they themselves must determine the nature and the methods of medical practice. It emphasized again the earnest desire of the medical profession to provide adequate medical care for all the people. It is hoped that physicians throughout the nation who were unable to participate in this great gathering will read most carefully the detailed reports which appear in this and future issues of *THE JOURNAL*.

The physicians of New Jersey and especially of Atlantic City were assiduous in their attention, courteous in all their contacts, and gracious and hospitable to all their guests. The thanks and appreciation of the American Medical Association are tendered to all those who gave of their utmost to contribute to the great success of this occasion.

#### THE BIOLOGIC IMPORTANCE OF PRESSURE

One of the fundamental requirements of all living organisms is the ability of constant adaptation to physical changes in the environment. Alterations in environmental temperature and humidity are most commonly considered in this connection, the compensatory mechanisms for variations in these factors have been extensively investigated. There are other environmental factors, however, that may exert a profound influence. Of these, one of the most interesting but apparently least studied is the effect of pressure.

Adaptation to variations in pressure presents a real problem to many different forms of life. Fish, for example, are exposed to a pressure of two atmospheres at a depth of only 34 feet below the surface of the water. The pressure at a depth of 2 miles, at which various species of fish have been captured, is approximately 300 atmospheres, or 4,600 pounds per square inch. Apparently, one of the chief compensatory adjustments required is an alteration in specific gravity, so that the fish may swim about without the expenditure of too great an amount of energy. This is accomplished by variations in the volume of the swim bladder, mere expansion or contraction serving to compensate for

minor changes in pressure, whereas active absorption or secretion of gases is probably called into play where depth changes of a greater magnitude occur. Under certain conditions man may be exposed to significant alterations in pressure. Aviators and mountain climbers may encounter marked decreases, the pressure at an elevation of 18,000 feet being only one-half that at sea level. Small decreases in pressure occurring in changes in altitude of a few hundred feet produce well known sensations in the ears, greater decreases may cause "mountain sickness," a condition resulting from the lowering of oxygen tension. The compensatory response of the organism against the latter is splenic contraction, with the forcing into the blood stream of more erythrocytes to aid in oxygen transport to the tissues, subsequently, new erythrocytes are released into the circulation in increased numbers by the bone marrow. Increases in environmental pressure, encountered by deep sea divers and caisson workers, are apparently well tolerated. The danger comes with the return of the subject to atmospheric pressure. It is necessary to exercise great caution in order to avoid too abrupt a decrease in pressure, which might cause the sudden release of nitrogen gas from solution into the tissues, where it causes serious symptoms known as the "bends" or caisson disease.

A number of experimental studies have been conducted to determine the effects of alterations of environmental pressure on laboratory animals or on isolated tissues. Recently<sup>1</sup> the behavior of muscle and nerve tissue at increased pressures has been observed. An ingenious chamber was devised, which permitted observations on the tissue while exposed to pressures as great as 15,000 pounds per square inch (approximately 100 atmospheres). Observations on cardiac muscle showed that an increase in pressure to approximately 100 times normal produced a marked increase in the degree of shortening of the muscle following stimulation. Further increases up to 6,000 pounds per square inch produced similar stepwise increases in the force exerted by the contracting muscle up to four times the control value. This effect was completely reversible, as the response returned to its original character as soon as the pressure was released. Simultaneous measurements of heat production and the actual work done during the contraction showed that a parallel increase in the two occurred, thus demonstrating that an increase in pressure did not augment the efficiency of the mechanism whereby chemical energy is converted into mechanical work. Similar pressure effects were observed with skeletal muscle, however, the magnitude of the heightened degree of contraction with increases in pressure was less. At higher pressures the augmenting effect of increased pressure disappeared, indeed, the response of skeletal muscle became even less than at atmospheric pressure. This observation is not surprising in view

<sup>1</sup> Cattell, McKee. *The Biological Importance of Pressure*. *Scient. Monthly*, 40: 468 (May) 1935.

of the alleged effect of extremely high pressures on proteins. The statement has been made that pressures of 88,000 pounds per square inch coagulate muscle protein or egg white irreversibly at room temperature.

The effects of increased pressure on nerves paralleled in general those obtained on muscle. Moderate pressures exerted a stimulatory effect, lowering the threshold of excitation and increasing the velocity of propagation. High pressures produced the opposite effect. Entirely different results were obtained, however, when even small pressures were applied locally to the nerve. A rapid loss of function ensued. The common experience of having a limb "go to sleep" following the prolonged application of a small local pressure may be explained on the basis of the foregoing experiment.

### IODINE AND ATHEROSCLEROSIS

The production of atherosclerosis in rabbits by the administration of considerable quantities of cholesterol has been recognized<sup>1</sup> since 1908 and has received wide attention from investigators studying this pathologic thickening of the intima of the aorta. Some workers, especially Anitschkow, have supported the view that atherosclerosis produced by cholesterol in rabbits represents the counterpart of arteriosclerosis in man.<sup>1</sup> Notwithstanding the lack of general acceptance of this idea, interesting chemical and morphologic data have been accumulated from experimental studies of this cholesterol-induced atherosclerosis. Of the results that have been obtained, one of the most interesting is the demonstration that administration of thyroid substances or of iodides prevents the deposition of cholesterol in the arteries, when this sterol is fed to experimental animals.<sup>2</sup> This observation has been substantiated in several laboratories with both organic and inorganic compounds of iodine. Subsequent investigations have been concerned with attempts to determine the manner in which this element exerts its prophylactic effect. A number of hypotheses have been put forward. Of considerable interest are the recent studies of Turner and Khayat,<sup>3</sup> which demonstrate that the ability of iodine to prevent atheromatous changes in rabbits ingesting cholesterol is dependent on the thyroid gland. In the absence of this organ in rabbits, iodine was entirely ineffective in exerting this regulatory role. It appears, therefore, that the action of the iodine is an indirect one working through the thyroid gland. The exact mode of action is not clear, but recent investigations of the chemical alterations of the blood during cholesterol and iodine administration begin to clarify some of the factors involved.

An increase in both the cholesterol and the fatty acids of the blood following the ingestion of cholesterol

dissolved in oil is well established. As Schonheimer<sup>4</sup> has demonstrated that the lipids which are deposited in the human aorta are of a composition which suggests their infiltration from the blood and deposition without change in composition, the suggestion has been made that only a continued lipemia may cause atherosclerosis. Anitschkow has supported this idea specifically by postulating that the degree of atherosclerosis of the aorta is directly proportional to the level of the blood cholesterol. It therefore seemed logical to believe that the effectiveness of iodides was due to the prevention of lipemia. Recent investigations, however, conducted at the Hospital of the Rockefeller Institute for Medical Research,<sup>5</sup> have demonstrated that just the contrary occurs with respect to the blood picture. Administration of an organic iodine compound to rabbits receiving cholesterol dissolved in olive oil prevented the appearance of atherosclerosis, which otherwise followed the administration of cholesterol and olive oil. In both groups a persistent lipemia developed, which was, however, more marked in those fed organic iodine in addition to cholesterol. The average content of lipids per hundred cubic centimeters of plasma in the latter group was 2.9 Gm, as contrasted with a value of 2.2 Gm in the animals receiving cholesterol alone. These interesting observations indicate that in iodine-fed rabbits there is no appearance of atherosclerosis despite the existence of a lipemia, which, in the absence of iodine therapy, is associated with the process leading to pathologic alterations of the blood vessels. The authors tentatively assume that the state of metabolism of the tissues, thus influencing the receptivity of these tissues to the deposition of fat, is an important factor in determining whether lipids will be deposited in the arterial walls. This type of variable would offer a partial explanation of the existence of strictly localized atherosclerotic plaques, which has led to the view that atherosclerosis is a focal and not a general morbid change.

### Current Comment

#### NEW OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION

Each session of the American Medical Association includes the election by the House of Delegates of those who are to serve the Association in various executive, legislative and judicial capacities for the coming years. In making its choices, the House of Delegates must consider not only the individual capacities of those who are to serve but also the constituencies to be represented, the policies of the organization, and the requirements of the separate situations involved. At the Atlantic City

1 Cowdry, E. V. *Arteriosclerosis: A Survey of the Problem*. New York: Macmillan Company, 1933.

2 Murata, M. and Kataoka, S. *Verhandl. d. Jap. path. Gesellsch.* 7: 27, 1917.

3 Turner, K. B. and Khayat, G. B. *J. Exper. Med.* 58: 115 (July) 1933. Turner, K. B. and Khayat, G. B. *ibid.* 58: 127 (July) 1933.

4 Schonheimer, R. *Ztschr. f. physiol. Chem.* 160: 61, 1926. 177, 143, 1928.

5 Page, I. H. and Bernhard, W. G. *Cholesterol Induced Atherosclerosis*. *Arch. Path.* 10: 530 (April) 1935.

session the House of Delegates found it necessary to choose two new trustees, since the terms of two men who have given long and capable service to the House terminated on this occasion and since, by the Constitution and By-Laws of the Association, they could not be reelected Dr J H J Upham, who has served with distinction as a member of the Board of Trustees since the year 1923 and recently as its chairman, was retired under this ruling and Dr James R Bloss of Huntington, W Va, was elected to succeed him The term of Dr Joseph A Pettit, who has served on the Board since 1925, terminated, and Dr Ralph A Fenton of Portland, Ore, was the choice of the House for this position The terms of these new trustees will terminate in 1940 At the session of the Board of Trustees immediately following this election, Dr Rock Sleyster of Wauwatosa, Wis, was selected by the Board as its chairman and Dr Austin A Hayden was reelected as secretary The Executive Committee of the Board of Trustees will include Drs Austin A Hayden, Charles B Wright and Arthur W Booth In addition to selecting Dr James Tate Mason of Seattle as President-Elect, the House of Delegates chose Dr Kenneth A Lynch of Charleston, S C, as vice president and reelected Dr Olm West of Chicago as secretary and Dr Herman L Kretschmer of Chicago as treasurer Dr Nathan B Van Etten of New York was selected speaker of the House of Delegates to succeed Dr F C Warnshuis, and Dr H H Shoulders of Nashville, Tenn, became vice speaker, succeeding Dr Nathan B Van Etten The President of the Association, Dr James S McLester, announced the appointment of Dr George Edward Follansbee of Cleveland to succeed himself as a member of the Judicial Council, terminating in 1940, Dr Reginald Fitz of Boston to succeed himself on the Council on Medical Education and Hospitals until 1942, and Dr A A Walker of Birmingham, Ala, on the Council on Scientific Assembly for a period of five years By an almost unanimous choice the House of Delegates selected Kansas City as the meeting place for the eighty-seventh annual session of the Association, in 1936 The physicians of Kansas City, who attended the Atlantic City session in great numbers, were unanimous with praise for the new auditorium which will well accommodate

the next session, and promised to do their utmost to surpass the extraordinary meeting that has just been concluded

#### DR JAMES TATE MASON PRESIDENT-ELECT

The election of Dr James Tate Mason of Seattle to the presidency of the American Medical Association is a recognition of the great achievements of the Northwest, which has on several occasions entertained the American Medical Association at its annual sessions and which has contributed notably to American medical thought Dr Mason was born in Virginia, May 20, 1882 His father was Dr Claiborne Rice Mason of Lahore,

Orange County, Va After receiving his M D degree from the University of Virginia Department of Medicine in 1905, James Tate Mason entered the practice of surgery first at Philadelphia and then at Franklin, Wash He then took up his residence in Seattle, where he has practiced surgery since 1909 From 1916 to 1920 he was surgeon and superintendent of King County Hospital Since 1920 he has been chief surgeon of the Mason Clinic and president of the Virginia Mason Hospital He is consulting surgeon of the United States Marine Hospital at Seattle, the American Mail Line, the Alaskan Steamship Company and the Northern Pacific Railroad Company He is a fellow of the American College of Surgeons and a member of the American Surgical Association, American Association for the Study of Goiter,



JAMES TATE MASON, M D  
PRESIDENT ELECT OF THE AMERICAN MEDICAL ASSOCIATION

the Western Surgical Association, the Southern Surgical Association, the Pacific Coast Surgical Association, the Sons of the American Revolution, and other medical societies and organizations In many of these he has occupied positions in an executive capacity In the American Medical Association he was a member of the House of Delegates for six years, between 1928 and 1934, he was secretary of the Section on Surgery, General and Abdominal, from 1923 to 1926, when he was elected chairman, serving in that capacity for one year Dr Mason has contributed notably to the literature of surgery His election is a recognition, incidentally, not only of the great Northwest but also of the state of Virginia, from which have come many notable medical leaders



# PROCEEDINGS OF THE ATLANTIC CITY SESSION

## MINUTES OF THE EIGHTY-SIXTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 10-14, 1935

### HOUSE OF DELEGATES

#### First Meeting—Monday Morning, June 10

The House of Delegates convened in the Renaissance Room of the Ambassador Hotel and was called to order at 10 a. m. by the Vice Speaker, Dr. N. B. Van Etten.

#### Preliminary Report of the Reference Committee on Credentials

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. J. D. Brook, Michigan, who reported that 114 delegates with proper credentials had registered. He recommended the seating of the following physicians, who had lost or forgotten their credentials but who had been properly vouched for and whose names appeared on the Secretary's official list: Drs. T. Henshaw Kelly, California; C. G. Abell, Vermont; John Z. Brown, Sr., Utah; S. C. Harvey, Connecticut; and H. H. Trout, Virginia.

On motion of Dr. C. S. Gorsline, Michigan, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the report of the Reference Committee on Credentials was adopted.

The Vice Speaker declared that the signed attendance slips would constitute the roll of the House for the morning.

#### Adoption of Minutes of Cleveland Session

It was moved by Dr. A. T. McCormack, Kentucky, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried that the reading of the minutes of the Cleveland session be dispensed with, since they had been published and distributed and that they be adopted with the correction as indicated on page 33.

#### Address of the Speaker, Dr. F. C. Warnshuis

The Vice Speaker, in the absence of Dr. F. C. Warnshuis because of the death of his son, read the Speaker's Address, which was referred to the Reference Committee on Reports of Officers.

#### Members of the House of Delegates

In greeting you at this opening session of your annual deliberations, I am genuinely grateful for being once more privileged to serve as your presiding officer.

The Board of Trustees, councils, bureaus and special committees will present to you their annual reports and recommendations. It is the obligation of every delegate to review and study them carefully. As delegates, chosen by your fellow members to represent them, you become the spokesmen of the medical profession of this nation. In that capacity your actions and decisions create standards and policies for the information and guidance of the Association's officials and the constituent units of our federation. A delegate's responsibility, therefore, is representative and not individualistic. In arriving at a final decision, judgment should be based on facts and conditions as they are related to and affect your constituency and not as they concern personal interests or opinions. Approaching all of the Association's problems and interests in that spirit will continue the prestige we hold and establish public confidence and endorsement.

Your Speaker earnestly recommends that the delegates of every state take the necessary action that will convey to their state organizations a detailed report of all that transpired during this session. There is great need for bringing to every member and Fellow clear and intimate knowledge of the policies and activities of the Association as revealed by the endeavors

of officers, trustees, councils and bureaus. When our Fellows and members are intelligently informed, misunderstanding will disappear and our efforts will be more achieving. It is earnestly requested that you discharge this obligation.

#### REFERENCE COMMITTEES

In appointing Reference Committees, an earnest endeavor is made to make them representative. To constitute impartial and open-minded committees is the quest of your Speaker. Delegates are urged to attend and participate in the hearings of all Reference Committees. Committee chairmen will announce the time and place of their meetings.

Your Speaker urges anew that committee chairmen, in making recommendations on resolutions that have been introduced, give a brief resume of the representations made before the committee by the proponents and opponents of resolutions. Such a resume will be helpful to every delegate.

The floor of this House is open to every delegate. Before a report or resolution is acted on it will be your Speaker's endeavor to recognize any delegate who desires to address this body. Before a vote is taken your Speaker will be painstaking in order that delegates may clearly understand that which they are voting on. An impartial and fair attitude will be reflected at all times.

#### CANADIAN MEDICAL ASSOCIATION

The long desired joint session with our Canadian associates in medicine is being realized during this annual session. On behalf of this House of Delegates a very sincere welcome is extended to all the members of the Canadian Medical Association who are in attendance.

Scientific medicine knows no national boundaries. Medicine is a republic in which its disciples from every country in the world have worked shoulder to shoulder. Medicine's combined might has always been directed to obtain the advancement of the science of medicine. Medicine is slowly but steadily ascending to the throne of her rightful dominion and, enthroned, will launch her saving edict to the peoples of all nations.

Recognizing the universality of medicine, our greeting to our Canadian brothers is warmed in the glow of our cordial fraternal associations. We bid them thrice welcome.

#### IN MEMORIAM

Conforming to precedent it now becomes my duty to pay tribute to those of our number who have answered the last call during the past year.

A King once said of a prince struck down  
Taller he seems in death  
And this speech holds truth for now as then  
Tis after death we measure men

Our Heroic Dead—James Barrow Hope

Since our last annual session the following Fellows' names are added to the roll of our departed associates (the dates following the names indicate the years of service in the House):

H. D. Arnold, Boston, 1908-1913  
John Montgomery Baldy, Philadelphia and Devon, Pa., 1914 (fourth vice president, 1918-1919)  
B. H. Blair, Lebanon, Ohio, 1910-1911  
John A. Campbell, Williamsport, Pa., 1924-1927, 1929-1931  
William F. Drewry, Petersburg, Va., 1907  
R. U. Drinkard, Wheeling, W. Va., 1931  
Gaston H. Edwards, Orlando, Fla., 1925-1931  
H. L. Fancher, Chattanooga, Tenn., 1926  
Edward D. Fisher, New York, 1911  
Henry N. Fitzhugh, Westminster, Md., 1933-1934  
J. W. Hamilton, Mount Vernon, Ill., 1914-1915  
Jabez North Jackson, Kansas City, Mo., 1903-1904, 1906-1919, 1930-1931, 1933 (President Elect, 1926-1927; President, 1927-1928)  
Millard F. Jarrett, Fort Scott, Kan., 1915  
August F. Jonas, Omaha, 1906-1911 (third vice president, 1901-1902)  
William Kuykendall, Eugene, Ore., 1926-1931  
Ralph W. McDowell, U. S. Navy, 1934

Gilman Osgood, Rockland Mass 1915 1916 1918 1920  
Wendell C Phillips New York 1912 1917 (Trustee 1917 1924 Presi  
dent Elect 1925 1926 President 1926 1927)  
Clarence Pierson Jackson La 1919 1920  
Creswell T Pigot Roundup Mont 1922 1934  
Curran Pope Louisville Ky 1912  
A. B. Small, Dallas Texas 1915 1916  
E. Otis Smith, Cincinnati 1910-1911, 1913 1918 1921  
P. W. Tomlinson, Wilmington Del 1907 1908 1919 1926 1931  
E. C. Taylor Jackson Mich 1923  
Mathew N Voldeng Woodward Iowa 1912 1920 1924  
Otto Boyd Will Peoria, Ill, 1902 1906

The world has lost these master workmen For a time we shall grieve that they are dead For a longer time we shall rejoice that they lived

At the request of the Vice Speaker, the members of the House rose and stood for one minute in silent tribute to the memory of departed delegates

#### Messages of Condolence

Dr A T McCormack, Kentucky, moved that the Vice Speaker and the Secretary send a telegram of condolence in behalf of the House to Dr F C Warnshuis The motion was seconded by Dr J D Brook, Michigan, and carried by a rising vote

Dr Holman Taylor Texas, moved that a telegram of appreciation and sincere good wishes for an early and complete recovery be sent to Dr H M Johnson Minnesota The motion was seconded by Dr J Newton Hunsberger, Pennsylvania, and carried.

#### Reference Committees

The Vice Speaker presented the following names of members of Reference Committees appointed by the Speaker

#### SECTIONS AND SECTION WORK

T B Throckmorton Chairman Section on Nervous and Mental Diseases  
John W Amessee Colorado  
G Henry Mundi Illinois  
Isaac A Abt Section on Pediatrics  
Holman Taylor Texas

#### RULES AND ORDER OF BUSINESS

C W Waggoner Chairman Ohio  
James R Bloss West Virginia  
Bundy Allen Florida  
Thomas F Thornton Iowa  
Ralph A. Fenton Oregon

#### MEDICAL EDUCATION

Irvin Abell, Chairman Kentucky  
Walter F Donaldson Pennsylvania  
George Blumer Connecticut  
W H Seemann Louisiana  
W D Chapman Illinois

#### LEGISLATION AND PUBLIC RELATIONS

C E Mongan Chairman Massachusetts  
E. M. Pallette California  
S P Mengel Pennsylvania  
E G Wood Tennessee  
John Z Brown Sr Utah

#### HYGIENE AND PUBLIC HEALTH

J N Baker Chairman Alabama  
W F Bowen Kansas  
J D Hamer Arizona  
V E Simpson Kentucky  
O S Wightman New York

#### AMENDMENTS TO CONSTITUTION AND BY LAWS

J Richard Kevin Chairman New York  
A R McComas Missouri  
Roy W Fouts Nebraska  
McLain Rogers Oklahoma  
J Newton Hunsberger Pennsylvania

#### REPORTS OF OFFICERS

A J Bedell Chairman New York  
Ben R McClellan Ohio  
J W Burns Texas  
Charles W Roberts Georgia  
J Gurney Taylor Wisconsin

#### REPORTS OF BOARD OF TRUSTEES AND SECRETARY

H H Shoulders Chairman Tennessee  
Henry C Macatee District of Columbia  
E F Cody Massachusetts  
Brien T King Washington  
Fred Moore Iowa

#### CREDENTIALS

J D Brook, Chairman Michigan  
George P Johnston Wyoming  
J C Flippin Virginia  
J H Cannon South Carolina  
Deering G Smith New Hampshire

#### MISCELLANEOUS BUSINESS

J F Hagerty Chairman New Jersey  
L J Kosminsky Arkansas  
E N Roberts Idaho  
D F Cameron Indiana  
B F Bailey Nebraska

#### MEDICAL ECONOMICS

W F Brnaseh Chairman  
Fred B Clarke  
Guy W Wells  
C J Whalen  
H A Luce

Minnesota  
California  
Rhode Island  
Illinois  
Michigan

#### Address of President Walter L Bierring

The Vice Speaker presented the President, Dr Walter L Bierring, Des Moines, Iowa, who delivered the following address, which was referred to the Reference Committee on Reports of Officers

#### Mr Speaker and Members of the House of Delegates

It is difficult to find the words adequate to convey to you my appreciation for the honor extended at the Milwaukee session two years ago I can only hope that my efforts in the service of the Association may have merited in some measure this expression of your confidence

It has been a privilege and a rare opportunity, as well as a liberal education, to learn more of the many sided activities of our great association to meet the individual member in his or her home surroundings in some thirty-nine or forty states, and to sense the problems that concern the doctor of today in the various sections of our country

In a trek of some 67,000 miles, many new acquaintances were formed and old friendships renewed, but it was the fine spirit of fellowship and scientific interest manifest everywhere that engendered a feeling of pride and fervent faith that all still goes well in American medicine.

I am not quite clear as to the purpose of this annual address, but I venture to assume that it may be of interest to present some of the impressions gained by these closer contacts, their meaning as I see it, and something of the problems ahead of our association.

Meeting again in this beautiful City by the Sea, I feel inclined to draw a parallel with a former session of this House of Delegates held in Atlantic City thirty-one years ago

On that Monday of June 6, 1904, your predecessors were concerned with questions of great portent to the future practice of medicine which in the sequence of subsequent events has had a definite bearing on the medical, economic and professional problems that concern us in this later day

With the turn of the century a new era began to dawn in American medicine, which was largely the heritage of the remarkable discoveries of Pasteur and the practical methods devised by Koch in bacteriology with the new conception of the causation of infectious diseases, likewise in wound infection with the resulting triumphs of antiseptic and aseptic surgery through the masters Lister and Billroth, as well as those of the brilliant exponents of the art in the New World Furthermore, the introduction of laboratory and clinical instruction, the correlation of physiologic and pathologic changes with study at the bedside, and consequent changes in therapeutic procedure were all dominant influences necessitating a complete transformation of medical education in this country and the character of the educational institutions responsible for such training

For a number of years, various educational forces had given the matter careful study and consideration, but it was the forceful presidential address of Dr Frank Billings at the New Orleans session in 1903 that directed the attention of the Association to the urgent need of improving medical education in America It was particularly emphasized that efforts to elevate the standards of medical training through concert of action among the existing medical schools, state licensing boards and other governmental bodies had not been attainable, and that the only possible way to obtain uniform standards and best influence medical education of the future was through the agency of the organized profession of the entire country The House of Delegates at the session in 1904 here in Atlantic City met the educational challenge of the period by establishing the Council on Medical Education, and the record of its accomplishments in the succeeding years, acting solely as a voluntary agency, is reflected in the comprehensive scheme of uniform medical education operating today in seventy-six approved medical schools, all of which are now established on a university basis This evolution in medical training has brought in its train many changes affecting the economic and professional status

of the practicing physician, besides distinctly extending the functions and activities of the American Medical Association in many new directions

The impact of the laboratory in diagnostic procedure, the expansion of hospital facilities, the unusual growth of specialization and the development of industrial and preventive medicine have been further factors influencing the changing order of medical practice and the cost of medical care

The delivery of medical service under the new order has gradually engaged an army of nonmedical personnel, such as hospital administrators, laboratory technicians and social service workers, and this, with a constantly increasing nursing profession, has not only added to the burden of illness but, what was possibly more significant, had the tendency to inject influences from without the medical profession affecting the control and character of the medical service to be rendered

It followed as a natural sequence that various philanthropic agencies and foundations assumed the obligation of determining by means of extensive surveys and statistical studies the increasing cost of medical care as compared with that of a generation ago, and likewise venturing a remedy, culminating in the proposals during the past year of the plans for compulsory health and sickness insurance to be established by federal and state legislative action

History has again repeated itself, and the House of Delegates as the governing body of our Association has met the new challenge to the medical practitioner of today, first, by recording itself at the Cleveland session last year in favor of a definite set of principles to guide the medical profession in meeting the problems of the delivery of medical service to all income groups, secondly, by reaffirming these basic principles at the special session of the House of Delegates, February 15 and 16, and registering in strongest terms its firm opposition to all pending and proposed legislation concerned with compulsory health or sickness insurance. Finally it delegated that the service of all administrative and other officers, and particularly the Bureau of Medical Economics, be made fully available for cooperative effort with state and local constituent societies, to unify as far as possible by proper guidance and counsel all local efforts to solve existing problems with all the facilities at the command of the Association. Under direction of this House and through wise provision of the Board of Trustees, the Bureau of Medical Economics has been provided with larger space and clerical assistance to carry on properly the increasing volume of work allotted to the director and his staff

The General Secretary with his alert and comprehensive grasp of changing developments everywhere, and the facile pen and clarion voice of the brilliant editor through the various avenues of publicity in conjunction with inspiring medical leaders throughout the land, have endeavored to sense the thought and existing emergencies in different communities and then to furnish that information and counsel adaptable for the occasion

It has meant a reeducation of our membership as well as of the public regarding the dangers and disappointments attending the operation of systems of compulsory health insurance in the older countries, more accurate information of existing medical economic conditions in the United States, and definite basic principles that must govern the solution of our particular problems

By making this information available as widely as possible, the various ventures proposed by a new school of economic philosophy have been for the time being averted and, perhaps more important, a sounder and more logical thought on the subject has been developed, evidenced particularly by the greater harmony of discussions on medical economic problems at medical society gatherings, as compared with those of but a short time ago

Thoughtful men and women are becoming convinced that private practice will continue to promise the best service for all concerned and insure its high quality. Perhaps the greatest accomplishment of this campaign of education has been the effect on legislation favoring compulsory health insurance and the government control of the practice of medicine

In certain social and economic security measures introduced in Congress, all reference to health or sickness insurance was eliminated, and bills proposing plans for compulsory health insurance presented in one or two state legislatures were

unsuccessful and did not even come up for passage. We must also by no means underestimate the significance of the fact that national legislation favoring compulsory health insurance was not only prevented but not even incorporated in any measure presented to Congress

Probably but few outside the states concerned realized the menace of the initiative and referendum measures placed before the people of Oregon, California and Arizona at the elections last fall. A vote of approval would have meant a constitutional amendment becoming a law without executive signature and extending to the various limited practitioners all the rights and privileges of the practice of medicine and surgery and equal rights with physicians in institutions supported by public funds. The defeat of these measures was a distinct accomplishment and was largely due to the valiant efforts of the organized profession in each state to awaken the public conscience to the dangers to public health and the interest of humanity. This was greatly aided by the personal visits and counsel of Dr. Woodward, the director of the Bureau of Legal Medicine and Legislation. Now that certain dangers to the further advancement of scientific medicine are not so much in the foreground as they were a year ago, it is well again to take measure of our opportunities and responsibilities as an organized medical profession to meet the demands of a changing order in modern society

Change has ever been a criterion of progress, and it becomes our obligation to adapt the high purpose of medicine to the needs of the period in which we live.

One of the gratifying impressions gained in contacts with the membership of our association in all parts of the country has been the sustained interest and manifest devotion to scientific medicine

In spite of trying economic conditions, the eagerness, the hunger for new knowledge is indicated by the increasing number of physicians attending medical society meetings, clinical conferences and refresher courses, often requiring considerable sacrifice of time and distance of travel

The American Medical Association exercises one of its particular educational functions by making available for the general practitioner as well as the specialist through its various publications every phase of medical progress, so essential for the continuous development of the experienced physician

The Association recognizes that modern society is showing an increasing interest in matters medical, and through the medium of the efficient Bureau of Health and Public Instruction it maintains an equally important function of educating the public on the importance of well being, the prevention of disease, the principles governing the care of the sick and the achievements of modern scientific medicine. This has tended to fix in the public mind the essential qualifications for the delivery of adequate medical care as well as the ideals and high purposes of the modern physician

The ethical conduct of the physician in all relations to colleague and patient has always been governed by precept and example, and to keep the professional shield untarnished is one of our sacred obligations to our guild and to society. A slip here and there may give cause for criticism from a not too indulgent public and easily reflect on the medical profession as a whole.

Change in methods of medical education has always gone hand in hand with the changing order of the practice of the art. The Association through the work of the Council on Medical Education and Hospitals can point with pride to being the motive force in advancing medical education in this country to its present high plane.

Various studies and surveys within recent years indicate that the needs and demands for medical service are not entirely fulfilled by the prevailing scheme of medical training. The increasing number of medical graduates each year beyond the ability of society to reward adequately is attended by definite social dangers

The House of Delegates at the last annual session authorized a resurvey of existing medical schools under the supervision of the Council on Medical Education and Hospitals, with special reference to faculty personnel and to facilities for clinical teaching with due regard to the number of students admitted in order to determine whether the institution concerned is able to

meet the educational demands of this period and the future practice of medicine. This action is most timely but it is a difficult task and is being most conscientiously carried out though entailing more responsibility even than the inspections and classifications of medical schools made twenty and twenty-five years ago.

This entire movement merits your generous support and encouragement. It was a wise provision to delegate to the Council on Medical Education and Hospitals the supervision of the qualification of the different medical specialties which ensures the highest quality of specialized practice for the future.

The efficiency of organization and close integration of the different services available have made it possible for the Association to maintain a comprehensive grasp of problems and change in medical practice existing in all sections of the country.

It seems particularly fortunate that the Bureau of Medical Economics has been established under such able direction with the ample facilities to meet particularly the emergency demands of the past year. When the report of the director is submitted it will be recognized that no such comprehensive and complete study and analysis of the many existing plans for the delivery of medical service has been attempted by any other organization. The report is further distinctive in that it does not indicate that certain plans must be carried out but rather how they can best be developed for all concerned, which in itself is a real contribution.

It is proper to indicate certain inherent dangers connected with two movements in the interest of the public welfare incident to the present emergency period. The administration of federal emergency medical relief is closely integrated with governmental supervision. The organized medical profession is sympathetic with the humanitarian purpose of this movement but cannot entertain the same feeling toward the extension of the administrative features beyond the present emergency period.

There is probably no wider appreciation of the magnitude and comprehensive nature of the public health program contemplated in the social security act soon to be enacted into law. Fully recognizing the need for the extension and strengthening of public health services in rural and other areas which are without adequate services of this kind one must yet realize that the large sums of money to be allotted to each state annually are far beyond any previous state budgets for public health purposes and that no definite plans have been developed for their proper expenditure.

While the responsibility for carrying out this extensive program is properly placed with the health officer of each state, it becomes the duty of the organized medical profession to assume its share in determining between preventive and curative medicine and to see that the interests of the public health and the medical profession will be equally protected.

If the medical profession is to maintain its nobility of purpose and obligation to society it can only be by the quality of its service and the qualifications of those rendering this service. Therein lies the great opportunity of our association—by unity of effort in conjunction with constituent state and component county medical societies to keep in the pathway of progress and meet the challenge of a changing world.

As a parting word I beg to express my tribute of homage and honor to all of you for your faithful and continuous labors in the House of Delegates for the good of the Association and the glory of American medicine.

#### Address of President-Elect James S. McLester

The Vice Speaker presented the President-Elect, Dr. James S. McLester, Birmingham, Ala., who presented the following address, which was referred to the Reference Committee on Reports of Officers.

#### Mr. Speaker and Members of the House of Delegates

My message today can appropriately be one of congratulation. When you the members of the House of Delegates of the American Medical Association, reaffirmed a few months ago your insistence on the complete professional independence of the American physician you presented in a world of unrest and uncertainty, an inspiring example of clearness of vision and stability of purpose. In opposing all outside control of medical practice, governmental or otherwise you took an important step

toward the maintenance of the present high standards of American medicine. Your action was not only in the interest of the medical profession but also for the good of the American people.

There are additional reasons for congratulation. The efficiency with which this great organization works and its continued progress toward the attainment of its ideals are things which you and I can contemplate with pride. Of great influence in this regard are the officers who labor at its headquarters. I know of no general manager in any corporation who is more responsive to the wishes of his directors than is the Secretary and General Manager in reflecting the views of the House of Delegates. The earnestness and efficiency of his efforts and the wisdom displayed in his management of its affairs contribute enormously to the success of the American Medical Association. I should like to say a word, too, in praise of the high plane on which your brilliant editor conducts the publications entrusted to his care. *THE JOURNAL* beyond comparison is the best periodical of its scope published in any language. Its literary merit is highly pleasing to those who have a conscience for good English while the soundness of its well written editorials and the scientific acumen used in the choice of contributions give it a degree of excellence that is unequaled among medical publications. *Hygieia* likewise fills a genuine need and does this in a most acceptable manner. The House appropriates large sums of money for the activities of the Association. I hope you realize that it is due in large part to the business acumen and untiring efforts of your business manager that you have this money to appropriate. Any organization is fortunate in having such an officer.

You are thoroughly familiar with the scientific activities of the American Medical Association, but I wonder whether even you realize the far-reaching importance of the work done by its several councils and bureaus. I would remind you of the great value at this time of the Bureau of Legal Medicine and Legislation and of the Bureau of Medical Economics and of Health and Public Instruction. In an unobtrusive but highly efficient way the executive officers of these bureaus serve as liaison officers between your headquarters in Chicago and the government in Washington. Few members of the profession realize the intentness with which the American Medical Association watches every movement that would tend to jeopardize medical standards, and the jealousy with which, acting through these bureaus the Association guards the economic welfare and the professional interests of the American physician. The Council on Pharmacy and Chemistry and that on Physical Therapy have given the American physician a saner better balanced view of therapeutics than is possessed by any other physician in the world. These councils have provided him with dependable facts, singularly free of the bias that in other countries usually surrounds the introduction of newer therapeutic measures. Of like influence is the Committee on Foods. The American people is acutely health conscious and will eat anything that it is told is for its good. The astute advertiser knows this and often takes advantage of it, but the Committee on Foods has given to the public in its seal of approval a sign by which foods that are correctly labeled and truthfully advertized can easily be recognized. The influence of this committee is far reaching.

At the risk of being charged with partisanship toward a council on which I have long served I want to say that few forces in the United States are working so consistently and so effectively for the good of the people as is the Council on Medical Education and Hospitals. Thirty-five years ago, just after the Boer War a medical officer of the British army told me this. He said that his government had issued orders to the army in South Africa that graduates of any European medical school be accepted without question for the service, but not the graduates of American schools, these last must be examined. This humiliated me greatly largely because I knew that that order had been issued with good reason. While at that time we had many of the best medical schools in the world we also had the poorest. In fact, it can almost be said that we were distinguished by having all of the poorest. Now, thanks to the Council on Medical Education and Hospitals that is all changed and if I were today to meet that European medical officer I could truthfully say that of the schools that are recognized in this country none can be classed as poor, that our average is

the equal of their best, and that our best is unequalled in the world. But this is only the beginning. Much important work in this field lies ahead and I bespeak for this council your sympathetic help and your continued liberal support.

As the Association continues to grow in strength and usefulness there is the danger that it will take on a separate identity that will lead physicians to look on it as distinct and as far removed from their more intimate state organizations. If such a feeling should develop there would be lost that closeness of contact which is so necessary for the good of our undertakings. The officers and trustees are doing everything possible to forestall such a development, but the greatest responsibility in this regard lies with the members of the House. If you gentlemen will continue to recognize your responsibility, if you will take it on yourselves to keep your constituents advised of the activities of the Association and above all will let them feel that the American Medical Association is quickly responsive to their wishes, that cordiality of feeling between this association and its constituent state associations so necessary for the good of organized medicine will be maintained unimpaired. The several state associations must understand, too, that in the choice of delegates they should continue to select men who have vision and courage, and particularly those who through familiarity with the everyday practice of medicine will be able faithfully to reflect the views of the great body of practitioners for whom it is the privilege of the Association to speak. I think it not inappropriate, too, to remind the fifteen sections that comprise the Scientific Assembly that in the selection of their delegates their choice should rest on men who not only are keenly alert to the needs of that particular division of medicine which they have the honor to represent but also are willing at all times to take a broad interest in all of the deliberations of this House and to make their influence felt.

We have been sailing on rough seas. No doubt there is still some bad weather ahead, but I believe that the worst of the storm has passed and that through the exercise of the same courage, patience, good judgment and steadfastness of purpose which you have exhibited in the past you will be able soon to steer this ship into calmer waters. After that, it will be smooth sailing under bright skies.

## REPORTS OF OFFICERS

### Report of the Secretary

Dr. Olin West presented his report as Secretary, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

### Report of the Board of Trustees

Dr. J. H. J. Upham, Chairman, presented the report of the Board of Trustees, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary. He submitted the following supplementary statement: At the last session in Cleveland, the House of Delegates instructed the Board of Trustees to carry on correspondence, or to ask for details in regard to the attempt made by the American College of Surgeons at that time to dominate and control medical practice. Through the Secretary, the Board of Trustees has carried on correspondence, but owing to the recent changes that have occurred the Board of Trustees suggests that this matter be continued for the time being.

### Address of Vice President George G. Reinle

The Vice Speaker introduced the Vice President, Dr. George G. Reinle, Oakland, Calif., who addressed the House as follows:

We fully appreciate, Mr. Speaker, and members of the House of Delegates, the honor which you conferred on the California Medical Association and me. I have no address, being conscious of the important business that is to come before the House but I should like to bring this message to you. You realize what we have to contend with in California. You have heard of Upton Sinclair and of many others, but I assure you that, through the efforts of the California Medical Association in guiding legislation, the medical service rendered to the people of California will be in the future, as it has been in the past, not disturbed.

## Report of the Judicial Council

Dr. George E. Follansbee, Chairman, presented the following report of the Judicial Council, which was referred to the Reference Committee on Reports of Officers:

### *To the Members of the House of Delegates of the American Medical Association*

Contrary to what might be expected, the amount of work coming before the Judicial Council during the past year has not increased over former years. This might be due to the clarification of the Principles of Medical Ethics accomplished by the House of Delegates at the 1933-1934 sessions, giving a better understanding of the principles and a more active application of them. But one meeting since the last annual session has been necessary to care for the routine activities, which consisted almost entirely of questionable applications for Fellowship and complaints of unethical situations in hospitals.

### MEMBERSHIP IN STATE ASSOCIATIONS

It is a practice in a few constituent associations to admit to membership in the state association (1) physicians who are nonresidents of the state and therefore not members in any component society of the state, or (2) physicians resident in the state who for some reason are not members of the county society where they live or practice. Such a procedure is reprehensible in a democratic organization such as the American Medical Association. Membership in the state association and Fellowship in the American Medical Association without membership in a component county medical society extends special privileges not open to other members in the state or the general Fellows in the American Medical Association. The theory on which the American Medical Association is built arises from the broad basis of the county medical society, all of whose members are members of the state association and the national body, and all of whom have definite responsibilities for maintenance of the entire organization. There should be no privileged group to enjoy the advantages presented by the higher bodies without supporting the lower body, which makes the higher bodies possible. The constitution of the Association states that "members in good standing of the constituent association are the members of the American Medical Association, subject, however to the provisions of the by-laws regarding members." Nowhere does the constitution or the by-laws state that membership in a component society is essential to membership in the state society, though the intent is clear in the by-law covering membership and Fellowship in the American Medical Association on transfer of residence from one state jurisdiction to another. Membership in two state associations is as inconsistent as being a voter in two states or two congressional districts. Furthermore, representation in the House of Delegates is based not on the number of members in the county societies of the states but on the number of members in the state association. A state association that carries on its membership roll nonmembers of the component societies may very possibly have an unjustified representation in the House. In the opinion of the Judicial Council, membership in a component society should absolutely be essential to membership in a state association.

### IMPROVED METHODS OF ADMINISTERING THE PRINCIPLES OF MEDICAL ETHICS

The Judicial Council in the past has made recommendations to the House of Delegates which, by their recognition and adoption throughout the constituent associations, have resulted in improved conditions under which medical service is made available to the public. Reference especially is made to discussions and pronouncements regarding all forms of contract practice, whether by individual or grouped physicians, hospitals, dispensaries, teaching institutions, or insurance or industrial companies. Much remains to be accomplished, but the course has been clarified and more complete progress awaits only the appropriate action of the chosen representatives of our county, state and national medical organizations.

As the direct result of medical society endeavors to cultivate public understanding of the declared purposes of such societies in relation to sickness prevention and sickness service, public interest in them has been enormously increased in the past five

years. Discussions formerly confined to medical society programs and publications have become public property, and in the public press economic, social and legislative problems having health features, whether such problems are of local or of national interest, are generally acknowledged as the responsibility of the medical profession. With this widening recognition, however, has come a growing convergence of public attention on the motives and the professional activities of the members of our profession, and it is to the disciplinary responsibility of component societies for the ethical conduct of their members that the Judicial Council wishes to call attention at this time.

Public confidence in our avowed declarations for medical control over things medical cannot be successfully cultivated or maintained unless we exclude or remove from the ranks of our organized profession those who ignore our ethical code, especially as it applies to the true professional spirit in our relations with each and every patient. It is apparent that the very democracy of our existing set up may become involved unless our county and state societies rapidly develop to meet adequately local situations arising from the professional activities of a small but thoughtless or indifferent proportion of members. If the societies will not exercise their prerogative or discharge their duties in this connection, will it become advisable to extend the disciplinary functions now resting in the county society to the state association and possibly to the national administration? History, tradition and our constitution stand for local control, but the public policy of our Association has become such that we cannot turn back from it and ethical problems of major importance are pressing for solution.

In general, the Principles of Medical Ethics are accepted as a guide in professional relations and are intelligently and faithfully followed by a large majority of the profession. There are, however, more or less isolated instances in which this is not true. The delinquents comprise individuals, groups and institutions. Solicitation of patients, particularly in industrial practice, unfair competition by clinics and groups and unethical and unlawful practice of medicine by hospitals, dispensaries, insurance companies and universities are examples.

Ordinarily under present by-laws of county, state and national associations procedure to correct an unethical practice must be instituted in the county medical society by the preferring of charges, which in practice is left to some individual who feels aggrieved. Few individuals feel it their personal responsibility to prosecute a breach of ethics that affects them personally but little but which may affect the profession of medicine in a major degree. The institution of charges by an individual in such cases of general concern might very probably in many instances amount to professional suicide, and seldom does any individual desire to place himself on his own initiative in the position of prosecutor for the benefit of the profession as a whole and bring on himself the unfriendliness and antagonism of colleagues often in influential positions. Numerous are the complaints against the situation cited and many are the demands that medical organization correct for its members that which medical organization has pronounced unethical and harmful and which the members cannot correct for themselves. Last year the House of Delegates amended its Principles of Medical Ethics so clearly that there can be no misunderstanding of the conditions mentioned, but the present method of procedure of preferring charges makes the pronouncement ineffective.

The problem is similar to law enforcement in local communities, states and the nation. If in enforcement of the law the institution of proceedings were left to the voluntary action of an individual, personal animus would be the controlling motive and only minor infractions would be handled. Society has found that it needs a system representing society as a whole, of grand jury investigation and indictment, a public prosecutor, and an impartial court with the right of appeal to higher courts. Medicine in this age needs a similar system for enforcement of its ethical and economic principles. Such a system of medical jurisprudence is needed most and would be applicable in the larger county medical societies. The body bringing the indictment and the prosecutor would lose their personal identity in their representation of the medical profession as a whole and no stigma, but rather honor, would attach to them.

It might be advisable to extend the origination of charges in some situations manifestly too great for the county society to handle to the state association and possibly, in rare instances, to the national organization. There rarely would be infractions of such magnitude that the national association and seldom that the state associations should be the originator of any action toward discipline. If and when the House of Delegates sees fit to extend original jurisdiction in matters of discipline to the national organization, the Judicial Council suggests that it should have the duties and powers now conferred on it but it should not at any time be placed in an *ex parte* position. In those instances of abuse of such nature or such magnitude as to warrant national rather than state or county institution of proceedings, there should be some other body, either now in existence or created, to act as grand jury to investigate and, if deemed proper, prepare an indictment against the accused. In case of indictment, the Board of Trustees should assign the prosecution to some one of their choice and the case should be tried before the Judicial Council, which under such procedure would not be under suspicion of prejudice.

The Council wishes to be distinctly understood that it is suggesting no infringement on or release from responsibilities now residing in the component county medical societies. On the contrary, its idea is to assist and complement those societies in performance of the duties now imposed on them and to supplement their activities by methods applicable to conditions and situations too general or too large to be handled within their limited jurisdiction. We commend to the House of Delegates the urgency of prompt and firm action by all component societies in enforcement of the provisions of the Principles of Medical Ethics that will support the growth of public confidence in the sincerity of our avowed ethical principles.

#### COOPERATION BETWEEN COUNCILS

Some of the common causes of complaints could probably be controlled by a closer coordination between the various councils, particularly the Council on Medical Education and Hospitals and the Judicial Council. The Judicial Council, by the constitution, is the final authority on ethics. Medical ethics follows every member of the American Medical Association, whether in a hospital, a university, a clinic, or not. While the member in such institution is subject to the ethics of the profession, the institution itself as an entity is not, but through the Council on Medical Education and Hospitals sufficient oversight, persuasion and, if needed, pressure can be brought to accomplish what the doctors in such institutions, as individuals, cannot. With such cooperation between the two councils and such enforcing organization as has been suggested, many harmful and obnoxious practices now existing would cease and others not now presenting any large problem would be prevented. The Principles of Medical Ethics, while followed by the large majority of the profession and considered—if considered at all—by many not in the profession as simply a uniform to be worn while “on parade.” When people, laymen as well as members of our profession, realize that the Principles of Medical Ethics are the basic principles of honest, fair dealing and that their observance is necessary to the best interests of the whole people, laymen as well as the members of the profession, medical practice will have taken a long step upward, medicine will have more dignity and authority, and people will be better served.

Respectfully submitted

GEORGE EDWARD FOLLANSBEE, Chairman  
WALTER F. DONALDSON  
EDWIN P. SLOAN  
JOHN H. OSHEA  
EMMETT P. NORTH  
OLIN WEST, Secretary ex officio

#### Report of the Council on Medical Education and Hospitals

General Merritt W. Ireland, Washington, D. C., presented the report of the Council on Medical Education and Hospitals, which was referred to the Reference Committee on Medical Education.



## RESOLUTION ON TRAINING OF INTERNS

General Ireland, in behalf of the Council on Medical Education and Hospitals, then presented the following resolution, which was referred to the Reference Committee on Medical Education

**WHEREAS** The training of interns is one of the most important phases of medical education for which the responsibility must rest with hospitals rather than with medical schools and

**WHEREAS** The most advantageous training of interns can be completed only through the intelligent and painstaking efforts of the physicians who compose the staff therefore be it

**Resolved** That the officers and members of state and county societies be urged to give due consideration to the problems of intern training in the approved hospitals with which they may be connected

## Report of the Council on Scientific Assembly

Dr Irvin Abell, Kentucky, presented the report of the Council on Scientific Assembly, which was referred to the Reference Committee on Sections and Section Work

## NEW BUSINESS

## Resolution on Broadcasting Misinformation Pertaining to Medicaments, Foods and Cancer

Dr Holman Taylor Texas, introduced the following resolution, which was referred to the Reference Committee on Hygiene and Public Health

The State Medical Association of Texas, on May 15 1935 unanimously adopted resolutions condemning the broadcasting of misinformation pertaining to medicaments, foods and cosmetics, with particular reference to the curability of cancer. As secretary of the State Medical Association of Texas, I was directed to submit this resolution to the House of Delegates of the American Medical Association at its immediately forthcoming annual session in Atlantic City, which, as a delegate to the American Medical Association, I take pleasure in doing. The resolution is, for obvious reasons submitted as adopted by the State Medical Association of Texas, as follows

**WHEREAS** The State Medical Association of Texas and the American Medical Association have repeatedly protested exploitation over the radio of exaggerated claims for medicaments foods and cosmetics without merit and

**WHEREAS** Attempts have been made in the past and are now being made to evade the restrictions which the United States government has placed on such broadcasting by the establishment of broadcasting stations in Mexico and

**WHEREAS** There are being broadcast at this time from a station in Mexico false and exaggerated statements concerning the curability of cancer and

**WHEREAS** Such statements lead not only American citizens but also those of Mexico into the expenditure of money for what is essentially a false and unestablished method of treatment of this disease therefore be it

**Resolved** That the State Medical Association of Texas present to the Federal Communications Commission of the United States a petition requesting the Federal Communications Commission to inform the government of Mexico concerning the hazards to health concerned in such broadcasting and also that the secretary of the State Medical Association of Texas be authorized to present to the established authorities of Mexico concerned with the control of broadcasting from that nation the facts in relationship to this fraudulent broadcasting of a cure for cancer and request such authorities to exercise their power in discontinuing this menace to the citizens of both republics

## Resolution on Appointment of Committee to Investigate and Formulate Standards Governing the Manufacture of Catgut for Surgical Use

Dr Grant C Madill New York, presented the following resolution, adopted by the house of delegates of the Medical Society of the State of New York, which was referred to the Reference Committee on Miscellaneous Business

**WHEREAS** The qualities desired in catgut for human use are absolute sterility and absorbability and

**WHEREAS** Most catgut supplied for service on human bodies is manufactured for profit and

**WHEREAS** Recent reports indicate that infected catgut or incompletely sterilized catgut is being sold and

**WHEREAS** This constitutes a menace to the public be it

**Resolved** That the house of delegates of the Medical Society of the State of New York, through its delegates to the American Medical Association memorialize the House of Delegates of the American Medical

Association to set up a committee or such agencies as will investigate and elaborate standards and in general formulate a policy in regard to catgut as will safeguard the community

## Resolution Seeking the Enactment of National Legislation to Obviate the Evil of Radio Broadcasting of Medical Misinformation

Dr James F Rooney, New York, presented the following resolution, adopted by the house of delegates of the Medical Society of the State of New York which was referred to the Reference Committee on Legislation and Public Relations

**WHEREAS** The public health is undermined by radio broadcasts purporting to impart medical information to the public either as sustaining programs or as part of advertising campaigns and

**WHEREAS** This information is usually broadcast by nonmedical persons who can hardly realize the fallacies of the things they broadcast and

**WHEREAS** This leads to misinformation which conceivably also might cause health damage to those of the listening audience who followed it therefore be it

**Resolved** That the house of delegates of the Medical Society of the State of New York instruct their delegates to the American Medical Association to bring this to the attention of the House of Delegates of the American Medical Association to the end that suitable national legislation be enacted to obviate this evil and threat to the public health

## Resolutions on Contraception

Dr George W Kosmak New York presented the following resolution adopted by the house of delegates of the Medical Society of the State of New York

**WHEREAS** State and federal legislation governing control of reproduction is conflicting and renders certain phases of medical practice illegal it is important that the medical profession as a whole should undertake to clarify and lead in the solution of these questions which involve medical practice and procedures. The importance of such control in medical practice where such control constitutes a therapeutic measure is obvious to all medical men

**Resolved** That the house of delegates of the Medical Society of the State of New York recommends to the House of Delegates of the American Medical Association that it officially sanction the appointment by the Board of Trustees of a committee to study carefully all these related problems and formulate at least a preliminary report to be presented to the 1936 session of the House of Delegates of the American Medical Association

It was moved by Dr William H Mayer, Pennsylvania seconded by Dr E G Wood Tennessee, and carried, that a Special Reference Committee be appointed to consider this subject and the Vice Speaker announced that such committee would be appointed and the matter brought before the House in Executive Session

The Vice Speaker also referred to the Special Reference Committee, without reading, similar resolutions received from the following societies: Arkansas Medical Society, Berks County (Pa.) Medical Society, Chicago Orthopedic Society, Clinico-Pathological Society of Washington, D C Medical Society of the District of Columbia, Gage County (Neb.) Medical Society, Maine Medical Association, New Mexico Medical Society, and Portage County (Ohio) Medical Society

## Resolution on Solicitation of Votes

Dr Isaac A Abt, Section on Pediatrics presented the following resolution, which was referred to the Judicial Council

Under the Standing Rules of the House of Delegates page 53 of the Constitution and By Laws a section entitled Solicitation of Votes, adopted by the House of Delegates at Saratoga Springs N Y June 13 1902 reads as follows **Resolved** That it is the sense of the House of Delegates of the American Medical Association that the solicitation of votes for office is not in keeping with the dignity of the medical profession nor in harmony with the spirit of this Association and that such solicitation shall be considered a disqualification for election to any office in the gift of the Association.

**Resolved** That the Judicial Council be requested to inform this House of Delegates whether said section of the Standing Rules is still in force and whether any person who is elected or nominated in violation of said rule is legally eligible for nomination or election to an office in the American Medical Association

## Resolutions on Contraception

Dr Leonce J Kosminsky, Arkansas, presented the following resolutions adopted by the Arkansas Medical Society, which were referred to the Special Reference Committee

**WHEREAS** The provisions of section 211 245 311 and 312 of the United States Penal Code dealing with contraception

(1) Seriously reflect on the integrity and propriety of the medical profession



(2) By hampering physicians in private and clinical practice in obtaining supplies tend to prevent them from giving adequate contraceptive advice even in cases where it is necessary to conserve health or life itself

(3) Prevent the publication of all contraceptive information in medical textbooks and medical journals resulting in widespread ignorance on the part of the medical profession on this important subject and interfering with the instruction of medical students and practitioners concerning it and

(4) Constitute an unwarranted interference of the United States with the right of each state to control the practice of medicine within its jurisdiction as it may see fit and

WHEREAS Legislation is now pending in the Congress that if enacted into law would make the provisions of the federal penal statutes concerning contraception even more rigorous and

WHEREAS, The whole subject is seriously in need of scientific study and investigation in order that standards of effectiveness and safety may be set up and

WHEREAS The medical profession and the public have the right to look to the American Medical Association to assume the role of leadership in both the scientific and the legal phases of contraception therefore be it

Resolved That the house of delegates of the Arkansas Medical Society requests the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to contraception instructing its appropriate agencies to undertake the necessary scientific study and to make every legitimate effort to have federal and state laws so amended as to remove restrictions now affecting physicians and that the secretary be instructed to forward a copy of this resolution to the Secretary of the American Medical Association and be it further

Resolved That the delegates of the Arkansas Medical Society to the American Medical Association be instructed to urge and vote for such a program

Dr Henry C Macatee, District of Columbia, introduced the following resolutions, adopted by the Medical Society of the District of Columbia, which were referred to the Special Reference Committee

WHEREAS The medical profession and the public have the right to look to the American Medical Association to assume a rôle of leadership in both the scientific and the legal phases of all branches of medical practice, and

WHEREAS The whole subject of birth control is seriously in need of scientific study and investigation be it

Resolved That the Medical Society of the District of Columbia request the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control instructing its appropriate agencies to undertake the necessary scientific study and be it further

Resolved That our delegate to the House of Delegates be instructed to urge and vote for the adoption of such a program of investigation and that the secretary be hereby instructed to forward a copy of these resolutions to the Secretary of the American Medical Association

### Resolution on Care of the Indigent

Dr Henry C Macatee, District of Columbia, presented the following resolution adopted by the Medical Society of the District of Columbia which was referred to the Reference Committee on Medical Economics

WHEREAS The American Medical Association at its session in Milwaukee in 1933 endorsed the Minority Report of the Committee on the Costs of Medical Care which recommends that Government care of the indigent be expanded with the ultimate object of relieving the medical profession of this burden , and

WHEREAS Physicians bear and under any conditions will continue to bear an enormous part of this burden as their private philanthropy growing out of their habitual acceptance of personal and individual obligations to the poor and since therefore the recommendation quoted refers to the burden of medical care for that large class of indigent which is a direct charge on society as a whole and

WHEREAS, Since this particular burden is preponderantly undertaken by the medical profession because of the very real but intangible advantages of increased experience skill and prestige that are to be derived from appointments to hospital and dispensary staffs a situation is created that results in (1) a tendency to promote and facilitate the practice of medicine by hospitals (2) a demonstrable failure to provide adequate care for other than the more serious medical hazards of the indigent group and (3) lack of protection to society as a whole against the spread of infectious diseases of all types from the foci thus maintained and

WHEREAS The desire to provide adequate medical care for this group should not be based on a lofty altruism alone but equally as has been indicated on sound considerations affecting the public health and on the very necessary realization on the part of the medical profession that it cannot expect and should not attempt to attain economic security for itself except as a by-product of a social readjustment that assures the availability of the curative preventive and rehabilitating facilities of modern medicine to all classes of the people including the entirely indigent and

WHEREAS All current plans whether sponsored by medical or socio-economic groups, for effecting a wider and more uniform availability of medical facilities for all fail adequately to provide curative, to say nothing of preventive medical care for the indigent and

WHEREAS Any plan keeping within the confines of a capitalistic rather than a socialistic concept of society must, from the point of view of equity as well as from that of practical accomplishment recognize the profit motive (using this term in its strict economic sense) on the part of physicians if their services are to be secured for this group there fore be it

Resolved That the Medical Society of the District of Columbia urge the House of Delegates of the American Medical Association to request the Board of Trustees to instruct the Bureau of Medical Economics in evaluating any plans for securing medical economic security to give due weight to the facts set forth in this preamble and to study, investigate, and at the next session report as to the advisability of securing adequate funds to be derived from public taxation to remunerate physicians for services that while rendered to the indigent are in the interest of and hence properly chargeable to society as a whole and as to methods for assuring that such funds shall be so administered and disbursed as to avoid a bureaucratic control subject to political exploitation

### Resolution on Medical Service Organizations

Dr Henry C Macatee District of Columbia, introduced the following resolution adopted by the Medical Society of the District of Columbia, which was referred to the Reference Committee on Medical Economics

WHEREAS At the meeting of the American Medical Association at Milwaukee in 1933 the House of Delegates endorsed "the Minority Report of the Committee on Costs of Medical Care as expressive in principle of the collective opinion of the medical profession" commended the plan of the Medical Society of the District of Columbia to educate and inform its constituency regarding the socio-economic aspects of medical practice, and recommended similar activities to the favorable consideration of other constituent associations and

WHEREAS Among the recommendations of the said Minority Report the following may be found That steps be taken to bring about better coordination of the medical resources of the communities of the Nation, and that careful trial be given to methods which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice , and

WHEREAS Under the impetus of the said report bearing the endorsement of the American Medical Association many constituent county and state societies have set up experimental medical service organizations for the accomplishment of the two recommendations quoted with the result of creating widespread interest in the movement and a desire on the part of other communities to profit by the experience of existing projects before setting up similar experiments of their own and

WHEREAS It has been the experience of those conducting the management of such medical service bureaus that the details of organization and administration cannot successfully be conveyed by written description and

WHEREAS It has been the experience of the Medical Economic Security Administration for the District of Columbia probably duplicated by the experience of similar projects elsewhere that the demand for information and assistance cannot be met by local resources of time and money and personnel therefore be it

Resolved That the House of Delegates recommend to the Board of Trustees that the more promising of the medical service organizations operating under the auspices of constituent societies of the American Medical Association be, by invitation taken under the sponsorship of the American Medical Association as its collective experimental endeavor to bring about an acceptable adjustment of medical resources to popular needs and that funds be appropriated to be expended through the Bureau of Medical Economics (a) in the form of grants to meritorious projects when necessary or advisable to carry them from their inception until self supporting or for undertaking necessary or desirable additions to the basic experiment for statistical or other purposes and (b) to provide for the free exchange of methods of organization and operation and experience in administration by defraying the necessary travel and other expenses of executive personnel of such projects in operation or in process of formation or in such other ways as may be found necessary or desirable

### Resolution on Preparation of a Statement Regarding Medical Service Experiments

Dr Henry C Macatee, District of Columbia, presented the following resolution, adopted by the Medical Society of the District of Columbia, which was referred to the Reference Committee on Medical Economics

WHEREAS The American Medical Association has repeatedly expressed its opposition to any form of state administered health insurance and has presented cogent reasons for its opposition and

WHEREAS, One of the controlling reasons for opposition is that no experimental approach to the application of the principle of state health insurance in America has been proposed and no such experimental

approach can be made without setting up politically controlled machinery expensive to maintain and difficult to destroy and

WHEREAS In view of the universally recognized need of better adjustment of medical resources to the requirements of the people in the low income class the medical profession has undertaken in many parts of the country to effect the needed readjustment by the use of social devices suited to the problems and facilities of the respective localities and

WHEREAS The American Medical Association has undertaken the sponsorship of these projects for the purposes of study coordination and extension therefore be it

Resolved That the Board of Trustees cause to be prepared a statement setting forth the number and location of the medical service experiments under the supervision and sponsorship of the American Medical Association their purposes and accomplishments and transmit the same to the President of the United States as an evidence that the medical profession itself is endeavoring in a truly scientific experimental way to solve the problems of medicosocial maladjustment by utilizing methods and agencies familiar to the American people and integral with American life

### Resolution on Establishment of Courses in Medical Economics in All Medical Colleges in This Country

Dr Walter F Donaldson, Pennsylvania, introduced the following resolution, sponsored by the board of trustees of the Medical Society of the State of Pennsylvania which was referred to the Reference Committee on Medical Education

WHEREAS The Committee on Medical School Curricula of the Commission on Medical Economics of the Philadelphia County Medical Society has collected data as indicated by the accompanying table indicating a receptive attitude on the part of the faculties of the medical colleges of the United States toward the establishment of courses in medical economics in these schools in that sixty of the seventy-one class A medical schools of the country have established or are willing to establish such courses

Therefore the Board of Trustees of the Medical Society of the State of Pennsylvania has instructed its delegates to the House of Delegates of the American Medical Association to introduce this resolution at the Atlantic City session urging the Council on Medical Education and Hospitals and the Bureau of Medical Economics of the Association to continue their endeavors until courses in medical economics have been established in all the medical colleges in this country

#### THE PHILADELPHIA COUNTY MEDICAL SOCIETY COMMISSION ON MEDICAL ECONOMICS

Section for Investigation of Certain Phases of Teaching in Medical Schools Joseph W Post MD Chairman

#### ANNUAL REPORT

The Section for Investigation of Certain Phases of Teaching in Medical Schools has conducted a survey covering seventy-one recognized medical colleges throughout the United States to ascertain those colleges which are at present teaching medical economics as well as the attitude of the deans as to the value of such teaching

With this end in view the following questionnaire was prepared and mailed to the dean of each of the seventy-one institutions

- 1 University of Oklahoma School of Medicine Oklahoma City
- 2 State University of Iowa College of Medicine Iowa City
- 3 University of Colorado School of Medicine Denver
- 4 Yale University School of Medicine New Haven Conn
- 5 University of Pennsylvania School of Medicine Philadelphia
- 6 Hahnemann Medical College Philadelphia
- 7 New York Homeopathic Medical College and Flower Hospital, New York
- 8 University of North Dakota School of Medicine Grand Forks N D
- 9 University of Minnesota Medical School Minneapolis
- 10 Tulane University of Louisiana School of Medicine New Orleans
- 11 Albany Medical College Albany N Y
- 12 University of Michigan School of Medicine Ann Arbor
- 13 University of Louisville School of Medicine Louisville, Ky
- 14 University of Cincinnati College of Medicine Cincinnati
- 15 Temple University School of Medicine Philadelphia
- 16 Georgetown University School of Medicine Washington D C
- 17 University of Vermont College of Medicine Burlington Vt.
- 18 University of Missouri School of Medicine Columbia Mo
- 19 University of Alabama School of Medicine Mobile
- 20 Loyola University School of Medicine Chicago
- 21 Baylor University College of Medicine Dallas Texas
- 22 Boston University School of Medicine Boston
- 23 University of Oregon Medical School Portland
- 24 Columbia University College of Physicians and Surgeons New York
- 25 University of Pittsburgh Pittsburgh
- 26 Creighton University School of Medicine Omaha
- 27 College of Medical Evangelists Loma Linda Los Angeles
- 28 Women's Medical College of Pennsylvania Philadelphia
- 29 University of Kansas School of Medicine Lawrence and Kansas City Kan
- 30 Emory University School of Medicine Atlanta Ga
- 31 Rush Medical College University of Chicago
- 32 University of Illinois College of Medicine Chicago
- 33 Washington University School of Medicine St Louis
- 34 Indiana University School of Medicine Bloomington and Indianapolis
- 35 Medical College of the State of South Carolina Charleston
- 36 University of Georgia School of Medicine Augusta
- 37 University of Texas School of Medicine Galveston

- 38 Harvard University Medical School Boston
- 39 Western Reserve University School of Medicine Cleveland
- 40 University of Nebraska College of Medicine Omaha
- 41 University of Arkansas School of Medicine, Little Rock.
- 42 Tufts College Medical School Boston
- 43 Stanford University School of Medicine San Francisco
- 44 University of California Medical School, Berkeley and San Francisco
- 45 Duke University School of Medicine Durham N C
- 46 Cornell University Medical College Ithaca N Y
- 47 Johns Hopkins University School of Medicine, Baltimore
- 48 School of Medicine of Division of Biological Sciences University of Chicago
- 49 Dartmouth Medical School Hanover N H
- 50 Ohio State University College of Medicine Columbus
- 51 St Louis University School of Medicine St. Louis.
- 52 Louisiana State University Medical Center New Orleans
- 53 University of Rochester School of Medicine, Rochester N Y
- 54 University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore
- 55 University of North Carolina School of Medicine Chapel Hill.
- 56 University of Mississippi School of Medicine University
- 57 Wayne University School of Medicine Detroit
- 58 New York University University and Bellevue Hospital Medical College New York.
- 59 Long Island College of Medicine Brooklyn
- 60 University of Southern California School of Medicine Los Angeles.

The colleges which did not respond to the questionnaire were

- 1 Jefferson Medical College Philadelphia
- 2 George Washington University School of Medicine Washington D C
- 3 Howard University College of Medicine, Washington D C.
- 4 Northwestern University Medical School, Chicago
- 5 Syracuse University College of Medicine, Syracuse N Y
- 6 University of Buffalo School of Medicine Buffalo
- 7 University of South Dakota School of Medicine Vermillion
- 8 University of Tennessee College of Medicine, Memphis.
- 9 Vanderbilt University School of Medicine Nashville Tenn
- 10 University of Virginia Department of Medicine Charlottesville Va
- 11 University of Wisconsin Medical School Madison

Following is a copy of the questionnaire sent to all the medical schools above referred to

Feb 21, 1935

Dear Sir —

As chairman of the Section for Investigation of Certain Phases of Teaching in Medical Schools of the Philadelphia County Medical Society I am endeavoring to get a general survey of the same and am requesting your hearty cooperation

With this end in view would you kindly answer the following questions and make any additional comments which you might deem helpful to this study

1 (a) Is the subject of medical economics given any consideration in your college curriculum? (b) If so will you forward outline and particulars of same?

2 What is your attitude toward the teaching of medical economics to the undergraduate medical student?

3 Do you believe that a comprehensive survey of the subject as well as training in actual business methods in practice would make the graduate a more valuable asset to his profession and community?

4 When do you consider the most propitious time for teaching this subject and how could it best be accomplished?

5 Would you be willing to cooperate with your local county medical societies in an effort to instruct students along these lines?

6 Is any stress laid on the teaching of periodic health examinations other than the regular routine subject of physical diagnosis?

Our Commission on Medical Economics of the Philadelphia County Medical Society feels that a great benefit can be derived from a careful consideration of the foregoing and therefore trust that you will add your valuable counsel

Respectfully yours

JOSEPH W POST MD Chairman  
1930 Chestnut St Philadelphia

To date we have received replies from sixty (83 per cent) of those to whom questionnaires were sent and our analysis of each of the five questions is as follows

QUESTION 1—(a) Is the subject of medical economics given any consideration in your curriculum? (b) If so will you forward outline of same?

Thirty-three or 55 per cent are teaching this subject either by a set course or by lectures in some form

Twenty-seven or 45 per cent give the subject no consideration

The thirty-three colleges registering in the affirmative are as follows  
Nos 1 3 4 9 10 11 14 15 18 24 26 27 28 29 30 31 32 33  
34 35 40, 44 45 46 47 48 50 51, 52 57 58 59 60

Those colleges giving no consideration to the subject are Nos 2, 5  
6, 7 8 12 13 16 17 19 20 21 22 23 25, 36, 37 38 39 41  
42 43 53, 54 55 56 49

QUESTION 2—What is your attitude toward the teaching of medical economics to the undergraduate medical student?

This question was answered favorably by forty-eight (80 per cent) of the colleges as follows Nos 1 2 3 8 9 10 11 12 13 14 15 16

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35  
36 37 43 45 46 47 48 50 52 53 54 55 56 57 58 59 60

Unfavorable replies were registered from ten (17 per cent) of the colleges as follows Nos 4 5 6 7 38 39 40 42 44 51

Institutions 41 and 49 did not answer this question

QUESTION 3—Do you believe a comprehensive survey of the subject as well as training in actual business methods in practice would make the graduate a more valuable asset to his profession and community?

Forty-one, or 69 per cent of those replying answered in the affirmative and comprised the following Nos 1 2 3 5 9 10 11 12 13 14 15 16 17, 18 19, 21 22 23, 24 25, 26 27 28 30 31 32 33 34 35 36 40, 45 46 50 52 53 54, 55 57 59, 60

The unfavorable replies were from Nos 4 6 7 8 29 37 38 39 42, 43 44 47, 48 51, 56 58 a total of sixteen or 26 per cent

Nos 20 41 49 did not answer the question This represents 5 per cent.

QUESTION 4—When do you consider the most propitious time for teaching this subject and how could it best be accomplished?

1st year	1
2d year	1
3d year	2
3d and 4th years	6
4th year	43
Intern's year	3
Intern's year	1
Societies	1

One college felt that it should be incidental as the occasion arose  
Ten colleges did not answer the question

QUESTION 5—Would you be willing to cooperate with your local society in an effort to instruct students along this line?

Forty-one (68 per cent) answered affirmatively

Eight (13 per cent) answered negatively

Eleven (18 per cent) gave no answer

Supplementing the replies to the questionnaire we have obtained some valuable data from those institutions which are already teaching medical economics

The individual comments from the authors of these replies constitute we feel, a favorable attitude toward the necessity for enlarging on the teaching of this important subject

Our committee therefore recommends that the résumé of this survey be referred through proper channels to the Bureau of Medical Economics of the American Medical Association with resolutions that a course in medical economics be added to medical college curricula

The committee would also suggest that the data of those courses and lectures obtained from this survey be used as a basis for such a training

We would furthermore recommend that a copy of this report be mailed to each of the deans of the colleges contacted along with a letter of thanks to those responding for their whole hearted cooperation

The committee desire to acknowledge their sincere appreciation to Mr Franklin M Crispin and the Secretarial staff of the Philadelphia County Medical Society for their valuable assistance in making this survey

Respectfully submitted

JOSEPH W POSE, M.D. Chairman

### Resolution Making Membership a Prerequisite for Qualification as Specialist on List of Council on Medical Education and Hospitals

Dr William R Brooksher, Arkansas, presented the following resolution, adopted by the Arkansas Medical Society, which was referred to the Reference Committee on Medical Education

WHEREAS The Council on Medical Education and Hospitals of the American Medical Association has published a list of qualified specialists in pathology and radiology these physicians having been found to qualify according to essentials proposed by the Council on Medical Education and Hospitals and approved by the House of Delegates of the American Medical Association and

WHEREAS Such a listing is felt to be a definite contribution toward the elevation of the standards of these specialties and

WHEREAS These essential qualifications do not include the requirement that a physician so designated shall be a member of his county and state medical society therefore be it

Resolved That the House of Delegates of the American Medical Association request the Council on Medical Education and Hospitals of the American Medical Association to make membership in respective county and state medical societies a prerequisite for qualification as a specialist on the Council's list.

### Special Reference Committee

The Vice Speaker appointed the following as members of the Special Reference Committee

E R Cuniff, Chairman	New York
A A Walker	Alabama
J Allen Jackson	Pennsylvania
E H Cary	Texas
T Henshaw Kelly	California

The meeting recessed at 12 25 p m to reconvene on Tuesday morning, June 11, at 9 30

(To be continued)

## Association News

### MEDICAL BROADCASTS

#### Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4 30 to 4 45 Chicago daylight saving time (3 30 central standard time) The next broadcast will be as follows

June 27 Blood and Fire, W W Bauer M D

#### National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4 15 Chicago daylight saving time (3 o'clock central standard time) The next broadcast will be as follows

June 25 Why Health Insurance? F E Sondern M D

NOTE—After these talks, broadcasts on both networks will be discontinued until further notice.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS, EDUCATION, PUBLIC HEALTH ETC)

### ARIZONA

State Medical Election.—Dr Jesse D Hamer, Phoenix, was chosen president-elect of the Arizona State Medical Association at its annual meeting in Phoenix, April 24-27, and Dr Charles R. K. Swetnam, Prescott, was inducted into the presidency The next annual session of the society will be held at Nogales in May 1936 Guest speakers included Drs Frederick C Warnshuis, San Francisco, secretary, California Medical Association, Rexwald Brown, Santa Barbara, Calif., Frank S Dolley, Los Angeles, "Present Status of Pulmonary Lobectomy for Bronchiectasis and Carcinoma", Frederick A. Willius, Rochester, Minn., "The Physiologic Approach to the Treatment of Heart Failure", Erwin W Johns, Albuquerque, N M, "Juvenile Osteochondrodysostrophies," and Howard Fleming, San Francisco, "Diagnosis and Treatment of Head Injuries"

### CALIFORNIA

Personal.—Dr Mary Bennett Ritter, Berkeley, was awarded the honorary degree of doctor of laws at the commencement of the University of California, May 18 —Dr Walter E Coppedge, Alturas has been appointed health officer of Modoc County to succeed Dr John Stile —Dr and Mrs Frank J Gobar Fullerton, celebrated their golden wedding anniversary, June 10

Outbreak of Infantile Paralysis —An outbreak of infantile paralysis has occurred among the attendants at the Los Angeles County General Hospital, Los Angeles, according to the Chicago Tribune June 17 Thirty-eight positive cases were reported, June 16, among nurses and patients, and sixty-seven cases were under observation. In the week previous to this report, twenty-four cases of the disease were detected at the hospital, four were patients and twenty student nurses

Bills Passed.—The following bills have passed the senate and the assembly S 155, proposing to amend the medical practice act so as to authorize the board of medical examiners to issue a physician's and surgeon's certificate to an applicant who, although failing to furnish documentary evidence satisfactory to the board that he has completed a resident course of instruction fulfilling the requirements of the act, presents a diploma issued to him by a medical school approved by the board and in addition files satisfactory documentary evidence of having either completed the fourth year in an approved medical school in the United States or served at least one year's residence in a hospital in the United States approved by the board for internship, S 468 proposing to amend the medical practice act so as to authorize courts on the application of the state board of medical examiners to enjoin the unlicensed practice of medicine, and S 534, proposing to prohibit the admittance of any person to a private psychopathic institution, or any institution for the care

and treatment of persons mentally ill or deranged, without a written statement from at least two licensed physicians that they have examined the patient and that he should be admitted for care and treatment and proposing further that any person in an institution for the care and treatment of the mentally ill must be permitted to communicate at any time with whomsoever he desires. A 1037 has passed the assembly, proposing to make it unlawful for any person to own, possess, or operate any x-ray device or x-ray laboratory unless such device or such laboratory is operated under the direct supervision of a person licensed by the state board of health. S 392 has passed the senate, proposing to make it unlawful to conduct a clinical laboratory unless it is under the immediate direction of a licensed clinical laboratory technologist licensed by the state board of health. The provisions of the bill however, are not to apply to any licensed physician maintaining a laboratory in his own office for use in his own practice.

## COLORADO

**Society News**—At a joint meeting of the Delta, Montrose and Mesa county medical societies in Delta, May 24, a symposium on cancer of the digestive tract was presented by Drs John B. Crouch, John B. Hartwell and William F. Drea, Colorado Springs—Dr Roy P. Forbes, Denver, addressed the Fremont County Medical Society, April 23, in Canon City, on "Commonly Missed Diagnoses in Pediatrics"—The Northeast Colorado Medical Society was addressed in Sterling, May 9, by Dr Casper F. Hegner, Denver, on pulmonary surgery.

**Dr Freeman Honored**—The completion of fifty years in the practice of medicine by Dr Leonard Freeman, professor of surgery, University of Colorado School of Medicine, was observed at a dinner in his honor, June 3, given by the Medical Society of the City and County of Denver. Dr Casper F. Hegner was toastmaster and Dr Edward F. Dean, president of the society, presided. Speakers included Drs George P. Johnston, Cheyenne, Wyo., on "Dr Freeman, the Teacher," Thomas A. Stoddard, Pueblo, "Freeman, the Man," and George H. Curfman, Salida, "Dr Freeman's Influence on Surgery in the West." Dr Emmet R. Ford, professor of surgery emeritus, Stanford University School of Medicine, San Francisco, spoke on "Fifty Years a Surgeon." The presentation of a portrait was made by Dr Glen E. Cheley and Dr Frank W. Kenney gave the speech of acceptance. Dr Freeman was president of the Colorado State Medical Society from 1909 to 1910.

## CONNECTICUT

**Society News**—Dr Charles J. Bartlett, New Haven, was chosen president of the Connecticut Association of Public Health and Clinical Laboratories at its meeting in Torrington, May 17, and Dr Louis P. Hastings, Hartford, vice president—Dr George T. Pack, New York, addressed the New Haven Medical Association, May 15, on "Indications for Radium and X-Ray Therapy of Cancer."

**Mental Hygiene Meeting**—Charles-Edward A. Winslow, Dr P. H., New Haven, was reelected president of the Connecticut Society for Mental Hygiene at its twenty-seventh annual meeting in Bridgeport, May 20. Dr C. Charles Burlingame, Hartford, was made vice president. This was a joint session with the Bridgeport Society of Mental Hygiene which was holding its eleventh annual meeting.

**Bills Enacted**—The following bills have become laws: H 852, repealing the laws regulating the possession, sale or distribution of narcotic drugs and enacting what apparently is the uniform narcotic drug act, S 101, authorizing the state department of health to investigate the cause and the prevention and treatment of cancer and to take such steps as may be necessary to reduce the mortality due to cancer, and S 222, amending the law requiring the licensing of institutions for the treatment and care of insane persons or persons suffering from other abnormal mental or nervous conditions, by authorizing the state department of health rather than the governor, to license such institutions annually, to prescribe a sanitary code for the government of such institutions and to revoke licenses for stated causes.

## ILLINOIS

**Stream Pollution**—A study of the Fox River from Aurora to its mouth at Ottawa has been begun as a part of the state campaign against stream pollution now under way by the Illinois Department of Health. According to plans the improved sanitation of the Fox River will be completed within the next two years.

**Tuberculosis Declines in Young Persons**—Evidence that death from tuberculosis is decreasing in persons under 20 years of age is revealed in a survey recently completed by the state department of health. For this age group only fifteen deaths per hundred thousand population were charged against tuberculosis in 1934 as compared with a rate of 50 in 1920. The rate was 71 in 1934 for persons over 20 years of age. The recent study shows a marked reduction in mortality from tuberculosis among persons under 20 since 1920.

**Commission for Crippled Children**—The Illinois Commission for Physically Handicapped Children was recently created under a legislative act to obtain and keep a register of physically handicapped children, coordinate all state activities that aim to benefit such children and promote voluntary work in this field. All persons under 21 years of age are regarded as children in the law that created the commission. Mr Bruce Campbell, East St. Louis, is chairman of the commission, and other members, appointed by the governor include Dr Edward L. Compere, Dr Henry Bascom Thomas, Miss Edna Foley and Mr Jacob Kepects, Chicago, and Mr Harry Warner, Dixon. Mr A. L. Bowen, state director of public welfare, Mr John A. Wieland, state superintendent of public instruction, and Dr Frank J. Jirka, state health director, are ex officio members of the commission.

## CHICAGO

**Death of Boy from Rabies**—The death from rabies of a boy, 17 years of age, occurred June 15. According to the *Chicago Tribune*, the boy had been bitten by the family dog, May 18.

**Personal**—Surg. Gen. Robert U. Patterson, U. S. Army, Washington, D. C., was the guest of honor and principal speaker at the annual dinner of the Medical Chapter of Cook County, Reserve Officers Association, May 24.

**Maximum Penalty Imposed on Quack**—Municipal Judge Erwin J. Hasten imposed, May 16, the maximum penalty of one year in the county jail and a \$500 fine on Raphael Lee, who had been charged with practicing medicine without a license. Witnesses stated that he sold pills which he declared would cure all illnesses, the *Chicago Tribune* reported. This action is part of a campaign against quacks and fake healers now being conducted by the Illinois State Department of Registration.

**Foundation Renews Grant for Biologic Research**—The Rockefeller Foundation will continue for three more years its grant of \$50,000 to the Division of Biological Sciences, University of Chicago, for research in biology. The foundation has been aiding this project since 1929 with annual grants of \$30,000. Last year, however, the fund was increased to \$50,000; the additional money to be used to cover the expenses of the sex research program which had been financed by the committee on research in problems of sex of the National Research Council (*THE JOURNAL*, Nov. 10, 1934, p. 1458).

## IOWA

**Tuberculosis Survey**—The Iowa Tuberculosis Association will conduct a survey in Des Moines as a public health professional project of the Federal Emergency Relief Administration. The work will include the investigation of the physical condition of the families and contacts of the 287 persons who have died of tuberculosis in the city during the past five years. This will cover tuberculin testing, physical examinations and x-ray films of all the contacts who give a positive reaction to tuberculin. Modest fees will be paid for this work to members of the society who cooperate.

**Twin Lakes District Meeting**—The thirteenth annual assembly of the Twin Lakes District Medical Society will be a diagnostic clinic at Burns' Alhambra Pavilion, Twin Lakes, Rockwell City, June 25. Dr William M. Shipley, Ottosen, will open the program, and an address by Dr Morris Fishbein, Chicago, editor of *THE JOURNAL*, will precede the clinics. His subject will be "Our Changing Times." Physicians presenting clinics will be:

Frederick A. Willius, head of section on cardiology, Mayo Clinic, Rochester, Minn.  
Herman L. Kretschmer, Chicago, clinical professor of genito-urinary surgery, Rush Medical College.  
LeRoy A. Calkins, professor of obstetrics and gynecology, University of Kansas School of Medicine, Kansas City.  
Solon Marx White, professor of medicine, University of Minnesota Medical School, Minneapolis.  
Karl A. Meyer, associate professor of surgery, Northwestern University Medical School, Chicago.

The county medical societies of Calhoun, Carroll, Greene, Hamilton, Humboldt, Ida, Sac, Kossuth, Pocahontas, Webster and Wright, forming the Twin Lakes District Medical Society, are affiliated for graduate clinical instruction.

## KANSAS

**Honorary Membership**—The Sedgwick County Medical Society held a special meeting, April 19 in Wichita, to honor several of its members who had completed fifty years in the practice of medicine. With the inscription, "In recognition of a half century of faithful service to humanity" the specially engraved certificates of honorary membership were presented to the following physicians:

David W. Basham, Wichita  
Henry W. West, Yates Center  
Horace G. Welsh, Hutchinson  
Casius Clay Surber, Independence  
Alexander C. Flack, Fredonia  
Frank M. Wiley, Fredonia  
Frank G. Emerson, Wellington  
Theophilus E. Hinshaw, Winfield  
John T. Axtell, Newton  
R. C. Hufschon, Elk Falls  
Gideon P. Marner, Marion  
Solomon T. Shelly, Mulvane

Thomas J. Hollingsworth, South Haven  
Powhatan P. Trueheart, Sterling  
Eugene Pile, Ashton  
John H. Fuller, Wichita  
Leighton P. Ravenscroft, Winfield  
William F. Walker, Colwich  
Robert C. Splawn, Kincaid  
Williston H. Addington, Altoona  
Wilburn H. Graves, Wichita  
L. L. Ames, Wichita

The speaker of the evening was Dr. Andrew B. Rivers, Rochester, Minn., on diagnosis and treatment of peptic ulcer.

## MAINE

**Society News**—Dr. Seth M. Milliken, New York, discussed "Traction in the Treatment of Fractures" before the Cumberland County Medical Society, April 26.—At a meeting of the Hancock County Medical Society in Ellsworth April 8, Clarence Cook Little, D.Sc., Bar Harbor, spoke on "Cancer Research".—Dr. Francis M. Rackemann, Boston, among others, addressed the Kennebec County Medical Association at Waterville, April 18, on "Progress in Allergy, Asthma and Eczema".—The York County Medical Society at a meeting in Kittery, April 3, heard a discussion on birth control by Dr. Edwin W. Gehring, Portland.

## MARYLAND

**Bequest for Research Laboratory**—Dr. Frank C. Bressler bequeathed \$1,000,000 to the Medical School of the University of Maryland to erect and equip a research laboratory. He also provided for a gift of \$2500 to the Medical and Chirurgical Faculty of Maryland, to be known as "The Bressler Fund". Dr. Bressler died May 18.

**Personal**—Herbert Spencer Jennings, S.D., professor of zoology, Johns Hopkins University, Baltimore, has been named Eastman professor at Oxford, England, for the academic year 1935-1936.—St. John's College, Annapolis, conferred the honorary degree of doctor of letters on Raymond Pearl, Ph.D., professor of biology, Johns Hopkins University School of Hygiene and Public Health at its commencement June 5.—Dr. John M. T. Finney, professor emeritus of surgery, Johns Hopkins University School of Medicine, Baltimore, has been awarded the honorary degree of doctor of laws by Tulane University, New Orleans.

**Dr. Eastman Appointed Professor of Obstetrics**—Dr. Nicholson J. Eastman, professor of gynecology and obstetrics at Peiping Union Medical College, has been appointed professor of obstetrics at Johns Hopkins University School of Medicine and obstetrician-in-chief at Johns Hopkins Hospital. He succeeds Dr. J. Whitridge Williams, who, until his death in 1931, had held the position since 1899. Dr. John M. Berglund has been acting professor of obstetrics and acting director of the department. Dr. Eastman graduated from the Indiana University School of Medicine in 1921. In 1924 he was named associate in obstetrics and gynecology at Peiping Union Medical College, returning in 1927 to become instructor in obstetrics at Johns Hopkins. In 1929 he was appointed associate, returning to the Peiping staff in 1933.

## MASSACHUSETTS

**Dr. Mallory Awarded Medal**—The Association of American Physicians conferred the Kober Medal for 1935 on Dr. Frank B. Mallory, emeritus professor of pathology, Harvard Medical School, Boston, at its recent annual meeting in Atlantic City. The medal is provided by the George M. Kober Foundation of Georgetown University School of Medicine, Washington, D. C., which was created in 1923 by the late Dr. George M. Kober, former dean of the school.

**Dr. Bock Made Professor of Hygiene**—Dr. Arlie V. Bock, associate professor of medicine, Harvard University Medical School, Boston, has been appointed Oliver professor of hygiene at the school, succeeding Dr. Alfred Worcester, resigned. Dr. Worcester, who has held the professorship since 1925, was entertained by friends at the Harvard Club April 17. Dr. Roger I. Lee was toastmaster; the speakers included

Dr. Dwight O'Hara, Dr. Reginald Fitz and Mr. W. J. Bingham, director of athletics at Harvard. Dr. Bock is an alumnus of Harvard, class of 1915.

**Drs. Minot and Murphy Awarded Medals**—The gold medal of the Humane Society of the Commonwealth of Massachusetts has been awarded to Drs. George R. Minot and William P. Murphy, Boston, in recognition of their well known discoveries in the treatment of pernicious anemia. Dr. Charles P. Curtis, president of the society, made the presentation at the Peter Bent Brigham Hospital, May 23. The bestowal of the medal to the physicians marks a change in the policy of the society, which for 150 years has awarded the medal for heroic rescues in which the life of the rescuer was at stake. Dr. Minot is professor of medicine at Harvard Medical School, and Dr. Murphy instructor in medicine. In 1930 they shared the Cameron Prize of the University of Edinburgh, and in 1934 they with Dr. George H. Whipple, Rochester, N. Y., were awarded the Nobel Prize in Medicine.

## MICHIGAN

**Hospital News**—A new state tuberculosis sanatorium is to be erected at Gaylord with \$250,000 from malt tax funds, in accordance with a law passed by the 1933 legislature. The law provided that the money should be set aside by the state treasurer on March 31, 1935, and construction started immediately. The state department of health has already approved the site.

**Veteran Physicians Honored**—The three oldest living alumni of the Detroit College of Medicine were presented with gold badges at a dinner in Detroit, May 11, under the auspices of the Wayne University Alumni Association. Drs. Arthur M. Hume, Owosso, class of 1881, Charles G. Jennings, Detroit, class of 1879, and John A. Wessinger, Ann Arbor, 1882, were the guests of honor. The dinner was held to organize the new alumni association, which sponsored it.

**Society News**—Dr. Harry L. Huber, Chicago, discussed "Allergy in Everyday Practice" before the Calhoun County Medical Society, April 1, in Battle Creek.—The annual clinic of the Medical Society of Ingham County was addressed in Lansing May 16 by Drs. Hugo A. Freund, Detroit, on "Cardiac Irregularities," Gershom J. Thompson, Rochester, Minn., "Management of Ureteral Calculus," John Alexander, Ann Arbor, "The Widening Scope of Thoracic Surgery," Frank E. Whitacre, Chicago, "Forceps," and George W. Crile, Cleveland, "Tumors of the Breast."

## MISSISSIPPI

**State Medical Election**—Dr. Harvey F. Garrison, Jackson, was named president-elect of the Mississippi State Medical Association at its annual meeting in Biloxi, May 16, and Dr. James R. Hill, Corinth, was installed as president. Greenville was selected as the place for the next annual meeting May 12-14, 1936.

**Society News**—Speakers before the Delta Medical Society in Greenwood April 10, included Dr. James R. Garber, Birmingham, Ala., on "Infection in Abortion".—At a meeting of the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg, April 9, Dr. Hugh H. Johnston, Vicksburg, among others spoke on "Use of Heat in the Treatment of Sinusitis".—The North Mississippi Medical Society was addressed at New Albany, April 17, by Drs. William T. Black, Memphis, Tenn., on "Endocrinology and Its Relation to the Female," Charles M. Murry, Ripley, "Carbuncles of the Lips and Face," and Conley H. Sanford, Memphis, "Treatment of Pneumonia".—At a meeting of the Pontotoc County Medical Society April 2, Dr. James M. Hood, Houlika, discussed bacillary dysentery.

## NEW YORK

**Dr. W. M. Allen Honored**—The Rochester section of the American Chemical Society sponsored a dinner in honor of Dr. Willard M. Allen, assistant in obstetrics and gynecology, University of Rochester School of Medicine and Dentistry, Rochester, at the University Club, May 16, in recognition of his work on the corpus luteum which resulted in the isolation of "Progesterin". Among the speakers were Prof. John Ernest Lansing, head of the chemistry department at Hobart College, Geneva; Walter R. Bloor, Ph.D., professor of biochemistry and pharmacology and associate dean of the University of Rochester School of Medicine and Dentistry; Murray Bartlett, D.D., president, Hobart College, Geneva, and Dr. George W. Corner, professor of anatomy at the medical school, with whom Dr. Allen collaborated in his research work. Dr. Allen's discovery recently won for him the award of \$1,000 by Eli Lilly and Company for outstanding work in biochemistry.

## New York City

**Drs Globus and Silverstone Awarded Medal**—Dr Joseph H Globus, associate neurologist, Mount Sinai Hospital, and his associate, Dr Sidney M Silverstone, a member of the house staff, have been awarded the Lucian Howe Medal in Ophthalmology for their work on the diagnostic value of visual field defects and other ocular disturbances in supratentorial brain tumors. Dr Globus is also associate professor of neuro-anatomy and neuropathology at New York University, University and Bellevue Hospital Medical College. The prize is awarded by the Medical Society of the State of New York.

**Society News**—Dr Paul K. Sauer addressed the New York Surgical Society, April 24, on "Carcinoma Following Gastric and Duodenal Ulcer."—Drs Joseph W Larimore, St Louis, and Moses Paulson, Baltimore, addressed the National Society for the Advancement of Gastro-Enterology, April 24 on "The Significance of Gastritis" and "So-Called Nonspecific Ulcerative Colitis," respectively.—Dr James C Healy, Boston discussed "Allergy and Endocrinopathy. Their Medico-Dental Relationships" before the American Stomatological Association, May 27.—The East New York Medical Society celebrated its twenty-fifth anniversary, recently, with a dinner at which all twenty-five past presidents were present. Dr Samuel L Siegler was toastmaster. Speakers included Drs Harry Apfel, first president, who reviewed the society's history and John Sturdivant Read.—Dr Lionel S Auster presented a paper on "Tumors of the Male Breast," with analysis of fifty cases, before the surgical section of the New York Academy of Medicine, May 3.

**Dr Flexner to Retire from Rockefeller Institute**—Dr Simon Flexner, director of the laboratories of the Rockefeller Institute for Medical Research since the opening of the institute in 1903, has presented his resignation to take effect on the appointment of his successor. Dr Flexner is 72 years of age. He graduated from the University of Louisville (Ky.) School of Medicine. From 1895 to 1898 he was associate professor of pathology at Johns Hopkins University School of Medicine, where for the year ended 1899 he was professor of pathologic anatomy. Following four years as professor of pathology at the University of Pennsylvania School of Medicine, he was named director of laboratories of the Rockefeller Institute for Medical Research. Dr Flexner has contributed extensively to the literature on bacteriology and pathology, especially on epidemic cerebrospinal meningitis and its serum treatment, poliomyelitis, its cause and mode of transmission, and epidemic encephalitis. He, with his collaborators, was the first to use the meningococcus antitoxin. He was chairman of the U S Plague Commission in 1900, a lieutenant colonel in the medical corps of the U S Army from 1917, and in 1919 became a colonel and assistant surgeon general of the U S Public Health Service. In 1923 he was chairman of the Public Health Council of New York.

## OHIO

**Personal**—Dr Edgar R. Hiatt, Troy, was chosen president of the Ohio Public Health Association at its annual meeting in Columbus.

**Student Prizes**—The senior prize in surgery at Western Reserve University School of Medicine, Cleveland, was presented to Carl Bernard Lechner, Erie, Pa. It consists of books and surgical papers of the late Dr William Stewart Halsted, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, and is the annual gift of Dr Elliott C Cutler, Boston, formerly professor of surgery at Western Reserve. The senior prize in obstetrics was awarded to Edwin Alonzo Lawrence, Norwalk. The prize is the income from a fund given by Dr Edwin C Garvin, a graduate of Western Reserve, class of 1894.

## PENNSYLVANIA

**Personal**—Charles Nelson Fry, Harrisburg, an investigator for the state board of medical licensure since 1926, died April 16.—Dr John L Mansuy, Ralston, has been appointed health officer of Lycoming County.

**Physicians Stage Show to Help Hospital**—Members of the McKeesport Academy of Medicine presented 'Ye Doctors Minstrels' at the Memorial Theater, McKeesport, May 29. The proceeds of \$2,000 have been turned over to the McKeesport Hospital, to be used for repairs.

**Bill Passed**—S 1528 has passed the senate, proposing to amend the laws regulating the practice of osteopathy by prohibiting an osteopath from using the title 'Doctor' or the

abbreviation "Dr" before his name without the word 'Osteopath' or 'Osteopathist' or the words 'Osteopathic Physician' immediately following his name.

**Request for New Hospital**—A fund of about \$600,000 was recently made available to the University of Pennsylvania from the estate of the late Baroness Margaret Dulles Fontana of Philadelphia. It will be used to build a maternity hospital, which will be named the William Crothers Dulles Hospital in memory of the donor's brother, who lost his life on the *Titanic*.

## Philadelphia

**Society News**—Papers were presented before the Philadelphia Urological Society, May 27, among others, by Drs Walter E Daniel on "Stricture of Urethra in Female" and Collier F Martin, "Lymphopathia Venerea vs Rectal Stricture."—Dr Francis Ashley Taught was chosen president elect of the Philadelphia County Medical Society at its semiannual business meeting May 15.

**Memorial to Dr Jarecki**—Funds are being solicited to create the Edwin A Jarecki Memorial Research Fund, in honor of the late chief resident physician at the Jewish Hospital, Dr Edwin A Jarecki. The care and disposition of the fund will be in the hands of a board of trustees, consisting of two members each from the board of directors, the medical staff and the ex-residents' association. From time to time the interest will be used as grants to qualified members of the medical staff and ex-resident physicians, to investigate approved scientific research problems. Checks made payable to "The Edwin A Jarecki Memorial Fund" should be sent to Mr Alfred Mayer, administrator, Jewish Hospital.

## VIRGINIA

**Portrait Unveiled**—A portrait of the late Dr G Paul La Roque, professor and head of the department of clinical surgery, Medical College of Virginia, was unveiled at the school May 28, by Laura May Wood, grandniece of Mrs La Roque. Dr La Roque died in 1934.

**Child Conservation Committee**—A number of child hygiene and child welfare committees of state organizations met in Richmond April 3, to form the State Child Conservation Committee. The agencies represented in the new group and their chairmen follow:

Medical Society of Virginia Dr Waddie P Jackson Roanoke  
Virginia Tuberculosis Association Dr Dean B Cole Richmond  
Virginia Pediatric Society Dr James B Stone, Richmond  
Cooperative Education Association Virginia Parents and Teachers, Miss Ellen H Smith  
Virginia Education Association Mr J M Shue  
State Superintendents' Association Mr W A Scarborough

**Changes in Health Officers**—Dr Jack B Porterfield has been appointed health officer of Montgomery County with headquarters at Christiansburg. Dr Linwood Farley, Courtland, has been named assistant to Dr Edgar C Harper, Richmond, deputy director of rural health in the Southwest Health District, with headquarters at Abingdon. Dr George E. Waters, formerly of Blackstone, has been appointed acting director of the Peninsula Health District, effective May 6. He succeeds Dr Charles H Dawson, Suffolk, resigned. The district includes the counties of James City, Elizabeth City, Warwick and York, with headquarters at Williamsburg.

**Society News**—At a meeting of the Postgraduate Medical Society of Southern Virginia and the department of clinical education of the Medical Society of Virginia at Surry, May 7, speakers included Drs Hyman Cantor, Petersburg on "Acute Perforation of Gastric Ulcer", Rufus L Rairford Franklin "Use of Plaster Splints in Treating Fractures," and Andrew Stephens Graham, Richmond, 'The Colon'.—Dr W Ambrose McGee, Richmond, discussed feeding problems of children before the Southampton County Medical Association recently.—The Roanoke Academy of Medicine was addressed, April 29, among others by Drs William L Powell and Linwood D Keyser on "Polyorchidism with Malignancy in the Supernumerary Testicle."

## WYOMING

**Personal**—Dr Harold E Haymond has been appointed superintendent of the Midwest Hospital, Midwest, succeeding Dr Wilber Hart.

**Dr Anderson Named State Health Officer**—*Colorado Medicine* announces that Dr George M Anderson, Cheyenne, has taken over the duties of state health officer, secretary of the state board of health and acting secretary of the state board of medical examiners, succeeding Dr Walter H Hassed, Cheyenne. Dr Anderson held the position prior to Dr Hassed's appointment in 1928.



## GENERAL

**Grants of National Research Council**—The Division of Medical Sciences of the National Research Council will hold a special meeting next November to consider applications for grants in this field. Applications to be considered at this meeting must be on file with the secretary of the committee, Dr. Clarence J. West, 2101 Constitution Avenue, Washington, D. C., not later than Oct. 1, 1935. Applications received after October 1 and prior to Feb. 15, 1936, will be acted on at the next regular meeting of the committee on grants-in-aid in March 1936.

**Association for the Advancement of Science**—The ninety-sixth meeting of the American Association for the Advancement of Science will be held in Minneapolis, June 24-29. At this meeting, special joint sessions have been arranged with the Minnesota State Medical Association, the first of which will be held Monday evening, June 24, with Dr. William P. Murphy, Boston, as the speaker. Joint sessions of the Section on Medical Sciences and the medical society have been arranged for Monday and Tuesday mornings. According to a preliminary program, speakers will include

Dr. Adolph M. Hanson, Faribault, Minn.: Biological Effect of Thymus and Pineal Extracts  
Dr. Max Cutler, Chicago: Recent Advances in the Treatment of Cancer  
Dr. Elmer L. Sevringhaus, Madison, Wis.: Endocrine Therapy  
Dr. Everett D. Plass, Iowa City: Simplification of Obstetrical Care

In addition, there will be various exhibits concerning cancer, prevention of deafness, mental health, physical therapy, tuberculosis and the endocrines, including one on diabetes mellitus.

**Twenty-One Broadcasting Stations Cited to Appear**—Because they carried the advertising of a medical preparation which other agencies of the federal government consider improper for use, twenty-one broadcasting stations must appear at a hearing of the federal communications commission, October 3, and show cause why their licenses should not be revoked for failure to operate in the public interest. This action is part of the campaign against radio advertising which has just been launched by the federal communications commission, newspapers announced, May 23. In response to questions by broadcasters and advertisers, most of which concerned medical products, the commission stated

This question is one which essentially does not concern the commission as the sole responsibility of operating its station in the public interest and according to law is upon the station licensee. If a station licensee is not prudent and intelligent enough to find its sources of information to properly guide it then it is not properly qualified to operate a station in the public interest and according to law.

Station licenses are granted for only six months, and on every application for renewal the commission determines whether or not the station is operating in the public interest. While the commission is concentrating now on drug preparations which it considers improper, it probably will extend the drive to other types of programs which it believes "not in the public interest." The twenty-one stations cited are all charged with advertising a reducing preparation which the food and drug administration, federal trade commission and post office department have condemned and tried to put out of business but which, in one way or another, has evaded other federal laws.

## Government Services

### Federal Narcotic Farm Dedicated

The first United States Narcotic Farm, near Lexington, Ky., was dedicated, May 25. Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, gave the address. Accommodating a maximum of 1,000 persons, the narcotic farm is designed for males only. Its objects and purposes are to rehabilitate, restore to health and train to be self-supporting and self-reliant those who are admitted. In addition, experiments will be carried on to determine the best methods of research and treatment in this field with the ultimate view that states may adopt some similar means to help solve the problem of drug addiction. According to the *New York Times*, four classes of narcotic addicts are to be received. Those convicted of violating federal laws, convicted persons who have completed their prison sentences, offenders on probation and voluntary patients. The plant which required three years to build at a cost of \$4,000,000, occupies eleven acres in the middle of a rich farm area. Staffed by 350 employees, upkeep of the farm is estimated at \$750,000 a year. A similar institution is now being erected at Fort Worth, Texas. (THE JOURNAL, February 16, p. 574)

## Foreign Letters

### LONDON

(From Our Regular Correspondent)

May 25, 1935

### The Centenary of Hugh Owen Thomas

The centenary of the birth of Hugh Owen Thomas has been celebrated by the publication of a study by Mr. Frederick Watson, son-in-law of Sir Robert Jones. The *Liverpool Medico-Chirurgical Journal* has now produced a centenary number containing a brilliant centenary lecture by Mr. T. P. McMurray, director of orthopedics, Liverpool University. This journal is the organ of the Liverpool Medical Institution, of which Thomas was a member. With the exception of Keith's chapter, "Menders of the Maimed," McMurray's lecture is the first adequate recognition in this country of the genius of the man who laid the foundation of the modern treatment of bone and joint lesions and on whose work is based the structure of orthopedic surgery. Descended from a line of Welsh bone setters, he saw in his father's house many cases of joint disease treated with apparent success. When a medical student at Edinburgh and London, he was convinced that the wholesale amputations then in vogue were unnecessary. He began practice in Liverpool in 1859, and became medical officer to many workmen's clubs—shipwrights, iron workers, boiler makers—which gave him great experience in bone and joint injuries. By his sagacity and mechanical genius he was able to cope with problems which then seemed insoluble. He had his own workshop, where he made with his own hands the splints which have immortalized his name. For thirty years he practiced at high pressure, mainly among the working classes, treating by his own methods all sorts of bone and joint injuries and diseases. His epoch-making advances were ignored by the orthopedic surgeons of the day, and when he died in 1891 the obituaries in the medical journals showed no recognition of the greatness of the man.

It was toward the end of his life, in 1887, that Dr. John Ridlon arrived. Their dramatic meeting and the ignoring of Thomas's teaching that Ridlon found in England have been described (THE JOURNAL, March 23, p. 1018). Although Ridlon was not the first to discover Thomas, he was the first American to do so, and he is now the only living orthopedic surgeon who knew him. There is no more eloquent tribute than Ridlon's, which Mr. McMurray quotes. "Thomas did more good new things for orthopedic surgery than all the rest from Hippocrates down to this day. Today he is known for his leg splint and not for the principles which he laid down, but he was the greatest man in orthopedic surgery for all time." Yet now, more than 40 years after his death, his greatness is far from generally appreciated in England, and outside Liverpool the centenary is almost unnoticed!

When Dr. Ridlon visited the clinics of the orthopedic surgeons he found that not one of them had a good word to say of Thomas, though comparison of their work with his showed that "one could gain more useful knowledge following Thomas around for an hour than elsewhere in Great Britain for months." This neglect can be explained. His bone-setting ancestry aroused prejudice, and he had no hospital appointment, a thing generally regarded as essential for surgical status. Moreover, he reveled in polemics, was no respecter of persons and treated the errors of those in high places with the scorn that was deserved.

Years before Dr. Ridlon came on the scene another meeting of great importance for Thomas's reputation occurred. In 1875 he had under his care a police inspector for compound fracture of the tibia. The limb was fixed in his splint and the whole



apparatus slung on a crane, so as to allow movement of the patient without interfering with the fracture. Dr E Parker, the police surgeon of Liverpool, was instructed to examine the man and brought with him his son Rushton Parker, who had lately come to Liverpool from University College, London, where he was a favorite pupil of Erichsen. He later became professor of surgery in the University of Liverpool. Thomas showed them all the details of his treatment and they at once realized that here indeed was a master. He then took Rushton Parker to his private hospital and showed him several cases of diseased joints that he was treating by his new method of prolonged rest. The meeting led to a life-long friendship. Parker immediately became an enthusiastic disciple, introducing Thomas's methods to the various hospitals to which he was attached and never lost an opportunity of stimulating the interest of the profession in Thomas's work. He also urged Thomas to publish his methods, as otherwise they would soon be claimed by others. Hence in the same year appeared "Diseases of the Hip, Knee and Ankle Joints" which twelve years later brought Dr Ridlon to Thomas. Thus the credit of discovering Thomas belongs to the later Prof Rushton Parker. In the 1885 edition of Erichsen's "Surgery" the leading text book of the day, Thomas's methods receive due recognition. This exception to the general neglect can be explained by Parker's connection with Erichsen. Another leading surgical author, Thomas Bryant of Guy's Hospital also recognized his work. But otherwise up to his death in 1891 his teaching was largely ignored. Then his nephew and pupil Sir Robert Jones, who had the advantage of hospital appointments built on the foundations laid by Thomas and convinced the surgeons of the world of the value of his principles.

What was the kernel of Thomas's doctrine which revolutionized orthopedic surgery? He wrote "Most of our surgery is too mechanical, our medical practice too chemical, and there is a hankering to interfere, which thwarts the inherent tendency to recovery." He held that the surgeon could give aid by giving rest. But the surgeons of his day did not understand how to give rest. Their methods of immobilization were inferior to his and produced injurious compression of the diseased parts. He secured complete immobilization and at the same time avoided all pressure on the diseased parts. His splints are equally serviceable in the treatment of fractures. In his book on fractures, Major Meurice Sinclair described Thomas's splints as "the greatest advance in the treatment of fractures in modern times" and as "instruments so perfect that all modifications do but reduce their efficacy." Their use on the battlefield for the immobilization of gunshot fractures of the femur were taught again by Jones and Sinclair and greatly reduced the high mortality.

#### The British Postgraduate Medical School

London has no fewer than twelve undergraduate medical schools, each with its own large general hospital, other general voluntary hospitals, several hospitals devoted to specialties, and finally the municipal hospitals, now controlled by the county council, which contain 30,000 beds. The hospitals that are medical schools are preoccupied with undergraduate teaching. This is unfortunate, because it is in them that the most famous teachers work. Two general hospitals are devoted to postgraduate teaching, which otherwise is organized by the Postgraduate Medical Association in a few general hospitals and a large number of special hospitals scattered over London. The want of a central school for postgraduate teaching has long been felt, and its formation has been described in previous letters. It was a great undertaking accomplished by the financial cooperation of the University of London, the government and the London County Council. The last has adapted for the purpose one of its municipal hospitals, the Hammersmith

Hospital. The school has been normally opened by the king. Addressing him, Sir Austen Chamberlain, chairman of the governing body, said that the school had three great tasks: (1) to enable physicians in general practice to learn the latest development in diagnosis and treatment, (2) to provide instruction for graduates desiring to pursue special studies, and (3) to advance medical knowledge. Their ambition was to make the school a great imperial center of British medical science, drawing teachers and students from all parts of the dominions.

#### Child Guidance

The Child Guidance Council was established to encourage skilled treatment for children showing behavior disturbances and early symptoms of nervous disorder. The council maintains contact between the various clinics throughout the country and arranges the interchange of information and discussion so that the greatest values may be gained from variety of experience. The work has been made possible by the Commonwealth Fund of America, which has financed the undertaking since its inception and which has for many years been financing similar clinics in the United States. At the annual general meeting of the council Dr William Moodie, general secretary, said that the demands of the clinics were increasing in consequence of the increasing realization that mental disorder of all kinds manifested itself in childhood as a primitive thing, and a thing which grew and developed until the adult was afflicted. In thirteen clinics in England and Scotland last year 3,800 cases were treated and about one half did well. Mr Barry C. Smith, general director of the Commonwealth Fund, said that it was a great satisfaction to say that they had received an adequate return for their investment. If an amalgamation between the Child Guidance Clinic and the National Council for Mental Hygiene were effected he would recommend a grant of \$25,000 a year for five years.

#### Maternal Mortality

The failure to diminish the maternal mortality has led some authorities to suggest that the practice of obstetrics should be under the direction of specialists and not of general practitioners. In the *Lancet* Mr Fardley Holland, obstetric and gynecologic surgeon at London Hospital, states that a striking change in the last fifteen or twenty years is the widening of the indications for intervention during labor. This has occurred in spite of the efforts to prevent it by teachers and textbooks. He considers that the factors which have led to this are (1) the increasing use of analgesics and anesthetics and the building of hundreds of small hospitals where local practitioners, who may have neither the requisite judgment nor skill, have the opportunity to perform cesarean sections and other obstetric operations. The former have increased in an astonishing manner. He quotes a government report on maternal mortality in which it is suggested "that in some cases there may be a tendency to resort to cesarean section without due consideration of other methods." The manufacturing town of Rochdale in Lancashire has a maternal mortality of 10 per thousand. An investigation by the health officer suggested that a large proportion of the deaths was due to too frequent intervention. A movement of reform was set on foot in which the physicians willingly joined. The women were taught to make the fullest use of antepartum clinics. The result was remarkable: the mortality at once fell to 3.9, which is about the average for the country generally. Mr Holland advocates postgraduate training in obstetrics for those who intend to practice this branch.

At the National Conference of Labor Women a resolution was passed urging the Ministry of Health to continue inquiry into maternal deaths and to institute inquiry into maternal morbidity, the adequacy of obstetric training and the relation of nutrition to healthy pregnancy and healthy motherhood.

### The Epidemic of Malaria in Ceylon

The malaria epidemic in Ceylon has been described in previous letters. The total deaths in the four months November-February amounted to 54,000. Lieut.-Col. C. A. Gill, who has made a special study of epidemics as director of public health in the Punjab, was selected to direct the campaign against malaria in Ceylon, for which the state council has set aside \$1,000,000. He has now arrived and states that with the exception of the malaria epidemic in Mauritius in 1867 he has never heard of an epidemic of the magnitude of that in Ceylon.

### Professional Secrecy and Police Investigation

Some discussion has arisen as to the information a physician should give when questioned by the police in the investigation of crime. On the one hand it is argued that the physician as a citizen has obligations to prevent the commission of crime or to help in the discovery of criminals, while on the other hand his obligation of professional secrecy is urged. Because of inquiries recently made in connection with a crime by the chief constable of Hove, the local division of the British Medical Association applied for advice. The chairman of the Central Ethical Committee sent the following considered statement which has received the approval of the council of the association: "A request by the police to a member of the medical profession to give the names and addresses of any patients who had consulted him for symptoms particularized by the police ought to be declined, on the ground that to accede to such a request would be a gross breach of professional confidence and might involve him in an action for damages by the patient or patients concerned."

### Making Roads Safe for Children

A committee on road safety for school children has been appointed by the government. In the evidence submitted was a memorandum of the Pedestrians' Association, which pointed out that the problem of the reduction of accidents to children could not be considered apart from the general one of road danger. In rural districts the dangers to children occurred mostly when they were walking along roads unprovided with footpaths. These should be provided on the roads used by rural children in going to school. In urban districts most children were killed in going to or coming from school, parks and recreation grounds, and in playing in the streets where no parks or playing grounds were available. No mechanical means of safeguarding pedestrians across roads inspired the same confidence or provided the same safety for children as was afforded by policemen. Therefore traffic duty men should be furnished during the hours of school going and leaving at points where children had to cross main roads. Parents must recognize their direct responsibility for the safety of children up to the age of 3. But the prime responsibility for their safety lay with the motorist, who should drive with a sufficient reserve of control to avoid most of the accidents due to the actions of children.

Two headmasters also gave evidence. They emphasized the need for work in the cultivation of road sense, for the use of street plans marked out in hall or playground, and for practice in road crossing with toy vehicles to represent traffic. Elder children could be instructed in the highway code by simple dramatization of the work of drivers, whose point of view they should be made to see. Drivers might assume that adults possessed road sense, but they had no right to assume that children did.

### THE SAFETY OF CYCLISTS

The Cyclist Touring Club presented a memorandum stating that the problem of the safety of cyclists as a whole might be approached from the standpoints of the provision of separate tracks for the voluntary or compulsory use of cyclists the

exclusion of cyclists from certain roads, and stringent precautions to ensure the safety of all road users. The club maintained that the provision of cycle tracks would not be an effective remedy. The exclusion of cyclists from busy streets would probably prevent school children from riding to school except in country districts. Whatever the circumstances in which child cyclists met their deaths, the remedy was training in the wise use of roads and stringent measures against drivers who endangered the lives of others.

### The Prevalence of Dental Disease

Civilization and a healthy set of teeth seem to have become incompatible. New headquarters of the British Dental Association have been opened by Mr. Geoffrey Hithersay, Shakespeare parliamentary secretary to the ministry of health. He said that in the last twenty or thirty years science had recognized the vital connection between dentistry and the health of the nation. An effort was being made to see that the care of the teeth and mouth played its proper part in the life of the individual from the earliest stages. Examinations started in the maternity and child welfare centers and went on to the school medical service. Out of some 3,000,000 children examined last year 60 per cent were defective in teeth and needed treatment. There was then a bad gap for the adolescent received no treatment from the state and often failed to obtain any. Then came national health insurance. Since 1921, when dental treatment became an additional benefit, \$100,000,000 had been spent by the lodges in dental treatment. As the financial resources of the country improved he had no doubt that the dental service would be enlarged. He then opened the Robert Lindsay Library, which is claimed to be as good as any dental library in the world.

### PARIS

(From Our Regular Correspondent)

May 10, 1935

### Why Tuberculosis Prophylaxis Is Sometimes Unsuccessful

Lesne and Dreyfus-See, in a paper read at the April 9 meeting of the Academy of Medicine, state that not infrequently tuberculosis is found in school children in whose families one fails to find any source of infection. A survey of possible loopholes through which children may be infected in the school itself reveals the fact that an inspection must be thorough enough to include the teachers and other personnel of every educational institution. In Paris, teachers are subjected to examination only when they are applicants. In the suburban territory around Paris, such an examination is seldom carried out. To protect school children from possible sources of infection in the form of tuberculous teachers and other personnel, the suggestion is made that the examination of the latter should be obligatory at regular intervals. Furthermore, a systematic search for tuberculosis must be extended to crèches, which has not been the case in the past. Both infants and nursing personnel must be subjected to routine examinations in such crèches.

### Lymphatism in Infancy

In the July 1934 issue of *Le nourrisson* Professor Marfan of Paris defines lymphatism as a clinical entity occurring during infancy and characterized by a more or less generalized persistent hyperplasia of the lymph nodes and lymphoid tissues. It is due to the nonspecific reactions in organs and tissues following the majority of prolonged infections and intoxications. It manifests itself by a polyadenitis involving most commonly the cervical axillary and inguinal, less frequently those of the occipital thoracic subaxillary and epitrochlear lymph nodes. This polyadenitis is often accompanied by a slight anemia. In

some cases there is, in addition, a hypertrophy of the tonsils and pharyngeal lymphoid tissue, less often an enlargement of the spleen and thymus in children below the age of 3 years. In 85 per cent the polyadenitis is associated with rachitic (bony) deformities, which has led some pediatricians to term the condition an "osteolymphatism." At necropsy it is not uncommon to find enlarged mediastinal and mesenteric lymph nodes, as well as a hyperplasia of the intestinal lymphoid tissue. Microscopically, one finds in the lymph nodes a cellular and fibrous hyperplasia in variable proportions.

The appearance of these infants is inconstant, some being poorly and others well nourished.

One can divide the cases from the etiologic standpoint into three groups: those in which there has been a mild or severe infection of long standing, those in which there is a dystrophy of alimentary origin and those in which there are persistent digestive disturbances. The result is a generalized reaction of the lymphatic system. Lymphatism is neither the primary manifestation of "scrofulotuberculosis" or of tuberculosis but is a symptom complex seen only in infancy, which in itself is of no consequence but, when present, should lead to a search for the cause. When the polyadenitis is accompanied by bilateral epitrochlear adenitis, one should look for syphilis, tuberculosis or kala-azar. Chronic splenomegaly associated with polyadenitis should lead one to think especially of syphilis, in northern climates, if such a combination occurs during the first four or five months of life.

The treatment of lymphatism depends on the cause. In addition, one should study the diet of the infant, prescribe an open air life and prescribe heliotherapy or ultraviolet treatments.

#### Rôle of Vasomotor Nerves in Embolic Pulmonary Infarcts

At the April 6 meeting of the Société de biologie, the results of a series of experiments were reported by Delarue, Justin-Besançon and Bardin. The histologic evolution of experimental lesions, from the period of onset of the embolism up to that of cicatrization of the resultant hemorrhagic infarction of the lung, were studied. Their observations prove that the hemorrhagic infiltration of the pulmonary parenchyma is the result of a sudden well localized dilatation of the capillaries with subsequent thickening of the interalveolar septums and a sero-hemorrhagic exudate into the alveoli themselves. This is the typical finding in animals killed immediately after experimental embolism. A quarter of an hour later, one already finds foci of infarction. At the end of from twenty-four to forty-eight hours the picture is that of a typical infarct, which becomes more and more marked in animals killed from seven to fifteen days after the embolism. One finds the same early changes in animals following unilateral section of the vagus in the carotid region or after unilateral chemical stimulation of the trunk of the cervical sympathetic as after experimental embolic occlusion of the pulmonary vessels.

#### Pleuropulmonary Embolic Form of Myocardial Infarct

An unusual primary clinical manifestation in a case of infarct of the myocardium was reported at the March 29 meeting of the Société médicale des hôpitaux. A man, aged 57, was admitted complaining of dyspnea and a bloody expectoration. The blood pressure two years previously had been found to be 250 mm of mercury. On two occasions during the interval, marked but transitory dyspnea was noted. Three days before admission, bloody expectoration and severe nonradiating pain over the front of the chest began suddenly. The examination on admission revealed the presence of a pulmonary infarct. The cardiac examination revealed only a regular tachycardia, a gallop rhythm and an accentuation of the second sound at

the base. No friction sound or murmur could be found. About fourteen days later, after a temporary improvement, a marked tachycardia appeared, accompanied by a recurrence of pulmonary infarct symptoms. Death occurred suddenly about four weeks after admission.

The necropsy revealed a bilateral pleural effusion, numerous areas of pulmonary infarcts, absence of any lesions in the pulmonary vessels, an adhesive pericarditis and an extensive relatively recent infarct of the myocardium involving the wall of the right ventricle close to the apex. The latter localization of an infarct can be considered as comparatively rare. None of the characteristic signs of an occlusion of the coronary arteries, such as severe angina and a drop in blood pressure, had been present. The main features of the clinical picture had been those of pleuropulmonary infarcts not due to any embolic process.

#### Paroxysmal Hypertension

The Nov. 16 and 23, 1934, meetings of the Société médicale des hôpitaux de Paris were devoted to a symposium on paroxysmal hypertension. Abstracts of some of the papers was given in a previous letter. The remainder were of equal interest and are taken up here.

Villaret and associates stated that such a paroxysmal rise of blood pressure is simply a sudden alteration of the physiologic mechanism which regulates, under normal conditions, the equilibrium of arterial tension. This sudden rise is the result of the nervous regulatory apparatus that controls vasoconstriction and epinephrine secretion, being subjected to abnormal stimulation.

Monier-Vinard reported a case in which the blood pressure rose to 270 mm of mercury after the drinking of large quantities of wine and would drop to normal as soon as the patient was abstinent.

De Gennes observed a sudden rise to 300 mm of mercury during a hemorrhage into the bulbar region of the brain.

Laubry and Bernal have noted that during the attacks of paroxysmal hypertension there are usually accompanying renal symptoms (albuminuria, polyuria, casts and, at times, hematuria). They disappear unless the hypertension becomes a permanent one. Necropsy in these cases of paroxysmal hypertension reveals only minimal changes in the renal parenchyma.

Rathery believes that in hypertension the renal changes are secondary, yet the existence of a primary hypertension is not cleared up. There are certain cases of permanent as well as paroxysmal hypertension that are not of renal origin, but on the other hand, there are others with such an origin.

Tzanck divides the cases of paroxysmal hypertension into three groups, so far as their etiology is concerned. Those due to epinephrine, those due to an adrenal neoplasm and those in which various substances such as are used for chemotherapy or proteins give rise to paroxysmal hypertension. One sees reactions similar to paroxysmal hypertension, such as pain, dyspnea, collapse and paroxysmal tachycardia, in anaphylaxis, shock, allergy, intolerance and idiosyncrasy.

#### Opening of the Gilbert Dispensary for Physical Therapy

The department of physical therapy at the Hôtel Dieu, one of the oldest and largest hospitals of Paris, had grown to such an extent since the World War that larger quarters became necessary. A new building has been constructed on the grounds of the hospital. It has been named the Gilbert Dispensary in commemoration of the services rendered by the late Professor Gilbert in developing the application of physical therapy to medical and surgical ailments. The new quarters were opened February 25, in the presence of the minister of public health and other officials. The service is equipped with every known

*apparatus for physical therapy* In 1934 more than 300 treatments were given in the old quarters, and this number will be greatly augmented when the more adequate facilities offered by the new building come to be utilized. The services include those for radiotherapy, electrotherapy, kinesitherapy, hydrotherapy and mechanotherapy. The new building is well worth a visit by those interested in physical therapy.

### Three Cases of Gangrenous Erysipelas

Lemierre, Brocard and Pham reported three cases of gangrenous erysipelas at the February 22 meeting of the Société médicale des hôpitaux. In two patients the erysipelas involved the lower portion of the thigh, the skin presenting also large phlyctenules. Gangrene occurred on the fifteenth and sixth days respectively of the disease. One of these terminated fatally but, in the other, recovery occurred after extensive involvement of the skin and subcutaneous tissues. In the third case the foot was the seat of the infection, which was accompanied by an extensive gangrene. In the first two cases, cultures revealed the presence of an anaerobic bacillus associated in large numbers with the streptococcus. In the third case there was a large number of streptococci and *Staphylococcus aureus*. The authors believe that this association of organisms is responsible for the gangrene. Examination of the blood failed to reveal a hyperglycemia. Hemocultures were constantly negative. In the fatal case an erysipelas of the face and an alcoholic cirrhosis were undoubtedly the complications that determined the outcome. The only treatment consisted in applications of potassium permanganate solution. The prognosis is, as a rule, not an unfavorable one and should be borne in mind before an amputation is considered.

### BERLIN

(From Our Regular Correspondent)

April 15, 1935

### Congress of Internal Medicine

The Deutsche Gesellschaft für Innere Medizin convened this year in Wiesbaden March 25-28 under the chairmanship of Professor Schottmüller of Hamburg, who, in his address concerning the medical training of the next generation, demanded that a large portion of the practical training of physicians should be in the field of internal medicine. Dr. Wagner, the federal *führer* of the physicians, emphasized that the new German medicine must be built up on the basis of the national-socialist world views. A bridge must be erected between the knowledge of the old school of medicine and the nature cure methods. The extreme views of both camps must be suppressed.

The first day was devoted to the questions of aeronautic medicine. Schubert of Prague considered the problems of flying at high altitudes on the basis of his own observations. Flying, at heights of from 10,000 to 11,000 meters, is exceedingly trying on the mind and nerves. In addition, respiration and circulation are overburdened by the atmospheric conditions, radiations, lowered oxygen tension and other factors. It should be adopted as a principle that from 4,000 meters on, artificial oxygen should be administered. Modern airplanes especially adapted for flying at high altitudes require great elasticity of the circulation. Only aviators from 20 to 30 years of age should be selected for high flying. In record flights to altitudes up to 14,000 meters, the capacity for action and reaction, even with the use of artificial oxygen, is so limited that the aviator is unable at such heights to make quick decisions, which is essential. An altitude of 10,000 meters must be regarded, therefore, as the upper limit of safety. The addition of carbon dioxide to oxygen, as proposed for example, by the French (2 per cent) and by the Italians (8 per cent) rests, according to Schubert on an erroneous theory and, from a practical point of view, is unnecessary.

Diringshofen of Berlin spoke, with especial consideration of the effects of acceleration, on the basis of his own observations in flying at high altitudes. In addition to the effects mentioned by Schubert, attention should be given to the expansion of the intestinal gases, which, under certain circumstances, may lead to upward displacement of the diaphragm. At an altitude of only 1,000 meters, the increase of the volume is 12 per cent, at 5,000 meters 100 per cent, and at 10,000 meters 400 per cent. Since the total amount of intestinal gas may be assumed to be normally no more than 1 liter, the increased volume in ordinary flights offers no danger. Air sickness is of labyrinthine origin and is identical with seasickness. Other injuries, caused by breathing oil vapors and exhaust gases, may be overcome by technical refinements. Great importance attaches to the effects of rapid accelerations. In precipitate descents and in the rounding of curves, forces act on the body that may be equal to five times the body weight, and serious disturbances can be avoided only if the pressure is applied but a few seconds—ten at the most, otherwise disturbances, particularly of vision, together with loss of consciousness, are likely to occur. The pressure on the circulation from without must be compensated for by a timely increase of the blood pressure, if disturbances are to be avoided. Thus, voluntary increases in the blood pressure can be effected by increasing the abdominal muscular pressure, or by bending the body forward, whereby the difference between the height of the heart and the height of the head is lessened, also by the intensive application of will power and keeping up uniform breathing. In this manner it is possible to endure strong accelerations for several seconds without any disturbance. In flying on one's back the conditions are reversed, in this position injuries to health are caused by venous stasis (retinal hemorrhages, also cerebral hemorrhages).

In the aptitude for flying, as Lottig of Hamburg pointed out, the whole personality plays an important part. A mechanistic estimation should be avoided. A slight acceleration of pulse or the like does not constitute a detraction from the fitness of an aviator. The flight surgeon who decides on the fitness of candidates should be a good aviator himself. For flying at high altitudes, candidates, as Hartmann of Berlin pointed out on the basis of the observations of the Himalaya Expedition, in 1931, should be trained gradually in subpressure chambers.

In sport devotees there occurs, as Kirch of Erlangen found, a genuine cardiac hypertrophy, which does not, however, affect ordinarily the whole heart. A disproportionate enlargement is characteristic, the type of enlargement varying with the kind of sport. For example, the right ventricle was hypertrophied in a boxer and the left ventricle in a swimmer, while in a mountain climber the right chamber was more developed than the left. The enlargement was usually in the direction of the longitudinal rather than the horizontal axis. According to Rautmann of Braunschweig, a portion of these changes are doubtless due to the fact that, at least in many sports, inspiration predominates over expiration, so that an increased volume of blood passes through the right side of the heart. It was found that the pulse beat diminished inversely with the length of the distance for which a runner is trained. For instance, long distance runners present when at rest a pulse beat of 60 and below, whereas the pulse beat of sprinters at rest is higher. Hence, the adjustment of the organism to outstanding achievements is accomplished through an increase of the stroke volume and not through an increase of the pulse beat. In the discussion it was emphasized that heart enlargement in sport devotees must not be judged wrongly or in a one-sided manner.

The second main topic, the 'Significance of Gastroscopy,' was discussed by Gutzeit of Breslau, who demonstrated its practical importance by an analysis of 3,500 cases. Henning

of Leipzig reported that he had examined 2,200 cases, 1,200 with an inflexible and 1,000 with a flexible gastroscope. With the former type gastric hemorrhage resulted in one instance, but with the flexible type no failures occurred. It is not possible in all cases to make the pylorus visible, the principal task of gastroscopy is to supply a clear view of the gastric mucosa. Roentgenology of the stomach does not furnish clear views, gastroscopy is much superior, and with the modern apparatus injuries are no longer possible.

The third topic was "The Acute Blood Disorders of the Myeloid System." Werner Schultz of Berlin discussed in detail agranulocytosis. Owing to inflammatory and necrotic processes occurring in the gastro-intestinal tract, agranulocytosis may be confused with typhoid. The etiology is uncertain, although there is no doubt that the constitution plays a part. The angina is doubtless not the primary thing. The organisms found by the bacteriologist have no etiologic importance. The morbid picture of agranulocytosis should be studied primarily from the standpoint of the symptoms. The most widely different processes, such as pregnancy, tuberculosis of the bone marrow, typhoid, other infections, drugs and toxins may lead to an outbreak of the disorder. On the basis of these facts, arsphenamine should be avoided in Plaut-Vincent's angina, since this benign disorder may be cured without the use of arsphenamine. With reference to the appearance of angina agranulocytica in various countries, neither experimental trials nor clinical observations in Germany have furnished proof of the alleged harmful effects of amidopyrine. The aplastic anemias also play an important role. Degeneration of the bone marrow may sometimes be the primary cause. As for treatment, liver, arsenic and particularly blood transfusions are to be considered rather than roentgen therapy.

On the basis of more than 500 sternal punctures, Naegeli of Zurich expressed the conviction that the bone marrow is of especial importance as the point of origin of these disorders. Neither cadaver blood nor circulating blood will give a clear insight into the situation, since the blood picture of the circulating blood is always under the influence not only of pathologic processes but also of regenerative processes occurring in the body. At the request of the federal bureau of health, V. Schilling of Münster investigated, in connection with agranulocytosis, alleged harmful effects of amidopyrine and barbituric acid preparations. Eighty clinical experiments and ten experiments on rabbits proved entirely negative. An injury of the hematopoietic organs, in the nature of agranulocytosis, could not be brought about by these substances. Schilling's point of view, that it is a question primarily of an exceptional individual reaction, was recognized also in the discussion. The outcome of the discussion was to the effect that, in cases apparently brought on by medicines, it is a question of individual "allergic" reactions. The practitioner, however, should not allow himself to be influenced in the use of approved remedies, since ordinarily no injuries result.

#### Professor Alfred Goldscheider

Prof Alfred Goldscheider, who for many years occupied a chair in internal medicine at the University of Berlin, died April 10, at the age of 77. He laid the foundations of his scientific activity as the assistant of Ernst von Leyden, at first devoting himself to the physiology of the nerves. We are indebted to him for our knowledge of atypical gout. In collaboration with his teacher (Leyden), he established the fundamental principles of modern physical therapy. As a university instructor and as a member of learned societies Goldscheider served as a trustworthy champion of the rights, duties and privileges of the medical profession. He was held in high esteem and for many years was president of the Berlin Medical Society, resigning only at the behest of the new regime.

## BUCHAREST

(From Our Regular Correspondent)

May 10, 1935

### Increased Mortality in Bucharest

Public health statistics show that mortality, as well as morbidity, has increased in recent years under the influence of the prevailing economic conditions. When the figures of 1923, 1924 and 1925 are compared with those of 1930, 1931 and 1932, an increase in mortality of 206, 164 and 193, respectively, is found to have occurred in diseases of the nervous system, of 1,680, 976 and 1,094 in pneumonia, of more than 1,000 in diabetes, of more than 1,600 in heart diseases, and of 2,000 in neoplasms. The increase is much more marked in provincial towns, where the increase in pneumonia is ascribed to the reduced resistance of the population, owing to defective nutrition. The increase in circulatory diseases, especially in the rural parts of the kingdom is put down to defective nutrition and to the psychic factor induced by manifold worries and exhaustion as a sequel to strenuous agricultural work. The price of agricultural products being extremely low, they endeavor to make up for the shortage of income by exertion in working.

### Blood Transfusion in Anemia and Infections

At a recent meeting of the Bucharest Medical Society Dr. Antonescu discussed the practice of blood transfusion in sepsis. Blood transfusion is valuable in various forms of anemia and in infectious diseases. To the former, belong anemia resulting from hemorrhage due to injury, child birth, ulcers, shock, hemorrhoids, hemophilia, hemorrhagic diathesis, and the secondary anemias associated with disturbed nutrition and intoxication, pernicious anemia and hemolytic icterus. This list has been compiled by Professor Falta of Vienna. The effects of transfusion in these various diseases are not the same. In severe hemorrhage, transfusion constitutes a substitution therapy, the new blood taking over the function of that which was lost, and in addition it stimulates the hematopoietic areas. Only a few hours afterward reticulocytes appear in the blood. In infections and sepsis, transfusion promotes the production of blood corpuscles and the formation of immune bodies in the reticulo-endothelial system, which in severe sepsis is especially important because the whole system is flooded with bacteria and may be seriously damaged by the endotoxins, whereby its phagocytic and immunizing activity is impaired. The intake of healthy bacteria-free blood cleanses the system and restores its function. In most of the Bucharest clinics the direct method of blood transfusion is most commonly employed, the citrate method is less and less used.

### A Disastrous Error in Prescribing Thallium Acetate

A regrettable example of an error in writing prescriptions occurred in Budapest. A professor of the agricultural high school in Czegeld consulted Dr. Dezso Steiger Kazal, a lecturer on dermatology at the University of Budapest, for a fungous scalp disease from which his twin sons of 9 years suffered. Dr. Kazal, having had experience with thallium preparations in similar cases, prescribed this drug, but in error he wrote 50 Gm instead of 0.5 Gm. The pharmacist having seen that the prescribed dose was far above the maximal dose hesitated to dispense it, but seeing the physician's signature thought that he intended to dispense the quantity among several patients, so he gave out the drug, as prescribed by the Hungarian pharmaceutical law in a hexagonal bottle, meaning that the drug is for external use only. Dr. Kazal himself administered the drug with the result that both children died in five days. The police demanded a necropsy which revealed that the cause of death was an overdose of thallium. As the children weighed 30 Kg each should have been given 24 centigrams, that is 48 centigrams 0.5 Gm for the two.

## BELGIUM

(From Our Regular Correspondent)

May 7, 1935

## Scoliosis Among School Children

Addressing recently the Société belge d'orthopédie, Dr Ledent presented some reflections on scoliosis occurring in pupils of the primary schools. The schools were accused of being the producers of scoliosis, just as their role in the genesis of myopia has been definitely shown. One may incriminate particularly the school furniture, which is often unadapted to the sitting height of the children. But parents who blame the school may fail to check up on the home furniture, especially the chairs. They may fail to note the discordant height of the table, at which a younger child sits uncomfortably suspended, while a tall youth bends over, thus accentuating a tendency to kyphosis or scoliosis.

Deviations of the vertebrae (anomalies, deformations and awkward attitudes) are frequent. The most recent researches are those of Strugurescu, who examined 2,640 children of all ages, and the inquiry of Szczygiat in Poznan. The speaker compared the results of their researches with data derived from his annual inspection of 1,000 children aged from 12 to 16 years (boys and girls), and he obtained about the same percentages as they

School Year	Boys	Girls
1932-1933	5%	30%
1933-1934	7%	20%

To be sure, it is not the duty of the school to treat the children. Nevertheless, the law states that the school owes the child a suitable physical, intellectual and moral education. As regards physical education and orthopedics, it is well known that if a school is properly organized the number of scolioses may be reduced from 20 per cent to 7 per cent. The modern school will no longer be the main source of the orthopedist's patients when physical education receives the same attention as the other subjects of the curriculum.

## International Conference on Physical Education

The Société médicale belge d'éducation physique et de sports has organized, for the period from June 30 to July 3, after the plan of the Journées médicales de Bruxelles, an international conference at which the following topics will be discussed: (1) the early detection of cardiac disorders, presented by Laubry of Paris, Saman of Paris, the physician-commandant of Chaisemartin, Joinville, and Van Dooren of Brussels; (2) motor tests in physical education, presented by Professor Laugier of Paris, Covaciu Ulmeanu of Bucharest and Rene Ledent of Liege, and (3) le cyclisme, presented by Professor Hedon of Montpellier, Włodzimierz Missiuro of Warsaw, Brandt of Geneva, and Prof C Heymans of Ghent. The conference will be opened Sunday June 30, at a formal gathering, at which Prof J Demoor of Brussels will speak on the subject of "The Role of the Physician in Physical Education."

## Illegal Practice of Physical Therapy

There are no legal provisions that reserve to doctors the application of physical therapy, which presents sometimes grave dangers when applied by inexperienced persons. There is an urgent need of devising some means of preventing incompetent persons with a limited education or of rudimentary intelligence from exposing the public to the menace resulting from the absence of diagnosis and ignorance of the effects to be produced and the doses to be employed. It would be well if the use of physical therapy in its various forms might be restricted to masseurs and nurses who have received special training and who operate only under the direction of a physician and the terms of a prescription indicating the procedures and the dosage to be employed.

Physical therapeutic procedures present without doubt hidden dangers when sick and weakened organisms are involved, which is especially evident under the conditions that characterize a simple or pernicious anemia, for example, disorders of blood pressure, febrile disorders, or chronic disorders of the kidney, the heart, and of the nervous and the glandular systems. In addition to these cases, which are countless and in which a blind therapy may be harmful, one must emphasize also the danger of incorrect handling of apparatus. In view of these considerations, the Cercle Liegeois de médecine physique et de radiologie contends that a better supervision of masseurs and nurses giving physical therapeutic treatment should be devised.

## RIO DE JANEIRO

(From Our Regular Correspondent)

April 15, 1935

## Antihormones

Dr Thirls Martins, in a lecture before the Sociedade de Biologia of São Paulo, said that the administration of certain hormones for as long as four or five weeks results in a condition of apparent insensibility of the reacting organs. Growth, gonad-stimulative and thyrotropic hormones of the hypophysis when repeatedly injected in animals lose in a short time the stimulative capacity. Hisaw, Collip and some others verified these facts. Collip proved that the serum of horses injected with thyrotropic hormones has protective properties against those hormones. However, hormones can be given for a long time in some cases without any manifestation of the production of antihormones. In the experiments of parabiosis with normal and castrated rats it was verified that in the latter the secretion of prehypophyseal hormones is excessive and the stimulation of the genital organs intense. Even in experiments carried on for more than six months the ovary does not lose its reactive capacity. Since parabiosis is a method more physiologic than the injection of extracts for the administration of hormones, it is advisable to determine whether the antihormones that are observed in experiments are manufactured in their course because of the presence of certain substances that are not secreted by normal glands.

## Surgical Treatment of Megacolon

Dr Alípio Correa Netto, in a lecture before the Sociedade de Medicina e Cirurgia of São Paulo, said that the theory of achalasia of the so-called functional sphincters of the colon clarifies the pathogenesis of megacolon. The condition is caused by a dysfunction of the sphincters that fail to open when a wave of peristalsis reaches them. Because of the failure of the sphincters there is fecal stasis, which results in hypertrophy of the walls and dilatation of the colon. The achalasia theory was advanced for the first time as the cause of megacolon by Horste and verified later by Cameron, Amorim, Correa Netto and Etzel. The histologic examination of the colon in this condition shows that the abnormality originates in an inflammatory process, with destruction of the Auerbach and Meissner's plexuses. The condition is cured by the resection of the involved sphincters, which results in the prevention of the presence of fecal stasis and the correction of the abnormality. The speaker presented five patients, in whom the resection of the pelvic rectal sphincter resulted in recovery. The correction of the abnormalities of the colon was evident, as seen by the roentgenograms taken before and after the operation.

## Etiology of Trachoma

Dr A. Busacca recently reported, before the Sociedade de Biologia of São Paulo, the results of his work on trachoma. He found rickettsia first in the epithelial cells and in the granular tissues that constitute the trachoma pannus in human beings, by using the method that Jahnke uses for identification of spirochetes in nervous tissues, and then in smears and sec-

tions of trachoma tissues by the method commonly used for identification of rickettsia. The inoculation of trachomatous material in several structures of mice, rabbits and guinea-pigs gave the following results. In the vitreous body of rabbits and guinea-pigs it caused choroidal and retinal lesions in some cases and the appearance of a corneal pannus, similar to human trachomatous pannus, in some other cases, in the testicle of guinea-pigs it caused an inflammation of the polyblastic type transmissible in a series, in the mesothelial cells of the tunica vaginalis of the testicle, micro-organisms similar to those found in human tissues were evidenced, in the brain and spleen of mice, in the brain and testicle of rabbits and in the lymph nodes of guinea-pigs it gave negative results, in the brain of guinea-pigs it caused a slight reaction of the polyblastic type, after some serial passages. Some guinea-pigs developed a general disease following the inoculation of trachomatous material by intracerebral or intratesticular routes. The data obtained by the speaker were not enough to study the appearance of phenomena of immunity.

#### **Avitaminosis in the Etiology of Mega-Esophagus and Megacolon**

Dr Eduardo Etzel, in a preliminary report recently read before the Sociedade de Medicina e Chirurgia of São Paulo, stated that mega-esophagus ("mal de engasgo") and megacolon are two abnormalities that frequently coexist with polyneuritis, disturbances of the gastric chemism (anachlorhydria and hypochlorhydria) and changes in the electrocardiogram. The latter exist in 70.8 per cent of the cases and are of various types. The speaker said that dysphagia, constipation, polyneuritis and disturbances of the gastric chemism and of the heart are also seen in beriberi, both in man and in animals. He presented a case of beriberi associated with "mal de engasgo" and made a reference to other similar cases, as well as to experiments in which he succeeded in producing megacolon in animals with avitaminosis B. The speaker concluded that mega-esophagus and megacolon are the result of a diet deficient in vitamin B. His conclusion is supported by the geographic distribution of "mal de engasgo" and also by the clinical and anatomicopathologic picture of the disease. Further conclusions will be presented by the speaker as soon as his experiments on avitaminosis in pigeons, guinea-pigs and dogs are finished.

#### **Denervation of Adrenal Glands in Hyperthyroidism and Gastroduodenal Ulcer**

Dr A. Bernardes de Oliveira, in a preliminary report to the Sociedade de Medicina e Chirurgia of São Paulo, reviewed Crile's theories on the development and management of certain diseases peculiar to civilized men, with especial reference to the genesis of gastroduodenal ulcer and hyperthyroidism. The speaker discussed first the theories on the kinetic system, the law of orthogenesis and the phylogenetic pathology and then the indications, contraindications, technic, risks, complications and immediate and late results of the denervation of the adrenal gland (Crile's operation). He illustrated the technic of the operation and explained the conceptions on which it is based. In two cases of hyperthyroidism, two cases of gastroduodenal ulcer and a case of grave trophic edema of the face the operation, performed by the speaker, gave satisfactory immediate results that confirm those reported by Crile, the originator of the operation.

#### **First Brazilian Congress Against Cancer**

The first Brazilian Congress Against Cancer, organized by the Sociedade de Medicina e Chirurgia of Rio de Janeiro, will be held in October at Rio de Janeiro. The members of all the medical societies and medical institutions of Brazil will meet at the congress, which aims to organize a well directed intensified and systematic crusade against cancer.

## **Marriages**

THOMAS S. WHITE, Millbrook, N. Y., to Elizabeth Juanita Greer, Ph. D., of Atlanta, Ga., June 6.

LEWIS H. ODEN JR., Blackshear, Ga., to Miss Agnes Elizabeth Shealy of Clinton, S. C., June 4.

JOHN BRECKENRIDGE OVERALL to Miss Mary Walker, both of Springfield, Ky., May 25.

STEPHEN WEBB DAVIS, Charlotte, N. C., to Miss Kate Jones of Atlanta, Ga., June 8.

JACOB C. ROSEN to Mrs. Iras Marina Schorsch, both of Philadelphia, May 28.

## **Deaths**

William Brodnax Banister ♂ Colonel, U. S. Army retired Petersburg, Va., Hospital College of Medicine, Louisville, Ky. 1883, entered the army as an assistant surgeon in 1886, promoted to captain and assistant surgeon in 1891, veteran of the Spanish-American War, was promoted to grade of major in 1901 and in 1922 retired, with rank of colonel, at his own request, after thirty years' service, fellow of the American College of Surgeons, aged 73, died, May 1, of coronary thrombosis.

Charles Harper Richardson, Pittsfield, Mass., Albany (N. Y.) Medical College, 1897, member of the Massachusetts Medical Society, fellow of the American College of Surgeons at various times on the staffs of the Hillcrest Hospital and St. Luke's Hospital, Pittsfield, the W. B. Plunkett Memorial Hospital, Adams, the Fairview Hospital, Great Barrington, and the Robert C. Geer Memorial Hospital, Canaan, Conn., aged 65, died, May 21, of carcinoma of the pancreas.

Newton Albert Powell, Toronto, Ont., Canada, M.B., Trinity Medical College, Toronto, in 1875 and M.D. in 1888, Bellevue Hospital Medical College, New York, 1875, professor emeritus of medical jurisprudence, University of Toronto Faculty of Medicine, fellow of the American College of Surgeons, consulting surgeon to the Grace and Toronto General Hospitals and the Toronto Hospital for Incurables, aged 85, died, April 7.

Arthur Ferdinand Fischer ♂ Hancock, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor 1890, fellow of the American College of Surgeons, formerly secretary of the Houghton-Baraga-Keweenaw Counties Medical Society, on the staff of St. Joseph's Hospital, chief surgeon to the Quincy Mining Company, aged 67, died, May 17.

Henry Stanislaus Rowen ♂ Boston, Harvard University Medical School, Boston, 1892, police surgeon, trustee of the Metropolitan State Hospital, Waltham, Mass., for many years on the staff of the Boston Lyng-In Hospital and trustee of the Boston City Hospital, aged 66, on the staff of St. Elizabeth's Hospital, where he died, April 29.

Walter Ford Henderson ♂ Jackson, Miss., Vanderbilt University School of Medicine, Nashville, Tenn., 1916, served during the World War, fellow of the American College of Physicians and member of the Radiological Society of North America, director of the x-ray department of the Baptist Hospital, aged 43, died, April 18.

Clarence Robert Hutchins, Saranac, N. Y., New York University, University and Bellevue Hospital Medical College, 1911, member of the Medical Society of the State of New York since 1917, health officer of the village of Danemora and since 1916 health officer of Saranac, aged 50, died, March 5, of coronary thrombosis.

Mary Sherwood, Baltimore, Universität Zürich Medizinischen Fakultät, Zurich, Switzerland, 1891, medical director of the Bryn Mawr School, at one time director of the Municipal Bureau of Child Welfare, formerly trustee of the Goucher College, aged 79, died, May 24, at her home in Homeland, of heart disease.

Wallace Joseph Durel ♂ New Orleans, Tulane University of Louisiana Medical Department, New Orleans 1897, professor of clinical medicine, Tulane University Graduate School of Medicine, for many years on the staff of the Charity Hospital, aged 57, died, April 8, of hypertensive heart disease and coronary thrombosis.

Samuel Clarence Dean, Anderson, S. C., Tulane University of Louisiana Medical Department, New Orleans, 1910, member of the South Carolina Medical Association, fellow of the Amer-



ican College of Surgeons, served during the World War on the staff of the Anderson County Hospital aged 51, died May 17

**Benjamin Rush Field**, Easton, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1883 member of the Medical Society of the State of Pennsylvania, veteran of the Spanish-American War, at one time mayor of Easton, formerly superintendent of the Easton Hospital, aged 73, died, May 1

**Clinton Willoughby D'Alemberte**, Pensacola Fla Tulane University of Louisiana Medical Department New Orleans 1903, member of the Florida Medical Association, served during the World War for many years connected with the U S Public Health Service, aged 55, died, May 5

**Daniel Malloy Prince**, Mount Vernon Wash., University of Virginia Department of Medicine, Charlottesville 1924 member of the Washington State Medical Association and the Medical Society of Virginia, on the staff of the Mount Vernon General Hospital, aged 37, died suddenly, April 10

**Anthony Curt Freeman** New York Columbia University College of Physicians and Surgeons New York 1910 at various times on the staffs of St Mary's Hospital and the Floating Hospital of St John's Guild, aged 51, died May 23 in Claremont, N H, of carcinoma of the right lung

**Lester William Bellows** Waterloo, N Y., Detroit College of Medicine, 1904, past president of the Seneca County Medical Society, aged 56, on the staff of the Waterloo Memorial Hospital, where he died, in May of a skull fracture received in a fall from the porch of his home.

**Charles Augustus Kinch**, East Orange N J., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1873, aged 83, died April 23 in the Presbyterian Hospital, Newark, following an operation for pyloric obstruction due to duodenal ulcer

**Walter Salem Weiss** Jefferson, Ohio, Western Reserve University Medical Department Cleveland, 1888, county health officer, president of the school board of Jefferson, and member and past president of the county board of education aged 71, died, April 22, in Eagle Rock, Calif

**George Henry Walter** Orangeburg, S C Medical College of the State of South Carolina, Charleston, 1904, past president of the Orangeburg County Medical Society served during the World War, on the staff of the Tri-County Hospital, aged 56, died, May 12

**Albert Marcellus Dawson**, West Allis Wis., Kansas Medical College, Medical Department of Washburn College Topeka 1907, member of the Indiana State Medical Association aged 54, died, April 29, in the Deaconess Hospital, Milwaukee, of lobar pneumonia

**Mark Henry Williams**, New York, University of the City of New York Medical Department 1870 member of the Medical Society of the State of New York, aged 86, died, May 22 in the Wickersham Hospital, of chronic myocarditis and coronary sclerosis

**Columbus Fuller Bucklin**, Sawyer, Kan College of Physicians and Surgeons, Keokuk Iowa 1896 member of the Kansas Medical Society, aged 66, died, March 16, of diabetes mellitus, hypertrophy of the prostate and rupture of the gall-bladder

**Rolfe Spaulding Russell**, Greenfield, Mass., University of Vermont College of Medicine, Burlington 1930, member of the Massachusetts Medical Society, aged 28 on the staff of the Franklin County Hospital, where he died, March 17, of embolism

**John Ellis Hart**, Wadesboro N C University of Maryland School of Medicine, Baltimore, 1897 member of the Medical Society of the State of North Carolina, for many years member of the state legislature, aged 59, died April 7

**Robert Emmett Minahan**, Green Bay Wis., Rush Medical College, Chicago, 1886 member of the State Medical Society of Wisconsin, also a lawyer, at one time mayor of Green Bay, for many years bank president, aged 77 died, April 27

**Eugene Oscar Pearson**, Pittsburgh Jefferson Medical College of Philadelphia 1900, member of the Medical Society of the State of Pennsylvania on the staff of St Joseph's Hospital aged 59 died, April 22, of coronary occlusion.

**Howard J Bush** Constantine, Mich Detroit College of Medicine 1908 on the staff of the Three Rivers (Mich.) Hospital aged 51 died May 2, of pneumonia and coronary and pulmonary thrombosis following an appendectomy

**William Walker Evans**, Blakely Ga., Atlanta College of Physicians and Surgeons 1902, member of the Medical Association of Georgia past president and secretary of the Screven County Medical Society, aged 58, died, May 10

**Reuben Hayes Irish** Troy, N Y., Albany Medical College, 1897, member of the board of managers of the Pawling Sanatorium, Wynantskill, on the staffs of the Leonard and Samaritan hospitals, aged 63, died, April 30

**Mary Byington Nicola**, Los Angeles, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897 aged 66 died, March 17, in the New England Sanitarium and Hospital Melrose, Mass., of biliary cirrhosis

**William Jennings Erkenbeck**, Grand View, Idaho, American Medical Missionary College, Chicago 1902, member of the Idaho State Medical Association, aged 55, died, April 15, in the Veterans Administration Facility, Boise

**Benjamin Siegel** Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1919 on the staffs of the Israel-Zion Hospital and the Cumberland Hospital, aged 40, died May 17 of cerebral hemorrhage.

**William Gifford Francis**, Waynesville, N C, Jefferson Medical College of Philadelphia, 1915 member of the Medical Society of the State of North Carolina, served during the World War, aged 45, died, May 18

**Charles Harold Ainsworth**, St Clair, Mich., Detroit College of Medicine and Surgery, 1930, member of the Michigan State Medical Society, aged 32, died, May 13, in St. Clair Community Hospital, of pneumonia

**Frederick Stickney Caverly** Passaic, N J., Dartmouth Medical School, Hanover, N H, 1904, on the staffs of the Passaic General and St. Mary's hospitals, aged 52, died, May 15, at his home in Clifton, of heart disease

**Grosvenor L T Hayes**, Granville, Vt., University of Bishop College Faculty of Medicine, Montreal, Que., Canada 1895, aged 63, died, April 2, in the Royal Victoria Hospital, Montreal, Que., Canada

**Joseph Thomas Kennedy**, Cincinnati, Medical College of Ohio Cincinnati 1907 served during the World War, connected with the Veterans Administration, aged 50, died, April 30 of lobar pneumonia

**Elias Goldberg**, Boston, Tufts College Medical School, Boston, 1907, aged 50 died, May 25, as the result of injuries received when he jumped from a stairway window between the ninth and tenth floors

**Roger L Hall**, Pawhuska Okla., Missouri Medical College, St Louis, 1894, formerly councilman member of the school board and state senator, aged 65, died, April 22 of coronary thrombosis

**William Henry Robbins** Martins Ferry, Ohio Jefferson Medical College of Philadelphia, 1916, aged 52, on the staff of the Martins Ferry Hospital, where he died, April 18, following a mastoid operation

**Julien Arthur Riester** Buffalo, University of Buffalo school of Medicine, 1899, on the staff of the Buffalo Hospital of the Sisters of Charity, aged 64, died suddenly, April 20, of angina pectoris

**Joseph D Orr**, Leechburg, Pa., Jefferson Medical College of Philadelphia 1885 aged 77, died April 29, in the Allegheny Valley Hospital, Tarentum, of arteriosclerosis and hypertrophy of the prostate.

**Solomon E Allgood**, Lucas, Kan., Memphis (Tenn.) Hospital Medical College, 1887, University of Louisville (Ky.) Medical Department, 1891, aged 84, died, April 1, of bronchopneumonia

**Carl Atkins Foster**, Columbia, S C., Medical College of Virginia, Richmond, 1904, member of the South Carolina Medical Association, aged 56, died, May 15, of coronary occlusion

**Newton W Amos**, St Louis, Washington University School of Medicine, St Louis, 1897, member of the Missouri State Medical Association, aged 67, died, May 6, of angina pectoris

**Arthur Cocheran Walker**, Springfield Vt., Atlanta Medical College, 1915, member of the Vermont State Medical Society served during the World War, aged 43, died, May 31

**William Dibble Clark**, Oakland, Calif., University of California Medical Department, 1884, aged 71, died, April 28 of hypertension, chronic myocarditis and hypostatic pneumonia.

**Frank C Bressler** Baltimore, College of Physicians and Surgeons, Baltimore, 1885 on the staff of the Mount Sinai Hospital aged 75, died suddenly, May 18, of coronary thrombosis

**Sidney J Richardson**, White Cloud, Mich., Chicago Homeopathic Medical College, 1903, member of the Michigan State Medical Society, aged 65, died, April 20, of pneumonia.

**Chester Chesterfield Groff**, Richmond Hill, N Y., Baltimore Medical College, 1904, served during the World War, aged 53, was found dead, May 31, in a hotel at Baltimore

**Judge Crayton Buckelew**, Sulligent, Ala., Chattanooga (Tenn.) Medical College, 1898, member of the Medical Association of the State of Alabama, aged 63, died, April 27.

**George E. Wiley**, Bristol, Va. (licensed in Virginia, under the Exemption Law of 1885), member of the Medical Society of Virginia, city health officer, aged 83, died, March 25.

**Joseph Godfrey** ♂ Lancaster, Wis., Rush Medical College Chicago, 1880, past president of the Grant County Medical Society, aged 79, died, May 23, of coronary occlusion.

**Lisle William Woodhouse**, Torrington, Conn., Jefferson Medical College of Philadelphia, 1916, member of the Connecticut State Medical Society, aged 44, died, April 5.

**Sidney Harris Easton** ♂ Peoria Ill., Rush Medical College, Chicago, 1913, member of the Clinical Orthopedic Society, served during the World War, aged 44, died, May 8.

**Leslie W. Keyes**, St. Joseph Mich., Columbus (Ohio) Medical College, 1882, aged 79, died, April 30, in Whitehall, of angina pectoris, myocarditis and arteriosclerosis.

**William M. Popplewell**, Vista Calif., Ensworth Medical College, St. Joseph, Mo., 1896, aged 72, died March 31 in the Oceanside (Calif.) Cottage Hospital, of carcinoma.

**John Maxwell Pearson** ♂ Glendale, Ariz., Georgetown University School of Medicine Washington, D. C., 1907, aged 50, died suddenly, May 12, of coronary occlusion.

**John R. Abner**, Hamlet, Ind., Curtis-Physio Medical Institute, Marion, 1884, on the staffs of the Holy Family and Fairview hospitals, La Porte, aged 77, died, May 24.

**Grant Francis Tanner** ♂ Turtle Lake Wis., Medical Department of Hamline University, Minneapolis, 1895, aged 68, died, April 22, of acute nephritis and myocarditis.

**Henry Hessin Nichols**, Hatch, N. M., Jefferson Medical College of Philadelphia, 1896, at one time coroner of Marshall County, Iowa, aged 66, died suddenly, April 5.

**Christopher Morris Kelly**, Grand Rapids Mich., Niagara University Medical Department, Buffalo, 1890, aged 71, died, April 16, in the Kent County Receiving Hospital.

**William Pafford Bullard**, Sopchoppy Fla., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1916, aged 42, died, April 22, in a hospital at Thomasville Ga.

**Herbert A. Francisco**, Rutland, Vt., Bellevue Hospital Medical College, New York, 1891, aged 67, was found dead in bed, June 1, of cardiovascular renal disease.

**J. Edwin Caldwell**, Perryville, Ky., University of Louisville Medical Department, 1888, member of the Kentucky State Medical Association, aged 73, died, May 9.

**Wesley Grant Simmons** ♂ Dover Plains, N. Y., Medico-Chirurgical College of Philadelphia, 1898, aged 65, died May 8, in the Presbyterian Hospital, New York.

**Delos D. Stevens**, Paralta Iowa, Western Reserve University Medical Department, Cleveland, 1882, aged 86, died, April 1, of myocarditis and mitral stenosis.

**Isaac Newton Hutt**, Ogden, Ark. (licensed in Arkansas in 1903), aged 61, died, March 20, in the Michael Meagher Hospital Texarkana, of acute appendicitis.

**Louis Victor Leone**, Hartford, Conn., Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1890, aged 74, died, May 6, of bacterial endocarditis.

**John M. F. Barron**, Milner, Ga. (licensed in Georgia in 1887), member of the Medical Association of Georgia, also a minister, aged 78, died, April 30.

**Henry Clay Dorroh**, Ashland Ky., University of Louisville School of Medicine, 1910, served during the World War, aged 65, died suddenly, April 18.

**Fred Lawrence Schaffner**, Ottawa, Ont., Canada, Trinity Medical College, Toronto, 1887, aged 79, died, May 22, of myocarditis and arteriosclerosis.

**Josephine J. Resnik Krupp**, New York, Woman's Medical College of Pennsylvania, Philadelphia, 1910, aged 45, died, May 15, of cerebral hemorrhage.

**Pauline Wilson Bredow**, Glenwood, Fla., University of Michigan Homeopathic Medical School, Ann Arbor, 1900, aged 59, died, May 8, of carcinoma.

**Sheldon Pierce Hewins**, Stockton, N. Y., Chicago Homeopathic Medical College, 1888, aged 74, died, March 18, of hemiplegia and arteriosclerosis.

**John William Hopkins**, Fayetteville, W. Va., Kentucky School of Medicine Louisville, 1894, aged 74, died, May 6, of a self inflicted bullet wound.

**Karl Walter Allison** ♂ Youngstown, Ohio, College of Physicians and Surgeons, Baltimore, 1911, aged 51, died May 22, of cerebral hemorrhage.

**Thomas Henry Tracy**, Los Angeles (licensed in Ontario in 1880 and Massachusetts in 1894), aged 77, died, March 16, of bronchitis and heart disease.

**Henry Bernice Ford**, Tompkins, Sask., Canada, Queen's University Faculty of Medicine, Kingston, Ont., 1885, died, March 31, of heart disease.

**Robert Lee Grimes**, Urbana, Ohio, College of Physicians and Surgeons, Baltimore, 1890, aged 70, died, April 17, of carcinoma of the prostate.

**D. E. Hewitt**, Carthage, Mo., Missouri Medical College, St. Louis, 1881, aged 77, died, April 19, in Aberdeen, Wash., of cerebral hemorrhage.

**Charles Henry Franz**, San Francisco, Jefferson Medical College of Philadelphia, 1888, served during the World War, aged 69, died, June 5.

**Aime Trudel**, Ottawa, Ont., Canada, M.B., Laval University Faculty of Medicine, Quebec, Que., Canada, 1879 and M.D., in 1881, died April 19.

**Louis Theophile Pare**, Nicolet, Que., Canada, Laval University Faculty of Medicine, Quebec, 1883, aged 75, died, in April, in New York.

**Edward Charles Dreher**, Wilkes-Barre, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1893, aged 63, died, March 4.

**Franklin William Bock**, Rochester, N. Y., University of Pennsylvania Department of Medicine, Philadelphia, 1899, aged 64, died, May 3.

**Francis Marion Murray**, Delaware, Ohio, Jefferson Medical College of Philadelphia, 1877, also a pharmacist, aged 80, died, April 25.

**James Burnett Ford**, Asbury Park, N. J., Howard University College of Medicine, Washington, D. C., 1918, aged 44, died, April 26.

**Edwin Davis**, Tulsa, Okla., University of Arkansas School of Medicine, Little Rock, 1913, aged 56, died, March 27, in a local hospital.

**Ellsworth Gamble**, Waverly, N. Y., Eclectic Medical Institute, Cincinnati, 1889, aged 71, died, May 21, of cerebral hemorrhage.

**Ira William Daly**, New York, Long Island College Hospital Brooklyn, 1918, aged 42, died, May 12, in the Fitch Sanitarium.

**William N. Haynes** ♂ Victor W. Va., Kentucky School of Medicine Louisville, 1894, aged 64, died, May 10, in a hospital at Ranelle.

**William R. Beck**, Huntington, Ind., Kentucky School of Medicine Louisville, 1892, aged 70, died, May 21, of coronary thrombosis.

**Eugene Clayton Mowry** ♂ New York, University of Vermont College of Medicine, Burlington, 1889, aged 74, died, April 27.

**George W. Post**, Milton, Wis., Chicago Medical College, 1883, bank president, aged 75, died, May 10, of cerebral hemorrhage.

**James E. Duncanson**, Wray, Colo., Lincoln (Neb.) Medical College of Cotner University, 1898, aged 77, died, April 23.

**Lorenzo Waldemar Bolan**, Ridgewood, N. J., New York Homeopathic Medical College, 1885, aged 81, died, April 21.

**William Joseph Halbeisen**, Camden, N. J., Jefferson Medical College of Philadelphia, 1897, aged 64, died, May 1.

**James D. Hamrick**, Carrollton, Ga., University of Georgia Medical Department, Augusta, 1885, aged 77, died, May 7.

**Harry George De Pew**, Kansas City, Mo., Louisville (Ky.) Medical College, 1891, aged 70, was found dead in May.

**Oscar Dunham**, Creelsboro, Ky., University of Louisville Medical Department, 1897, aged 69, died, May 4, of carcinoma.

**Gardner Wells Hall** ♂ Boston, Johns Hopkins University School of Medicine, Baltimore, 1901, aged 59, died, April 21.

**Horace Greeley Padget**, Tully, N. Y., Syracuse University College of Medicine, 1908, aged 62, died, April 29.

**William Daniel Potter**, Clinton, Miss., Memphis (Tenn.) Hospital Medical College, 1892, aged 65, died, May 11.

**J. C. Merle Drake**, Erie, Pa., Hahnemann Medical College and Hospital, Chicago, 1880, aged 79, died, April 14.

**Annie M. Hoppins**, Los Angeles, Chicago Homeopathic Medical College, 1880, aged 95, died, April 28.

**James Henry Duggan**, Irwinton Ga., Southern Medical College, Atlanta, 1884, aged 70, died, May 11.

## Bureau of Investigation

### MISBRANDED "PATENT MEDICINES"

#### Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product (2) the name of the manufacturer, shipper or consigner (3) the composition, (4) the type of nostrum (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

**No Septo**—No-Septo Laboratories Tacoma Wash Composition Essentially a volatile oil such as turpentine in petrolatum For chronic sores soft corns piles boils dandruff scalp diseases etc Fraudulent therapeutic claims—[N J 21544 August 1934]

**Mentholypus**—Crilego Pharmacal Co Los Angeles Composition Essentially volatile oils including those of camphor eucalyptus and menthol in a petrolatum base colored green For pneumonia bronchitis asthma rheumatism eczema etc Fraudulent therapeutic claims—[N J 21545 August 1934]

**Bevill's Lotion**—Bevill Co Birmingham Ala Composition Essentially salicylic acid carbolic acid alcohol and water perfumed with winter green For skin troubles piles etc Fraudulent therapeutic claims—[N J 21547 August, 1934]

**Ercolin**—Peoples Drug Stores, Inc Washington D C Composition Gallic acid and glycerin dissolved in water For hay fever catarrh sinus trouble etc Fraudulent therapeutic claims—[N J 21548 August 1934]

**Moroline**—Red Line Products Co Brooklyn Composition Petrolatum For sores wounds sore throat coughs etc Fraudulent therapeutic claims—[N J 21551 August 1934]

**Asma Tea**—Asma Tea Co New York Composition Essentially ephedra licorice perilla seed and a nut For asthma bronchitis hay fever etc Fraudulent therapeutic claims—[N J 21553 August 1934]

**Liberty Tonic**—Clyde Collins Chemical Co Memphis Tenn Composition Essentially epsom salt ferric chloride extracts of plant drugs including a laxative with a small proportion of salicylic acid and water For blood, kidney and bladder disorders indigestion etc Fraudulent therapeutic claims—[N J 21556 August 1934]

**Liberty Liniment**—Clyde Collins Chemical Co Memphis Tenn Composition Essentially a petroleum distillate such as kerosene and a small amount of wintergreen Fraudulent therapeutic claims—[N J 21556 August 1934]

**Gly Tone Tonic**—Clyde Collins Chemical Co Memphis Tenn Composition Essentially epsom salt plant drug extracts small amounts of salicylic acid and an iron compound with water For blood kidney and stomach disorders etc Fraudulent therapeutic claims—[N J 21556 August 1934]

**Liberty Nerve and Gland Treatment**—Clyde Collins Chemical Co Memphis Tenn Composition Essentially baking soda (92 per cent) and starch Fraudulent therapeutic claims—[N J 21556 August 1934]

**Endozon**—Ray Sales Co and Endozon Co Inc New York Composition Essentially zinc oxide (12 per cent) salicylic acid (4 per cent) and volatile oil such as turpentine oil (5 per cent) incorporated in wool fat For eczema psoriasis chronic sores etc Fraudulent therapeutic claims—[N J 21557 August 1934]

**Tee Tona Aspirin Tablets**—Red Line Products Co Brooklyn Composition Essentially aspirin 5 grains per tablet For relief of Rheumatism Lumbago Sore Throat Toothache Earache Influenza Sleeplessness Fraudulent therapeutic claims—[N J 21558 August 1934]

**Texas Mineral Crystals**—Dollar Crystal Co Omaha and Walgreen Co Chicago Composition Essentially crystallized Glauber's salt with small amounts of epsom and common salt For rheumatism stomach trouble skin diseases neuritis high blood pressure etc Fraudulent therapeutic claims—[N J 21559 August 1934]

**Lincoln Cough Mixture**—MacAndrews & Forbes Co Camden N J Composition Essentially plant drug extracts including ipecac and licorice with ammonium chloride alcohol (73 per cent by volume) sugar and water Fraudulent therapeutic claims—[N J 21561 August 1934]

**Baume Analgesique**—American Pharmaceutical Co. Inc New York Composition Essentially menthol (23.4 per cent) and wintergreen (0.5 per cent), in an ointment base For rheumatism bronchitis burnings coughs croup earache etc Fraudulent therapeutic claims—[N J 21575 August 1934]

**Velvetol**—Bunny Drug Co and Biddle Purchasing Co New York Composition White petrolatum For wounds, sore throat etc Fraudulent therapeutic claims—[N J 21570 August 1934]

**Vermilax**—Biddle Purchasing Co, New York Composition Essentially ground kamala and a small amount of starch in a mixture of alcohol and water For common worms tapeworms, etc Fraudulent therapeutic claims—[N J 21573 August 1934]

**Guda Springs Crystals**—Guda Crystals Co Guda Springs, Kan Composition Essentially common salt (92.6 per cent) with small amounts of Glauber's and epsom salts and calcium sulphate and a trace of phosphate For constipation liver and kidney disorders rheumatism eczema obesity etc Fraudulent therapeutic claims—[N J 21569 August 1934]

**Hunt's Salve**—A B Richards Med Co, Sherman Texas and Allied Drug Products Co Chattanooga Tenn Composition Essentially chrysarolin carbolic acid sulphur volatile oils including sassafras and small amounts of mercury compound and iodine in a base of petrolatum and rosin For all skin disorders Fraudulent therapeutic claims—[N J 21584 August 1934]

**Premo Ergot Apitol Capsules**—Blackman & Blackman New York Composition Essentially plant material including aloe volatile oils such as apitol and savin and traces of ergot alkaloids For female disorders Fraudulent therapeutic claims—[N J 21585 August 1934]

**Alkalex Powder**—Standard Chemical Co Des Moines Iowa Composition Essentially large amounts of calcium carbonate and baking soda with small amounts of magnesium carbonate and bismuth subcarbonate For stomach disorders including ulcers. Fraudulent therapeutic claims—[N J 21586 August 1934]

**Nu Pine**—Ray Sales Co New York Composition Essentially alcohol (80.8 per cent) volatile oils such as camphor and eucalyptol and water For hay fever sinus congestion, bronchial asthma etc Fraudulent therapeutic claims—[N J 21589 August 1934]

**Minwater Crystals**—Minwater Crystal Co Dallas Texas Composition Essentially dried Glauber's salt with small amounts of sodium carbonate and common salt For rheumatism diabetes stomach, bladder and kidney disorders etc Fraudulent therapeutic claims—[N J 21593 August 1934]

**Seven A's Iron Tonic**—Clyde Collins Chemical Co Inc Memphis Tenn Composition Essentially epsom salt iron chloride, a small amount of salicylic acid extracts of plant drugs and water For stomach kidney liver and blood disorders Fraudulent therapeutic claims—[N J 21594 August 1934]

**Beatsol Drawing Salve**—G & W Laboratories Inc, Jersey City N J Composition Essentially sulphonated bitumen incorporated in petrolatum For boils, carbuncles ulcers felonis etc Fraudulent therapeutic claims—[N J 21595 August 1934]

**A Vol Tablets**—D P C Laboratories Holton Kan Composition 13 to 15 grains of acetphenetidin per tablet Misbranded because below professed standard or quality claimed, namely Two and one half Grs acetphenetidin misbranded also because of fraudulent therapeutic claim tends to relieve pain—[N J 21596 August 1934]

**Winsol Corlevo**—Winsol, Inc Boston Composition Essentially plant drug extracts including alkaloids and valeric acid sugar alcohol and water For female disorders Fraudulent therapeutic claims—[N J 21598 August 1934]

**Cascarets (Chocolate Flavor)**—Sterling Products Co Inc Wheeling W Va Composition Lozenges essentially containing laxative drugs including phenolphthalein (21 grains per lozenge) incorporated in sweetened flavored chocolate Adulterated because strength and purity fell below professed standard and quality under which it was sold misbranded because of confusion with the old time Cascarets made from cascara sagrada whereas the active ingredient in the chocolate flavored Cascarets is phenolphthalein misbranded also because of fraudulent therapeutic claims as a remedy for habitual constipation etc—[N J 21777 September 1934]

**Cascarets**—Sterling Products Company Inc Wheeling W Va Composition Lozenges essentially containing phenolphthalein (0.62 grain each) plant drug extracts including cascara sagrada and licorice with flavoring oils including wintergreen and sassafras and sugar Misbranded because represented as being chiefly candy and having cascara sagrada as potent ingredient whereas cathartic action was due to phenolphthalein and the stuff was not candy misbranded also because fraudulently represented as a cure for habitual constipation—[N J 21793 September 1934]

**Vitalita**—Vitalita Co Los Angeles Composition A mixture of senna and maté For obesity, stomach and kidney disorders etc Fraudulent therapeutic claims—[N J 21778 September 1934]

**Bron Co Capsules**—Pacific Laboratories Inc Los Angeles Composition Sodium and ammonium chlorides and sulphate a phenolic compound and acetanilid (0.042 gram per capsule) For all forms of bronchitis pulmonary catarrh cough etc. Fraudulent therapeutic claims—[N J 21780 September 1934]

**Phenlin Oils**—John H Wood Co Philadelphia Composition Ointment of petrolatum and paraffin with small amounts of cresylic acid and water Adulterated because strength and purity below professed standard and quality misbranded because fraudulently represented as a preventive against infection—[N J 21781 September 1934]

**Tru Asplagum**—Tru Lax Mfg Co Newark, N J Composition Essentially aspirin and salicylic acid in a mixture of sugar, starch and gum For sore throat rheumatism tonsillitis, influenza, etc Fraudulent therapeutic claims—[N J 21782 September 1934]

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

### TREATMENT OF PNEUMONIA

To the Editor—Will you please enlighten me as to the best form of treatment of lobar pneumonia in adults by answering the following: 1 Is Felton's serum (Lilly) of any value even if the pneumococcus does not fall in any of the four types? If it has been given before this is determined will it do any harm to the patient? 2 Is a cardiac stimulant other than whisky indicated when the pulse is below 130 regular and of good quality? 3 When a cardiac stimulant other than whisky, is indicated which is most efficacious: caffeine sodiobenzoate or digitalin? 4 Is diathermy to the chest an accepted treatment in lobar pneumonia and if so is it of any advantage over such a counterirritant as mustard plasters? Please omit name and address.

M D Iowa

ANSWER.—Obviously the answer to this question depends largely on the personal opinions and individual experience of the authority consulted. Even a symposium seldom yields a unanimous expression.

1 This query, as worded, indicates a misunderstanding in the mind of the inquirer concerning the number of types of pneumococci. In the original classification of Avery and his co-workers (Avery, O T, Chickering, H T, Cole, Rufus and Dochez, A R. Acute Lobar Pneumonia Monograph VII Rockefeller Institute for Medical Research, October 1917) there were three specific types of pneumococci and a fourth group, which contained all other strains. At the present time, workers in this field recognize thirty-two types of pneumococci and a small group of unclassified, or  $\times$ , organisms which may prove to be a number of specific types. The additional types were segregated by Cooper (Cooper, Georgia, Edwards, Marguerite and Rosenstein, Carolyn. The Separation of Types Among the Pneumococci Hitherto Called Group IV and the Development of Therapeutic Antisera for These Types, *J Exper Med* 19 461 (March) 1929).

The preparation referred to is made by injecting into horses, pneumococci types I, II, III and type IV (Cooper). There is no attempt to produce in the horses, antiserum for the other twenty-seven types of pneumococci, though most of these were formerly in group IV (Avery). It is not possible to make serums valent for all types of pneumococci by injecting a single horse. Some of these types of pneumococci are very toxic, yielding high mortality. For some of them, effective antisera have been produced (Bullowa J G M. The Therapeutic Value of Pneumococcus Type VII [Cooper] Serum, *Proc Soc Exper Biol & Med* 29 343 [Dec] 1931, Therapeutic Pneumococcus Type VIII [Cooper] Serum *THE JOURNAL*, May 12, 1934, p 1560).

The manufacturers evidently consider seriously the unitage in the serum against type I and type II only as these are the only units mentioned on the package. The claim that the addition of heterophile antibody is of clinical advantage is as yet unsubstantiated.

In accordance with present knowledge, the action of antiserum in pneumococcal pneumonia is entirely type specific. The amount of antiserum required depends chiefly on the day of the disease serum treatment is commenced and the possible presence of bacteremia. Evaluation of specific serum in small or large series of pneumonia patients without an attempt to type the pneumococci responsible is an unscientific procedure. It is misleading to practitioners to cite mortality rates in such heterogeneous series. No intelligent clinician would expect to benefit, by antipneumococcus serum, pneumonias of other than pneumococcus origin.

In view of the fact that there may be delay or difficulty in determining the correct type of pneumococcus, some consider it good practice to give to adult patients with pneumonia anti-pneumococcus serum for pneumococcus types I and II before the type is determined as pneumonias due to these types are the most frequent. The administration of the serum, however, does not release the clinician from the obligation to determine the type of pneumococcus involved by at least several attempts to obtain the type from sputum or by blood cultures. He should give enough serum to have a therapeutic effect or to determine whether some other type is involved. The administration of pneumococcus antiserum of a type different from that causing the pneumonia does not harm a patient. It may produce serum

sickness and it may sensitize the patient to serums of animals from which it is made. These are annoying but are not adequate objections in view of the serious character of lobar pneumonia and the advantage of earlier administration of serum.

2 and 3 The frequency of the pulse should not be considered an indication for cardiac stimulation in pneumonia. A pulse rate of 120 is frequently considered an indication for oxygen therapy. The indications for cardiac stimulants are the same as in the absence of pneumonia, namely signs of congestive failure. When bacteremia and toxemia are overcome by the administration of specific antiserum in types for which it is available, the pulse rate will fall without stimulants. Fall in pulse rate is more important than fall in temperature as a guide to adequate serum dosage. When the pulse rate does not fall after adequate serum dosage there may be (1) a suppurative complication, (2) invasion with another organism or (3) serum sickness. In some large pneumonia services, whisky is not given as a routine to patients with pneumonia.

Cardiac stimulation with drugs such as digitalin and caffeine sodiobenzoate have little place in the newer management of the lobar pneumonias. Early termination of the illness with specific antiserum and relief of anoxemia with oxygen obviate the need for cardiac stimulation by terminating the disease. Patients with the lobar pneumonias usually require sedatives. Caffeine sodiobenzoate may in some patients increase irritability and prevent sleep.

Patients with the lobar pneumonias most frequently die of (a) A bacteremia for which there is no treatment other than specific antiserum. (b) Pulmonary edema, the mechanism of which in lobar pneumonia is as yet ill understood but for which 50 per cent dextrose with insulin may be helpful (Bullowa J G M. Pulmonary Edema Occurring in the Course of Lobar Pneumonia Treated with Intravenous, Hypertonic, Fifty per Cent Glucose Solution and Insulin. Report of a Case, *M Clin North America* 15 1115 [March] 1932). (c) Dehydration, for which large intravenous infusions of saline solution with dextrose may be beneficial. (d) Or, rarely, congestive failure, for which digitalis may be beneficial.

The present point of view concerning digitalis therapy is well expressed by John Wyckoff, Eugene F Du Bois and I Ogden Woodruff (The Therapeutic Value of Digitalis in Pneumonia, *THE JOURNAL*, Oct. 25, 1930, p 1243). They conclude, after a thoroughly controlled study involving 742 patients that "the routine giving of digitalis to patients with lobar pneumonia is dangerous."

Clinical symptoms of digitalis toxicity are not a sufficient guide in digitalis therapy in lobar pneumonia to prevent an increase in mortality when the drug is used.

When given in doses too small to show any effect, it causes no changes in mortality." They observed an increased mortality in all types of pneumococcal pneumonia except in patients suffering from pneumonias due to pneumococcus type II.

4 Diathermy to the chest is not an accepted specific treatment in lobar pneumonia. It may be used as an adjuvant for purposes of counterirritation, but it has no specific action and has no advantage over other less involved means such as the one mentioned by the inquirer. It has the disadvantage of complicating the administration of oxygen by introducing a fire hazard and requiring the discontinuance of oxygen administration while diathermy is being given.

Carl Binger has summarized his researches on this subject in chapter 15 of volume 1 of the "Principles and Practices of Physical Therapy" by Mock, Pemberton and Coulter (Hagerstown Md., W F Prior Co, Inc., 1934). He says "There is no evidence that the temperature of the pneumococcal lung can be raised to more than a degree above the systemic temperature."

There is no reason to believe that exudates will melt as the result of diathermy." Binger, in concluding his study, infers that the benefit alleged to be due to the use of diathermy may be caused by the 'mental attitude of the patient, which can be greatly influenced by the magic of a dancing blue spark and by the feeling that he is being regularly and energetically treated.' His experiments were performed at the Rockefeller Institute Hospital and involved actual measurement of the temperature in the lungs after treating patients suffering from lobar pneumonia with diathermy.

In spite of recent praise of diathermy in pneumonia, addressed to the public in a monthly lay journal, it is not an important primary or adjuvant therapeutic measure for the lobar pneumonias. The crux of the problem of the pneumonias is the presence or absence of bacteremia. Only such therapies as terminate bacteremia, neutralize toxemia or prevent the establishment of bacteremia can be said to be primary specific treatments.

PAINFUL SCAR AFTER EXCISION OF  
BARTHOLIN CYST

To the Editor—What treatment would you advise for a painful scar following excision of a cyst of the Bartholin gland? At times especially at the premenstrual and postmenstrual periods the patient complains of swelling and marked tenderness over the scar. This cyst was completely excised nearly eighteen months ago and the region was examined by an experienced surgeon who thought there was no recurrence of the cyst. I have used 10 per cent sulphated bitumen solution and fluidextract of thuja with some relief but no permanent effect. Please omit name.

M D Wisconsin

ANSWER—Painful scar is frequently due to the development of a neuroma in the scar tissue. Such neuromas may likewise produce tenderness even though the neuroma is microscopic. Verification of the occurrence of the intermittent swelling of which this patient complains is an important diagnostic point. Its existence would indicate that there is a gland remnant sufficient to produce the symptoms. A single examination would not rule this out. Obviously the condition should be studied at the time the patient complains of swelling. If the mass is found, however small it might be a reexcision would be justified in view of the long continued complaint. In the absence of local changes the diagnosis is most probably neuroma. Mild roentgen therapy from three to six treatments of one-third erythema dosage at intervals of five to seven days, may result in cure. Injection of 0.5 per cent procaine hydrochloride at the time of discomfort sufficient to produce mild distention of the labium and repeated daily or once every other day, may serve the purpose. Finally, even in the absence of actual swelling, excision of the old scar with its neuroma may be necessary to establish a cure.

PRIMARY MYOCARDIAL FAILURE AND VASCULAR  
COLLAPSE

To the Editor—Dr. Bernard Fantus in his article on fever regimen (*THE JOURNAL*, Aug. 18, 1934, p. 484) cautions one to distinguish between primary myocardial failure and vascular collapse. The differential diagnosis here, as well as the therapy for the former would be appreciated. Please omit name.

M D Georgia

ANSWER—The term "primary (acute) myocardial failure" should be limited to those circulation insufficiency crises in which loss of cardiac efficiency plays the leading part. In infectious disease it is usually the "heart failure with normal rhythm." The heart failure of diphtheria is the classic example of such a condition. It is characterized, as far as differential diagnosis is concerned, by a relatively greater fall in systolic blood pressure than in diastolic pressure, and by diminution in the volume and a muffling of the first heart sound. The most reliable index to the severity of the condition is the degree of diminution of the pulse pressure. The therapy of this condition should include absolute rest in the prone position without pillows, the patient not being permitted to sit up for any purpose whatever. He should be kept warm and quiet. He must be fed, not allowed to feed himself; the diet should be liquid and given in very small quantities; brandy may be added in small doses. If there is a tendency to emesis, the stomach should be kept empty and salt solution given by rectum or dextrose solution (from 10 to 20 cc. of 25 per cent) slowly infused into the vein. Dextrose candy might be the first food admitted by mouth as soon as the extreme emergency has passed. Cardiovascular pressor substances are the drugs that may be employed with the best hope of benefit in this condition. Pituitary (pitressin, 1 cc intramuscularly every six hours) is probably the most valuable. Epinephrine is active but fleeting and ephedrine insufficient when the patient's condition is bad though it may be of value as a prophylactic, given every six hours (ephedrine sulphate 0.1 Gm.). The degenerated heart muscle does not respond to digitalis, and strychnine or atropine is of no value when the heart itself is affected. If there is a tendency to emesis a stimulant such as aromatic spirit of ammonia (1 cc in a wineglassful of hot water) may be given as frequently as required to overcome sinking spells and whip up the circulation until other remedies have had time to be absorbed. Oxygen may be of value if there is any sign of cyanosis.

In vascular collapse, the common cause of circulation failure in acute infections, it is not the heart that has failed but the musculature of the peripheral blood vessels. It is for this reason that with the clinician, vasomotor drugs play such a great part in this condition. Strychnine in heroic doses (hypodermically up to 4 mg. every two hours) is the drug of first choice. If there is a tendency to stupor caffeine sodiobenzoate (a 0.5 Gm. ampule every four hours excepting at bedtime) is likely to be valuable, and, in the collapse of the crisis accom-

panied by a "leaky skin," atropine (1 mg. hypodermically) may be of special value. The cardiovascular pressor substances (pituitary, epinephrine) are likely to be of value here, possibly because of their vascular action and possibly also as a method of restorative therapy, for a part of the vascular failure may be due to febrile degeneration of the endocrine glands. Dextrose saline phleboclysis (drop by drop infusion) is indicated because of the decreased blood volume, the low blood chloride level, and the tendency to acidosis. Up to 3 liters of 10 per cent dextrose in saline solution may be given daily, unless a tendency to edema asserts itself. If the blood vessels are "leaky" 6 per cent acacia solution in saline solution or blood transfusion in amounts not exceeding 500 cc., might be beneficial. If fluid in quantity can be given by mouth, infusions are contraindicated. Of course absolute rest in the head-low posture must also be enforced in this condition.

## USE OF DEXTROSE IN CORONARY THROMBOSIS

To the Editor—Please evaluate the use of dextrose in the treatment of coronary thrombosis particularly as to time to begin the treatment, frequency of dosage and statistical information as to the results. I am prejudiced against its use because some patients are so apprehensive of intravenous medication. Please omit name.

M D New York

ANSWER—In coronary thrombosis, the nature of the pathologic process and its normal involution preclude the proper evaluation of the results of most forms of therapy or a reliable statistical study of therapeutic results. Marvin has advocated the use of dextrose intravenously from the fifth to the twenty-first day. He has used from 10 to 50 cc. of the 50 per cent solution daily and has had gratifying results. Other clinicians begin its use earlier in some cases in smaller amounts or in larger amounts of a weaker concentration.

The objection to the use of intravenous therapy in an already apprehensive patient is a valid one, especially when what are probably equally good results may be obtained more easily.

When the blood supply to an area of heart muscle is diminished, it is hoped that by increasing the blood sugar concentration the deficiency of blood supply may be in part compensated for and it is for this reason that dextrose is recommended. Dextrose given intravenously, however, is rapidly carried from the blood and stored or excreted. It may also increase the blood volume temporarily and so add to the load on the heart. If it is wished to raise the sugar intake, it may be done by a high carbohydrate diet or by adding sugar to the diet or in various forms to beverages.

Hypertonic dextrose solution is also given to relieve the passive congestion that may be a consequence of the cardiac damage, and for this it is effective. Equally good or better results may be obtained by the use of some one of the newer and less toxic mercurial diuretics, especially those combined with small doses of theophylline. These can be given intramuscularly with little or no discomfort or even intravenously, with less disturbance.

## TRAUMATIC ULCER OF DUODENUM

To the Editor—I have recently observed a man—a stevedore—who while loading heavy cylinders on a car by means of wooden skids was struck on the epigastrium by a broken end of a skid. He became weak, left his work and after forty-eight hours was seen by me. He had had that morning a tarry stool. Investigation showed hemorrhage into the bowel and later a duodenal ulcer. Is it the consensus that such trauma to the abdomen may cause hemorrhage in a preexisting duodenal ulcer? Please omit name.

M.D., Washington

ANSWER—Traumatic ulcer of the duodenum is a problem that has interested internists for a good many years. Many clinicians believe that there is no such thing as chronic traumatic ulcer. Perhaps the best recent article on the subject, together with a discussion of the literature, is by Crohn and Gerendasy (*THE JOURNAL*, May 27, 1933, p. 1653). There is also a comprehensive review of the literature in the 1930 edition of Richard Stern's German textbook on the influence of trauma in producing visceral conditions. The medicolegal angle is particularly important because unwarranted claims can be made on this basis. A physician who was called as an expert witness to testify against an individual who claimed that his occupation which was that of filing produced a duodenal ulcer, recognized the name, when the papers were put in his hands, and was able to produce films of the man taken several years previous to his employment by the company in question, showing clearly that he had a duodenal ulcer at that time. This would be the only explanation for the ulcer phenomena that suddenly appear following an injury, because all experimental data show rapid healing of the normal mucosa when exposed to trauma. The criticism of nearly all cases of traumatic ulcer is to be found

in the fact that chronic peptic ulcer is notoriously latent at times. Most of the cases in the literature have no evidence particularly from a roentgenographic angle to show that previous ulceration did not exist. The correspondent should study the article by Crohn and Gerendasy and also the foreign references. Trauma can unquestionably excite hemorrhage in a previously existing chronic ulcer. This occurred in the case mentioned. In any event the literature mentioned is that most likely to yield the information.

#### ENDOCRINE DISTURBANCE

*To the Editor*—Will you kindly suggest diagnosis and treatment of a woman, aged 21 single who is subject to severe muscular spasms of the limbs, neck and body just twelve to twenty four hours prior to the menstrual flow? The menses began at 14 occurred every two weeks and lasted seven days. They continued in this manner until five years ago when the flow continued for six weeks. A dilation and curettement was done whereupon an improvement was noticed for several months. The menses then became painful at onset and the patient began to have a sense of constriction about the throat, with sudden attacks of dyspnea even during sleep. These attacks increased in frequency and severity and were not associated with the menses. Thyroidectomy was followed by some improvement but all symptoms returned and became worse the arm, leg, back and neck muscles being involved. During these attacks the body suddenly becomes rigid and the patient tosses about the bed attempting to get her breath. The attacks last from one to two hours unless relieved by a hypodermic of morphine sulphate or anesthesia with ether. The tonsils have been removed. The fundus of the uterus is anteverted but markedly retroverted. An attempt to correct the condition with a stem pessary gave no relief. The blood calcium is normal and Wassermann and Kahn tests are negative. Bromides and phenobarbital at times seem to decrease the severity of the attacks. The patient has shown no improvement in the past two years after having tried many doctors. Please omit name. M D Pennsylvania

**ANSWER**—This is probably a case of endocrine disturbance. Despite the lack of information concerning the condition of the ovaries and relative to the character of the menstruation during the last five years it would appear that genital disturbance is not the primary disorder, the chief lesion more likely concerns other endocrine glands.

In further search for the etiology of the patient's trouble the following may be considered: (1) roentgen examination of the sella turcica, (2) roentgen examination of the long bones and other search for parathyroid disturbance, (3) a basal metabolic rate determination, (4) search for a tuberculous focus, perhaps including roentgen examination of the lungs for the purpose of determining the likelihood of a lesion of the adrenal glands, and (5) an estimation of the hormones in the circulating blood (the estrogenic substance and the pituitary-like hormone), according to the technique of Robert Frank.

Despite the fact that the patient probably suffers from an organic lesion, the picture is atypical. A neurologic examination should be made to rule out with certainty the possibility of a purely functional disturbance.

#### LIPOMA AND TRAUMA

*To the Editor*—Will you kindly give me any references you may have regarding the formation of a lipoma following an injury? I would also appreciate your opinion as to whether an injury of tissues would predispose toward lipoma formation.

GEORGE P. EDDY, M.D., Niagara Falls, N. Y.

**ANSWER**—The relation of trauma to lipoma is discussed by Leila C. Knox (Trauma and Tumors, *Arch. Path.* 7:274 [Feb.] 1929). The paragraphs in this article on lipoma are as follows: "Wurz (*Beitr. z. klin. Chir.* 26:567, 1900) carefully analyzed the histories of twenty-eight patients with lipoma and concluded that only one of the tumors could be suspected of being a traumatic one. The patient, a woman, had sustained a fall in which the left side of the pelvis was seriously contused and she had suffered continuous pain in the buttock for a few weeks, then, on examination, a large lipoma, apparently actively growing, was found embedded in the fat. This tumor might be placed in the group of fat necroses described by Lee and Adair (*Ann. Surg.* 72:188 [Aug.] 1920) and may have been only an instance of active regeneration and not of neoplastic growth or a preexisting tumor may have been rendered painful by the contusion. Siegfried Wolff believed four of his cases of lipoma to be traumatic. One of them followed a single injury. The others appeared on the shoulders following repeated contusions. Since this is so common a situation for lipoma, even in those whose occupations do not cause them to sustain injuries to the shoulders, its relationship to this trauma seems to be largely imaginary. Stern (Ueber traumatische Entstehung inneren Krankheiten, Jena, 1913, p. 487) studied this type of tumor and decided that it could not be in any way connected with an injury. Bosse and Lieschke (*Therap.*

*Rundschau* 3:433, 1909) believed that they had watched the origin of several cases of scrotal lipoma secondary to contusion, and Lieschke (Lipom und Trauma, dissertation, Berlin, 1911, quoted by Graef *Centralbl. f. d. Grenzgeb. d. Med. u. Chir.* 17:603, 1913) collected sixty-two cases in which he believed that there was possibly a traumatic origin. These tumors also were described before the frequency and nature of traumatic fat necrosis and regeneration were well understood." The following statement by James Ewing (*Neoplastic Diseases*, ed. 3, 1928, p. 197) seems to answer well the question whether injury may predispose to lipoma: "Trauma of many types has seemed to act as an exciting factor with many solitary superficial lipomas in subjects in whom a local or general predisposition must be assumed to exist."

#### TREATMENT OF EARLY SYPHILIS

*To the Editor*—A girl, aged 16 years, married, came into my office with a general alopecia and one large ulcer located on the labia majora. She was anemic and weighed 90 pounds (41 kg). I made a clinical diagnosis of tertiary syphilis. Serologic tests were made which confirmed the clinical diagnosis with four plus Wassermann and Kahn reactions. I gave her ten doses of nearsphenamine intravenously ranging in dosage from 0.3 to 0.45 Gm. The first three doses were 0.3 Gm each, the remainder 0.45 Gm. When she had taken the sixth dose her hands and feet became dry, rough, scaly and cracked. The condition was confined to the palmar and plantar surfaces, which would bleed from cracks. I carried the fact in mind that I might have an arsenical dermatitis developing but did not withhold the nearsphenamine treatment but gave her four more doses which did not seem to aggravate the condition. At the same time she was taking the nearsphenamine I gave her potassium iodide in 20 to 40 grain (1.3 to 2.6 Gm) doses after meals and prescribed ordinary eczema treatment containing coal tar and avoided the use of water on her hands. The ulcer has gotten well and her hair is coming back thick but her hands are about as described. I have started sodium bismuth thioglycollate intramuscularly. The patient feels much better and has gained about 15 to 20 pounds (7 to 9 kg) with the use of nearsphenamine and she has had two doses of sodium bismuth thioglycollate. What do you think about the continued use of the heavy metal intramuscularly and what would you suggest as to the treatment of the hands and feet? I had intended to give fifteen or twenty doses of sodium bismuth thioglycollate. Please omit name. M D Kentucky

**ANSWER**—It would seem that a labial ulcer with associated alopecia in a girl of 16 is more suggestive of a chancre than a tertiary lesion of syphilis. The amount of treatment given has been adequate thus far, but, as the inquirer recommends, a bismuth compound should be added to the therapeutic program at this time. The dermatitis on the hands might be an arsenical dermatitis of the so-called fixed eruption or a keratoderma palmaris et plantaris, the possibility of a fungous infection or a keratoderma blennorrhagica as a result of gonorrhea seems quite unlikely. Likewise, in view of the amount of treatment the patient has had it would be quite improbable that syphilis is the cause of the eruption on the hands and feet.

Now that it has been decided to give the patient a bismuth compound, it would be well to avoid arsphenamine for the time being. If the eruption tends to fade out during this interim, it would tend to support the diagnosis of arsenical eruption. On the other hand, if no material change is noted during the bismuth treatment the likelihood of a keratoderma must be considered. For this, hot water soaks for a half an hour each day, followed by the application of increasing strengths of salicylic acid ointment, would seem warranted, starting with a 3 to 5 per cent salicylic acid ointment and increasing according to the patient's tolerance.

#### LOW BLOOD SUGAR

*To the Editor*—I should like to know of instances of extremely low blood sugars. What is the lowest that has been reported?

BEN HICKS METCALF, M.D., Ruskin, Fla.

**ANSWER**—Complete absence of detectable sugar in the blood has been reported by Wagner and Parnas (*Ztschr. f. d. ges. exper. Med.* 25:361, 1921).

Seale Harris (*Endocrinology* 16:29 [Jan.-Feb.] 1932) has reviewed all the cases of spontaneous hypoglycemia that have appeared in the American and Canadian literature up to June 1931. Some more recent reports are as follows:

Rabinovitch, Jacob and Barden, F. W. *Am. J. M. Sc.* 184:494 (Oct.) 1932.

Bowen, B. D. and Beck, G. M. *Ann. Int. Med.* 6:1412 (May) 1933.

Judd, E. S., Kepler, E. J. and Rynearson, E. H. *Am. J. Surg.* 24:345 (May) 1934.

Moore, Henry O. Farrell, W. R. and Headon, M. F. *Brit. M. J.* 1:225 (Feb. 10) 1934.

Zeckwer, Isolde T. Hypoglycemia in Diabetes Associated with Obstruction of the Pancreatic Duct. *Arch. Int. Med.* 64:330 (Sept.) 1934.



## AUTOINTOXICATION

*To the Editor*—The subjects of systemic infection from the colon and the absorption of fecal toxins from the colon are of great interest and dissatisfaction to me. Papers in which therapy of a wide range of disease states is discussed often include the statement that the bowels should be regulated or 'constipation combated'. Often the recommendation is made that the colon be 'cleaned out' by the use of purges or enemas. I assume that the mere fact of existence of the human race today should in itself offset the theory that fecal toxins are absorbed by the colon thus providing the soil for the development of disease states degenerative chronic or acute. I assume further that biologic selective action has resulted in producing a human race that is more or less immune to or resistant to the process of absorbing bacteria and their toxins from the colonic wall. I wish to know the mechanism whereby catharsis is thought to be of value in the therapy of infectious disease states when the specific causative organism is known and which has no connection with the colon near or remote bacteriologically or anatomically. If absorption of toxins actually occurs from the contents of the colon is there any evidence whatever that a colon cleaned out by catharsis or enemas is any the less potent as a source of systemic toxemia? Actually is there any such disease state or entity as intestinal toxemia or autointoxication? If so how are these states diagnosed? The conclusion is becoming rather fixed in my mind as the result of my own experiences that catharsis and enemas do not appreciably change the picture of the typical routine course of most systemic disturbances of whatever nature. It appears further to me that constipation is often the result of deficient water intake and that catharsis aggravates the deficiency. The proponents of the autointoxication theory have often impressed me by the vehemence of their assertions but I should like to know of some carefully controlled unprejudiced research work to back up their dogmatic theories. Please omit name. M D

*ANSWER*—There is no well defined disease entity of 'intestinal toxemia' or autointoxication. Even the concept of 'biliousness,' so definitely and eloquently described by our forefathers in medicine has been abandoned. There is no carefully controlled unprejudiced research to substantiate the autointoxication theory. So far as we know constipation is prone to produce mechanical and reflex disturbances rather than chemical injury. Patients with infectious diseases usually get along quite as well, if not better without the customary 'cleanout'. There is no evidence that either cathartics or enemas make the colon contents less toxic.

## CAUSE OF POSTOPERATIVE SHOCK

*To the Editor*—R. A. a man aged 23 came to my office with a history of abdominal pain in the right lower quadrant of four days duration. Examination revealed typical symptoms of a perforated appendix. The temperature was 101 F the leukocytes numbered 26,000 and polymorphonuclears were 83 per cent. Operation showed a ruptured appendix not localized, with free pus in the pelvis. The post-operative course for five days was apparently uneventful. Distention and vomiting appeared gradually with an increase in temperature to 102. This was treated for a day by a continuous gastric tube and lavage hypodermoclysis of dextrose and saline solution as well as with ampoules of pitressin. This appeared to be of some help. Most of the distention disappeared and the patient had a good bowel movement. In two days the distention began again to appear and the same procedure that had been used intermittently for the past two days was used continuously that day. The patient appeared to be in good condition and had small bowel movements mostly liquid and distention appeared to be only moderate when a stomach tube and pitressin with adjuvant treatment was used. However it was thought best not to delay and an ileostomy was performed liberating a great deal of liquid and some gas. It was found that plastic adhesions of fibrin had formed about the intestine near the appendix causing a partial obstruction. This was not treated at the time. Operation was done quickly with the least possible trauma and disturbance of the bowel. The patient was returned to the ward apparently in good condition but a few hours later appeared to go into deep shock. The temperature gradually rose until twelve hours after operation it was 108. The pulse rate was 160 and respiration 32. The patient died at this time. The usual stimulants—pitressin, epinephrine, intravenous dextrose and saline solution—did not have the slightest effect. I have seen and had several similar cases. What is the cause of the profound cardiovascular collapse which apparently does not respond at all to any stimulation. What is the cause of the excessive stimulation of the heat center? Would slow emptying of the intestine prevent the profound shock? What operative or other treatment would you suggest in the treatment of this type of case beyond possible earlier performance of an ileostomy? Kindly omit name and address.

M D New York

*ANSWER*—As stated the condition described is observed not infrequently. No generally accepted explanation has ever been offered. It is likely that the cause of death is not the same in all instances. The anesthetic that was used during the performance of the ileostomy is not stated. There is evidence that a person who is profoundly sick withstands spinal anesthesia very poorly. Circulatory collapse is apt to follow the giving of the usual amount of the anesthetic into the spinal canal. The use of large quantities of drugs that produce vasoconstriction such as epinephrine may in itself produce acute circulatory failure. It is not likely that slow emptying

of the intestine would have prevented the profound shock. As suggested the earlier performance of an ileostomy might have been of help. The employment of repeated small transfusions of blood in place of the using of vasoconstrictor drugs and of intravenous salt solution might have been of benefit.

In summary no entirely adequate explanation for the condition described is available at the present time.

## USE OF HEARING DEVICES

*To the Editor*—I would appreciate information as to the latest instrument to aid nerve deafness the price if possible and where I can obtain it. If there is more than one new model let me know about it. Mention only the ones that have proved a success.

L A COLEMAN M D Salisbury N C

*ANSWER*—Electrical hearing devices are often of considerable aid in cases of middle ear or conduction apparatus impairment but are of slight and sometimes no benefit when marked impairment of the auditory nerve or perception apparatus is present. It is difficult to say which is the latest instrument but there are several excellent ones on the market. Among them are the Audiphone, manufactured by the Western Electric Company, the Sonotone, produced by the Sonotone Corporation, the Acousticon, made by the Acousticon Corporation and the Fortiphone, distributed in this country by Mager and Guggelmann. Some of them, especially when supplied with a bone conduction attachment are expensive. In many instances one type of instrument will give better results than another, so that the individual should test a number of these instruments of various makes in order to decide in his case which gives the greater amplification and is best suited for his own particular ears. One cannot say that any one instrument has proved a greater success than another, because of the personal element just mentioned.

## CHRONIC ANKYLOSIS AFTER ARTHRITIS

*To the Editor*—A man aged 36 has ankylosis of the right knee from chronic gonorrheal arthritis. At present he is wearing a walking caliper. What do you consider the most effective of the following: bacteriophage, gonococcus vaccine (stock vaccine), milk products or intravenous products? The acute gonorrheal urethritis occurred about twenty years ago. He has had ankylosis for three years. Please omit name.

M D, Ohio

*ANSWER*—If the patient has had ankylosis of the right knee for three years there seems to be no indication for the products mentioned. The only curative measure now is arthroplasty which is a highly technical operation and must be done by a surgeon skilled in that type of operating.

In regard to the various products mentioned, one might parenthetically state that it is not so much the product used as the knowledge and experience in the use of each one that spells success or failure.

## LACERATION OF SPLENIC ARTERY

*To the Editor*—Please send me information on the present authentic method of treating a lacerated splenic artery. What is the recognized method in surgery today? Please omit name.

M D New York

*ANSWER*—A torn or lacerated splenic artery will usually result in extensive intra-abdominal hemorrhage. An emergency operation with ligation of the splenic artery and vein with splenectomy is the procedure of choice, otherwise, even if bleeding has stopped, a delayed hemorrhage may occur.

When hemorrhage is excessive and the patient will not stand the shock of splenectomy, a large gauze pack may be introduced to control the bleeding and gradually removed after a few days. This does not so satisfactorily control the hemorrhage, and infection may result through the wound.

## MANGANESE IN DIET

*To the Editor*—Is the element manganese now generally considered to be essential in the human diet? If so what is its function and is the daily requirement known? Has there been any work published on the subject since that of McCollum? Kindly omit name if this is printed in THE JOURNAL.

M D Wisconsin

*ANSWER*—There is no evidence at hand which would indicate that the element manganese is essential in the human diet. The work from the laboratory of McCollum at Johns Hopkins University and from Hart's laboratory at the University of Wisconsin would indicate that the absence of manganese in the diet of the rat leads to loss of fertility. There is no evidence, however that the average human diet is lacking in the element manganese.



## Medical Examinations and Licensure

### COMING EXAMINATIONS

**ALABAMA** Montgomery, June 24 26 Sec. Dr J N Baker 519 Dexter Ave. Montgomery

**AMERICAN BOARD OF PEDIATRICS** St Louis, Nov 19 Sec. Dr C A Aldrich 723 Elm St Winnetka Ill

**ARIZONA** Phoenix, July 2 Sec Dr J H Patterson 826 Security Bldg Phoenix

**CALIFORNIA** San Francisco July 8 11 and Los Angeles July 22 25 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento

**COLORADO** Denver, July 2 Sec Dr Harvey W Snyder 422 State Office Bldg Denver

**CONNECTICUT** Hartford July 9 10 Endorsement Hartford July 23 Sec Medical Examining Board Dr Thomas P Murdock 147 W Main St Meriden

**DISTRICT OF COLUMBIA** Washington July 8 9 Sec Commission on Licensure Dr George C Ruhland 203 District Bldg Washington

**HAWAII** Honolulu July 8-11 Sec. Dr James A Morgan 48 Young Bldg Honolulu

**ILLINOIS** Chicago June 25 28 Address Department of Registration and Education Springfield

**INDIANA** Indianapolis June 25 27 Sec Board of Medical Registration and Examination Dr William R Davidson Room 5 State House Annex Indianapolis

**MAINE** Augusta July 23 Sec Board of Registration of Medicine Dr Adam P Leighton Jr 192 State St Portland

**MASSACHUSETTS** Boston July 9 11 Sec Board of Registration in Medicine, Dr Stephen Rushmore 413 State House Boston

**MISSISSIPPI** Jackson June 25 26 Asst Sec State Board of Health Dr R N Whitfield Jackson

**NATIONAL BOARD OF MEDICAL EXAMINERS** The examination will be held in all centers where there are class A medical schools and five or more candidates desiring to take the examination June 24 26 and Sept 16-18 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

**NEVADA** Reno Aug 5 Sec Dr Edward E Hamer Carson City

**NEW YORK** Albany Buffalo New York and Syracuse June 24 27 Chief Professional Examinations Bureau Mr Herbert J Hamilton Room 315 Education Bldg Albany

**NORTH DAKOTA** Grand Forks July 2 5 Sec Dr G M Williamson 4 1/2 S 3d St Grand Forks

**PENNSYLVANIA** *Written* Philadelphia and Pittsburgh July 9 11 *Bedside* Philadelphia July 12 13 Dir Bureau of Professional Licensing Mr W M Denison 400 Education Bldg Harrisburg

**RHODE ISLAND** Providence July 2 3 Dir Department of Public Health Dr E A McLaughlin 319 State Office Bldg Providence

**SOUTH CAROLINA** Columbia June 25 Sec Dr A Earle Boozer 505 Saluda Ave Columbia

**SOUTH DAKOTA** Rapid City July 16-17 Dir Division of Medical Licensure Dr Park B Jenkins Pierre

**UTAH** Salt Lake City July 8 10 Dir Department of Registration, Mr S W Golding 326 State Capitol Bldg Salt Lake City

**VERMONT** Burlington June 26-28 Sec, Board of Medical Registration Dr W Scott Nay Underhill

**WASHINGTON** *Basic Science* Seattle July 11 12 *Medical* Seattle July 15 17 Dir Department of Licenses Mr Harry C Huse Olympia

**WEST VIRGINIA** Clarksburg July 8 State Health Commissioner, Dr Arthur E McClue Charleston

**WISCONSIN** Milwaukee June 25 28 Sec Dr Robert E. Flynn 401 Main St LaCrosse

### Pennsylvania January Examination

Mr W M Denison, director, Bureau of Professional Licensing, reports the examination held in Philadelphia, Jan 8-12, 1935. Forty-seven candidates were examined, all of whom passed. The following schools were represented

School	PASSED	Year Grad	Number Passed
George Washington University School of Medicine	(1933)		1
Georgetown University School of Medicine	(1933)		1
Howard University College of Medicine	(1933)		1
Emory University School of Medicine	(1927)		1
Northwestern University Medical School	(1934)		1
University of Kansas School of Medicine	(1933)		1
Harvard University Medical School	(1931) (1932)		2
University of Michigan Medical School	(1932)		1
Wayne University College of Medicine	(1934)		1
St. Louis University School of Medicine	(1933)		1
Long Island College of Medicine	(1932)		1
Syracuse University College of Medicine	(1933)		1
Hahnemann Med Col and Hosp of Philadelphia	(1930) (1933)		2
Jefferson Medical College of Philadelphia	(1931) (1933)		4
Temple University School of Medicine	(1933)		3
Univ of Pennsylvania School of Medicine	(1932) (1933)		8
University of Pittsburgh School of Medicine	(1933)		2
Woman's Medical College of Pennsylvania	(1933)		2
University of Toronto Faculty of Medicine	(1932)		1
Hessische Ludwigs Universität Medizinische Fakultät Gießen Germany	(1911)*		1
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása Budapest	(1929)*		1
Licentiate of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland	(1930)		1
Licentiate of the Royal College of Physicians of the Royal College of Surgeons Edinburgh and of the Royal Faculty of Physicians and Surgeons Glasgow	(1933)		2
School of Medicine of the Royal College of Surgeons Edinburgh	(1933)*		1

\* Verification of graduation in process

### Missouri Reciprocity and Endorsement Report

Dr E T McGaugh, state health commissioner, reports 12 physicians licensed by reciprocity and one physician licensed by endorsement at the meetings held in Jefferson City, Jan. 21 and Feb 7, 1935. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1933)		Arkansas
Hahnemann Medical College and Hospital Chicago	(1901)		Nebraska
Indiana University School of Medicine	(1926)		Indiana
University of Kansas School of Medicine	(1929)		Kansas
University of Louisville School of Medicine	(1924)		Virginia
(1934) Kentucky			
Tufts College Medical School	(1929)		Mass.
Creighton University School of Medicine	(1929)		Oklahoma
University of Cincinnati College of Medicine	(1933)		Ohio
Meharry Medical College	(1932)		Tennessee
University of Tennessee College of Medicine	(1932)		Tennessee
Baylor University College of Medicine	(1932)		N Dakota

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
St Louis University School of Medicine	(1933)		N B M Ex.

### Wyoming February Report

Dr W H Hasset, secretary, Wyoming State Board of Medical Examiners, reports the written examination held in Cheyenne, Feb 4 1935. The examination covered 14 subjects. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Three applicants were licensed by reciprocity. The following schools were represented

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School	(1934)		75
St Louis University School of Medicine	(1933)		86

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
State University of Iowa College of Medicine	(1929)		Iowa
University of Oregon Medical School	(1933)		California
Osteopath*			Colorado

\* Licensed to practice osteopathy and surgery

## Book Notices

**New and Nonofficial Remedies 1935** Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1 1935. Cloth. Price \$1.50. Pp 510. Chicago: American Medical Association 1935.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession. A glance at the list of the Council members and the long list of consultants appearing in the first part of the book gives ample warrant for the authority of the Council's selections.

Not only does the Council "accept" new preparations but from time to time it omits those which have been accepted but which have not with the lapse of time upheld their original promise of therapeutic merit. The list of omissions for 1934 shows that the Council has been mainly concerned in this respect with B acidophilus preparations and with antiseptics. Several preparations of each class have been omitted. The list of admissions does not reveal the presence of any preparation that promises to be epoch making in the sense that insulin was, for instance. However, the following newly accepted preparations are noteworthy, Carbarosone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug, supplementing the preliminary report of 1932), Hippuran and Diodrast, two different types of urographic contrast mediums. Carotene, the precursor of vitamin A, Dilaudid, a substitute for morphine. Neo-Synephrin Hydrochloride, which has a number of advantages as a vasoconstrictor over synephrin tartrate, and Diathane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N N R.

The description of products containing vitamins A and/or D have been revised to give the potencies in terms of the recently adopted pharmacopeial units, thus bringing some measure of uniformity into this heretofore chaotic field. No doubt the book will be revised next year to conform with the new Pharmacopeia in its entirety.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations and the biologic products are each preceded by a general discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplement or supplant.

Physicians who wish to know why a given proprietary is not described in New and Unofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N N R" of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A M A Chemical Laboratory and to articles that have appeared in THE JOURNAL.

**Psychology and Health.** By H. Bamister. M.Sc. Ph.D. Director of Psychological Studies in St. John's College, Cambridge. Cloth. Price \$2.50. Pp. 256. New York: The Macmillan Company. Cambridge, England: The University Press. 1935.

It has been a problem to find a book dealing with all of psychotherapy which could be used in classes or groups for social workers and nonspecializing physicians, but after reading the present volume the problem would seem to be at least temporarily solved. While the author is not a medical man, his grasp of the subject from all standpoints is unusually effective, particularly in view of the fact that his work is being done in England, where child guidance and mental hygiene are not stressed to the same degree to which they are in this country. One of the features that have invalidated so many of the books dealing with psychotherapy in the past has been the fact that short chapters usually fail to give a comprehensive and accurate point of view of each subject treated. For instance, the usual book on abnormal psychology might devote a chapter to the Freudian psychology but when the reader has finished with it he has only the idea that Freud has a point of view which is linked up with sex, which point of view has little to do with his own problems in life. Bamister, however, has devoted chapters to the Freudian and Adlerian concepts as well as to those of Janet and Jung, which are so simply written yet so full of valuable material that they might easily be read by the layman to his benefit and not to his bewilderment. In addition, the present volume is the first one that deals in a simple manner with the problems specifically facing the medical man. Of course, each of the subjects to which a chapter has been devoted can be studied more completely in the literature, and to some, such as invalidism, mental deficiency, suggestion, hypnosis, conversion hysteria, anxiety states, compulsions and obsessions, whole monographs have been devoted. While the chapter on the problem child and that dealing with infantile sexuality concern themselves with these subjects only from the point of view of a few small cases rather than with a general attempt to cover the whole field, the presentation should nevertheless reveal to the physician who is not actively engaged in psychiatry the fact that some technical approaches to these fields exist. The book concludes with several chapters on psychologic treatment and, since three chapters in the middle of the book deal with the relationship of mental hygiene to physical ailments, it might be well for the physician who is interested in the mental sphere of medicine, even though he is not a psychiatrist, to know that this book is in existence.

**The Herrmannsdorfer Sauerbruch Diet.** By Robert Wollheim and Walter H. Schaumsland. Ph.D. With a foreword by Joseph Alexander. M.D. Paper. Price \$1. Pp. 64. New York: Professional Scientific Service. 1935.

Considerable emphasis has been placed on the diet in the treatment of tuberculosis since the days of Hippocrates. During the centuries, numerous advocates of various diets have appeared only to disappear without leaving anything of value in the treatment of tuberculosis. There is no question that diet is essential in the treatment of any chronic disease. However, it must be kept under the control of the dietitians and the

physicians and out of the hands of the faddists. When properly used in conjunction with other forms of treatment, such as Wollheim and Schaumsland prescribe, it is capable of producing beneficial results in properly selected cases. The Gerson salt-free diet in the treatment of tuberculosis was introduced in 1923. Two years later, Sauerbruch and Herrmannsdorfer employed this diet but concluded that some changes were necessary, and this volume is a discussion of their modification. The diet has been found of most value in cases of tuberculosis of the skin. However, they also believe it to be of considerable value in tuberculosis of the bones and joints, genito-urinary tract, and lymph nodes. They also observe considerable improvement in some cases of pulmonary tuberculosis. Considerable space is given to the mechanism of the diet, and attention is called to the fact that it is not definitely understood because its underlying principles involve the whole field of body chemistry. One chapter, entitled "Notes for Physicians," calls attention to the importance of the general supervision of the treatment, characteristics of the diet, food element intake, fluid intake, medication and accessory therapies. In this chapter it is obvious that the authors do not depend on the diet alone in the treatment of tuberculosis. In other chapters such subjects as application of the diet, dietary rules, prohibited foods and notes for dietitians are discussed. The appendix which outlines the daily food schedule and calls attention to the differences between the Herrmannsdorfer-Sauerbruch and the Gerson diets, is very useful. Some space is given to recipes and to menus.

**Personal Hygiene Applied.** By Jesse Felling Williams. A.B. M.D. Professor of Physical Education Teachers College, Columbia University. Fifth edition. Cloth. Price \$2.25. Pp. 529 with 145 illustrations. Philadelphia & London: W. B. Saunders Company. 1934.

This book in its four earlier editions has deservedly been one of the most popular in the field of college hygiene. Interest is stimulated at the outset by a philosophical discussion of health and is sustained throughout the book by well chosen and exceptionally readable subject matter. In this as in most books there are some points to which exception might be taken. For example, there is what seems to be an undue emphasis on exercise as a health measure, and an unjustified prominence given to outdoor air and vaccines in the treatment of tuberculosis. Then, too, some of the statements concerning communicable diseases need revision. These are based on American Public Health Association standards of 1917, when the statement that there is no immunization against scarlet fever was correct. Such minor inaccuracies, however, become inconspicuous in comparison to the soundness of the general ideas and the great mass of specific information presented. The claims of thorough revision are apparently based on the omission of the sections on Christian science, chiropractic and osteopathy, the bringing down to date of several statistical tables, the revision of a few paragraphs, and the addition of a little new material. Possibly 2 or 3 per cent of the total subject matter is revised. This relatively little change from the previous edition, however, is no reflection on the quality of the book, which should continue to be useful for the instruction of college students on the subject of personal hygiene.

**Clinical Laboratory Methods and Diagnosis. A Textbook on Laboratory Procedures with Their Interpretation.** By R. B. H. Gradowohl. M.D. Director of the Gradowohl Laboratories, St. Louis. Cloth. Price \$8.50. Pp. 1028 with 352 illustrations. St. Louis: C. V. Mosby Company. 1935.

This book heralds the return of the larger and more comprehensive textbooks on clinical laboratory methods. For some time most of the current books on the subject have been concise treatises devoted particularly to interpretation of laboratory procedures. In this book the standard technique of accepted procedures is given in the strictest detail together with an interpretation of all data obtained by standard tests. The usual subjects of clinical laboratory methods are covered comprehensively. The chapters on hematology, bacteriology, parasitology and exotic pathology are, however, noteworthy in volume and completeness. An unusual chapter for a book of this type is a concise but adequate discussion of postmortem examinations. The text has been carefully edited and the illustrations are used to good advantage. The colored illustrations are particularly well done and greatly enhance the value of the descriptive

material. The technic of the various laboratory procedures is clearly described in a step by step manner so that even the novice will have no difficulty in carrying them out. The reader will find this book an unusually rich source of information on clinical laboratory procedures. Many valuable points and modifications of standard procedures are given that greatly facilitate otherwise laborious methods. The author is well qualified both by actual experience and by long years of teaching this subject to anticipate and supply useful data that are seldom found under one cover. As with most first editions, certain chapters have received undue emphasis, but this does not impair the general value of the book. The clinician and laboratory worker will find the book of the greatest value. It is questionable whether the general organization and manner of presentation lend themselves suitably in a textbook for the medical student on laboratory diagnosis as the courses are ordinarily arranged in the medical curriculum. Nevertheless the book is an unusually complete work on clinical laboratory methods and their interpretation and is a fertile source of information.

**Les migraines. Etude pathogénique clinique et thérapeutique.** Par Pasteur Vallery Radot, professeur agrégé à la Faculté de médecine de Paris et Jean Hamburger, interne des hôpitaux. Avec la collaboration de P. Blamoutier. Paper. Price 45 francs. Pp 231 with 4 illustrations. Paris: Masson & Co 1935.

This book closely resembles in its appearance and system of handling the various divisions of the subject in the monograph on urticaria written by Pasteur Vallery-Radot and Lucien Rouques in 1930. After a brief historical introduction there is an excellent description of the various forms of migraine including ophthalmic, simple, associated and certain unusual forms. This is followed by a long chapter on the pathogenesis in which various theories, such as spasms of cerebral blood vessels and sympathetic irritation are discussed. The next chapter deals with studies of the blood and biologic researches both during and between attacks. The fifth chapter treats the etiologic factors. After discussing heredity and endocrinology in relation to migraine, the authors spend considerable time on biliary migraine, which, they believe is an extremely common form of migraine and for which they prescribe quite enthusiastically repeated duodenal drainage after the fashion of Lyon. The authors are lukewarm toward the American idea that allergic or, as they call it, "anaphylactic" migraine is an important group. In their experience true allergic migraine is rare and they discuss at length the poor results obtained by the American investigators in connection with skin tests. They believe that the good results obtained in some cases by dietary manipulation is due, for the most part, to a lessening of biliary and hepatic infections, although they admit that there are some cases of true allergic hypersensitivity to one or more foods. There is a rather extensive chapter on the relationship between migraine and epilepsy. The chapter on the treatment of migraine is surprisingly small and adds nothing to our knowledge, except for its emphasis on repeated duodenal lavage. The book is well written, the description of attacks is exceptional, the headings are clear and the discussions are easily understandable. The tone of the book is quite conservative and the authors take great exception to some of the more radical reports, especially those emanating from certain American investigators.

**Diabetes Mellitus and Obesity.** By Garfield G. Duncan, M.D., C.M. Associate in Medicine in the Jefferson Medical College, Philadelphia. With an introduction by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College. Cloth. Price \$2.75. Pp 215 with 9 illustrations. Philadelphia: Lea & Febiger 1935.

This small volume contains an excellent summary of the practical essentials necessary for the proper handling of the diabetic and the obese patient. The author adheres to the Allen and Joslin dietary formulas, but his discussion is sufficiently broad to make the book useful to those desiring to use any other dietary regimen. The work is to be commended for its concern with the individual variability of the patient and its completeness as regards the inclusion of the various vicissitudes that require some modification of routine therapy. Many illustrative examples and tables of food values, are included. The desire for brevity has admittedly rendered the theoretical discussion somewhat dogmatic. Because of the fact also that this discussion is rather conservative in tone, one can hardly recom-

mend the volume as a good source of present day theory. However, the theory given is adequate for its intended purpose, namely, as a background for the practical considerations. And any shortcomings in this respect are far outweighed by the evident experience and common sense which the author brings to bear on his subject.

**Fracastor Syphilis or the French Disease. A Poem in Latin Hexameters.** By Girolamo Fracastoro. With a translation notes and appendix. By Heneage Wynne Finch, M.A. and an introduction by James Johnston. Abraham CBE DSO M.A. Cloth. Price 10/6. Pp 253 with 10 illustrations. London: William Heinemann Ltd. 1935.

This gives first a brief and interesting account of the history of syphilis and a particularly attractive sketch of the life of Fracastor. Fracastor is one of those men whose name by a trick of history has been immortalized through its association with a great fact. Fracastor suggested the name syphilis which physicians took up with eagerness for a disease that they could not before better describe than by laying the disease on their neighbors. The name syphilis which was first used in his famous poem, has held ever since. But in a way this was not altogether fortunate for Fracastor, because it has led the world to overlook that he was one of the foremost men of his time. In a period of great men he was not only one of the most penetrating students of syphilis but was centuries ahead of his time in his insight into the origin of contagions and had a greater claim to fame in that he first clearly suggested the microbic origin of contagious diseases. Before Galileo he tried using compound lenses for making a telescope for viewing the heavens. And he was a Latin poet of such distinction that he had the praise of Bacon, Pope and Hallam. As Wynne-Finch says of his verse, 'It is not too much to say that he was an almost perfect writer of the hexameter, proving, as Virgil had done before him, how delightful and varied a melody it was capable of in the hands of a master'. In short Fracastor is worth knowing, and there is no place where knowledge of him can be gotten more easily than in this work.

But the main value of the book lies in the translation of "The Syphilis". The translator has wisely avoided the temptation to put it in verse, but he has put it into beautiful poetic prose. He has attained the rare achievement of giving the spirit as well as the substance of the poem. Take the following chosen almost at random: 'Urania, thou knowest the causes of things, thou knowest the stars and the manifold motions of the heavens and the shores of the sky, Grant me thy presence, and sport with me in the peaceful shade, whilst soft breezes whisper and the myrtle woods answer my song and Benacus resounds from his hollow caverns. Tell me, Goddess, what causes after so many ages brought forth for us this unaccustomed disease? Was it borne by the Western Sea, and so came to our world at the time when a chosen band set sail from the shores of Spain, and dared to attack the foam and the unknown waters of the wandering ocean and search out lands lying in a new world?'

The present translation is a delight.

**A Diabetic Guide Written Primarily for the Doctor's Patient and with Suggestions to the Doctor for Assisting Him.** By Samuel Evans Massengill, M.D. Third edition. Cloth. Price \$2. Pp 214 with illustrations. Bristol, Tenn.: S. E. Massengill Company 1934.

The problem of successfully treating diabetes primarily involves teaching the patient to care for himself. The help of the physician is indispensable at times of emergencies, if and when these arise, but the patient must learn the day to day management if he is to do as well as he ought to do. The numerous manuals, primers and guides that have appeared in recent years bear witness to the general acceptance of this principle. Dr. Massengill in preparing his guide has followed the general plan of earlier books of this nature, covering the material in a manner that is readily intelligible to the layman. Food tables and recipes are included. A chapter is taken up with brief notes on various complications of diabetes, and such subjects as marriage, sleep, tobacco and vacations. The author adheres to the diet plan advocated by those who believe in moderate restriction of carbohydrate and the supplying of enough fat to provide the calories required by the individual. Alcohol is found useful sometimes to increase appetite and has a place in rendering more comfortable the disturbances of chronic disease and old age. The procedure advocated is sound, the book is well written and it can safely be recommended.

**Corrective Rhinoplastic Surgery** By Joseph Nathan M.D. Attending Plastic Surgeon Sydenham Hospital New York City Cloth Price \$9 Pp. 218 with 242 Illustrations by Joseph Farnon M.D. New York Paul B Hoeber Inc. 1935

In his introduction the author defines the scope of his book as embracing "types of nasal deformity commonly met with in times of peace, with congenital enlargement of the entire nose or any of its component parts, and with congenital or traumatic deficiencies and displacements." He has succeeded in presenting the subject in a clear and graphic manner. The technique of most of the procedures follows that described by Joseph who is given full credit. Certain innovations and modifications suggested by the author are timely and helpful. The text is sufficiently detailed on all phases of the subject matter with the possible exception of the chapter on nasal fractures which might have been given a little more extensive discussion in view of its importance. The chapter on saddle nose, on the other hand is particularly thorough and leaves nothing to be desired. The author is eminently fair in his estimate of the type of operation best suited to the different varieties of saddle nose and reflects the best opinions of the day. The illustrations and drawings bring out certain details of technique that are more or less obscure in most books on this subject. While it is true that one cannot become a plastic surgeon merely by the reading of books it is also true that the surgeon with a knowledge of fundamentals and only a limited experience can be enormously assisted in carrying out heretofore unfamiliar procedures. This excellent work merits the enthusiastic reception not only of those who are doing this type of work exclusively but of rhinologic surgeons in general.

**Growth and Development of the Young Child** By Winifred Rand A.B. B.N. Specialist in Parental Education at the Merrill Palmer School Detroit Mary E. Sweeney M.S. M.A. Nutritionist at the Merrill Palmer School Detroit and E. Lee Vincent Ph.D. Psychologist at the Merrill Palmer School Detroit Second edition Cloth Price \$2.75 Pp. 429 with 57 Illustrations Philadelphia & London W. B. Saunders Company 1934

Many of the difficulties in the growth and development of children are directly traceable to maladjustments in family life. It is also true that antepartum care has a profound influence on postnatal growth and development. Nevertheless, such knowledge as is available at the present time concerning these matters is not as widely applied as it should be. Knowledge alone is of no value unless that knowledge is actually used in the antepartum care of the mother and in the guidance of the child during the first years of life, when his character is being formed. It is to supply this need for a simple but scientific presentation of antepartum care and the postnatal care of the child that this book was written. In the present edition have been included newly learned facts concerning the endocrine glands, new observations on growth during infancy and childhood, and the important advances made in feeding and nutrition. A chapter has been included on biologic development. Questions and exercises have been appended to each chapter to aid in the use of this book for teaching purposes. Teachers, students of child care, and parents all will find this book full of valuable material.

**A Survey of Industrial Mental Hygiene** Compiled under the auspices of the School of Medicine University of Pittsburgh by C. H. Henninger M.D. T. M. T. McKenna M.D. and Samuel C. Gomory M.D. Paper Pp. 140 Pittsburgh 1934

This is a volume consisting of numerous tabulations in which the relationship of mental disorders and physical disorders to industry is brought out. There are two points of view one treating of the psychiatric diagnosis in relation to the types of occupation and the second, a number of chapters reversing the process and showing the kinds of body injuries and mental symptoms that are related to physical defects, industrial accidents, compensation cases and industrial poisons. There is a part of a chapter dealing with mental symptoms in industrial poisoning. The chapters on mental deficiency in industry and neuroses and psychoses, consist largely of paragraphs defining the conditions and showing in one sentence the limitations of workers who are suffering from these diseases. A number of interesting points can be culled by an earnest perusal, but as a rule the material is too specific to be inspiring. For one who

is interested in industrial medicine, the volume should be of great interest, but, since nothing new in the way of treatment or analysis of industrial cases along mental hygiene lines has been developed this work would seem to serve the general practitioner and psychiatrists to only a limited extent.

**A Synopsis of Surgical Anatomy** By Alexander Lee McGregor M.Ch., F.R.C.S. Lecturer on Surgical Anatomy University of the Witwatersrand With a foreword by Sir Harold J. Stiles K.B.E. F.R.C.S. Second edition Cloth. Price \$6 Pp. 644 with 839 Illustrations Baltimore William Wood & Company 1934

Those who are not familiar with this textbook will find it one of the most originally conceived and written works of its kind. The author originally intended it as a compilation of anatomic facts of practical value for the senior student and practitioner. He made no pretense at completeness but endeavored to present in outline essay form discussions complete in themselves on important anatomic subjects. It is well illustrated with original and comprehensive diagrams. The plan is to present briefly the surgical anatomy of the normal and the abnormal. The book exemplifies the painstaking effort of a surgeon who desires to develop a concise and instructive epitome of surgical anatomy. It is highly recommended to the student and the practitioner who desire to relate the principal anatomic facts to their practical application in surgery.

**Curso práctico de fisiología** Por los Doctores Alejandro Lipschütz profesor de fisiología de la Universidad de Concepción Chile y Jaime Pl. Suñer Bajo del Instituto de fisiología de Barcelona Tomo I Biología y fisiología general Tomo II Movimientos secretorios y psico fisiología Paper Price 25 pesetas each Pp. 235 with 63 Illustrations 245 with 149 Illustrations Madrid Javier Morata 1934 1935

This extensive laboratory manual provides directions for a combined practical course in physiologic chemistry and physiology. Most of the conventional material in both branches is described in an understandable way, and a great deal of explanatory material not immediately related to practical exercises is included. There is a commendable emphasis on the physicochemical aspects of biochemistry. A good deal of attention is paid to experiments on the glands of internal secretion including exact descriptions of experiments on the gonads, in which field one of the authors has done a good deal of original investigation. The work as a whole suffers greatly from the absence of references to the original literature, although a great many names of investigators are mentioned. The large number of illustrations greatly enhances the value of the work to students and the inclusion of a considerable amount of discussion and collateral information makes the work an auxiliary textbook as well as a laboratory manual. It can serve as a useful basis for the fundamental training of medical students in the Latin American countries.

**The Autonomic Diseases or the Rheumatic Syndrome** By T. M. Rivers M.D. Cloth Price \$3 Pp. 299 Philadelphia Dorrance & Company Inc. 1934

In the study of the etiology of such diseases as arthritis the common cold, asthma and hay fever there is often a need for stretching one's imagination over a long range between cause and effect. Many times these distances are vague and too often blank. It is difficult to appreciate the relation between cause and effect. The author has therefore attempted to group the diseases that result from action of the causative agents through the autonomic nervous system. Since diseases of this class are productive of the greatest economic loss and suffering, any stimulating thought should be welcomed. The book, however, must be read critically and theory must always be dissociated from fact.

**General Ophthalmology A Short Treatise for Students and Practitioners** By S. A. Agatston M.D. F.A.C.S. Assistant Clinical Professor of Ophthalmology at the New York University Bellevue Hospital Medical School. Cloth Price \$2 Pp. 176 New York The Author 1935

This pocket size volume is a quiz compend type of outline covering the field of ophthalmology. It has no illustrations. Of necessity such a work cannot give a comprehensive discussion on any phase of the subject and can only serve as a guide for review in preparation for such examinations as are given by state boards or to applicants for internships. In our opinion, it is too brief and condensed to serve as a textbook for the teaching of ophthalmology.

## Medicolegal

**Malpractice Physician's Liability Not Removed by Award Under Workmen's Compensation Act**—The plaintiff was injured in the course of his employment. He himself employed and paid the defendant, a physician, to treat him. The injured workman, the insurance carrier, and the industrial commission effected a settlement of the workman's claim under the workmen's compensation act. The physician-defendant was not a party to the settlement, nor, since he had been employed and paid by the workman, was he in privity with the employer, on whose behalf the insurance carrier acted. Nevertheless, when his former patient instituted suit against him he pleaded that in the settlement the plaintiff, his patient, received compensation for all his injuries, including the injury alleged to have resulted from the defendant's treatment. In the district court, Wells County, the plaintiff's suit was dismissed, and he then appealed to the Supreme Court of Colorado.

The question is, said the Supreme Court, whether the settlement under the workmen's compensation act may be invoked by the physician defendant in absolution of the charge of malpractice against him. The purpose of the appeal was solely to determine the law governing the case. If that should be decided in favor of the plaintiff, the physician-defendant could then be called on to answer to the charge of malpractice.

The liability of a tortfeasor—such as a physician guilty of malpractice—is predicated on fault, the liability of an employer under the workmen's compensation act is predicated on relationship. What the plaintiff received from or through his employer under the workmen's compensation act was paid because of that relationship. What he seeks to recover from the physician-defendant is based on the latter's alleged fault. To the workmen's compensation act the physician defendant was a stranger, an outsider does not share the burdens of that act which are imposed on an employer, nor is he entitled to its benefits. The Supreme Court quoted from *Ruth v Witherspoon-Englar Co*, 98 Kan 179, 157 P 403, with approval, as follows:

Even if circumstances had been shown sufficient to charge the defendant with responsibility for the fault of the physicians, the rule would not be altered for liability under the compensation act cannot be made to depend upon the degree of care exercised. A part of the loss occasioned by an accidental injury to a workman is cast upon the employer, not as reparation for wrongdoing but on the theory that it should be treated as a part of the ordinary expense of operation. So much of an employee's incapacity as is the direct result of unskillful medical treatment does not arise 'out of and in the course of his employment within the meaning of that phrase as used in the statute.' For that part of his injury his remedy is against the persons answerable therefor under the general law of negligence, whether or not his employer be of the number.

To deny a remedy to the victim of malpractice simply because he has received compensation under the statute would be fraught with potential ill being. By the common law a physician or surgeon is beholden for injury to his patient resulting from malpractice. The court found no evidence to show that the legislature had abrogated the common law remedy and held that 'to allow orthodox determination is only just to plaintiff and is not unfair to the defendant.' The order of the district court, sustaining a demurrer in favor of the defendant, was reversed.—*Froid v Knowles (Colo)*, 36 P (2d) 156

**Marriage Annulment for Impotence**—The petitioner sued for the annulment of her marriage on the ground that her husband was at the time of marriage physically and incurably impotent. From a decree in her favor, her husband appealed to the Court of Errors and Appeals of New Jersey. The parties were married on Aug 28, 1932, and separated Nov 2 1932. A proceeding for annulment was begun Nov 10, 1932. It was conceded that the husband was from a sexual standpoint competent, except for prematurity of emissions. That prematurity, he contended, was not due to any defect on his part but 'to nervous resistance and assertions of pain by the petitioner.' The petitioner, said the Court of Errors and Appeals falls short in her essential proofs. There was no proof of impotence other than the fact that the marriage had not been consummated, and the petitioner's recital of the reason for its nonconsummation stood alone, uncorroborated. The peti-

tioner's proofs were deficient, too, in that they did not show that the impotence, if it existed at all, was incurable, and incurability is an essential characteristic of such impotence. It affords a legal ground for a decree of nullity. The petitioner made the charge, and the burden was on her to prove it. No proofs were offered of incurability of impotence, if impotence existed at all, and no proofs from which incurability could be presumed.

On a showing, however, of continued cohabitation, the wife, meanwhile remaining a virgin, the husband will be presumed to be impotent and the burden will be on him to overcome the presumption by proof that he is not at fault. How long a time must elapse before that presumption will begin to operate, the court had never decided and did not feel warranted in deciding in the present case. It was, however, clearly of the opinion that 'having regard for the vicissitudes of life, a period of two months is wholly inadequate to cause the presumption to arise.' As the petitioner did not prove her case the decree of nullity entered in her favor by the court of chancery was reversed.—*Heller v Heller (N J)*, 174 A 573

**Medical Schools Classification by Licensing Board Lawful**—Under authority of Public Laws of New Jersey 1924, c 184, the state board of medical examiners adopted a resolution setting out the requirements to be met by a class. A medical college in seeking to obtain a license to operate a such a college. To review the proceedings of the board fixing a standard for such colleges, the College of Mecca of Chiropractic obtained a writ of certiorari from the supreme court of New Jersey. When the proceedings were dismissed by that court, the college appealed to the Court of Errors and Appeals of New Jersey. The college contended that the action of the board in fixing requirements for the licensing of colleges should be set aside because the statute under which the board acted was unconstitutional. It contended that there was no power in the state to compel any privately conducted school to meet any requirement, unless the school was conducted in a manner inimical to the public health, public safety or public morals. That the act constituted an unlawful delegation of legislative authority to the board, that the act was unlawful special or class legislation, and that the act violated article [amendment] 14, section 1, of the Constitution of the United States, forbidding any state to deprive any person of life, liberty or property without due process of law or to deny to any person within its jurisdiction the equal protection of the laws. The Court of Errors and Appeals, however, affirmed the judgment of dismissal entered by the supreme court, adopting the opinion of that court 'that the requirements of the statute were just and reasonable regulations, that the legislature was within its rights in passing the act and that the act 'does not offend against any constitutional provision'."—*College of Mecca of Chiropractic v State Board of Medical Examiners of New Jersey (N J)*, 174 A 562

## Society Proceedings

### COMING MEETINGS

American Association for the Study of Goiter, Salt Lake City June 24 26  
Dr W Blair Mosser 133 Biddle Street Kane Pa Secretary  
American Urological Association San Francisco, June 25 28 Dr Gilbert  
J Thomas 1009 Nicollet Avenue Minneapolis Secretary  
Maine Medical Association York Harbor June 23 25 Miss Rebekah  
Gardner 22 Arsenal Street Portland Secretary  
Minnesota State Medical Association Minneapolis June 24 26 Dr E. A  
Meyerding 11 West Summit Avenue St Paul Secretary  
Montana Medical Association of Helena July 2 3 Dr E G Balsam  
208 1/2 North Broadway Billings Secretary  
National Medical Association New Orleans, Aug 11 17 Dr C A  
Lanon 431 Green Street, South Brownsville Pennsylvania Secretary  
National Tuberculosis Association, Saranac Lake N Y, June 24 27 Dr  
Charles J Hatfield Henry Phipps Institute Philadelphia Secretary  
Northern Minnesota Medical Association Duluth Aug 12 13 Dr Oscar  
O Larsen Detroit Lakes Secretary  
North Pacific Pediatric Society Seattle August 9 10 Dr F H Douglass  
509 Olive Street Seattle Secretary  
Pacific Northwest Medical Association Spokane Wash June 27 29 Dr  
C W Countryman 407 Riverside Avenue Spokane Wash Secretary  
Washington State Medical Association Everett Aug 12 14 Dr Curtis  
H Thomson 1305 Fourth Avenue Seattle Secretary  
Wyoming State Medical Society Lander Aug 12 13 Dr Earl Whedon,  
50 North Main Street Shendan Secretary

## Current Medical Literature

### AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

#### American Heart Journal, St Louis

10: 425 566 (April) 1935

- \*Asynchronism in Contraction of Ventricles in So Called Common Type of Bundle Branch Block Its Bearing on Determination of Side of Significant Lesion and on Mechanism of Split First and Second Heart Sounds C C Wolferth and A Margolies Philadelphia—p 425
- New Method for Recording of Heart Sounds M M Schwarzschild and M D Feltenstein, New York—p 453
- \*Course of Rheumatic Heart Disease in Adults I Factors Pertaining to Age at Initial Infection Development of Cardiac Insufficiency Duration of Life and Cause of Death A C DeGraff and Claire Lingg New York introduction by A E Cohn New York—p 459
- Id II Influence of Type of Valvular Lesion on Course of Rheumatic Heart Disease A C DeGraff and Claire Lingg New York—p 478
- Rheumatic Heart Disease IV Life History of Severe Form of Disease D Davis and Soma Weiss Boston—p 486
- Two Step Test of Myocardial Function A M Master New York—p 495
- Circulatory Response to Exercise in Patients with Angina Pectoris Therapeutic Implications S H Proger W R Minnich and H Magendanz Boston—p 511
- \*Reestablishment of Cardiac Circulation During Progressive Coronary Occlusion Experimental Study on Dogs H F Robertson Boston—p 533
- Electrocardiogram in Brown Atrophy of Heart L N Katz O Saphir and H Strauss Chicago—p 542
- Effect of Digitalis on Appearance of Lead IV H Strauss and L N Katz, Chicago—p 546
- Gallbladder Heart Reflexes in Man Under Spinal Anesthesia R B Bettman and S H Rubinfeld Chicago—p 550

**Common Type of Bundle-Branch Block.**—Wolferth and Margolies made graphic studies of comparable time relations of certain events associated with the heart beat in the common type of bundle-branch block and various control cases. They found that a systolic bifid apex impulse can be recorded in some, but not in all, cases of bundle-branch block. It may also occur in cases without bundle branch block. Comparison of the interval between the beginning of the QRS complex and the beginning of the carotid pulse wave in cases with bundle-branch block, in normal controls and in cases of cardiac decompensation, indicates that ejection from the left ventricle is significantly delayed in the common type of bundle-branch block. The delay is associated with the particular type of aberrant spread of the excitatory process that occurs in the common type of bundle-branch block. Comparison of the intervals between the beginning of the QRS complex and the beginning of the C wave recorded from the veins immediately above the right clavicle in cases of the common type of bundle-branch block and normal controls shows no significant delay in bundle branch block. This suggests that in the common type of bundle-branch block there is no significant delay in the contraction of the right ventricle. In roentgen kymographic tracings of the aorta and pulmonary artery in the common type of bundle-branch block the interval between the beginning of the QRS complex and the beginning of the aortic pulse was prolonged in each case. In the normal controls with single first sounds, the differences in time between the beginning of the aortic and the pulmonary artery pulses fell within the limits of error of the method. In the cases with split first sounds, both with and without intraventricular conduction defects, the differences in time between the beginning of the aortic and the pulmonary artery pulses tended to be greater than in the control cases with single first sounds. The observations support the hypothesis that in the common type of bundle-branch block there is asynchronism in the beginning of ejection from the two ventricles owing to delay on the left side. The evidence also indicates that in some possibly all, cases with split first

sounds but without intraventricular conduction defect there is asynchronism in the beginning of ejection from the two ventricles. The association between asynchronism indicates that the split first sound has a right ventricular and a left ventricular component and that separation of these components is due to asynchronism in certain of the early phases of cardiac contraction in the two ventricles. Splitting of the second heart sound can be heard on auscultation and recorded in most cases of bundle-branch block. Splitting of the second heart sounds is due to asynchronism in closure of the two semilunar valves. In the common type of bundle-branch block, pulmonic closure usually precedes aortic closure. In cases with split second sounds but without intraventricular conduction defect, either aortic or pulmonic closure may come first. The evidence obtained is in accord with the hypothesis that the common type of bundle-branch block is due to delay in spread of the impulse on the left side. The view held by Eppinger and Rothberger and by Lewis is no longer tenable. No support was obtained for the statement that it is unjustifiable to attempt to localize the side of bundle-branch block from the direction of the major initial complex in the three limb leads of the electrocardiogram.

**Course of Rheumatic Heart Disease in Adults.**—DeGraff and Lingg describe the course of rheumatic heart disease, based on 644 patients who are dead, of a total of 1,633 patients who came under observation during ten years. Of these patients, 55.8 per cent were males and 44.2 per cent were females. Rheumatic heart disease usually existed alone (94.5 per cent) and was seldom combined with other etiologic types (5.5 per cent). The disease is one of childhood and early adult life, for it occurs and runs its course chiefly within the first four decades. After the age of 40 there is a small proportion of sufferers. Three fourths of those who survived to adult life are dead. The average age at initial infection is 17 years, at the first symptoms of cardiac insufficiency 28 years, at the first appearance of heart failure 30 years, and at death 33 years. That is, the average patient is infected at the age of 17 but will be free from symptoms and able to carry on ordinary physical activity for eleven years. He will then begin to suffer from diminished cardiac reserve, culminating in heart failure two years later. From this time to death, three years later, he is wholly an invalid or at least, in most cases, seriously incapacitated. The period of economic usefulness of a person afflicted with rheumatic heart disease is not more than eleven years after initial rheumatic infection, on the average, and in most cases less than nine years. Once symptoms of cardiac insufficiency appear, heart failure and death follow rapidly. Half of the patients suffer their first symptoms and failure and die within a period of from sixteen to twenty years, or between 20 and 40 years of age. To see even terminal stages of this disease after the age of 50 years is not a common experience. Death usually occurs as a result of a failing heart, but life is shortened in a fair proportion of cases by such conditions as subacute bacterial endocarditis, pneumonia and other diseases.

**Reestablishment of Cardiac Circulation During Progressive Coronary Occlusion.**—Robertson put the matter of cardiac nutrition during coronary obstruction to actual test in the living animal by producing gradual coronary occlusion and noting in what manner myocardial circulation was reestablished. There were two plausible routes by which these hearts could have been nourished, by the vascularized pericardial adhesions or by the vessels of Viessens or Thebesius. He found that little or no nutritive function developed in those channels known as the vessels of Viessens or Thebesius, which penetrate the myocardium from the heart cavities. Myocardial nutrition distinctly depended on the vessels contained in the pericardial adhesions. The microscopic studies, indicating little disturbance in the nutrition of the endocardial part of the myocardium, do not justify the conclusion that this part of the heart was fed by thebesian-like vessels. Intercoronary branches might have carried out this function. There was no evidence of an anastomosis developing between the epicardial or intercoronary vessels and the thoracic vessels by way of the aortic vasa vasorum to nourish these hearts.



# American J Obstetrics and Gynecology, St Louis

29 619 770 (May) 1935

- an the Mortality and Incidence of Cancer of Uterus Be Reduced? J A McGlinn Philadelphia—p 619
- redisposing Factor for Normal Onset of Labor Probable Role of Estrin S R M Reynolds Brooklyn—p 630
- physiology of Menstruation in Macacus Rhesus Monkeys I Influence of Follicular and Corpus Luteum Hormones II Effects of Anterior Pituitary Extracts F L Hisaw Madison Wis—p 638
- traumatic Neuritis in Puerperium A J B Tillman New York—p 660
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- roduction of an Active Endometrium in the Human Castrate T Neustaedter New York—p 680
- ow Calcium Tetany of the New Born as Problem for the Obstetrician A M Hellman and J L Rothstein New York—p 686
- etal Mortality in Relation to Labor A J Meyer Minneapolis—p 691
- arbiturates in Primiparous Labors J E Tritsch and R Brown New York—p 700
- extra Uterine Pregnancy Resume of One Hundred and Three Cases J E James Jr and H D Lafferty Philadelphia—p 711
- rophylaxis of Congenital Syphilis J F Coppolino Philadelphia—p 714
- ymphogranuloma Inguinale Carcinoma and Syphilis Triad of Diseases Occurring in One Patient P Bernstein New York—p 718
- ympos Apus with Associated Truncus Arteriosus Communis W C Hunter and H E Mackey Portland Ore—p 726
- ubromyoma of Rectovaginal Septum L C Scheffey and D M Farell Philadelphia—p 731
- elastatic Sarcoma in Ruptured Ovarian Cyst Complicating Pregnancy C S Barnes and F W Konzelmann Philadelphia—p 734
- ew Pessary for Treatment of Inoperable Prolapse of Uterus G Gellhorn St Louis—p 737
- ex Determination Test of Dorn and Sugarman D S Pankratz Memphis Tenn—p 740
- atality After an Interposition Operation C T Beecham Philadelphia—p 742
- ontaneous Rupture of Uterus During Pregnancy Following Previous Classic Cesarean Section M L Brandt New York—p 743
- uerperal Septicemia from Bacillus Welchii C A Gordon Brooklyn—p 745
- pinelli Operation Followed by Pregnancy and Labor W P Tew London Ont—p 747
- lensive Umbilical Hernia with Enterocystoma in New Born O Glass Newark N J—p 748
- New Catheter Apparatus M Leff New York—p 749
- ontaneous Rupture of Uterus at Sixth Month of Pregnancy F A Snidow University Va—p 751
- New Obstetric Forceps J E Garrison Birmingham Ala—p 752

## Predisposing Factor for Normal Onset of Labor—Rey-

olds points out that under the influence of estrogenic material the contractions of the uterus become increasingly coordinated and powerful in the latter part of gestation. Until this time the hormone influence of the substance is held in abeyance by virtue of the antagonistic action of the luteal hormone, progesterone, and possibly other hormones as well. As the ovum grows, uterine contractions become increasingly efficient, owing to the coordinating action of estrogenic substance and the marked degree of uterine distention. Later the uterine contractions become effective in expulsive force due in part at least to the shape of the full term uterus. The onset of labor may be determined by the time during gestation when the coordinated foregoing expulsive forces exceed the total restraining hormone and mechanical intra-uterine factors that make for the continuance of pregnancy. This statement should be regarded as a working hypothesis at best, in which the generalities are only approximate possibilities. The importance of the restraining influence of uterine emptying is suggested by the failure of Witherspoon to initiate labor by the administration of theelin near term.

**Barbiturates in Primiparous Labors**—In their study of 15 primiparas, Tritsch and Brown compared several barbiturates which were used in combination with other analgesic and amnesia-producing drugs. The drugs were diallylbarbituric acid, sodium iso amylethyl barbiturate and morphine, sodium iso amylethyl barbiturate and rectal ether, sodium allylpropyl barbiturate with a mixture of opium and alkaloids and sodium allylisopropyl barbiturate with scopolamine. No adverse effect of serious or permanent nature was observed on any of the infants. None of the mothers died and none developed any complications traceable to the use of an analgesic. The authors conclude that barbiturates used alone are apparently of less value for the relief of pain during labor and for the production of amnesia in labor than they are when combined with other drugs. Barbiturates combined with sedative or amnesia-producing drugs appear to accentuate and prolong their action.

The labors were shortest in the patients in whom the greatest degree of analgesia and amnesia were observed. Either by rectum used in conjunction with the barbiturates appears to delay labor to a degree. Barbiturates are excitants in about 25 per cent of all cases, and this condition is aggravated by the use of another excitant, such as scopolamine, and lessened by sedatives, such as a mixture of opium and alkaloids, and morphine. Apnea in the infants is more common when barbiturates are used during labor and is aggravated when a mixture of opium and alkaloids is used in addition. Considering safety of the mother and the infant, efficiency in producing analgesia and amnesia and simplicity of administration, the authors feel that the combination of sodium allylisopropyl barbiturate with scopolamine produced the most satisfactory results. Excitation produced by this combination is a deterring factor and requires special nursing care.

**Inability to Duplicate Results of Sex Determination Test**—In an attempt to duplicate the observations of Dorn and Sugarman, Pankratz studied four pregnant patients. The earliest specimen of morning urine used was that from a patient during the nineteenth week, and the latest during the thirty-ninth week of pregnancy. At various intervals injections of from 8 to 10 cc of pregnancy urine were made into the ear veins of selected young male rabbits and the testicles were excised and examined forty-eight hours later. Even when the animals were carefully selected as to age and descent of the testicles, there was considerable difference in the testicles of the controls. Spermatogenesis begins at a variable age, which cannot be accurately determined without histologic examination of the testicles. Difficulties were constantly encountered with experimental testicles in which spermatogenesis was not marked, and in some preparations there was a definite degeneration of some of the seminiferous tubules characterized by a large lumen and many pyknotic nuclei in the germinal epithelium. In a number of experiments a second injection of 10 cc. of pregnancy urine was made twenty-four hours after the first one. This did not affect the results as was found by later determinations. It was also noted that there was no correlation between enlargement of the testicles and active spermatogenesis. The observations agree in general with those of Daily, Curphey and Romer, and Murphy and De Reny. The author has been unable to duplicate the results obtained by Dorn and Sugarman with their sex determination test.

## American Journal of Psychiatry, New York

91 969 1214 (March) 1935

- Hyperthyroidism and Psychobiologic Reactions S Katzenellenbogen, Baltimore and F H Lutton Nashville Tenn—p 969
- Psychopathologic Effect of Drugs Affecting Vegetative System I. Adrenalin E Lindemann Iowa City—p 983
- \*Therapeutic Use of Dinitrophenol and 3 5 Dinitro-Orthocresol in Schizophrenia Preliminary Report. J M Looney and R G Hoskins Worcester Mass—p 1009
- Investigation of Polyuria in Schizophrenia F H Sleeper Worcester Mass—p 1019
- \*Blood Cerebrospinal Fluid Barrier in Mental Disorders Distribution Ratio of Calcium and Its Relation to That of Bromide and to Protein Content of Cerebrospinal Fluid D Rothschild and C N Hamberg Foxborough Mass—p 1033
- Some Impressions of British Psychiatry W Line Toronto—p 1059
- Etiology of Temporary Amnesia F H Leavitt, Philadelphia—p 1079
- Remarks Introductory to Symposium on Relation of Psychoanalysis to Psychiatry A A Brill New York—p 1089
- Psychoanalysis in Psychiatric Hospitals R M Chapman Towson Md—p 1093
- Relationship of Psychoanalysis to Psychiatry L E Hinsie New York—p 1103
- Psychiatric Training as a Prerequisite to Psychoanalytic Practice H S Sullivan New York—p 1117
- The Case of John Ruskin Study in Cyclothymia L J Bragman Syracuse N Y—p 1137
- Program for Determination of Therapeutic Effectiveness of Psychoanalytic Method C O Cheney and C Landis New York—p 1161
- Some Psychiatric Points of Interest in and About Washington H C Woolley Washington D C—p 1167

**Use of Dinitrophenol in Schizophrenia**—Looney and Hoskins studied the metabolic and therapeutic effects of 2 4 dinitrophenol and 3 5 dinitro-orthocresol administered consecutively to ten schizophrenic patients. Both drugs caused an increase in the rate of oxygen consumption with various other metabolic effects indicative of increased oxidative efficiency. The orthocresol proved to be the more potent but showed the property of causing discoloration of the skin and sclera. The thera-



putic results were indeterminate. Aside from the discoloration of the integument by the orthocresol neither drug, within the limits of dosage used, caused any perceptible harmful effects.

**Blood Cerebrospinal Fluid Barrier in Mental Disorders**—Rothschild and Hamberg investigated the distribution of calcium between blood and cerebrospinal fluid in 400 cases of mental disorder. In the schizophrenic group, 29 per cent of the calcium ratios were above 2.2 and 3 per cent were below 1.8. In neurosyphilis, 8 per cent of the calcium ratios were above 2.2 and 12.5 per cent were below 1.8. Low ratios occurred with greatest frequency in untreated dementia paralytica patients. The other groups showed a smaller proportion of abnormal results without any striking preponderance of increased or decreased values. The results were suggestive of a tendency toward decreased permeability of the blood cerebrospinal fluid barrier in schizophrenia and increased permeability in untreated dementia paralytica patients. There was a general correlation between the distribution ratios of calcium and bromide in schizophrenia, affective psychoses and untreated neurosyphilis. In the individual cases this correlation was frequently lacking. Low calcium ratios tended to occur in cases presenting increased amounts of protein in the cerebrospinal fluid and high ratios in cases showing decreased amounts of protein but this relationship was not consistent. The variations in the distribution ratio of calcium could not be accounted for by alterations in the protein content of the cerebrospinal fluid.

### American Journal of Public Health, New York

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### American Journal of Syphilis and Neurology, St. Louis

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- Experimental Study of the Problem of the Existence of an Invisible Form of Syphilitic Virus and of Spontaneous Spirochetosis in Rabbits A Beesemans J Van Haelst and H DeWilde Ghent Belgium translated by C A Neymann Chicago—p 161  
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Ocular Reactions Due to Arsphenamine Report of Twenty Cases J J Skirball and F M Thurmon, Boston—p 197  
Syphilis and Marriage Inquiry into Infectiousness of Semen of Patients Under Treatment for Syphilis S S Greenbaum S Katz and Anna Rule Philadelphia—p 210  
Psychosis Associated with Administration of Tryparsamide E. T. Hoverson Chicago—p 217  
Arterial Changes in the Brain in Childhood N W Winkelman Philadelphia and J L Eckel Buffalo—p 223  
Juvenile Paretic Neurosyphilis Studies I Clinical Course Including Prodromal Symptoms Nature of Onset Remissions and Duration W C Menninger Topeka Kan—p 238  
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**Ocular Reactions Due to Arsphenamine**—In the experience of Skirball and Thurmon the occurrence of pathologic changes in the optic nerve head, the vitreous body and the retina in patients with syphilis during arsphenamine therapy are so

clear cut and definite that they form an easily recognized and an extremely important clinical entity. There can be no doubt that these untoward manifestations are due to the toxic effect of the arsenical compounds. The changes are observed in both early and late syphilis. Recovery is usually complete if the condition is diagnosed early and proper management is instituted. The authors discuss the clinical progress of twenty patients with syphilis who have been carefully studied in the departments of ophthalmology and syphilis, in whom neuroretinitis and vitreous changes occurred during the course of arsphenamine therapy. Careful observation has shown that changes occurred definitely after the administration of arsphenamine and that recovery occurred after its discontinuance. Exacerbations recurred with the resumption of arsphenamine, and recovery again with its discontinuance. This observation in a series of cases carefully checked indicates that there is a definite toxic effect on the nerve structures of the eye caused by the administration of arsphenamine compounds. Since it is imperative for the treatment of early syphilis to be continuous, further treatment during this complication may be carried on with iodides and with preparations of bismuth or mercury without affecting the return of the ocular condition to normal.

**Psychosis Associated with Administration of Tryparsamide**—Hoverson reviews the work of the last two years at the Kankakee State Hospital with tryparsamide, in which time a total of more than 2,000 injections was given to more than 200 patients. He believes that the occurrence of visual complications has been overemphasized, while other more commonly occurring changes have been neglected. In contrast to the four patients who showed visual changes during the tryparsamide medication, six patients presented the symptoms of a toxic psychosis. It seems that certain toxic features detectable by abnormal mental reactions are just as common a danger of contraindication to the use of the drug as are the commonly described visual changes. The nature of the toxic reactions and the facility with which they are recognized make the condition rather easy to detect and to treat successfully. Even though these reactions can occur, they should not serve to discourage any one from prescribing tryparsamide when it seems to be indicated. The psychosis, or mental reactions, in such cases is abrupt in onset, and the mental reactions of the individual in question undergo a decided change in the space of a few hours or days. The reactions observed are those of delirium and usually vivid hallucinations of either the auditory or visual type, or even both, attendant on these hallucinations are definite fear reactions with restlessness and overactivity. On the removal of the offending agent there usually results an abatement of the symptoms, with eventual recovery. Not all toxic reactions resemble this picture, but most of the symptoms enumerated are usually present in some degree.

**Juvenile Paretic Neurosyphilis Studies**—Prodromal symptoms occur in juvenile dementia paralytica, but Menninger considers these the initial symptoms of the disease. Dulness was the most frequent initial mental symptom, and convulsions were the most frequent initial neurologic symptom. The type of onset of juvenile dementia paralytica varies with the native mental endowment of the individual. There are three distinct groups: (1) those with a marked feeble-minded state in which the onset is vague and it often is impossible to set a date or age as the time of onset, (2) the moderately feeble-minded children, who make an insidious but definite failure of previously learned accomplishments, and (3) the group of children who have a period of normal development prior to the onset of the disease. The nature of the onset in the great majority of cases is insidious and very gradual, so that an average of three years elapses between the time of onset and of examination. Occasionally the onset is sudden, with a convulsion, the development of paralysis or acute excitement. The clinical course of the disease is remarkably uniform, with the development of certain characteristic physical, neurologic and mental changes. Remissions are rare in juvenile dementia paralytica. While a small proportion of patients improve, and apparently in very rare instances spontaneously, there is no convincing record of a permanent remission. Cases with a basic feeble-minded state may become negative serologically but rarely improve otherwise. Rarely is clinical improvement spectacular as seen so commonly

in the acquired form of dementia paralytica, and often the improvement is only transient. The outcome of the disease is nearly always death, which occurs occasionally in convulsions and with a relatively short period of acute physical ill health, or more often in a long drawn out failure, with the formation of contractures and a terminal intercurrent respiratory infection. The average duration of the disease is from four to five years, as compared to an average duration of two years of adult dementia paralytica. Several cases of a duration of fifteen years or more are cited. In general, the cases with early onset have a longer duration than cases with late onset.

### Annals of Otol, Rhinol and Laryngology, St. Louis

43 945 1238 (Dec.) 1934

- Histology of Epithelium of Paranasal Sinuses Under Various Conditions J S Latta and R F Schall Omaha—p 945  
Pseudo-Abscess of the Brain Intracranial Disease During Otitis Media Simulating Encephalic Abscess J M Nielsen and C B Courville Los Angeles—p 972  
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Conservative Treatment in Diseases of the Ear J A Babbitt Philadelphia—p 1001  
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\*Ménière's Symptom Complex Medical Treatment A C Furstenberg, F H Lashmet and F Lathrop Ann Arbor Mich—p 1035  
Carcinoma of Tonsil Statistical Study of Two Hundred and Thirty Cases L A Schall Boston—p 1047  
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Innervation of Nasal Mucosa with Especial Reference to Its Afferent Supply K Christensen St Louis—p 1066  
Cavernous Sinus Thrombosis Recovery, Proved by Necropsy E R Lewis Los Angeles—p 1084  
Surgery of Great Superficial Petrosal Nerve Its Possible Relation to Some of the Pathology of Nasal and Paranasal Mucous Membranes E F Ziegelman San Francisco—p 1091  
\*Auditory Fatigue Including New Theory of Hearing Based on Experimental Findings E M Josephson New York—p 1103  
Significance of Larynx as an Index in Treatment of Pulmonary Tuberculosis C Rubenstein San Francisco—p 1114  
Obstacles Encountered in Electrocoagulation of Tonsils W J Yonker Oak Park Ill—p 1117  
Importance of Radical Ethmoidectomy and Sphenoidectomy in Relief of General and Ocular Diseases O Wilkinson Washington D C—p 1120

**Ménière's Symptom Complex**—Furstenberg and his associates assume from their experiments that the symptoms of Ménière's disease are due to the retention of sodium by the body. Apparently, the local tissues involved in Ménière's disease have either an increased avidity for sodium or an unusual sensitivity to it. The therapeutic indications are to permit as small an intake of sodium as is possible and to prevent the accumulation of sodium by the body. The former is easily attained by means of diet and the latter by the administration of acid-producing salts, such as ammonium chloride. When these two factors have been controlled, the intake of water does not need to be considered. The authors have successfully treated fourteen cases of typical Ménière's disease by this method. Each patient was carefully selected in an effort to rule out any obvious lesion, and every precaution was taken to eliminate psychic elements from the study. Each patient was hospitalized for a period of thirty days or more, and careful clinical and laboratory studies were made. Identical results were obtained for all patients. In no instance did the authors fail to produce an attack by the administration of sodium and not once were they disappointed in obtaining complete relief by their medical therapy. They are aware that presumptuous claims for medical therapy cannot be based on their meager statistics. Their desire is to suggest a new etiologic factor in the production of Ménière's disease and to express the hope that it may lead to further research in therapeutics. Their treatment consists of a diet low in salt content, unrestricted or forced protein and calories as indicated. As medication, 3 Gm. of ammonium chloride in capsules is given with each meal, three days on and two days off. The ammonium chloride can be given in this dosage indefinitely. They have had patients with nephritis receiving ammonium chloride in this manner for a period of five years. The intake of water should be unrestricted although excessive quantities of liquids should not be taken. An approximately neutral low sodium diet should be given including certain foods which the author mentions.

**Auditory Fatigue**—Josephson reports the paradoxical results obtained in a series of experiments undertaken to study fatigue of hearing, with especial reference to the part played by the auditory end organ. The results indicate that prolonged stimulation with submaximal intensities, designed to fatigue, result, on the contrary, in an increased acuity of hearing manifested by a lower threshold. It is shown that this paradoxical phenomenon is not obtained in ears in which the auditory accommodation mechanism of the middle ear is defective, and that to this mechanism there is to be attributed, in part, the increased acuity of hearing acquired by the trained ear. Fatigue manifested by a rise of threshold of intensity is described as the earliest sign of progressive deafness. A theory of the mechanism of hearing is advanced, which predicates the conversion of the mechanical energy of sound into electrical energy by the cochlea, and the stimulation of the end organs of the organ of Corti by the electrical audiofrequencies thus produced. The "cochlear spread currents" are thus interpreted as the direct stimulus giving rise to the action currents of the auditory nerve. An exception to the manifestation of auditory fatigue in cases diagnosed progressive deafness was found in a group of cases that presented varied neurologic signs. The most consistent of these was the head-neck past-pointing sign. These cases showed no rise in threshold following prolonged stimulation, indicating that the deafness was of central nervous type. These tests offer a differential sign between peripheral and central nerve deafness. With their aid the author has been enabled to isolate a type of case which on encephalography shows deformation of the ventricles but no definitely localizable lesion, which responds to spinal puncture and injection of air with a marked improvement in hearing, some cases with a restoration of hearing to almost normal, and a clearing up of tinnitus, with disappearance of the head-neck past-pointing sign and other neurologic signs.

### Archives of Neurology and Psychiatry, Chicago

33: 687 916 (April) 1935

- Corticospinal Fibers Arising in Premotor Area of Monkey Distribution of Bouton Terminations E C Hoff New Haven, Conn—p 687  
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\*The Pyknolepsies S E Jelliffe and J Notkin New York—p 752  
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\*Observations Following Left (Dominant) Temporal Lobectomy Report of Case J C Fox Jr and W J German New Haven Conn—p 791  
Phylogenetic Interpretation of Functions of Visual Cortex D G Marquis New Haven Conn—p 807  
Visual Pathways in Man with Particular Reference to Macular Representation W Penfield J P Evans and J A MacMillan, Montreal—p 816

**The Pyknolepsies**—Jelliffe and Notkin consider the relationship of pyknoleptic attacks to narcolepsy, hysteria, spasmophilia and epilepsy, especially to petit mal attacks. In their tabulation of 190 cases they have eliminated eighty-four as frankly epileptic. The only apparent reasons that they were reported under the heading pyknolepsy were the frequency and the relative shortness of the seizures. In pyknolepsies one is dealing with the old problem of general epilepsy. Most of the reasons offered by the various workers for creating a separate entity can hardly stand criticism. The disappearance of the attacks at the time of puberty cannot be considered a sufficient reason for classifying them as a separate entity. There are numerous cases of cryptogenetic epilepsy in which the attacks disappear at puberty, and there are at the same time numerous cases of pyknolepsy in which the attacks persist during adolescence and later. The matter of deterioration has been entirely overemphasized, as if the absence of deterioration in epilepsy were an exception to the rule. Strohmayer has pointed out that only 30 per cent of the patients with epilepsy show evidence of mental deterioration. Not all the patients with pyknolepsy

whose cases have been reported in the literature retained their mental integrity. The lack of therapeutic response to medicinal treatment has been held up by many investigators as a criterion for the consideration of pyknolepsy as an entity which has no relationship to epilepsy. In pyknolepsy, as in epilepsy in general, some of the patients respond to one and others to another form of therapy, while a number of patients remain refractory to any sort of therapy, as, for instance, do epileptic patients with petit mal attacks. Sometimes a psychologic approach may be helpful in certain cases. As to the etiology one is probably dealing with the same situation as in cryptogenetic epilepsy and the attacks are probably closely related to petit mal seizures. In some of the reported cases and in one of the authors' cases there was a definite history of an injury to the head; in other cases there was evidence of a previous inflammatory process in the central nervous system, and in a third group affective instability could be considered a responsible factor in the lowering of the threshold of convulsibility. There is, however, in addition, some factor that is responsible for the unusual frequency of the pyknoleptic attacks, perhaps some metabolic process may be responsible for the phenomenon. In all probability, as in epilepsy in general there is a multiplicity of etiologic factors. The authors therefore suggest the existence of various types of pyknolepsy, which, together with the narcolepsies affect epilepsies and other well known paroxysmal disorders and make up the vast group of convulsive states.

**Observations Following Left Temporal Lobectomy.**—Fox and German resected the left temporal lobe of a right-handed man 3 cm. posterior to the junction of the rolandic and sylvian fissures for removal of an astroblastoma. Speech, vision, personality and restitution of function have been studied for fifteen months after operation. Analysis of the speech involvement revealed a deficient auditory receptive mechanism and impaired retention of auditory speech memories. In contrast to this, the visual mechanism suffered a relatively slight defect. It is concluded that the auditory component of speech is related to the dominant temporal lobe. The visual fields showed an upper quadrantic homonymous defect with the preservation of macular vision. An extensive macular representation in the optic radiation, similar to that found in the external geniculate body and calcarine area, is suggested. The principal personality changes were euphoria, some degree of emotional instability and slight reduction in drive. Functional recovery demonstrated two distinct phases: early, rapid improvement, probably related to edema and vascular changes produced by the operation and later a slowly progressive phase, apparently associated with reeducation, representing true restitution. The latter type of recovery indicates the establishment of new domains of integration.

### Archives of Ophthalmology, Chicago

13: 733-936 (May) 1935

- The Formation of Papilledema. H. Lauber. Warsaw, Poland.—p. 733  
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Etiology of Exophthalmos. Constitutional Factors with Particular Reference to Exophthalmic Goiter. W. A. Plummer and R. M. Wilder. Rochester, Minn.—p. 833  
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Dacryadenitis in Hyperthyroidism. A. B. Reese. New York.—p. 855  
Local Quinine Therapy in Old Corneal Opacities.—The encouraging results of quinine therapy in cases of trachoma natu-

rally suggested the use of the drug to Selinger in cases of interstitial keratitis and old corneal opacities resulting from interstitial keratitis and other causes. In cases of interstitial keratitis and old corneal opacities the 2 per cent ointment was used twice a day just before retiring and again in the morning. The ointment causes a burning sensation, which lasts for several minutes but becomes slight after the ointment has been used for several days. There is no cumulative action of the drug. The antagonists and incompatibles of quinine are copper, lead, zinc, mercury and their compounds, ammonia, alkalis, iodides and bromides and their salts, tannic acid and lime water, and should not be used during treatment with quinine. Among the synergists are iron, arsenic and mineral acids. Quinine, besides being a bactericide and an astringent, is a protoplasmic poison, which penetrates deeply into the tissues when applied locally to mucous membranes. It destroys leukocytes and lymphocytes and probably causes the absorption of abnormal tissue elements, such as newly formed connective tissue in the cornea. Quinine bisulphate ointment has a favorable influence on the course of interstitial keratitis and promotes clearing of old corneal opacities.

**Dacryadenitis in Hyperthyroidism.**—Reese examined the extra-ocular muscles of two patients with progressive exophthalmos following thyroidectomy, whose postoperative basal metabolic rates were minus. In each instance the changes in the muscles were identical with those described by Naffziger. It was noted, however, that the lesions may be limited to one or several of the muscles, therefore, from an examination of one muscle or even of several muscles it cannot be stated that these changes are not present in a given case. Lesions similar to those in the muscles were observed in the lacrimal glands and were histologically identical. The glandular tissue was in all stages of degeneration and was being replaced by edematous fibrous tissue, throughout which were numerous lymphocytes. In places the lymphocytes were aggregated to form foci of considerable size. In other words, there appeared to be no diffuse orbital inflammation nor was there evidence that the inflammation had spread from one site to the other. The observation of dacryadenitis in the cases seems to explain the presence of the enlarged and easily palpable lacrimal glands noted by Naffziger in four of his six cases. It is not uncommon in a case of exophthalmic goiter to see a partial prolapse of the lacrimal gland when the patient looks down and the upper lid is pulled up. An enlargement of the gland may be at least partly responsible for the prolapse, and the enlargement itself may be due to dacryadenitis which in turn causes lacrimation, a not infrequent symptom in cases of hyperthyroidism.

### Colorado Medicine, Denver

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- Obstetrics. Prenatal Care. J. R. Evans. Denver.—p. 276  
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32: 353-432 (May) 1935

- Significance of Signs and Symptoms in Heart Disease. J. H. Brown. Colorado Springs.—p. 364  
\*Early Diagnosis of Circulatory Peripheral Diseases. H. C. Graves. Canon City.—p. 370  
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Surgical Management of Malignant Lesions of Colon and Rectum. G. B. Kent. Denver.—p. 378  
Does Denver Need a Sewage Disposal Plant? I. C. Hall. Denver.—p. 385

**Early Diagnosis of Circulatory Peripheral Diseases.**—Graves believes that alert inspection in the diagnosis of circulatory peripheral diseases shows the presence or absence of swelling, variations in color, pigmentation of the skin, presence or absence of sweating, and changes in the texture of the skin. Under the heading of inspection, attention should be called to the diagnostic importance of the angle of circulatory sufficiency. With the patient prone, the extremity should be moved slowly through a range of 180 degrees. If he has circulatory obstruc-

tion, the part will be swollen and cyanotic and show distended veins when dependent. As the part is slowly raised, the cyanosis and swelling will lessen and the prominence of the veins decrease until the angle of circulatory sufficiency has been reached. If the circulatory disturbance should be central and not peripheral, the angle of sufficiency will be close to the horizontal point. In organic peripheral obstruction the angle of sufficiency will be below the horizontal. Palpation is the next logical procedure in diagnosis. The palm of the hand should be able to differentiate any gross differences in temperature between the good side and the affected side or a more than normal drop in temperature as the extremity is palpated from the thigh downward. Palpation should recognize varices, differences in skin elasticity, alterations in skin sweating and any gross differences in pulse volume, particularly of the anterior tibial, the dorsalis pedis and the posterior tibial arteries. The skin is one of the most important heat regulating mechanisms. In the normal individual it will be highest on the trunk and head and progressively lower as one proceeds distally along the extremities. Furthermore, it will be slightly higher in men than in women. In estimating skin temperatures, the following regulatory elements must be considered: exercise, exposure, sweating and position. The skin of the extremities is responsible for heat regulation to a degree considerably more than 65 per cent. The control of this dissipation of body heat is considered to be the main function of the vasoconstrictor-gradient and the normal vasodilation level to 33 C (91.4 F) or more. The skin temperature under standard conditions of exposure should not be more than 10 degrees lower. Skin temperatures, under standard conditions, will be proportional to the circulatory rate and volume. The circulatory rate and volume will then be governed by the presence or absence of obstruction, functional or organic, in the adjacent peripheral vessels. Organic obstruction can be determined by the failure of vasodilator procedures to raise the skin temperature.

### Delaware State Medical Journal, Wilmington

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- The Seasponge as Postoperative Dressing Following Radical Mastectomy T Harrold Macon—p 119  
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### Indiana State Medical Assn. Journal, Indianapolis

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- Value of Radioscopy in Heart Disease C A Bishop South Bend—p 213  
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\*Gallbladder Disease Simulating Angina Pectoris L K Gould Fort Wayne—p 222  
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Value of Oxygen Therapy in Medicine A C Nickel Bluffton—p 234

### Gallbladder Disease Simulating Angina Pectoris—

Gould states that the innervation of the gallbladder is derived from the left vagus and from the splanchnic through the celiac plexus, the fibers of which arise from the sixth thoracic to the first lumbar region of the spinal cord. The heart, however, receives its innervation both from the vagus and from the fibers of the thoracic sympathetic system. Yoell shows the innervation of the gallbladder and how disorders here might, by irritating the central portion of the diaphragm and the distal branches of the phrenic nerve, the vagus nerve, the intrathoracic nerves and the celiac plexus, set up impulses that can thus be projected into sensory zones not usually affected by disease in this region.

In cases of cardiac disease, enlargement of the liver is the result of passive congestion but when due to chronic cholecystitis in a cardiopathic patient, one may naturally attribute its size and tenderness to stasis in consequence of the impeded circulation. It is this circumstance that renders the diagnosis of gallbladder disease difficult as a complication of cardiac lesions. A valuable sign of gallbladder disease of corroborative value in some cases is the so called Ewald's area of cutaneous hyperesthesia on the right lower part of the back just internal to the posterior edge of the scapula over the course of the tenth and eleventh intercostal nerves. The heart symptoms seen in gallbladder disease are due to the closely related innervation of the two organs and a toxic myocarditis due to the absorption of toxins from a chronically inflamed gallbladder. The alarming increase of coronary disease and an extremely heart conscious public demand exactitude in diagnosis and not an infliction on the patient of the distressing verdict of angina without the most careful study.

### Iowa State Medical Society Journal, Des Moines

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# Journal of Bone and Joint Surgery, Boston

17:267-510 (April) 1935

- Stimulation of Healing in Nonhealing Wounds by Allantoin Occurring in Maggot Secretions and of Wide Biologic Distribution W Robinson Washington D C—p 267
- Fractures of the Forearm Analysis of Four Hundred and Fifteen Cases with Especial Reference to Disabilities B J Hein Toledo Ohio—p 272
- End Results of Fractured Distal Radial Epiphysis A P Aitken Boston—p 302
- König's Operation in Treatment of Congenital Dislocation of Hip G J Epstein and N S Epstein Leningrad U S S R—p 309
- Arthrodesis for Tuberculosis of the Hip R I Harris Toronto—p 318
- Fractures and Dislocations of Cervical Spine O C Hudson Hempstead N Y—p 324
- Intracapsular Fractures of Neck of Femur Simple Method for Properly Placing Bone Graft J V Luck Los Angeles—p 332
- \*Injuries Involving the Ilium New Treatment S A Jahss New York—p 338
- Backward Displacement of Fifth Lumbar Vertebra Optical Illusion T A Willis Cleveland—p 347
- Separation of Capital Femoral Epiphysis A R MacAusland Boston—p 353
- Operative Treatment of Hollow Foot A Farkas Budapest Hungary—p 370
- Cartilaginous Inclusions in Rachitic Bones and Their Possible Relation ship to Cartilaginous Tumors P E McMaster Los Angeles—p 373
- Treatment of Fractures of Os Calcis H R Conn Akron Ohio—p 392
- Influence of Shoe on Gait as Recorded by Electrobasograph and Slow Motion Moving Pictures R P Schwartz A L Heath and W Wislisk Rochester N Y—p 406
- Source of Pain in Amputation Stumps in Relation to Rational Treatment A G Molotkoff Leningrad U S S R—p 419
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- Combined Anterior Posterior Approach to Knee Joint E F Cave Boston—p 427
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- Use of Jones Splint in Treatment of Fracture of Pelvis and of Neck of Femur Series of Forty Cases A J Langan San Pedro Calif—p 435
- Hip Joint Fusion and Shelf Operation P M Girard Dallas Texas—p 443
- Congenital Coxa Vara Report of Case J Zaremba Krakow Poland—p 450
- Transverse Wedge Arthrodesis for Relief of Pain in Rigid Flatfoot I Zadek New York—p 453
- Complete Spastic Paraplegia Due to Metastatic Abscess in Case of Chronic Osteomyelitis of Femur Spontaneous Recovery T F Jarman Cardiff Wales—p 468
- Metastatic Melanotic Tumor of Tibia C Lasserre Bordeaux France—p 471
- Method of Applying Traction in T and Y Fractures of Humerus R F Patterson Knoxville Tenn—p 476
- Exceptional Case of Undifferentiated Sarcoma of Humerus H B Thomas Chicago—p 478
- Fracture of Capitellum Report of Case M S Mazel Chicago—p 483
- Conservative Treatment of Fracture of Capitellum F Christopher and L F Bushnell Evanston Ill—p 489
- Torticollis Due to Aberrant Sternal Portion of Sternocleidomastoid Muscle W J Stewart Columbia Mo—p 493
- Light Inexpensive Frame for Transfixion Wire Traction on Fractures of Forearm and Leg E W Cleary San Francisco—p 494
- Modification of Bohler Walking Iron D Hand Boston—p 497
- Skeletal Blastomycosis Case Report S K Livingston Hines Ill—p 499

**Stimulation of Healing in Nonhealing Wounds**—Robinson has found that allantoin, a constituent of the urinary secretions of surgical maggots and of common occurrence in plants and animals, stimulates healing with abundant growth of healthy granulation tissue in slowly healing suppurative wounds. The excretion of this substance into the wound is doubtless one of the factors contributing to the remarkable healing effects obtained in maggot therapy, but the claim is not made that it can be substituted for maggots. Allantoin can be obtained commercially. It is bland, stable and harmless; it has no odor and is nonstaining. The treatment is simple, painless and inexpensive.

**Injuries Involving the Ilium**—Jahss used the lever principle in treating a case of fracture of the ascending and descending rami of the pubes, with displacement. Heavy felt padding was placed at the proximal medial ends of the thigh, over the heads of the fibulas and the lateral malleoli. Both lower extremities were immobilized in plaster from the groin to the toes with the knees in complete extension and the feet at an angle of about 90 degrees. The receptors for the turnbuckles were incorporated in the plaster proper. The greatest depth of the turnbuckle was exactly opposite to the direction of the force. All the receptors were placed medially. After the plaster

was absolutely dry, the limbs were moderately abducted. A closed turnbuckle was placed between the proximal receptors and an open turnbuckle, 17½ inches long, between the distal turnbuckles. The closed turnbuckle was then slowly opened. This made the ligaments of the hip joints tense and tended to pull the pelvis open, accomplished by the spreading of the upper ends of the plaster dressings, which acted on the upper ends of the femurs. The distal turnbuckle was then slowly closed. This was the effort end of the lever, the proximal turnbuckle acted only as the fulcrum. As a result of this action of the turnbuckles, the space between the upper ends of the thigh was widened and that between the lower ends of the legs lessened. Just how much force should be applied through the turnbuckles is problematic, but in the author's case the determining factors were the immediate relief of pain in the pubic region on coughing or sneezing and the correction shown in the roentgenogram. The reduction itself can be accomplished in the short time necessary to open one turnbuckle and close the other.

**Cartilaginous Inclusions in Rachitic Bones**—McMaster found separate islands of cartilage in spongiosa of bones removed at necropsy in a case of healed rickets and made clinical and experimental investigations to determine how frequently this occurs. Clinical material being scarce, the study was made from the material obtained in the reported case and in cases of experimentally produced rickets and from roentgenograms of clinical cases. In the author's case, cartilaginous inclusions in the epiphyses and metaphyses of the long bones, as well as in the ribs and vertebrae, were found. These inclusions, although fairly numerous, showed only faintly in the roentgenograms; hence such inclusions might easily be overlooked in clinical roentgen studies of rickets. In the experimental work on rats, cartilaginous inclusions were found in the metaphyseal, epiphyseal and cortical regions of bone in cases of healed rickets. Microscopic studies revealed that calcification was taking place in many of the inclusions. A few however appeared to be latent, with slight, if any, evidence of calcification, and contained cells somewhat similar to those seen in a normal zone of proliferation in an epiphyseal plate. This proliferating type of cell in these rachitic inclusions might possibly serve as the "nidus" for benign cartilaginous tumors of bone. In the case of fracture and rickets presented, the roentgenograms, taken after healing had occurred, showed a large expanded circumscribed area in the cortical region of the lower metaphysis of the femur suggestive of a rachitic cartilaginous inclusion. This disappeared two years later.

## Journal of Comparative Neurology, Philadelphia

61:191-406 (April 15) 1935 Partial Index

- Distribution of Sympathetic Nerve Fibers to Hind Limb of Cat, B I Burns Chicago—p 191
- Corticofugal Fiber Connections of Cortex of Macaca Mullatta Occipital Region F A Mettler Ithaca N Y—p 221
- Membranous Parts of the Brain, Meninges and Their Blood Vessels in Amblystoma C J Herrick Chicago—p 297
- Cortical Area Concerned with Coordinated Walking in Rat N R F Maier Ann Arbor Mich—p 395

## Journal of Experimental Medicine, New York

61:593-734 (May 1) 1935

- Relation of Leukosis to Sarcoma of Chickens I Sarcoma and Erythroleukosis (Strain 13) E L Stubbs Philadelphia and J Furth New York—p 593
- Extent of Local Dispersion of Infectious Agents as Factor in Resistance to Infection F Duran Reynals, New York—p 617
- Studies on Sensitization of Animals with Simple Chemical Compounds K Landsteiner and J Jacobs New York—p 643
- Fixation and Protection of Viruses by Cells of Susceptible Animals P Rous P D McMaster and S S Hudack, New York—p 657
- \*Encephalomyelitis Accompanied by Myelin Destruction Experimentally Produced in Monkeys T M Rivers and F F Schwenker New York—p 689
- Relation Between Type Specific Carbohydrates of Pneumococci and Blood Group Specific Substance A E Witebsky E Neter and H Sobotta New York—p 703
- Nutritional Edema in the Dog II Hypo-Albuminemia and Augmentation of Tissue Fluid A A Weech E Goettisch and E B Reeves New York—p 717

**Experimental Encephalomyelitis Accompanied by Myelin Destruction**—Rivers and Schwenker observed that the repeated intramuscular injections of aqueous emulsions and alcohol-ether extracts of sterile normal rabbit brains in some manner produced pathologic changes accompanied by myelin

destruction in the brains of seven of eight monkeys (*Macacus rhesus*). Eight control monkeys remained well. Cultures from the involved brains remained sterile, and no transmissible agent was demonstrated by means of intracerebral inoculations of emulsions of bits of the brains into monkeys, rabbits, guinea-pigs and white mice. The character of the lesions observed is such that one would suspect that an infectious agent caused them. Nevertheless the presence of such an agent could not be demonstrated by means of stains and cultures. Inoculation of monkeys, rabbits, guinea-pigs and mice with emulsions of the involved brains failed to disclose a transmissible agent. The fact that the control animals remained well seems to indicate clearly that the pathologic changes which occurred in the brains of the treated monkeys were in some manner either directly or indirectly, brought about as a result of the repeated intramuscular injections of aqueous emulsions and alcohol ether extracts of sterile normal rabbit brain. The relation of their results to the paralysis accompanied by destruction of myelin that is known to follow the repeated injections of emulsified rabbit brain containing fixed rabies virus used in the vaccination of human beings against rabies is not clear to the authors. Each of their animals received more injections than are used in the Pasteur treatment, the smallest number being forty-six and the largest eighty-five. Further work is under way to determine the nature and the mechanism of the production of such lesions.

### Journal of Immunology, Baltimore

28: 241-330 (April) 1935

- Some Observations on Question of Various Manifestations of Antibody Activity Being Due to Separate Antibodies or Immune Substance Acting Differently Under Various Conditions. F. H. Teale. London, England.—p. 241
- Role of Precipitin Antibody in Removal of Intravenously Injected Antigen. J. T. Culbertson. New York.—p. 279
- Immunologic Study of Effects of Intense Sound Vibrations on Egg Albumin. E. W. Florsdorf and L. A. Chambers. Philadelphia.—p. 297
- Ultramicro Technic for Precipitation and Agglutination Reactions. C. L. Hudson and S. Mudd. Philadelphia.—p. 311
- Flaring Up of Injection Sites in Allergic Guinea Pigs. L. Dienes and F. A. Simon. Boston.—p. 321

### Journal of Infectious Diseases, Chicago

56: 97-224 (March-April) 1935

- Cultivation of Facultative Acid Fast Bacteria from Filtrates of Rat Leprosy and of Human Leprosy. E. L. Walker and Marion A. Sweeney. San Francisco.—p. 97
- Antigenic Characteristics in Man of Certain Products of Pneumococcus. Comparison with Vaccine. L. D. Felton, W. D. Sutcliffe and B. F. Steele. Boston.—p. 101
- Complement Fixation and Opsonification Tests of Smooth and Rough Tubercle Bacilli with Serum of Patients Suffering from Different Grades of Tuberculosis. Ruth Tunnichiff, Katharine M. Howell and Nell Hirschberg. Chicago.—p. 111
- Presence of Roughness in Streptococcus Cultures from Endocarditis. Ruth Tunnichiff and Carrie I. Woolsey. Chicago.—p. 116
- \*Bacillary Dysentery in Infants and Children. Clinical and Bacteriologic Study of Thirty Five Cases. G. A. Denison and Gesina deHoll. Birmingham, Ala.—p. 124
- Effect of Splenectomy on a Latent Infection, Eperythrozoon Coccoides in White Mice. Jessie Marmorston. New York.—p. 142
- \*Latent Tuberculous Immune Bodies in Nontuberculous Individuals. A. B. Baker and M. Wetherby. Minneapolis.—p. 153
- Technical Errors in Studies of Bacterial Variation. The Metamorphosis of Streptococci into Spore-Bearing Rods. W. L. Holman and Arline E. Carson. Toronto.—p. 165
- Influence of Some Environmental Factors on Thermal Resistance of Bacterial Spores. H. R. Curran. Washington, D. C.—p. 196
- Use of Gelatin in Rapid Test Preparations of Bacteria Abortus Antigen Variations in Effect of Gelatin in Bacteria Abortus Antigen Preparations on Agglutination Titers of Bovine Serums. C. R. Donham and C. P. Fitch. St. Paul.—p. 203
- Resistance of Virus of Infectious Laryngotracheitis to Certain Physical and Chemical Factors. O. W. Schalm and J. R. Beach. Berkeley, Calif.—p. 210

**Bacillary Dysentery in Children**—Denison and deHoll state that the acute diarrheas of infancy should primarily be divided into gastro-intestinal infections almost invariably due to dysentery bacilli and gastro-intestinal disturbances of function from numerous causes. Before present classifications can be improved, bacillary dysentery must be completely removed from the other types. Infectious diarrheas are bacillary dysentery and should be so designated. Diagnosis should be supported by examination of the stools microscopically for pus and chemically for blood. The finding of these with few very

obvious exceptions, always means bacillary dysentery. The authors isolated 159 cultures showing fermentations characteristic of dysentery bacilli in the course of the study of thirty five cases of infectious diarrhea in children and infants. Of 142 of these tested, 116 were agglutinable in antisera for stock strains. Of seventy-two agglutinable cultures tested, fifty three were identified by complete and fifteen by partial absorption of agglutinins in antisera. Isolated strains corresponded to Y (Hiss), Mount Desert, WX, V and Sonne strains. An isolated strain (from one to six days) was identified by agglutinin absorption with fifteen strains from seven patients. Its antiserum was not appreciably affected by stock strains. It appears to be a member of the Flexner group, though not identical with any of the fifteen stock strains studied. Dysentery bacilli (Flexner group and Sonne) were isolated from twenty six patients with infectious diarrhea (74 per cent). From each of two patients two different strains were recovered. Dysentery bacilli were recovered from 63 per cent of the stools from which cultures were taken during the first five days of illness. After the fifth day the chances for recovering the organisms rapidly diminished, even though the majority of the stools continued to show blood and pus for fifteen days longer.

**Tuberculous Immune Bodies in Nontuberculous Persons**—Baker and Wetherby tested the blood of 100 consecutive adult patients with chronic arthritis with the complement fixation test for tuberculosis both before and after a course of intravenous vaccination with streptococci. Fifty-one of the patients showed a positive skin test with old tuberculin and a negative complement fixation test before the institution of any therapy. Of these twenty-six reacted positively to the complement fixation test after the intravenous streptococcus vaccination. This would indicate that specific tuberculous antibodies may be exfoliated into the circulation of patients who at some previous time had had a tuberculous infection as indicated by the positive skin test. If antibodies indicate in any way resistance against tuberculosis, the results would suggest a persistent protection against tuberculosis long after the original infection. Forty of the total patients showed a negative Mantoux test and a persistent negative complement fixation test for specific tuberculous antibodies after the intravenous streptococcus vaccination. The occasional positive complement fixation test for tuberculosis in apparently normal persons may be explained in some instances on the basis of a nonspecific exfoliation of antibodies produced during a previous tuberculous infection.

### Journal of Pediatrics, St. Louis

6: 427-602 (April) 1935

- Studies in Fat Metabolism. I. Fat Absorption in Normal Infants. L. E. Holt Jr., H. C. Tidwell, C. M. Kirk, Dorothea M. Cross and Sarah Neale. Baltimore.—p. 427
- Id. II. Fat Absorption in Premature Infants and Twins. H. C. Tidwell, L. E. Holt Jr., H. L. Farrow and Sarah Neale. Baltimore.—p. 481
- Studies in Infantile Allergic Eczema. II. Serum Lipids with Especial Reference to Saturation of Fatty Acids. H. K. Faber and Dorothy B. Roberts. San Francisco.—p. 490
- \*Effect of Fever Therapy on Rheumatic Carditis Associated with Chorea. Preliminary Report on Fever Therapy in Rheumatic Carditis Without Chorea. Lucy Porter Sutton and Katharine G. Dodge. New York.—p. 494
- Virus Encephalitis. E. L. Bauer. Philadelphia.—p. 512
- \*Soy Bean (Vegetable) Milk in Infant Feeding. Results of Three and One Half Years Study on Growth and Development of Two Hundred and Five Infants. F. Rittinger, L. H. Dembo and Gilberta G. Torrey. Cleveland.—p. 517
- Range and Standard Deviations of Certain Physical Measurements in Healthy Children. W. P. Lucas and Helen Brenton Pryor. San Francisco.—p. 533
- Effect of Placental Extract on the Dick Test. A. Ross. Montreal.—p. 546

**Fever Therapy in Rheumatic Carditis**—Sutton and Dodge present sixteen cases in which the diagnosis of active rheumatic carditis was justified. The patients were given artificial fever therapy produced by the intravenous injection of triple typhoid vaccine for a concurrent chorea. In nine of these patients, all clinical signs of activity had subsided by the end of treatment. In the others, signs were gone in from a week to ten days following the end of treatment. Two cases are presented of subacute rheumatic carditis without chorea. The



patients were given artificial fever therapy produced by radiant energy. In one patient the signs of rheumatic activity cleared immediately following one treatment but recurred again to a much lesser degree eight weeks later. She was given a second fever treatment and has shown no clinical evidence of activity since. The second patient improved following one treatment, but the signs of activity did not completely subside until after a second treatment two weeks after the first. The authors suggest that the use of fever therapy in forms of rheumatic fever other than chorea deserves further study.

**Soy Bean Milk in Infant Feeding**—Rittinger and his associates give the results of soy bean milk feeding over a period of three and one half years in 205 infants who were fed this "milk" over variable periods. Growth and development, weight gains and their general progress point to the adequacy of the milk as a prophylactic food. The preparations used have been shown to contain adequate amounts of the essential vitamins, and metabolic investigations have demonstrated a relatively high biologic value. Soy bean milk in combination with various percentages of skimmed milk protein affords a food of high nutritional availability. Blood studies have shown a normal range of calcium and phosphorus (serum), and roentgenologic studies demonstrate good bony development and texture with few exceptions. Signs suggestive of rickets in a few instances have not been corroborated clinically or serologically. The stool flora shows a high percentage of gram positive organisms thus resembling those of breast-fed infants. Soy bean milk is of practical value in the dietetic treatment of infantile eczema and in the treatment of constipation in infants by virtue of the roughage factor.

### Journal of Thoracic Surgery, St. Louis

4 335-444 (April) 1935

- Consideration of Dangers of Lobectomy E Archibald Montreal—p 335
- Lobectomy for Bronchiectasis in Children J V Bohrer New York—p 352
- \*Vascular Changes in Experimental Atelectasis Morphologic Physiologic and Biochemical W E Adams L Hrdina and L E Dostal Chicago—p 377
- Observations on Treatment of Empyema with Especial Reference to Drainage and Expansion of Lung O H Wangenstein Minneapolis—p 399
- Spinal Anesthesia in Thoracoplastic Operations for Pulmonary Tuberculosis H F Newton Boston—p 414
- Anatomy of the Diaphragm P E Truesdale Fall River Mass.—p 429
- Experimental Thoracogenic Scoliosis J D Bisgard Omaha—p 435

**Vascular Changes in Experimental Atelectasis**—Adams and his associates state that massive atelectasis of the lung is attended by an apparent increase in the vascularity of the tissue (passive congestion). Therefore the volume flow of blood in atelectatic tissue is decreased. In chronic atelectasis there is a gradual disintegration of the alveolar walls with the formation of channels leading from the circulating blood stream through the alveoli. This circulating blood reexpands the alveoli and may extend up the air passages into the smaller bronchioles. This phenomenon was first observed near the periphery of the lung parenchyma and round the larger bronchi. It was first seen in atelectasis of a duration of four weeks and slowly increased in amount. It was never observed to replace the usual architecture of atelectatic tissue in all parts of the section. Massive atelectasis of a duration of many months was reinflated by a pressure of 35 mm. of mercury. The reflation was incomplete and a lung lobe could be increased to only one half or two thirds of its original size. There was a considerable degree of laceration of the alveolar walls within the lung lobe due to reflation. Only a part of the dilated blood-filled spaces was entered by the air introduced. A moderate amount of fibrous tissue proliferation occurred in atelectatic tissue. This was insignificant as compared to the marked fibrosis attending infected atelectatic lobes. Decreased volume flow of blood through an atelectatic lung was demonstrated by injection of the pulmonary arterial system, by blood oxygen determinations and by bleeding atelectatic and normal lobes of a similar size. Positive pressure insufflation of the aerated lung diverted a considerable quantity of blood from the aerated to the atelectatic lung. The amount of flow through an atelectatic lung with the aerated lung under a positive pressure insufflation

of 35 mm of mercury was about 25 per cent when determined by bleeding of two similar lobes and about 32 per cent when estimated from blood oxygen determinations. These figures would be considerably reduced if accurate measurements could be obtained with normal intrathoracic pressures prevailing. Oxygen saturation of mixed arterial blood was little influenced by the production of atelectasis of the left lung. This suggests a very low percentage volume flow of blood through the atelectatic lung.

### Kentucky Medical Journal, Bowling Green

33 157-204 (April) 1935

- The Federal Social Security Program and the Congress A T McCormack Louisville—p 159
- \*Preliminary Report on Use of Merthiolate Solution in Treatment of Tuberculous Empyema T A Woodson and A B Mullen, Louisville—p 164
- Case of Tetanus B J Bolin Columbia—p 167
- Review of Typhoid Vaccination J O Nall Princeton—p 168
- Malignant Tumors of Thorax and Upper Abdomen D Y Keith Louisville—p 172
- Peptic Ulcer Treated by Venoclysis Report of Cases G A Hendon Louisville—p 176
- Lead Poisoning in Children W W Nicholson Louisville—p 180
- Concerning Symptomatology and Diagnosis of Extramedullary Tumors of Spinal Cord F Jelsma Louisville—p 181
- Tuberculosis a Public Health Problem L Bach Bellevue—p 186
- Some Thoughts Along Economic Side of Practice of Medicine G G Thornton Lebanon—p 189
- Feeding the Diabetic L L Smith Louisville—p 192
- Congenital Hypertrophic Pyloric Stenosis E S Allen Louisville—p 197

**Merthiolate Solution in Treatment of Tuberculous Empyema**—For the last year and a half Woodson and Mullen have used merthiolate solution (sodium ethyl mercurithiosalicylate) in the treatment of eighteen cases of tuberculous empyema occurring as a complication to artificial pneumothorax. All except two have proved to be tuberculous empyema by laboratory methods, either by direct smear for the tubercle bacillus or by guinea-pig inoculation. In using the merthiolate solution the authors have been able to clear up the empyema in a number of these cases and at the same time maintain the artificial pneumothorax. Those on treatment at the present time show a favorable tendency toward clearing. The time required for complete clearing of the empyema was from three to seven months and in these cases it has not recurred except in one terminal case. The procedure has been to remove the pus thoroughly from the pleural cavity by direct aspiration and irrigate it at weekly intervals with merthiolate solution 1:10,000 or 1:5,000 in physiologic solution of sodium chloride, until the return is clear. From 20 to 100 cc of the solution is left in the pleural cavity and the intrapleural pressures are equalized following the treatment. In five cases concentration of the solution was increased to 1:2,500, with only one reaction in which an uneventful recovery was made. The fluid in fourteen cases was frank pus, creamy or greenish in appearance. In the remaining three cases it was definitely turbid. Soon after starting the treatments, the character of the pus became definitely thin and assumed a light brownish color before finally disappearing. In three cases that were secondarily infected with staphylococci the cultures completely cleared in from three to four weeks. The results in these cases together with the remarkable results in a streptococcic empyema case suggest the advantage of merthiolate in nontuberculous empyemas.

### Missouri State Medical Assn Journal, St. Louis

32: 169-216 (May) 1935

- Surgery at the Time of Introduction of Antisepsis The Hodgen Lecture H E Sigerist Baltimore—p 169
- Classification and Treatment of Acute Head Injuries L T Furlow and E. Sachs St. Louis—p 177
- Group of Symptoms Frequently Involved in General Diagnosis Typical of Sinus and Ear Disease and of Mandibular Joint Pathology J B Costen St. Louis—p 184
- Pain of Emotional Origin L D Cadz St. Louis—p 190
- An Outbreak of Bacillary Dysentery at the St. Louis City Hospital E. Sigoloff and M E Baron St. Louis—p 194
- What May We Expect of Dinitrophenol? O S Jones St. Louis—p 196
- Rocky Mountain Spotted Fever A R Holdenried and O E Hagebusch St. Louis—p 199



**Nebraska State Medical Journal, Lincoln**

20: 161 200 (May) 1935

- Carcinoma of the Prostate. E Davis, Omaha—p 161  
 Medical Thought versus Modern Sociological Trends H M Jahr, Omaha—p 165  
 Liver Function Testing M J Breuer, Lincoln—p 170  
 Some Observations on County Health Work, W G Emery, Hiawatha Kan—p 172  
 Anaphylactoid Purpura O A Kostal Giltner and L J DeBacker Hastings—p 175  
 Intracranial Tumor Report of One Case S J Carnazzo and B C Russum, Omaha—p 177  
 \*Chronic and Delayed Tetanus Unusually Prolonged Incubation Period in Case of Tetanus A E Bennett and M Grodinsky Omaha—p 178  
 Two Cases of Trichinosis J Buis Pender—p 179

**Chronic and Delayed Tetanus**—Bennett and Grodinsky present a case of tetanus with a delayed incubation period of 100 days, which showed a chronic form of tetanus for five weeks before treatment. The delayed incubation period was undoubtedly caused by a prophylactic dose of antitoxin but illustrates the fact that an injection of 1,500 units is not fully protective, especially if a foreign body remains in the local wound. Also tetanus may assume a chronic form in the presence of a foreign body. The case further stresses the need for radical treatment of a local lesion. All suggestive wounds should be explored and treated with antitoxin. The patient would probably have recovered by treatment of the local lesion alone. In the general treatment of tetanus, the authors feel that most patients are over-treated. A large curative dose of antitoxin should be given, followed by antispasmodics, barbiturates, such as amylal or tribromethanol, and magnesium sulphate intraspinally or curarine in sufficient amount to control the motor spasms. They doubt whether repeating the doses of antitoxin does much good, provided the focal lesion is eradicated. If the patient will not recover under this management, he probably cannot be saved by massive doses of antitoxin.

**New York State Journal of Medicine, New York**

35: 469 516 (May 1) 1935

- Address Delivered at the Dinner Tendered Dr George W Sargent April 9 1935 in Honor of His Fiftieth Year of Membership in the Ontario County Medical Society A J Bedell Albany—p 469  
 Statistical Report of One Thousand and Sixteen Hernias on Second Surgical Division at St Vincent's Hospital from 1924 to 1933 M C O Shea New York—p 473  
 Common Causes of Reaction Following Use of Intravenous Solutions and Their Prevention H C Falk New York—p 480  
 Organizing a Central Supply Room for Hospital Service C W Cutler Jr New York—p 485  
 Problems in Differential Diagnosis Report of Three Cases W H Dunn, New York—p 491  
 Why Socialized Medicine Is Inevitable M Rosenthal New York—p 495  
 Individualism and Medicine H Brooks New York—p 498

**Public Health Reports, Washington, D C**

50 537 556 (April 19) 1935

- \*Studies on Origin of Newly Discovered Virus Which Causes Lymphocytic Choriomeningitis in Experimental Animals C Armstrong and J G Wooley—p 537  
 Deaths from Excessive Heat in Kansas 1934 E G Brown—p 546

50 557 594 (April 26) 1935

- Sickness Among Male Industrial Employees During Final Quarter of 1934 and Entire Year D K Brundage—p 557

**Virus That Causes Lymphocytic Choriomeningitis**—Armstrong and Wooley have isolated two strains of virus similar clinically, pathologically and immunologically to the strain previously described by Armstrong and Lillie (1934), which was encountered during the transmission, in monkeys, of infectious material from an individual who died at St Louis during the 1933 encephalitis epidemic. Spontaneous infection among the authors' stock monkeys has been demonstrated by the isolation of the virus from a noninoculated monkey and by the demonstration of specific antibodies in the serums of five of forty-four such animals. The possibility that the virus may affect man is suggested, since two of the recovered strains are possibly of human origin. The ready and even spontaneous infection of monkeys with the virus, together with the fact that human serums (three from 166) possessing potent specific antibodies for the virus have been encountered points in the same

direction. As previously noted, the disease in monkeys resembles the human ailment designated as lymphocytic or aseptic meningitis, and serum collected from a person eleven months following a clinical attack of this disease gave strong protection against strains of the experimental virus. The establishing of immunity in the serum of an exposed subject giving no history suggesting this disease, however, indicates that immunity may develop in the absence of symptoms referable to the central nervous system.

**Southwestern Medicine, Phoenix, Ariz**

10 103 142 (April) 1935

- Lymphopathia Venerea (Lymphogranuloma Inguinale) L M Smith El Paso Texas—p 103  
 Pylitis of Pregnancy F R Harper Tucson Ariz and R M Nesbit, Ann Arbor Mich—p 108  
 Congestive Heart Failure C T Burnett, Denver—p 113  
 Traumatic Emboli R S Johnston La Junta Colo—p 120  
 Conditions Associated with Splenomegaly J H Musser New Orleans—p 124  
 Vaginal Hysterectomy Clamp Method J W Kennedy, Philadelphia—p 127  
 Whooping Cough Vaccine Definitely Prevents Bronchial Asthma E B Beaver Aztec N M—p 131  
 Purpura Hemorrhagica from Food Sensitization Successful Treatment by Dietary Regulation and Use of Digestants Case Report O H Brown Phoenix Ariz—p 131

**Surgery, Gynecology and Obstetrics, Chicago**

60 891 1032 (May) 1935

- \*Sequences of Experimental Bacterial Infarction of Femur in Rabbits. G H Kistler University Ala—p 913  
 \*Sympathectomy as Preliminary to Obliteration of Popliteal Aneurysms with Suggestion as to Sympathetic Block in Cases of Ligature Suture or Thrombosis of Large Arteries C E Bird Louisville, Ky—p 976  
 \*Obstructive Lesions of Uterus and Their Complications A H Curtis, Chicago—p 930  
 The Preperitoneal Layer Its Gynecologic Application J W Davies, New York—p 941  
 Diverticula of the Duodenum H C Edwards London England—p 946  
 Mechanism by Which Acidity of Acid Meal Is Reduced in Stomach. F C Hill L C Henrich and C M Wilhelm, Omaha—p 966  
 Thyroiditis Operative Procedure for Relief of Tracheal Constriction Due to Thyroiditis F H Lahey Boston—p 969  
 Curability of Malignant Tumors of Upper Jaw and Antrum G B New and C M Cabot Rochester Minn—p 971  
 Congenital Arteriovenous Fistulas of Extremities Visualized by Arteriography B T Horton and R K. Ghorncley, Rochester Minn—p 978  
 Resection of Kidney H L Kretschmer Chicago—p 984  
 \*Thrombophlebitis and Embolism with Especial Reference to Danger of Pulmonary Embolism in Injection Treatment of Varicose Veins F V Theis Chicago—p 996  
 Evolution and Present Technique of Gastrojejunostomy R W McNealy and M E Lichtenstein Chicago—p 1003

**Bacterial Infarction of Femur in Rabbits**—Kistler injected a hemolytic strain of *Staphylococcus aureus*, obtained from a culture taken from the blood stream of a man with a subperiosteal abscess and fatal septicemia, through the principal nutrient arteries of the femur of rabbits between 3 and 8 weeks of age. The suspension was directed through the deep femoral artery. Material introduced into the principal nutrient artery of the shaft was directed almost entirely to the medullary canal of the diaphysis. Each rabbit received from 0.2 to 0.6 cc. of the agglutinated living or killed suspension and died or was killed from twelve hours to forty-eight days after operation. A few were injected with nonagglutinated living staphylococci, but all died within two days. Several of the animals injected with living organisms died within twenty-four hours after operation, others lived as long as seventeen days, depending on the mass injected and the viability of the cocci. A pure growth of staphylococcus, similar to the strain injected, was obtained from joints with exudate that were contiguous with the injected femurs. Gross examination of femurs injected with agglutinated suspensions of killed *Staphylococcus aureus* demonstrated infarction and subsequent changes similar to those observed after occlusion of the medullary blood vessels by charcoal and significant of interference with growth of the bone, of ability to bear weight and of osteogenic reaction within the periosteum. Histologic preparations of femurs that received killed agglutinated organisms through the nutrient artery to the shaft demonstrated infarcts and anemic necrosis confined almost entirely to the metaphyses and endosteum. The smaller and more recent infarcts were wedge shaped and were situated

in the tissues immediately beneath the columns of epiphyseal cartilage without marked changes in the medullary tissues of the diaphysis or of the adjacent bony epiphysis. Large infarcts occupied the entire metaphysis, and in these the necrosis was most marked about the columns of ossifying cartilage toward the center of the growth region. Infarcts present for six days or longer showed a separation and reorganization process, present on all sides of the wedge except at the base beneath the epiphyseal cartilage plate. The primary site of embolic infarction of the femoral epiphyses was beneath the articular or other cartilage and was similar to metaphyseal infarcts beneath epiphyseal lines of the diaphysis. Necrosis in the femurs produced by carbon emboli was more marked and extensive in the medullary tissues of the shaft than after the injection of clumps of dead cocci. The gross alteration in the size and contour of the femurs infarcted with living agglutinated suspensions of *Staphylococcus aureus* were similar to but more marked than in those that received injections of killed organisms. Several joints contiguous to infarcted metaphyses contained exudate from which a pure culture of the organism was obtained. Microscopic examination demonstrated anemic necrosis, according to the pattern described for bland infarction, combined with exudative inflammation. The latter agent intensified the hemorrhages and necrosis and elicited a marked infiltration of polymorphonuclear leukocytes about the septic infarct. When the metaphyseal abscesses were sufficiently large to extend to the cortex, there was exudate in the canaliculi of the bone and occasionally beneath the periosteum. Necrosis of the subperiosteal tissues elicited a cellular and fibrous tissue reaction of the periosteum, dead bone absorption and new bone formation. Complete separation of the epiphysis occurred when the walling off process at the periphery of the cartilage plate was unable to maintain viable tissues between epiphysis and diaphysis. The walling off and reorganization process in septic infarcts seemed to proceed more slowly than those produced by bland *staphylococcus* emboli. Septic necrosis produced more new cortical and spongy bone, greater injury to the epiphyseal plates and more disarrangement of the medullary tissues of the metaphyses than did the aseptic infarcts. The new bone formed outside infarcts of the endosteal tissues was always well delimited from the dead cortical bone by cellular fibrous tissues containing osteoclastic giant cells but sequestration was not observed.

**Sympathectomy Preliminary to Obliteration of Popliteal Aneurysms**—Bird performed lumbar ganglionectomy as a preliminary procedure to the obliteration of a popliteal aneurysm, thereby avoiding the constrictor action of the sympathetic fibers on the collateral arteries during the dangerous early postoperative period. In the same way advantage should be derived from sympathetic ganglionectomy or sympathetic block carried out before or immediately after operations or injuries that involve obstruction or threatened obstruction to large arteries of the extremities. The rationale for these procedures is contained in the work of Mulvihill and Harvey. In suitable cases the apparatus of Herrmann and Reid for passive vascular exercise should accomplish the same result without interference with the sympathetic fibers themselves.

**Obstructive Lesions of Uterus and Their Complications**—Curtis emphasizes the frequency of obstructions of the cervix and presents the important pathologic changes that are encountered in the more serious cases, instances of which are given. He believes that the various therapeutic procedures employed in the treatment of lesions of the cervix are more important than any other factor in the etiology of cervical obstructions. Endocervicitis is also of importance in the etiology, and in the majority of cases of serious stricture there is a history of an inflammatory process as well as of instrumentation. However the absence of a history of infection or of instrumentation does not always give assurance of a patent cervical canal and adequate uterine drainage. Fibrotic constriction of the cervical lumen is much more serious than simple obstruction by adhesions. If drainage is not free, pocketing of the cervix may occur immediately above the fibrous obstruction. A metaplasia of the columnar epithelium into squamous epithelium has been found in the roughened pocketed endocervix above cervical strictures. A similar metaplasia has

occurred in the pocketed endometrium above a cervical stricture. Irritation from retained secretions may be a factor in stimulating the metaplasia. In the presence of leukoplasic squamous cell metaplastic tissue bathed in retained menstrual fluid and debris, a possible explanation is found of the frequent incidence of squamous cell cancer of the endocervix and adjacent endometrium. Tumorous nodulations of the endocervix and lower portion of the uterine segment are a less common cause of uterine obstruction. The effects of damming back of uterine secretions and menstrual blood may be far reaching—perhaps important in the etiology of endometrial polyps, adenomyosis of the uterus, pelvic endometriosis and back pressure inflammatory processes in the pelvis. The relationship of obstructive retention to the development of intra-uterine cancer is a problem that merits further study.

**Thrombophlebitis and Embolism**—This lists the following as contributing causes of pulmonary embolism in thrombophlebitis: 1 Limited damage or destruction of the endothelial lining of a vein leading to thrombus formation provides insufficient attachment of the clot to the wall of the vein. 2 Inactivity of the patient results in the formation of large coagulation stagnation thrombi instead of the limited solid mixed deposition thrombi. 3 Coagulation solutions for intravenous injections produce unattached coagulation clots. 4 Suppurative infection, either caused by direct contamination from surrounding tissues or hematogenous in origin is followed by disintegration and loosening of the clot. 5 Direct trauma or massage of the thrombotic area may loosen and detach a portion of the thrombus. Pulmonary embolism occurs most frequently in bedridden debilitated and cardiac patients. With limited attachment of the thrombus to the wall of the vessel, the deficient circulation of blood aids extensive secondary red stagnation thrombus formation. These are easily dislodged and carried away in the circulation. Although thrombophlebitis produced by injection of chemical irritants, trauma or infection is indistinguishable clinically, there may be a marked difference pathologically. The possibility of detachment of a thrombus and embolism formation depends on the pathologic type of thrombus present. Thrombophlebitis of the extremities, irrespective of the cause is less likely to be followed by pulmonary embolism than thrombosis in other locations. In the injection treatment of varicose veins, proper selection of cases for injection, skilled technic and complete cooperation of the patient after injection in continuing routine daily activities will lessen the frequency of pulmonary embolism.

## Western J Surg, Obst & Gynecology, Portland, Ore 43 177-232 (April) 1935

Flow of Blood in Relation to Anesthesia and Operation F C Mann  
H E Essex J F Herrick and E J Baldes Rochester Minn—  
p 177

\*Hyperinsulinism Hypoglycemia Subtotal Pancreatectomy G Thomas  
Los Angeles—p 185

Acute Mesenteric Lymphadenitis E P Coleman Canton Ill—p 193  
Cas Bacillus Infection M Hanchett Council Bluffs Iowa—p 199

Peptic Ulcer in Childhood Gastro-Enterostomy on Seven Year Old  
Boy C C Nesselrode and D N Medearis Kansas City Kan—  
p 208

The Membranes in Labor N Williams Los Angeles—p 216  
Posttraumatic Cerebral Softening Delayed Symptoms Suggesting Interval  
Hemorrhage Following Minor Injury to the Head C B Courville  
and C W Olsen Los Angeles—p 219

Influence of Theelin on Psoriasis in the Female J A Sperry San  
Francisco—p 224

**Hyperinsulinism, Hypoglycemia, Subtotal Pancreatectomy**—Thomason reports a typical case of hyperinsulinism with hypoglycemia, representing one in which there was evidently a hyperfunctioning pancreas, no tumor being present, in which a subtotal pancreatectomy was performed. The removal of the greater portion of the pancreas produced favorable results quite comparable to those cases of cure reported in which a tumor was found and surgically removed from the pancreas. The patient made an uninterrupted recovery. Two days after the operation the blood sugar was 138 mg and five days later it was 111 mg. From then until the present, on a normal diet, even low in starch and without sweets, the blood sugar has ranged well within normal limits—from 87 to 91 mg—and the patient reports himself as feeling very fit.

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

**Bristol Medico-Chirurgical Journal**

52:182 (Spring) 1935

The Problem of Man's Origin A. R. Short—p. 1

License to Practice and Liberty to Teach Medicine in English Provinces

J. A. Nixon—p. 19

Habit and Illness H. H. Carleton—p. 41

**British Journal of Anaesthesia, Manchester**

12:97-148 (April) 1935

The Ideal General Anesthetic W. N. Kemp—p. 99

Absorption of Local Anesthetics by Human Tissue and Their Toxic Effects G. Bankoff—p. 106

Arrangement and Equipment of Anesthetizing Rooms G. Edwards—p. 118

Two Hundred and Fifty Cases of Spinal Anesthesia with Percaine According to Method of Jones H. Franken—p. 124

**British Journal of Tuberculosis, London**

29:63-126 (April) 1935

Why the Pulmonary Form of Tuberculosis Is Common in Adults and Nonpulmonary Form in Children P. F. Armand Delille—p. 64

\*Study of Tuberculous Disease in Infancy and Childhood with Particular Reference to Primary Sites of Infection J. W. S. Blacklock—p. 69

\*Natural Cure or Collapse Therapy in Treatment of Pulmonary Tuberculosis M. Jaquerod—p. 86

Treatment of Cavities in Pulmonary Tuberculosis H. M. Davies—p. 91

Apicolysis and Plombage in Treatment of Tuberculous Cavities F. Haberlin, with collaboration of B. Hudson—p. 100

**Tuberculous Disease in Childhood**—Blacklock observed 2500 consecutive necropsies on children in whom a thorough search for evidence of tuberculous disease was made. The peak incidence occurred in the third year. Girls at all ages were more often affected than boys. The yearly incidence of positive tuberculin tests in a large number of children who came to necropsy practically corresponded with the incidence of tuberculous lesions found. The tuberculous lesions were the cause of death in 240 (95.2 per cent) of 252 subjects less than 3 years of age and in ninety-three (74.4 per cent) of 125 over this age. In five cases there were double primary sites of infection, one in the thorax (responsible for death) and one in the abdomen. The primary site of infection was most commonly thoracic and then abdominal, cervical or unknown. Primary thoracic tuberculosis occurred in 63.4 per cent of the tuberculous cases and, relative to the number of necropsies, had a higher incidence in subjects more than 3 years but was more frequently fatal under this age. Only 0.6 per cent of the children less than 3 and 9 per cent over this age with primary thoracic tuberculous lesions did not die as a result of the tuberculous infection. Primary lesions of the lung of a more acutely progressive type were found in children less than 3 years than in those over, while evidence of arrested lesions was commoner in the older children. The primary lesion of the lung was always associated with tuberculous tracheobronchial glands and was rarely the sole tuberculous lesion in the lungs. Most of the children with primary intrathoracic tuberculosis died of generalized infection, and this was slightly commoner in children less than 3 than in those over. In 149 children who died, the infection was due to human strains in 143 and bovine in six (4 per cent). There was a slight higher proportion of bovine strains in children in the first three years of life than in those between 3 and 13. From children not dying as a result of the tuberculous lesion, five human strains were isolated. In 123 (32.4 per cent) investigated, the primary site of the tuberculous infection was abdominal. The relative incidence of primary abdominal lesions to the total necropsies was greater in children more than 3 years of age, but more deaths resulted from the abdominal infection in the younger children. Intestinal ulceration was present in twenty-two abdominal cases, such lesions were always fatal and were more common in children less than 3 years of age. In 101 instances there was no tuberculous intestinal lesion but the mesenteric glands were caseous. In 74.4 per cent of children less than 3 and 29.3 per cent of those over this age generalization of the infection caused death. Tuberculous disease localized to the abdomen caused more deaths than similar disease confined to the lungs. Of the bacilli isolated from the abdominal cases in which death

resulted from tuberculosis, eleven were human strains and forty-seven (81 per cent) bovine. From children not dying as a result of the abdominal disease, two human and thirteen bovine (86.7 per cent) strains were obtained. The prognosis in primary abdominal tuberculosis is better than that in primary thoracic tuberculosis, but the diagnosis of the abdominal disease in the early stages is often very difficult. Primary tuberculosis of the cervical glands occurred in only eight (2.1 per cent) children, of whom two did not die as a result of the lesions, the remainder dying of generalization of the disease. From this group three human and three bovine strains were isolated. In seven no primary source was found, and three human strains were obtained from these.

**Natural Cure or Collapse Therapy in Treatment of Pulmonary Tuberculosis**—Jaquerod suggests that the patient with a recent pulmonary lesion should be given the chance of improving with simple medical means, which in a number of cases is all that is necessary to obtain a complete cure in the minimum of time and with the minimum of organic and functional disturbance. The process of healing in these cases in no way differs from that brought about by collapse therapy, except that the latter is more certain and more thorough. Since it is admitted that a pneumothorax should be induced when it is seen that the patient is not improving with simple medical treatment it would seem that the chronic fibroid case encountered so often formerly should not be in evidence today. This would be so if pneumothorax gave perfect results, but this is far from being the case and the author believes that he does not exaggerate when he says that the chronic fibroid case is as common today as before the introduction of collapse therapy. When confronted with a case of recent disease, and one weighs in the balance the advantages of treatment by rest alone and treatment by artificial pneumothorax, it is not right to infer that the one offers but a mediocre chance of cure whereas the other gives the patient almost a certainty of rapid and complete recovery, for in a considerable number of cases treatment by pneumothorax will only mean a series of painful procedures continued over a period of years. The author believes that the custom which would enforce collapse therapy at once for all cases of pulmonary tuberculosis is not justified, for there are cases which reap the greatest possible benefit by being given the opportunity of obtaining a lasting cure by simple and natural means.

**Journal Obst. & Gynaec. of Brit. Empire, Manchester**

42:217-408 (April) 1935

Grave Risks of Hookworm Disease as Complication of Pregnancy G. A. W. Wickramasuriya—p. 217

\*Study of Acute Mastitis of the Puerperium A. A. Moon and B. Gilbert—p. 268

Further Report on One Hundred and Seventy-Three Cases of Cancer of Cervix 1922-1933 F. A. Maguire—p. 283

\*Autogenous Infection in Relation to Puerperal Morbidity R. K. Ford—p. 297

Case of Twins in Which Second Fetus Presented by Thorax H. E. Rodway—p. 304

Maternal Obstetric Palsy Case H. E. Rodway—p. 306

Allergy and Dysmenorrhea P. C. Dutta—p. 309

Cancer of Uterus Showing Extensive Glandular Involvement Case

C. M. Gwillim and N. M. Matheson—p. 318

\*Intravenous Use of Pituitrin in Obstetrics H. A. Baron—p. 322

**Study of Acute Mastitis of the Puerperium**—In 100 cases of acute puerperal mastitis, Moon and Gilbert observed that three fourths of the cases occurred in primiparas. Pre-existing infective foci, hemorrhage during labor and albuminuria of pregnancy do not appear to be predisposing causes. Intervention with normal labor by induction, cesarean section and other obstetric operations are of considerable importance. A comparison of the frequency of acute mastitis in hospital and district patients shows that the disease is essentially one of institutions and throws some light on various etiologic factors considered. A study of the incidence of acute mastitis at the authors' hospital over a period of nine years shows that there has been a general increase, most marked since 1931 and reaching a maximal peak in the early part of 1934. There is some tendency to a periodic variation, the crests occurring for the most part over a period covering the last two and first two months of the year. The onset of pyrexia is by far the most common in the second week, on or about the eleventh day.

Unilateral mastitis occurs twice as often as bilateral mastitis. Only one fourth of the cases of acute mastitis resolved. There is an apparent variation in severity as well as in incidence. The average time of operation is the twentieth day of the puerperium. Delayed operation, after awaiting complete localization, is preferred to prompt incision. The importance of cracked nipples as an etiologic factor tends to be exaggerated. Three different methods of local prophylactic nipple treatment yielded no alteration in the incidence of acute mastitis. *Staphylococcus aureus* was the cause of all the breast abscesses examined bacteriologically. The average duration of indoor hospital treatment for all cases of acute mastitis (resolved and suppurating) is about thirty-five days. Among the infants of these patients there is a mortality of 3 per cent, and a morbidity of 8 per cent due to intestinal infection presumably from the mother's milk. The baby should be removed from both breasts as soon as a definite diagnosis of acute mastitis is made. From the bacteriologic investigations on the milk of normal lactating mothers, it appears that *Staphylococcus albus* does not cause acute mastitis but that *Staphylococcus aureus* is the essential organism. The presence of *Staphylococcus aureus* alone does not necessarily mean an acute mastitis, and other factors are necessary: a virulent strain of organism, lack of local immunity of the breast and alterations in the chemistry of the milk are contributing causes. Future lactation is not interfered with in the great majority of cases after an abscess of the breast; the causes of failure to feed subsequent babies are retracted nipples, painful scars and deficient secretion.

**Autogenous Infection in Relation to Puerperal Morbidity**—Ford made an attempt to assess the resistance to infection in pregnancy and selected the Dick test for trial as being readily applied. A series of 220 patients were tested at about thirty-six weeks of gestation and again after delivery. Cervical smears were taken in every case of a positive result. Not one of the cervical smears produced a culture of streptococci. Six cases of puerperal pyrexia occurred. All these patients had exhibited negative antenatal and postpartum reactions. The pyrexia varied from a mild to a fairly severe degree. The patients made satisfactory recoveries with the exception of the one suspected of having pulmonary tuberculosis who is understood to be still under observation for tuberculosis. Ten patients who had exhibited antenatal negative and postpartum positive tests were requested to attend again at varying periods after their confinements, for further tests. Only six attended, and two did not return for the reading of the result. All four who appeared exhibited negative results. It is difficult to determine the correct interpretation in the cases (4.5 per cent) that exhibited negative reactions before labor, positive ones soon after it and again negative ones later. If it is assumed that a negative reaction to the Dick test indicates the presence of a certain minimal amount of antitoxin in the circulation, it is conceivable that these patients sustained mild infections but that the amount of antitoxin available was in each case adequate without necessitating any such reaction as would be evidenced by noticeable rises of temperature or pulse rate, and that this balance in hand of antitoxin was gradually restored later. Streptococcal forms were, however, not found in cultures from the cervixes of any of these patients and material for such cultures was taken immediately after the reactions were noted. Alternatively, it is possible to consider that the actual physical strain of labor itself in these patients produced temporarily a generally lowered resistance to infection. Such a theory as this would account for the rapid development of severe general infections on occasion without obvious definite cause, considering that latent infections are known to exist as supported by the cases quoted showing that coliform organisms may be responsible for severe infections. Some extragenital source of infection may be responsible for a proportion of the puerperal variety.

**Intravenous Use of Solution of Pituitary in Obstetrics**—Baron states that, in properly selected obstetric cases, solution of pituitary in doses of 1 minum (0.06 cc) has been safely administered intravenously. The best results were obtained in initiating labor in patients in whom the membranes had ruptured, and in secondary inertia either before full dilata-

tion or with full dilatation when the head was on the perineum. In the latter cases the use of the forceps was obviated. Good results have been obtained in cases of postpartum bleeding and after cesarean section. Its use for obstetric diagnosis—fibroids and extra uterine pregnancy, for missed abortion and after reduction of the inverted uterus is suggested. It has been unsuccessful (in the author's experience) in starting labor before term, especially with intact membranes, even in conjunction with castor oil, quinine and hot enemas. There are important contraindications to the use of the drug, which, if observed, will prevent its falling into disrepute.

### Lancet, London

1: 791 848 (April 6) 1935

Study of Pneumococcal Pneumonia I D T Davies H G Hodgson and L E H Whitby—p 791  
Results of Fifty Cases Treated by Psychotherapy W L Neustatter—p 796

Clinical Trials with New Antityphoid Serum A Felix—p 799  
Surgical Closure of Tuberculous Apical Cavities W H C Romanis and T H Sellers—p 802

\*Sterility and Psychoneuroses Following Lumbar Sympathectomy A F Hurst—p 805  
Leptospirosis Jaundice Among Sewer Workers J M Alston—p 806

1: 849 916 (April 13) 1935

Study of Pneumococcal Pneumonia II D T Davies H G Hodgson and L E H Whitby—p 849  
Scabies and the Skin J T Ingram—p 853

Ferry's Meningococcus Antitoxin in Treatment of Acute Cerebrospinal Fever H S Banks—p 856

Large Enchondromas in a Case of Dyschondroplasia J K Monro—p 858  
Trauma and Sarcoma J J M Shaw—p 860

**Pneumococcal Pneumonia**—The nineteen cases of pneumonia that Davies and his co-workers selected for serum treatment were those in which symptoms were severe or the risk poor. Only two ended fatally—one from meningitis after an apparent recovery and the other from a bilateral deep-seated empyema. Both of these had shown an initial response to serum. The group includes three cases treated on the sixth day: a positive blood culture was found in four, though in the two patients that died the blood was sterile. It speaks favorably for the potency of serum that the four showing a positive blood culture recovered, and of these one was positive as late as the sixth day. The effect of the serum on the symptoms was undoubted. In the early case it was immediate and the febrile period was obviously shortened. The respiratory embarrassment was greatly allayed although the signs of consolidation remained or in some cases actually progressed, even though the crisis had occurred and the patient was afebrile. The cases showed definite symptomatic benefit, and, although this was more obvious when the serum was given within the first three days the authors concluded that some effect was obtained when it was given later. If antipneumococcus serum is specific they think it should not be withheld from patients desperately ill on the sixth or seventh days, as it may prolong life for an extra day and thus allow a crisis to be established. They regard any case of type I pneumonia as showing need of serum if the condition is severe and the prognosis uncertain. Moreover, since serum may 'abort' the disease when given early, its use should always be considered in cases seen during the first three days, if it shortens the febrile period it will make extension or relapse less likely.

**Sterility and Psychoneuroses Following Lumbar Sympathectomy**—Hurst states that lumbar sympathectomy should be performed only in males when a condition is present which is likely to receive sufficient benefit to compensate for the unavoidable sterility that will develop. He doubts whether it is ever justifiable in boys with Hirschsprung's disease. In the eight cases that he has seen since the war, nonsurgical treatment led to improvement just as great as that claimed for sympathectomy. The operation should never be performed on an adult male without his written consent after he has been told of the effect it will have on his sexual functions. If he knows what to expect he is also very unlikely to develop psychoneurotic symptoms as a result of the loss of emission. The author presents two cases in which the impairment in sexual functions following lumbar sympathectomy in men was followed by serious psychoneurotic symptoms.

**Medical Journal of Australia, Sydney**

1 385-416 (March 30) 1935

The Problem of Maternal Welfare Constance E. D. Arce —p 385  
Mussel Poisoning C. H. Kellaway —p 399

1 417-446 (April 6) 1935

Mental Hygiene H. Sutton —p 417  
Tumor of the Brain as Met With in General Practice L. B. Cox —p 425  
Whooping Cough with Particular Reference to Pertussis Vaccine I. Blaubaum —p 432**Quarterly Journal of Medicine, Oxford**

4 93-202 (April) 1935

Obesity Hypogenitalism Mental Retardation Polydactyly and Retinal Pigmentation The Laurence Moon Biedl Syndrome E. A. Cockayne, D. Krestin and A. Sorby —p 93

\*Hemochromatosis I. Content of Tissues in Iron and Sulphur II. Results of Spectrographic Examination with Especial Reference to Copper and Calcium H. Ramage and J. H. Sheldon —p 121

Influence of Infection on Action of Parathyroid Hormone in Man G. C. Linder —p 131

\*Sounds and Murmurs Produced by Auricular Systole C. Bramwell —p 139

Gallop Rhythm C. Bramwell —p 149

\*Hereditary Pseudothrombophilia R. S. Handley and A. M. Nussbrecher —p 165

Attempt to Demonstrate a Pressor Substance in Blood in Malignant Hypertension R. S. Aitken and C. Wilson —p 179

Secondary Pellagra S. L. Simpson —p 191

**Hemochromatosis**—Ramage and Sheldon examined the tissues from five cases of hemochromatosis. The diagnosis was established in all cases at necropsy. They observed that there is an increase of iron in all the tissues of the body, with the exception of the blood, brain and colon, the two latter of which are, however, subject to individual exceptions. In certain organs the amount may be enormous especially in the liver, pancreas, lymph nodes, thyroid, salivary glands, pituitary, choroid plexuses and heart. The increase over normal appears to be greatest in the pancreas. The somatic muscles share in these deposits of iron. The total amount of iron deposited in the body by the time of death appears to vary from about 25 Gm to from 45 to 50 Gm. There is a slight increase of the total sulphur in certain of the tissues, especially in the alimentary canal. This is probably related to the deposits of hemofuscin. Spectrographic examination confirmed the results of previous chemical analyses in showing that there is an increase of copper in the liver. This increase applies to all the tissues with the exception of the kidney, small intestine and omentum. The general order of increase is between two and three times the normal. Certain of the tissues have an increase of calcium, which is best seen in the liver, thyroid, striated muscles and pancreas. Most of the tissues show disturbances in the behavior of both sodium and potassium, these metals usually swinging in opposite directions. The manganese content of the liver is about one-fourth the normal. No unusual elements were found.

**Murmurs Produced by Auricular Systole**—The records of the heart sounds in a case of exophthalmic goiter with partial heart block that Bramwell presents show that the initial vibrations of the first heart sound in normal cycles bear the same time relation to the P wave in the electrocardiogram as do the vibrations of the auricular phonogram to the blocked auricular beats. These two series of vibrations are also similar in form. When the PR interval is prolonged the complete series of vibrations in the auricular phonogram precedes the larger vibrations of the ventricular phonogram, but when the PR interval is of normal duration the two series of vibrations overlap. These observations prove that, in the author's case, the initial vibrations of the first heart sound are produced by the auricle and not by the ventricle. It is suggested that the initial vibrations seen in records obtained from normal subjects may also be attributable to auricular systole. These initial vibrations are, however, usually of such small amplitude that they fail to reach the threshold of audibility. The author suggests that the similarity between the first heart sound in hyperthyroidism, in certain athletes, in some cases of congenital heart disease and in some patients with high blood pressure, and the first heart sound and presystolic murmur of mitral stenosis, may be due to an increased velocity of the blood flow through the mitral orifice when the auricular muscle is hypertrophied. The late development of the auricular sound suggests that it is due not

entirely to a muscle tone but in part at least to vibrations set up by the blood ejected by the auricle. Records of heart sounds and murmurs in two cases of mitral stenosis complicated by partial heart block showed that the time relations of the auricular systolic element of the mitral murmur were strictly analogous to those of the auricular component of the first heart sound in the present case of hyperthyroidism. There is a striking variation in the intensity of the auricular systolic murmur in different cycles of these records. When auricular systole occurs early in diastole the murmur is loud, but when it occurs at the end of a prolonged diastole it may be so faint that it fails to reach the threshold of audibility. Its absence in cycles following a blocked auricular beat is explained by the inability of the engorged ventricle to accept the auricular output. Summation of the terminal vibrations of the auricular systolic murmur and the initial vibrations produced by ventricular systole may account for the accentuation of the first heart sound in patients with mitral stenosis.

**Hereditary Pseudothrombophilia**—Handley and Nussbrecher discuss the literature on hereditary bleeding in women, present three such cases of pseudothrombophilia and state that a discussion of the mechanism of bleeding in pseudothrombophilia would appear to be useless so long as the major problems of the coagulation of normal blood remain matters of controversy among physiologists. Von Willebrand and Jürgen's work points to some abnormality of the platelets being the most likely cause of the prolonged bleeding, but more evidence must accumulate before this hypothesis can be proved or disproved. The diagnosis of pseudothrombophilia must rest on an adequate family history and unequivocal symptoms of bleeding, supported by complete blood investigations. Von Willebrand states that in pseudothrombophilia clotting time is normal and bleeding time prolonged. The reverse is true of the cases that the authors describe, and their observations tally with those of true hemophilia. But these two investigations are subject to many pitfalls, and too much reliance cannot be placed on isolated readings. The clotting time varies in the same individual from time to time, and the bleeding time, owing to the lack of standardized technique, at present needs considerable experience in the interpretation of results. To conclude the authors emphasize that two possibilities have to be weighed in considering their study. It may be an example of pseudothrombophilia, or it may be an example of hemophilia with the production of the first homozygous females recorded. They rather believe the former view owing to the evidence of the Mampel tree and Wightman's family, together with the direct transmission of bleeding seen in the earlier part of their family tree. Those who would support the latter view must be prepared to accept the occurrence of bleeding in homozygous females.

**South African Medical Journal, Cape Town**

9 179-210 (March 23) 1935

Preliminary Analysis of Series of Cases of Pneumonia Among Natives Over a Period of Nine Years H. L. Hemann and F. V. Stephen Lewis —p 179

Antiscorbutic Value of Some South African Foodstuffs as Measured by Their Indophenol Reducing Power L. F. Levy and F. W. Fox —p 181

Endemic Goiter in the Langkloof Valley E. E. Buttner —p 187

The First Obstetric School in South Africa P. J. Venter —p 189

Unwrapped Bread and Intestinal Bacteria W. Alves —p 191

Blood Groups in Hottentots A. Piiper —p 192

Summary of Progress in Laboratory Tests of Kidney Function H. D. Barnes —p 195

Test for Early Diagnosis of Pregnancy on South African Clawed Toad (*Xenopus laevis*) H. A. Shapiro and H. Zwarenstein —p 202

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Bacterial Endotoxins (Endo-Anatoxins) E. Grasset —p 208

**Chinese Medical Journal, Peiping**

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Diabetes Mellitus Principles and Practice of Dietetic Treatment in the Outpatient Clinic S. H. Wang —p 201

Vesical Neck Obstruction Discussion on Hypertrophy of Prostate Among the Chinese E. T. Kam —p 219

Swimmer's Ear A. M. Dunlap —p 229

Treatment of Tetanus A. Swain —p 232

Effect of Aging on Kline Antigen R. F. Lvoff —p 236

Studies in Chronic Arsenic Poisoning III Histopathology of Viscera of Guinea Pigs Exposed to Mosquito Incense Fumes P. L. Li and C. S. Yang —p 240

Sodium Cyanide in Fly Control E. Landauer —p 246

Glandular in Man Case F. F. Tang S. H. Liu and L. S. Kau —p 248

# Archives des Maladies de l'Appareil Digestif, Paris

25: 213 336 (March) 1935

\*Alkal Reserve and Ionic Acidity of Human Bile Removed by Duodenal Tubage M Chirav and P Firmin—p 233  
Stomach After Surgery Roentgenologic Study M C Gross—p 243

**Acid-Base Equilibrium of Human Bile**—Chiray and Firmin used the Van Slyke method to determine the free and combined carbon dioxide content of normal bile. In order to determine the limits of variation of biliary alkali reserve, the absorption of carbon dioxide was experimentally studied. Bile from supposedly normal persons, removed by biliary tubage, preserved under oil in the presence of traces of antioxygenating substances and kept in the refrigerator, was used. As a result of these studies it appears that bile is a physicochemical system somewhat similar to blood. The level of biliary alkali reserve reported is not absolute and relates only to the samples under observation. In general, zones of alkalosis and acidosis similar to those in the blood are indicated. The number of complicating factors, however, does not facilitate the interpretation of the observations.

## Presse Medicale, Paris

43 545 568 (April 6) 1935

Anatomoclinical Study of Hilaris Disease with Biopsy of Liver Case E May G Albot and A Delhay—p 545  
Gold Salts in Treatment of Established Adult Pulmonary Tuberculosis Pierre-Bourgeois H Thiel and J Levermeux—p 548  
Pathology of Finger Prints L Ribeiro—p 552  
Technic of Pegging Fractures of Neck of Femur M M d Aubigne—p 555  
Bony Blastomycosis M Meyer and A R Sartory and J Meyer—p 558  
Ergothermomanometric Exploration in Diagnosis of Pulmonary Tuberculosis H Elster—p 561  
False Interpretations of Certain Roentgenologic Aspects of Pulmonary Tuberculosis G Scarpatti and E Berthet—p 565  
Cancerous Metastasis of Acromion Secondary to Cylindric Cancer of Uterus H Fobe—p 567

**Gold Treatment of Pulmonary Tuberculosis**—Pierre-Bourgeois and his co-workers deplore some of the uncritical enthusiasm for the treatment of tuberculosis with gold salts. The attempted prophylaxis of pulmonary tuberculosis by this means is especially unjustified. They made careful observations on 850 adult patients with established pulmonary tuberculosis treated by gold salts in conjunction with sanatorium care. They concluded that the psychic effect was good and that gold salts could be useful in addition to this effect. Clinical and roentgenologic improvements occurred in some patients and, although transitory, were nevertheless real. Gold treatment, however, must never impede other more effective antituberculosis procedures. Finally, they believe that the appearance of any therapeutic accident indicates immediate and final discontinuance of gold treatment.

## Prensa Médica Argentina, Buenos Aires

22 805 850 (April 24) 1935

Premature Rupture of Ovarian Membranes and Antispasmodic Medication J Leon—p 805  
Calcium a Basic Treatment of Manifestations of Vagosympathetic Dystonia of Upper Air Passages E Riccitelli and V Franchini—p 818  
Chorioma of Testicle C A Videla D Vivoli and J C Rey—p 823  
Osseous Consolidation of Certain Fractures of the Intest M J Fitte—p 831

**Calcium in Treatment of Vagosympathetic Dystonia of Upper Air Passages**—Riccitelli and Franchini consider that spasmodic rhinitis belongs to a group of pathologic reflexes of the upper air passages originating in disturbances of the endocrine and the autonomic nervous systems. These reflexes frequently develop in women between 15 and 20 years of age, when the rupture of the sympathetic-parasympathetic equilibrium is frequent. The authors state that there is a relation between the ionic equilibrium of the blood, with regard to calcium and potassium ions and that of the autonomic nervous system the rupture of which results in the development of neuromuscular excitability. They consider the great variety of endocrinologic disturbances of vagosympathetic origin a neurosympathetic lability with hyperexcitability of the whole autonomic nervous system rather than a vagotomy or a sympathetomy, pure forms of which do not exist. The constant presence of high values of calcium and potassium in the blood

indicates that a vagosympathetic dystonia exists. Whether the condition is of sympathetic or of vagal predominance, calcium gluconate gives satisfactory results, especially if given with opotherapy or with a general treatment, according to the etiology of the disease. Calcium seems to have no specific action in moderating the parasympathetic or in stimulating the sympathetic, but rather a restorative action on the equilibrium of the two segments of the autonomous nervous system. In cases of spasmodic rhinitis there is a disequilibrium of the calcium and the potassium in the blood, which is restored by the calcium as proved by the reestablishment of the constants of Krauss and Kylin. The restoration of the ionic equilibrium of the blood is followed by that of the equilibrium of the autonomous nervous system and results in immediate improvement of the pathologic respiratory and nervous symptoms.

## Archiv fur klinische Chirurgie, Berlin

181: 599 722 (April 15) 1935 Partial Index

\*Prognosis of Cancer of Breast from Symptoms Histologic Study Degree of Maturity and Malignogram W Siemens—p 599  
Treatment of Osteomyelitis in Childhood M Langer—p 640  
\*Gastric Surgery K O Peters—p 651  
Surgery of Perforation of Gastric Duodenal Ulcer O Orth—p 674

**Prognosis of Cancer of Breast**—Siemens' material consists of 508 cases of carcinoma of the breast in which radical operations were performed at the surgical clinic of the University of Kiel (Professor Anschütz) between 1908 and 1929. Of these fifteen, or 2.9 per cent, proved fatal as a result of the operations, and 484 were followed up. Two hundred and nine patients were given postoperative roentgen irradiation, while 175 were not so treated, fifty-nine, in whom operation could not be performed, lived on an average of seventeen months, ten surviving the three year limit and three the five year limit. Dissection of the supraclavicular fossa did not bring about better results in the advanced group. The modern radical operation calls for the removal of a large area of skin, the pectoral muscles and the axillary lymph nodes. The dissection is begun with the removal of the lymph nodes in order to eliminate the possibility of embolic transmission of carcinoma cells. It is questionable whether electrosurgery will add much. The author is impressed with the improvement in the results from the postoperative roentgen irradiation. The combination of preoperative and postoperative irradiation should give even better results. He divides his material on clinical and histologic data into the following groups: I Small tumor, no palpable lymph nodes and no carcinomatous invasion of these on histologic examination. IIa Finding of carcinomatous invasion of lymph nodes. IIb Adhesions of tumor to skin or pectoral fascia. IIc Invasion of the skin, muscles and lymph nodes. III Involvement of the supraclavicular lymph nodes. Group I gave 100 per cent of three, five and ten year cures. Groups IIa and IIb gave 69.2 per cent of three year cures, 53.2 per cent of five year cures and only 34 per cent of ten year cures. Palpable lymph nodes, regardless of histologic examination, make the prognosis unfavorable, as was seen from a decline from 100 per cent of five year cures to 53.2 per cent. Spread of tumor or of metastases through biopsy was not observed. Other clinical data influencing the prognosis were age, size, duration, type of tumor and its localization in the breast and coexistence with pregnancy. No reliable criteria for the prognosis were obtained from the histologic determination of the type of tumor. The further the spread from the primary tumor within the breast the worse the prognosis. An attempt to evaluate the prognosis on the basis of grading the maturity of the cancer cells after the method of Broders was not of much help. Hueper's method of prognosticating from a histologic malignogram, based on twenty histologic characteristics, was found to be not as reliable as the less complicated clinical evaluation supported by histologic examination and investigation of the lymph nodes.

**Gastric Surgery**—Peters reports the gastric operations performed in Lotheissen's clinic in Vienna from 1922 to 1932. There were 102 patients operated on for cancer of the stomach, 196 for gastric-duodenal ulcer, 170 for free perforation of a gastric or duodenal ulcer, and fourteen for uncontrollable bleeding from an ulcer. The mortality of the operation for carcinoma of the stomach amounted to 45 per cent for ulcer to



1734, for perforation 134, and for hemorrhage 428. Of the forty-seven patients who survived the operation for carcinoma forty, or 80 per cent, died within from two to three years after the operation. A follow up of 113 patients operated on for gastric-duodenal ulcer showed that seventy-six were completely cured, while thirty-seven had symptoms of indigestion as well as of new ulcers. Of those who survived the operation for perforation, from 80 to 95 per cent were free from symptoms. More careful follow up studies showed that extensive gastric resections were followed from five to ten years later by disturbances in the blood picture, the intestinal flora and the nutrition of the patients. The author mentions three cases in which a hypoblastic anemia developed after a Finsterer resection of four fifths of the stomach. The cured patients were found constantly to have a normal or a subnormal acidity, suggesting that anacidity aimed at by the advocates of extensive resection is not necessarily a favorable factor in the cure. He did not find any difference in the results among those who smoked or consumed alcohol when compared with those who did not smoke and abstained from alcohol.

### Deutsches Archiv für klinische Medizin, Berlin

177: 345-460 (April 8) 1935 Partial Index

- \*Iodine Damages with Especial Consideration of Disorders Caused by Iodized Salt. Ilse Mühe—p. 345
- \*Changes in Blood Protein Bodies in Salyrgan Diuresis. A. O. Schally—p. 368
- Combined Chemotherapy and Serotherapy of Recurrent Fever. M. N. Lebedewa—p. 377
- \*Independent Chronic Inflammatory Disorders of Cauda Equina and Their Treatment. T. Mauss and H. Krüger—p. 382
- Venous Blood Pressure and Diuresis. Béla Groák.—p. 407

**Goiter Caused by Iodized Salt**—After reviewing the history of the prophylactic use of iodized salt Mühe shows that in addition to statistics which report the efficacy of this measure there have also been reports about the damages caused by iodized salt. A number of cases of goiter were observed in the author's clinic, in which the use of iodized salt seemed to be a causal factor. She points out that it is proved by clinical observations on patients with syphilis and with arteriosclerosis that hypersensitivity to iodine is relatively frequent in southern Germany. Moreover, even the advocates of goiter prophylaxis by means of iodized salt realized the possibility of injurious effects and consequently laid down the following rules: 1. Iodized salt should be used only in quantities that correspond to the usual salt consumption. 2. It should be used only by persons who have a normal sympathetic nervous system. 3. Persons with cardiac defects should not use iodized salt. 4. Patients with goiter or with othercretory disturbances should abstain from the use of iodized salt. 5. Iodized salt should not be used by women during the climacteric period. The author gives the clinical histories of some of the thirty-seven patients in whom the use of iodized salt resulted in exophthalmic goiter, and she emphasizes that goiter prophylaxis by means of iodized salt should be carried out only under medical supervision.

### Changes in Blood Protein Bodies in Salyrgan Diuresis

—Schally investigated whether the blood proteins change during salyrgan diuresis and whether these changes are related to the diuresis. He found that following the intravenous injection of salyrgan the albumin increases and the fibrin values decrease. These changes appear regularly with the onset of the diuresis but do not develop after the intake of larger quantities of water. The author believes that the increase in the albumin content is a necessary attendant phenomenon of the mercury diuresis, in that the inflow of water into the capillaries takes place only in case of simultaneous inflow of albumin. During nephrosis there exists a blockade for protein inflow, and thus water is retained in the tissues. Consequently the replacement of the blood protein is blocked and the protein value is low in cases of nephrosis. Salyrgan prepares the capillaries for the inflow of protein and thus also for the inflow of water counteracting the protein blockade. The capillaries are permeable for protein under normal conditions, and the thesis of the semi-permeable membrane cannot be maintained since the replacement of blood protein must likewise be accomplished through the capillaries. The permeability for protein is dependent on the condition of the capillaries and is one of their vital functions.

### Disorders of Cauda Equina and Their Treatment—

According to Mauss and Krüger, independent inflammations of the roots of the spinal nerves have been designated as radicular neuritis or as radiculitis, and it was generally assumed that they were caused by syphilis or tuberculosis, that is, by processes which developed in the meninges or bones and from there spread to the roots. That they may be caused also by other conditions has been recognized in recent years. It appears that the caudal roots are most frequently involved, and for this reason the authors decided to study this form of radiculitis more thoroughly. They report the histories of three patients who underwent surgical treatment and they evaluate the various therapeutic measures that may be employed in chronic inflammations of the cauda equina. They reach the conclusion that there are disorders of the caudal roots, which may be caused by various infections and intoxications. Considered from the anatomic pathologic point of view, these are chronic inflammatory processes commencing in the meninges, particularly the soft meninges and the coverings of the roots, which, in their further course, may involve also the parenchyma. These meningoradiculitides appear in all forms from simple lumbar or sacral radicular neuralgia up to severe symptoms of compression. They are acute subacute or chronic in character, and depending on the anatomic development of the process from the periphery to the center, an irritative and degenerative phase can be differentiated. The majority of cases remain for a longer or shorter period in the phase of radicular irritation and present only slight sensory disturbances in addition to the radicular pain. A careful examination of the sensibility is therefore necessary if the radicular origin of the lesion is to be recognized. Occasionally the diagnosis can be supported by the detection of an increase in the protein content of the cerebrospinal fluid, even if there is no compression in the cauda equina, however, this symptom is frequently absent particularly during the later course of the disorder and, in a considerable number of cases the diagnosis must therefore rely on the detection of the segmentally localized disturbances of sensibility. The treatment consists, in addition to general and local measures, of epidural injections, eventually combined with repeated spinal punctures. Surgical treatment is indicated only in the severe forms, in which a chronic serous or fibrous meningitis exists and in which spontaneous recovery is doubtful.

### Medizinische Klinik, Berlin

31: 537-568 (April 26) 1935 Partial Index

- Treatment of Diabetes in General Practice. C. Oehm.—p. 537
- \*Etiology and Symptomatology of Meralgia Paraesthetica. O. Sittig. A. Herczeg and A. Schönfeld—p. 543
- Coincidence of Diabetes Mellitus and Bronchial Asthma. F. König—p. 545
- \*Modern Therapy of Schizophrenia. G. Giehm—p. 547
- \*Treatment of Paroxysmal Tachycardia with Large Doses of Quinidine. S. Feher—p. 549

**Meralgia Paraesthetica**—Sittig and his associates report the histories of four patients with meralgia paraesthetica (Bernhardt's disease). Their observations indicate that the disturbances in the sensibility may be of various types, namely pains, paresthesias, insensibility only when touched, and hypesthesia or hypalgnesia only when the sensibility is tested without subjective disturbances. The authors point out that in their first patient the disorder developed after a laminectomy, in the second after a subcutaneous injection into the thigh, and in the third after a trauma. The fourth case is noteworthy because tests revealed that the sensitivity to pain and to cold was reduced and yet there was no subjective discomfort. The authors state that in the first patient there existed a spina bifida of the fifth lumbar vertebra and a sacral hiatus. Moreover, in the first and third patients rheumatoid or neurotic pains (sciatica) preceded the development of the symptoms of meralgia paraesthetica, and other reports record this same observation.

**Therapy of Schizophrenia**—Giehm points out that the etiology of schizophrenia is still a matter of dispute and that, because this factor has not been cleared up, numerous therapeutic measures have been suggested. He lists twenty different methods together with the names of those who recommended the different measures and shows that these methods can be classified in three groups: the sedative methods, the shock ther-



pies and the psychotherapeutic methods. It appears that patients with schizophrenia are subject to endocrine disturbances. Whether these endocrine disorders are the cause or the result of schizophrenia has not been established as yet, but it is evident that relations exist between schizophrenia and the glands of internal secretion. The author decided to give attention to this endocrine factor in the treatment. He combined fever therapy with hormone injections. The fever therapy was carried out by injecting a bacterial protein preparation once or twice each week. The total number of injections varied between eight and twelve. The author treated thirty patients in all. The fever therapy was followed by hormone injections. The hormone treatment was adapted to the different endocrine disturbances. The combination therapy produced encouraging results. A tabular report indicates that it was most effective in the late catatonic, the catatonic and the hebephrenic forms of schizophrenia. The restlessness and anxiety subsided gradually, sleep improved and the hallucinations disappeared. In patients with paranoid disorders and with dementia simplex, the combination fever and hormone therapy was of little avail.

**Treatment of Paroxysmal Tachycardia with Quinidine**—Feher reports two especially severe cases of paroxysmal tachycardia, in which the continuous oral administration of large doses of quinidine proved effective. The patients were given daily from 25 to 45 Gm. They tolerated this treatment well and the author is convinced that it is superior to the continuous treatment with intravenous injections of quinine. He considers the oral administration of large doses of quinidine indicated in prolonged and daily recurring attacks of paroxysmal tachycardia. However, the treatment is contraindicated in patients with severe circulatory insufficiency.

### Münchener medizinische Wochenschrift, Munich

82: 651-690 (April 25) 1935 Partial Index

Relations of Sympathetic to Parasympathetic System L. R. Muller —p 651

\*Complications Caused by Meckel's Diverticulum E. Neumann —p 655

\*Indications for Parathyroidectomy R. Wanke —p 657

Roentgenologic Aspects of Brain and Its Meninges F. Schorcher and W. Bussem —p 663

**Complications Caused by Meckel's Diverticulum**—Neumann points out that Meckel's diverticulum is a persistent remnant of the omphalomesenteric duct and occurs in from 2 to 3 per cent of persons. It may lead to intestinal obstruction or acute inflammatory abdominal disturbance. Even peptic ulcers have been known to develop in Meckel's diverticulum for it may contain islands of gastric mucous membrane as well as of pancreatic tissue. The author emphasizes that in abdominal disturbances with obscure etiology the surgeon should consider the possibility of complications due to the existence of Meckel's diverticulum. If in the course of a laparotomy done on account of symptoms indicating appendicitis the appendix is found to be normal, it is necessary to inspect the lower portion of the ileum so as not to overlook a Meckel's diverticulum. Moreover, in case of umbilical anomalies and of recurring abdominal colics, Meckel's diverticulum should also be thought of. The author reports six cases in which a Meckel's diverticulum caused complications, the type differing in every case. He observed strangulation ileus, severe inflammation and kinking as in adhesion ileus, umbilical inflammation, Littre's hernia and umbilical fistula. He emphasizes that complications arising from Meckel's diverticula may develop at any age, one of his patients was 5 and another 69 years old. Some diverticula, even large ones, never cause complications.

**Indications for Parathyroidectomy**—Wanke points out that in recent years parathyroidectomy has been done occasionally without adequate justification in disorders in which the etiology had not been cleared up as yet. He concedes that in generalized osteodystrophia fibrosa (von Recklinghausen) in which there exists a disturbance of the calcium metabolism, parathyroidectomy has been found effective. However, he thinks that the intervention should not be carried out until after the demonstration of a pathologic increase in the calcium content of the urine and the blood serum and that the metabolism should be carefully examined in doubtful cases. In cases of abnormal calcium metabolism, resulting from a hyperfunction of the parathyroids, the intervention usually discloses a tumor-

like hyperplasia of one of the lower parathyroids. The removal of this hyperplastic parathyroid body is generally followed by a decrease in the formerly pathologically increased calcium values of blood and urine. The author describes his studies on the calcium metabolism of a patient with ankylopoietic spondylarthritis (Bechterew), in whom parathyroidectomy had been done on the basis of fluctuations in the calcium content of the blood. The postoperative tests revealed that the hypercalcemia had not been influenced by the operation. The author shows that in ankylopoietic spondylarthritis the hypercalcemia is not the manifestation of a disturbance in the calcium metabolism but probably the result of an increase in the calcium that is being transported because of a calcium atrophy of the skeleton resulting from immobilization. He points out that on the basis of histologic studies on ankylopoietic spondylarthritis the disorder is not a degenerative reaction but rather a typical arthritis with round cell infiltration, hyperemia, proliferation of the connective tissue and subsequent ossification. The chemical as well as the morphologic aspects indicate that ankylopoietic spondylarthritis is not an endocrine or a degenerative disorder, and parathyroidectomy can therefore have no therapeutic effect.

### Zeitschrift für Tuberkulose, Leipzig

72: 321-456 (April) 1935

\*Pneumothorax Therapy Particularly Its Renewal K. Veiel —p 321  
Peculiar Case of Pulmonary Atelectasis in Artificial Pneumothorax G. F. Bume —p 340

Blood Picture in Tuberculosis J. Leitner —p 343  
Relation Between Physician and Patient in Public Sanatorium T. Peters —p 378

\*Tuberculosis and Endocrine System D. Epstein —p 383

**Renewal of Pneumothorax Therapy**—Veiel tried the renewal of pneumothorax in fourteen cases. He succeeded in eight, but the pneumothorax was not therapeutically effective in all of them. He gained the impression that the prospects for a successful renewal are greater in patients with exudative foci (infiltrative processes) and other signs of increased sensitivity (increased temperature and deviation to the left) than in cases with a chronic productive course. The duration of the first pneumothorax and the interval between its cessation and its renewal are of no essential importance for success or failure. The development of an exudate during the first pneumothorax does not necessarily lead to development of adhesions between the pleurae. However, in case of a large exudate later development of adhesions is probable. If the first pneumothorax is maintained until the foci have largely healed, pleural adhesions are less likely than if the pneumothorax is interrupted earlier. The author describes two cases of pneumothorax in which the lung expanded considerably under an exudate and part of the exudate entered the upper portions of the pleural cavity. This condition appeared in the roentgenogram like a pleural adhesion with a superimposed exudate. However, the introduction of a small amount of air was sufficient to collapse the lung again and let the exudate slide down. The author reaches the conclusion that, if a relapse develops in a patient who has been treated with pneumothorax, an attempt should always be made to renew the pneumothorax. Only after several such attempts have failed or the renewed pneumothorax proves ineffective is there justification to resort to thoracoplasty or to other surgical interventions. No efforts should be spared to maintain the pneumothorax until the solid healing of the foci has been effected, for that is the best protection against a relapse. If a progressing lesion makes a bilateral pneumothorax necessary, the older pneumothorax should not be discontinued too soon. The pneumothorax is most frequently interrupted on account of high exudates that may produce adhesions between the pleurae. In such cases it is necessary to watch for the onset of the resorption by regular roentgenoscopies and pressure controls and then to collapse the lung again either by simple refilling or if necessary, by withdrawal of a portion of the fluid and its replacement by air. Even in cases in which the roentgenogram seems to indicate the presence of adhesions, attempts should be made to renew the pneumothorax, for the exudate may only have been pressed upward and the lung may only lean against the thoracic wall and not yet adhere.

**Tuberculosis and the Endocrine System**—Epstein shows that a study of the relationship between tuberculosis and the endocrine system should consider three factors: 1. How do

functional anomalies in the endocrine system influence the course of the tuberculous process? 2 How does tuberculosis manifest itself in any of the endocrine glands? 3 How does the tuberculous process influence the functions of the endocrine glands without producing specific changes in them? The author first considers the thyroid and shows that tuberculosis is rare or, if present, takes a mild course in patients with hyperthyroidism. The development of tuberculous foci in the thyroid is rare, and they lack a progressive tendency when they occur. There is evidence that the thyroid is an important factor in protecting the organism against tuberculosis. The thymus likewise is rarely affected by tuberculosis and seems to play a defensive part in the organism's fight against tuberculosis. In discussing the hypophysis, the author points out that its glandular portion may be destroyed by a tuberculous process. The latter may be isolated or the manifestation of a generalized tuberculosis. Moreover, in addition to these purely tuberculous processes, tuberculotoxic changes may take place in the hypophysis. The clinical aspects of tuberculosis of the hypophysis is characterized by a deficiency of symptoms. Some authors mention the presence of comatose conditions, falling out of the hair and psychologic changes. Regarding the relation between the adrenals and tuberculosis, the author points out that insufficiency of the adrenals in the form of Addison's disease is a postprimary tuberculosis. Diabetes mellitus, the manifestation of insufficiency of the pancreas, produces a predisposition for severe forms of tuberculosis, and a tendency to caseation is most pronounced in tuberculous patients with diabetes mellitus. Moreover, tuberculosis of the pancreas is not as rare as is frequently assumed, but toxic manifestations in the pancreas in the form of a sclerosis of the organ are more frequent than tuberculous foci. Tuberculosis frequently becomes activated during the period of puberty, particularly in females. Gestation and lactation likewise seem to stimulate the tuberculous process, while during the menopause and in aged persons tuberculosis seems to take a rather mild course. Menstruation may be normal, but dysmenorrhea and amenorrhea do also occur during tuberculosis. The author mentions increased libido during tuberculosis, exacerbation of the tuberculous process with the onset of pregnancy, rare concurrence of severe phthisis and testicular tuberculosis, and retardation of the tuberculous process following castration. Some authors warn against the use of ovarian preparations in amenorrheal patients with tuberculosis.

### Zentralblatt für Gynäkologie, Leipzig

59 961 1024 (April 27) 1935 Partial Index

- \*Studies on Physiology of Milk Production K. J. Anselmino L. Herold and F. Hoffmann—p. 963
- Puerperal Mastitis K. Holzapfel—p. 969
- \*Use of Urine of Pregnant Women in Form of So-Called Hormone Clysters in Treatment of Menstrual Disturbances R. Tachezy—p. 972
- \*Decidua Formation in Cervical Polyps and Its Diagnostic Significance H. Willer—p. 979

**Physiology of Milk Production.**—Anselmino and his associates show that by means of female sex hormones it is possible to produce in the rudimentary mammary glands of castrated male rabbits the changes that are characteristic of pregnancy and that the male animals can be brought to lactation if they are treated subsequently with the lactation hormone of the anterior lobe of the hypophysis. In studying the developmental phases through which the mammary glands of these animals pass, the authors found that the follicular hormone stimulates the growth of the lactiferous ducts and that, following this preliminary treatment, the alveoli develop under the influence of the active principle of the corpus luteum in collaboration with small amounts of estrogenic substance. After the mammary glands have been completely developed under the influence of the female sex hormones (follicular hormone, active principle of corpus luteum and estrogenic substance) they respond to the lactogenic stimulation of the lactation hormone of the anterior lobe of the hypophysis and true lactation develops in the castrated male animals. The action of the lactation hormone is dependent on the developmental stage of the mammary glands, the hormone is ineffective if the alveoli are not sufficiently developed. Thus, whereas the female sex hormones produce the development of the female breast without stimulating lactation the hormone of lactation elicits lactation with-

out influencing the development of the mammary gland. The concerted action of the various hormones results in lactation.

**Urine of Pregnant Women in Treatment of Menstrual Disturbances.**—Tachezy employed the urine of healthy women who were in an advanced stage of pregnancy. He administered the urine in the form of enemas. In order to obtain a more rapid resorption, the so called hormone enema of 100 cc. of urine from pregnant women was preceded by a cleansing enema. The number of hormone enemas differed in the various cases. In one of the patients, fifty-two were administered in twenty six days. The author employed them in nineteen cases, especially in patients with oligomenorrhea and amenorrhea. The results were satisfactory in most cases. The treatment had a favorable effect not only on the ovarian function and menstruation but also on the entire organism. The author thinks that the favorable effect of these hormone enemas may be due to the fact that a not entirely pure hormone preparation was used. He points out that Siebert likewise expressed the opinion that an incompletely purified preparation is more effective than crystalline estrogenic substance. It is possible that accompanying substances facilitate the resorption. The method has the advantage that it permits the administration of large quantities of hormone in a form in which they are eliminated by the organism. The author concedes that the method is not esthetic but emphasizes that it is inexpensive and generally easily obtainable.

**Decidua Formation in Cervical Polyps.**—Willer describes the histories of four women with decidua formation in cervical polyps and the simultaneous existence of intra-uterine pregnancies and gives a tabular report of seventeen cases he found in the literature. In discussing the development of the ectopic decidua formation in cervical polyps he emphasizes the importance of inflammatory processes, on the basis of which develop changes that resemble greatly the mucous membrane connective tissue of the uterus and on which the specific hormone actions of pregnancy can exert their influence so that a decidua transformation may take place. This signifies that the detection of ectopic decidua formation in a cervical polyp removed on account of hemorrhages or other manifestations may eventually be the first sign of an existing pregnancy. The author cites a case in which he thinks that a previously unrecognized pregnancy might have been preserved if instead of an immediate curettage, the results of the histologic examination of the polyp had been awaited.

### Vrachebnoe Delo, Kharkov

18 196 (No. 1) 1935 Partial Index

- Procaine Hydrochloride Blocking as Method of Influencing Nourishment of Tissues A. V. Vishnevskiy—p. 1
- Symptoms and Treatment of Pneumonia in Children P. S. Medovikov—p. 17
- Symptoms of Miliary Tuberculosis in Early Childhood S. V. Rodkin and P. S. Klimentko—p. 23
- Bacteriologic Diagnosis of Epidemic Cerebrospinal Meningitis V. S. Derkach—p. 55
- \*Autohemocerebrospinal Fluid Therapy of Chronic Encephalitis (Parkinsonism) V. Seletskiy D. M. Mitnitskiy and A. A. Fridman—p. 61

**Treatment of Parkinsonism.**—Seletskiy and his co-workers report a method of treating chronic encephalitis (parkinsonism) by injection of the patient's own blood in the cerebrospinal canal. The method consists of first withdrawing 1 or 2 cc. of cerebrospinal fluid and replacing it by the same amount of blood taken from the vein of the patient. From three to five treatments were given at intervals of from five to seven days. The first two injections were well borne, headache, nausea, malaise or rise in temperature not being noted. The subsequent injections were not so well tolerated, and the patients complained of fatigue and loss of appetite. The treatment was administered to ten patients. The earliest improvement was noted in the gait, which became livelier, freer and more energetic. The masklike facial appearance diminished and the voice became stronger and louder. The patients became less apathetic and more sociable and communicative. In some of the patients there was a diminution of salivation, improvement in the act of mastication and to some degree diminution of the symptom of propulsion. However, the tremor of the hands and feet as well as myoclonia were not in the least benefited. The effects of the treatment are temporary, but repetition of it again produces favorable results. The authors regard the improvement in the symptoms as a nonspecific protein effect.

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## THE CLINICAL USE OF ANESTHETIC AGENTS AND METHODS

CHAIRMAN'S ADDRESS

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It has been suggested that I discuss the extent to which the inexperienced person may be justified in using certain anesthetic agents, in comparison with persons who are experienced in the use of these agents.

The factor that should receive first consideration in the clinical use of an anesthetic agent is safety both at the time of administration and subsequently. It seems best to discuss each agent separately and briefly and to stress general principles that seem to me controversial only in isolated instances.

*Derivatives of Barbituric Acid*—In certain emergency cases any practicing physician is justified in using the barbiturates in large doses, for example, in cases of tetanus, eclampsia of pregnancy, or convulsions caused by meningitis or by strychnine poisoning. A derivative of barbituric acid is most effective when given intravenously. The Council on Pharmacy and Chemistry of the American Medical Association has issued two valuable reports on the intravenous use of barbitol compounds.<sup>1</sup> When a barbiturate is given intravenously, the rate of injection should be slow enough so that marked depression of respiration does not occur, since individuals vary, no rule can be given other than that the respiration must be watched. Perhaps as important as the rate of injection is the initial assurance that the stomach is empty and, thereafter, maintenance of a good airway. A sterile, soluble salt should be used for intravenous administration. If only the insoluble acid is available, it can be given by mouth, in tablets or capsules, if the patient can swallow, if he cannot swallow, it can be given by rectum. The general practitioner advisedly gives the barbiturates by mouth, in small doses, as sedatives. It is now apparent that these drugs are habit forming to certain types of individuals and I feel that if the patient becomes addicted to the use of a barbiturate that patient may possibly be emotionally unstable and constitutionally inferior, with psychopathic tendencies. As preoperative or postoperative medication, these drugs are valuable and are safely used in small doses in the majority of cases. Intravenous injection of the barbiturates to produce surgical anesthesia should be confined to minor operations of short duration, and administration should

be by experienced persons. These injunctions should hold until it has been definitely shown that the drug has a wide margin of safety and that fatalities are unlikely to occur from moderate overdosage.<sup>2</sup> The latter requirement for safety, in all probability, never can be met, and so I advise against the giving of the barbiturates intravenously by those inexperienced in their administration whenever another anesthetic agent can be used instead. If, for some reason, it is the only anesthetic available, or if no other one can be used, the administrator must see to it that the patency of the airway is maintained.

*Tribrom-Ethanol in Amylene Hydrate (Avertin in Amylene Hydrate)*—This substance with the long names is a substitute for ether in olive oil when the rectal or colonic method of producing anesthesia is to be used. Rectal administration of any anesthetic agent is not ideal, for absorption varies with individuals. The physiologic action of tribrom-ethanol in amylene hydrate is similar to that of chloral hydrate and it may be used by the inexperienced person, provided the dose is not larger than that which will produce basal anesthesia, provided use of the drug is avoided if the patient has an extensive pulmonary disease, with cavitation, such as tuberculosis and bronchiectasis, provided it is not employed in the presence of advanced disease of the liver, pancreas, or kidneys, and provided the user follows carefully the directions for preparing the solution that accompany the drug. Preliminary medication not to exceed the average dose may be used to advantage in connection with this drug, and a patent airway must be maintained at all times. The experienced will be able to use tribrom-ethanol alcohol in amylene hydrate in larger doses and in a greater variety of cases than the inexperienced. Its use is being presented at this meeting by Drs Shipway and Wood.

*Cyclopropane*—Cyclopropane ( $C_3H_6$ ) is the anesthetic gas most recently made available, and it has been introduced by Waters,<sup>3</sup> wisely, in a conservative manner. The time has not yet come when it can be safely used as a routine by the inexperienced person. Even the occasional user and the experienced anesthetist will find that the agent should be administered carefully and its effect observed constantly. This is especially true when Guedel's<sup>4</sup> apneic technic, or any approach to it is attempted. Although anesthesia may be induced quickly with this agent, it is not advisable to hurry the induction of anesthesia with it. The inflammability of the agent is a definite hazard. Its effect on the heart has not yet been definitely established, however, some experiments are being reported and may lead to further clinical investigation. It must be obvious, therefore,

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Read before the Section on Miscellaneous Topics, Session on Anesthesia, at the Eighty-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1935.  
<sup>1</sup> Council on Pharmacy and Chemistry. Intravenous Use of Barbitol Compounds. J. A. M. A. 97:1886-1890 (Dec. 19) 1931. 101:208-209 (July 15) 1933.

<sup>2</sup> Lundy J. S. and Tovell R. M. Annual Report for 1934 of the Section on Anesthesia Including Data on Blood Transfusion Proc. Staff Meet. Mayo Clin. 10:257-272 (April 24) 1935.

<sup>3</sup> Waters R. M. and Schmidt E. R. Cyclopropane Anesthesia—J. A. M. A. 103:975-983 (Sept. 29) 1934.

<sup>4</sup> Guedel A. E. Personal communication to the author.

that as yet more than usual caution should be exercised in the use of this agent. However, for either the experienced or the inexperienced person, I think that this agent would be safer from the standpoint of purity and fire hazard than acetylene, for the use of which I think there is no longer a justifiable reason in this country.

**Ethylene**—Ethylene ( $C_2H_4$ ) may be used by the relatively inexperienced individual with relative safety if fire hazards and anoxemia are carefully avoided.

**Nitrous Oxide**—Nitrous oxide ( $N_2O$ ) should not be used by those who are totally inexperienced. It may be employed with relative safety by the occasional user and it is used advantageously by the experienced person.

**Diethyl Ether**—Diethyl ether ( $C_2H_5$ )<sub>2</sub>O is one of the safest agents that the inexperienced can use and yet produce relatively satisfactory anesthesia. It is the agent most frequently resorted to by even the experienced when surgical anesthesia with other agents is unsatisfactory. The method of its administration is simplest when the drop method is used, and for the inexperienced this method is the safest. The experienced person seldom resorts to the drop method but often adds ether to the gases. Use of anesthesia produced by oil and ether, given rectally, should be limited to the experienced anesthetist, but analgesia or basal anesthesia may be used with safety by the inexperienced, especially in anesthetization of obstetric patients.

**Divinyl Ether**—Divinyl ether ( $C_2H_3$ )<sub>2</sub>O should not be used by the inexperienced person as yet. The experienced will probably use it only occasionally until it has been definitely established that it has advantages over ethyl ether. Other ethers need not be considered here because they are not readily available.

**Chloroform**—Chloroform ( $CHCl_3$ ) in anesthetic doses should be administered only by one experienced in its use and by one who recognizes its dangers and contraindications. Its use as an analgesic in very small quantities is widespread and in obstetrics it seems to be generally useful and practical. One who uses this agent should be cautious not to administer it in concentrated form, that is, without admixture with sufficient air, and when possible some other agent is to be preferred.

**Ethyl Chloride**—Ethyl chloride ( $CH_3CH_2Cl$ ) may be used with considerable safety for freezing areas that are to be incised, and its administration for local anesthesia requires almost no experience. However, as a general anesthetic agent its use should be limited to the experienced user. The occasional user may use it with relative safety in very small amounts at the beginning of induction of anesthesia, to be followed by ether. In any event, when it is used as a general anesthetic the open drop method should be employed in preference to spraying it on the mask. Only the experienced should use the closed method in administering ethyl chloride.

**Regional Anesthesia**—This is so valuable in the hands of those who are experienced in its use that I think the inexperienced person should be encouraged to use it in suitable cases provided he will bear in mind that one should aspirate before injecting procaine, to avoid intravenous injection, that procaine is the safest drug to use for this purpose, that procaine rarely should be injected in concentration greater than 1 per cent.<sup>5</sup>

unless the amount to be injected is very small as, for example, for dental block, and that the rate of injection should be relatively slow, as a further precaution against untoward reactions attributable to intravenous injection. A further protection against the convulsive effect of procaine is given by administration to the patient of small quantities of a barbiturate before the injection is made. Oral administration of a barbiturate, from thirty to forty minutes beforehand, is recommended.

**Local Anesthesia**—Local, or infiltration, anesthesia, with the use of dilute solutions of procaine, is the safest method and agent with which to produce anesthesia, and I think it should be used by the inexperienced as well as by those who are experienced. It should be borne in mind however that, when epinephrine is added to the solution, its proportion should be such that its dilution will be high, say 1:250,000 or even higher. Further, any one who uses a local anesthetic agent should make certain that the drug supplied is the drug desired and that it has been properly prepared and is of the proper concentration. A sharp needle should be used, and the least amount of trauma should be produced by minimizing the number of times the needle passes through the tissues.

**Spinal Anesthesia**—This is a method that depends for its success on the judgment of the person administering it, and it should not be used by the inexperienced. The occasional user should limit the dose to that which is considered safe and he should avoid the method if patients are markedly debilitated, that is, if recently they have lost much weight, if their hemoglobin is of very low concentration, if they have had recent severe hemorrhage, or if marked hemorrhage may occur during the operation, the method is not safe, either, in the presence of marked dehydration and inanition. In using spinal anesthesia, it is often combined with gas anesthesia, but combination of spinal anesthesia with drop ether anesthesia should be avoided if possible.

**Mixtures**—Mixtures of anesthetics such as alcohol, chloroform and ether, or alcohol, chloroform and ethyl chloride are, I think, as dangerous as their most dangerous constituents, and at present I think that use of mixtures should be avoided, especially by the inexperienced.

**Morphine Sulphate**—Morphine is injected subcutaneously with relative safety. Its use intravenously probably should be limited, but occasionally it is advantageously given intravenously, especially in the presence of very severe pain or in an emergency case when a quick effect is necessary. If ether is to be administered rectally in oil, morphine is a good drug to use in order to slow elimination of the ether from the lungs. Morphine is well omitted as preliminary medication if ether is to be given by the open drop method, not because most patients will do poorly when both are used but because, in a few cases, the combined effect will depress the respiratory center prior to the appearance of relaxation, when relaxation is important and cannot be obtained, the operation may be materially interfered with. One of the barbiturates can well replace morphine if ether is to be administered by the open drop method.

**Magnesium Sulphate**—The use of magnesium sulphate ( $MgSO_4$ ) should, I think, be limited to the experienced person because, if it is given superficially rather than intramuscularly, an abscess may develop. There must be no question of its sterility and only prepara-

5. Mayer, Emil. The Toxic Effects Following the Use of Local Anesthetics. An Analysis of the Reports of Forty-Three Deaths Submitted to the Committee for the Study of Toxic Effects of Local Anesthetics of the American Medical Association and the Recommendations of the Committee. J. A. M. A. 82: 876-885 (March 15) 1924.

tions of it that are put up in ampules should be used. Its advantages are not sufficient to justify its use in the hands of an inexperienced person.

**Idiosyncrasy**—When a patient advises against the use of a certain drug or says that he has an idiosyncrasy to any anesthetic agent, local or general, this warning should not be ignored and, if possible, use of the drug should be avoided. In the event that it must be used, tests should be carried out, only the smallest quantity of the agent being used, to determine, if possible, whether the patient is hypersensitive to its effect. This is probably best carried out by the patch test, which is done by applying a very small amount of the agent on an applicator and holding it against the skin for a specified time, together with a control.

#### SUMMARY

There are three types of persons who administer anesthetics (1) the experienced, (2) the occasional user and (3) the inexperienced. This paper is especially intended for the one who would be considered inexperienced, even though he might have informed himself by reading or by other means than the actual use of anesthetics. The inexperienced person who has attended good demonstrations of the use of a given agent is an exception. There is no better way to teach the art of anesthesia than by practical demonstrations, and I would advise those interested in anesthesia, but who are inexperienced, to take advantage of present-day opportunities to receive such teaching.

The anesthetist, whatever he sees demonstrated, whatever he knows, and whether he is experienced or inexperienced, should never forget that, of two anesthetic agents of similar toxicity, the more volatile one is the safer.

## SILENT MASTOIDITIS

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The diagnosis of silent mastoiditis is often difficult because of the very mild systemic as well as local manifestations of the disease.

Silent mastoiditis may be defined as an insidious progressive destruction of the mastoid process with or without otorrhea. The disease is afebrile and painless in its course. The tympanic membrane is usually involved, the hearing may be slightly or considerably impaired, and a history of some middle ear infection is frequently obtained.

Occasionally the ear condition is discovered only after the appearance of systemic or intracranial complications. In infants postauricular swelling or subperiosteal abscess may often be the first indication of mastoid involvement.

The response to timely surgical intervention is usually satisfactory, but failure to recognize the condition may lead to serious consequences.

Silent mastoiditis has been discussed in otologic literature under various and confusing names. Thus, Amberg<sup>1</sup> suggests dividing mastoid disease into three groups: mastoiditis acutissima, acuta and subacuta. The objection to the use of the name subacute mastoiditis for the disease discussed here is that it is a type of true mastoiditis preceded by no obvious acute phase.

"Latent mastoiditis"<sup>2</sup> and "mastoiditis without apparent involvement of the middle ear"<sup>3</sup> are terms that have been used most freely in recent years. Hempstead<sup>3</sup> differentiates the two. "Mastoiditis, without apparent involvement of the middle ear, should not be confused with latent suppurative otitis media. In these cases there is deafness and sometimes pain, but no spontaneous discharge of pus. The tympanic membrane is without luster, full, and sometimes markedly bulging, and paracentesis is always followed by the discharge of pus."

The descriptive phrase "primary mastoiditis"<sup>4</sup> is being employed less often, and nearly all careful observers doubt whether mastoiditis, excluding the traumatic type, is ever primary.

Other terms employed to describe this condition are asymptomatic,<sup>5</sup> atypical evolution,<sup>6</sup> atypical,<sup>7</sup> hidden,<sup>8</sup> dry necrosis,<sup>9</sup> hyperplastic serosa,<sup>10</sup> idiopathic,<sup>11</sup> insidious,<sup>12</sup> painless,<sup>13</sup> symptomless,<sup>14</sup> unusual types,<sup>15</sup> vacuum,<sup>16</sup> without tympanitis,<sup>17</sup> and the like. Most of these terms do not express the entire clinical and pathologic picture and do not hint at the main features of the disease.

For the sake of uniformity it is suggested that the term "silent mastoiditis" should be adopted, except when the classic acute mastoiditis is described with a subtitle to indicate the pathologic factor. This is particularly desirable since the term "silent" is frequently employed for similar clinical pictures, such as silent tuberculosis, silent bronchiectasis and silent gallstones.

Great progress has been made in the surgery of the temporal bone, in reducing mortality, in the duration of postoperative treatment, and in postauricular disfigurement.

Although Friesner<sup>18</sup> recently suggested a chemical test of the aural exudate to determine bone destruction, time alone will tell whether this is satisfactory. For the present, the physician still relies on his experience and clinical judgment. When to operate is a question of debate on which internists, surgeons and otologists themselves are by no means in agreement. There are some who operate early and others who prefer to wait, even in strongly suggestive cases. In Dench's<sup>19</sup> opinion, an ear discharge that does not clear up in two weeks justifies mastoidectomy.

- 2 Braun, Alfred. Latent Mastoiditis with Epidural Abscess. *Ann Otol Rhin & Laryng* 19:382-386 (June) 1910.
- 3 Hempstead, B. E. Mastoiditis Without Apparent Involvement of the Middle Ear. *J A M A* 81:1266-1270 (Oct. 13) 1923.
- 4 Sonnenschein, Robert. Primary Mastoiditis with Report of a Case. *Illinois M J* 32:167-169 (Sept.) 1917.
- 5 Kopetsky, S. J. *Otologic Surgery*, ed 2, New York: Paul B. Hoeber, 1929, p. 4.
- 6 Del Piano, J. I. and Hits, R. Interpretacion de la Evolucion Mastoidea en los Niños. *Semana méd* 1:1081 (March) 1933.
- 7 Phillips, W. C. and Friesner, Isidore. Report of Five Cases of Mastoiditis with Atypical Symptoms. *J A M A* 78:1796-1797 (June 10) 1922.
- 8 Thevenard, Gabriel. Les mastoïdites profondes. *Librairie littéraire et médicale Paris Thèses de la Faculté de médecine de Paris* 53:660 1919-1920.
- 9 Wilkinson, Oscar. A Case of Dry Necrosis of the Mastoid Cells. *M Rec* 81:1188 (June) 1919.
- 10 Jervey, J. W. Mastoiditis Hyperplastica Serosa. *J A M A* 79:377-378 (July 29) 1922.
- 11 Dabney, Virginius. Idiopathic Mastoid Abscess. *J A M A* 65:501-504 (Aug. 7) 1915.
- 12 Sharpleigh, J. B. Insidious Mastoiditis. *J Missouri M A* 12:197-201 (May) 1915.
- 13 Buck, A. H. Comparatively Painless Mastoid Disease. *Tr Am Otol Soc* 6:147-162 1895.
- 14 Asherson, N. Symptomless Mastoiditis. A Report of Four Cases. *Lancet* 1:343-345 (Feb. 14) 1931.
- 15 Kemler, J. I. Unusual Types of Mastoiditis. *Arch Otol* 3:148-150 (Feb.) 1926.
- 16 Keiper, G. E. Vacuum Mastoid, in discussion on Hempstead<sup>3</sup>.
- 17 Tomlin, W. S. Report of a Case of Suppurating Mastoiditis with out Tympanitis. *Indianapolis M J* 19:95-97 (March) 1916.
- 18 Friesner, Isidore and Rosen, Samuel. A New Aid in the Diagnosis of Mastoiditis. *Arch. Otol* 7:317 (April) 1923.
- 19 Dench, E. B. D. Obscure Cases of Mastoid Involvement. *New York M J* 103:529-532 (March) 1916.

Koerner<sup>20</sup> has always found bone destruction when there is a profuse ear discharge lasting from four to six weeks. He believes however that, when the discharge tends to diminish in character but lasts even longer than from four to six weeks, bone involvement may or may not be present.

Indeed, the patient with silent mastoiditis presents a most perplexing problem to the otologist. In many instances the symptoms are so slight that it is difficult to convince the patient or even the family physician that the pathologic process is in the mastoid cell.

The following case will illustrate this point.

CASE 1—B S, a man, aged 47, married, a dentist, developed a sharp pain in the right ear after surf bathing four days previously. After six hours the ear drum ruptured and the pain subsided. On examination, Aug 27, 1929, his right ear showed a small amount of pus. When this was wiped away, a small central perforation was apparent. There was no tenderness over the mastoid region, nor was there any other significant objective sign. Hearing was slightly diminished. The rectal temperature was 98.6 F. The patient was advised to have the drum incised in order to allow better drainage, but he refused to submit to myringotomy until the third week of his illness.

From then on he continued under office treatment and observation for ten weeks, throughout which time the rectal temperature varied from 98.6 to 98.8 F. There were no other outward signs or symptoms except for some diminution of hearing on the right side and some narrowing of the right ear canal. The patient continued with his professional and social duties without any interruption until October 25, almost ten weeks from the date of the onset, when he was seized with a severe right-sided hemicrania. Objectively, except for some pain on deep pressure over the antrum region, there were no significant changes.

A roentgenogram at this time showed evidence of a large cavity occupying nearly all of the lower half of the mastoid process. The blood count revealed leukocytes, 7,400, neutrophils, 80 per cent, of which 67 per cent were segmented form and 13 per cent band form, 16 per cent lymphocytes, and 4 per cent mononuclears.

He was admitted to Sydenham Hospital and October 30 a mastoidectomy was performed. At operation an empyema of the mastoid with a perisinuous abscess was found. The post-operative course was uneventful. The wound healed on the third postoperative week. The ear canal was dry and hearing returned to normal.

#### ETIOLOGY AND PATHOLOGY

It is generally conceded that all cases of middle ear infection are accompanied by mastoid involvement. In the great majority of cases the process in the mastoid resolves spontaneously, although a small but appreciable percentage pursues a silent course. The probable explanation for this, although necessarily conjectural, is nevertheless based on clinical experience. The virulence of the organism and the resistance of the individual play an important rôle.

Anatomic variations of the temporal bone must be regarded as important factors in influencing the course of the disease. Mithoefer<sup>21</sup> thinks that a thick cortex masks the symptoms greatly. A narrow antrum will dam the secretions. In a small-celled mastoid, "the small alveoli, besides being invested with a thin epithelium, also contain a connective tissue layer in the interstices of which are present large numbers of leukocytes. The latter offer a certain amount of protective influence, which may limit the spread of the

infection for the time being and may have a tendency to establish a latent character of the disease."

The same condition might also explain the absence of reaction temperature. For the absence of pain even in cases of empyema of the mastoid process, Buck<sup>13</sup> suggests that the various organisms responsible for the bone destruction may produce toxins possessing a decidedly anesthetic power over the sentient nerve fibers. He cites tuberculous ear involvement as an example.

Free pus may or may not be found. One usually encounters an abundance of granulation with bone destruction and, frequently, exposure of the dura over both the lateral sinus and the middle fossa.

Any organism may cause either silent or typical mastoiditis. *Streptococcus mucosus-capsulatus* of Schottmüller (type III pneumococcus) deserves special attention. It causes a type of otitis and mastoiditis that differs considerably from the ordinary suppurative organism. It is endowed with the ability to destroy bone quietly, and it has a marked predilection for nerve structure.

Clinically, according to Dickie,<sup>22</sup>

the onset of mucous otitis is characterized by painlessness and absence of fever. There is some impairment of hearing, tinnitus, and a sensation of fullness in the ear. The drum head shows only trifling changes, such as slight opacity with reddening of the malleus. Frequently no perforation occurs and the condition apparently subsides, although the deafness and a sensation of fullness persist. After a period varying from one to as long as three months, symptoms of mastoiditis or intracranial complications develop. During the quiescent stage it is unusual to find mastoid tenderness, even where there is extensive caries of the underlying bone. The discharge is noticeably sticky and mucoid.

The condition in its earlier stages is almost indistinguishable from mucoid subacute middle ear catarrh, hence the latter condition must always be viewed with suspicion and kept under observation for some time.

The following case is typical.

CASE 2—H S, a married man, aged 54, a merchant, seen Jan 4, 1933, had had a head cold six weeks before, followed a week later by pain in the left ear. Four days later the ear drum was incised by his local physician with temporary relief. About one week later the pain in the ear returned and the drum was re-incised. The ear discharge gradually decreased, but a severe buzzing in the left ear and mild headaches persisted.

On examination the patient appeared to be well nourished, but his tongue was thickly coated. The left ear canal was filled with a thin mucopurulent discharge, there was a small perforation in the lower external quadrant, and the fundus was narrowed. There was decided evidence of periostitis in the region of the left mastoid. He could hear neither the whispered nor the spoken voice with his left ear, while tuning fork tests showed loss of hearing for both high and low tones. The Weber lateralization was not conclusive. The rectal temperature was 99.6 F.

These changes suggested the clinical diagnosis of mastoiditis due to *Streptococcus mucosus-capsulatus*, and immediate operation was advised. At the hospital, urinalysis and complete blood examination were essentially negative. However, the roentgen examination showed the left mastoid hazy, the trabecula absorbed, and interseptal markings coalesced. At operation the following day the superficial layers of the mastoid cells were found to be necrotic and filled with granulations. The deeper layers and the aditus ad antrum were filled with pus. A simple mastoidectomy was performed. While culture from the canal revealed *Streptococcus haemolyticus*, that from the mastoid showed *Streptococcus mucosus-capsulatus*. The post-

20 Koerner quoted by Amberg, Emil. Why Mastoiditis Is Sometimes Misunderstood. *M. Rec.* 76: 641-644 (April) 1909.  
21 Mithoefer, William. Latent Mastoiditis. *Lancet Clinic*. May 1914 pp. 552-555.

22 Dickie, J. K. M. in Jackson, Chevalier and Coates, G. M. The Nose, Throat and Their Diseases. Philadelphia: W. B. Saunders Company 1929 p. 445.



operative course was uneventful. After four weeks the mastoid wound was completely closed, the ear dry, and the perforation healed. Hearing returned to normal, but the tinnitus, though diminished, was still annoying.

#### DIAGNOSTIC CRITERIA

Of necessity, diagnostic criteria must be presented with reservations. Although no single sign or symptom is conclusive in the diagnosis of silent mastoiditis, a correlation of all evidence presented will lead, in most cases, to a correct conclusion.

1 *History*—A careful history of the onset of all symptoms, no matter how slight, their clinical course and their present status is of prime importance. The type of treatment and its effects on the subjective or objective changes should be considered.

2 *Discharge*—The absence of aural discharge is rare. When otorrhea exists, the duration and nature of the discharge should be noted. Bone involvement must be strongly suspected if, in spite of intelligent treatment over a period of three weeks, the discharge has not abated or ceased, so that the patient states that his pillow is considerably stained with pus after he has lain on the diseased side. The type of discharge is most important. A thin discharge is generally due to an involvement of the mucous membrane of the middle ear, whereas a thick, fetid discharge usually signifies bone necrosis.

3 *Hearing*—Repeated examinations of the hearing on the affected side are sometimes helpful. Progressive loss of hearing indicates bone or auditory nerve involvement. Unfortunately, good hearing does not exclude the possibility of extensive bone destruction or serious intracranial complications.

4 *Objective Manifestations*—Pasty appearance, thickly coated tongue and loss of weight may be in evidence. The drum head usually shows definite changes, such as narrowing of the external auditory meatus near its fundus with apparent shortening of the meatus. Deep mastoid tenderness and edema over the mastoid area late in the disease (Griesinger's sign), no matter how slight, are further indicative.

5 *Headaches*—Headaches must be carefully watched for. No other symptom merits more consideration on the part of the attending physician. One should not wait until the patient complains of headaches but should make constant, though diplomatic, inquiry to discover this symptom. Headache is probably nature's first signal of some meningeal irritation before the meninges are actively invaded.

6 Nausea and vomiting are of significance.

7 Sleeplessness and restlessness at night are often valuable clues, especially in children, in cases in which other information is either unobtainable or unreliable.

8 *Transillumination*—The use of the Mosher transilluminator is advocated by Bacon,<sup>23</sup> and Shambaugh is very enthusiastic about this diagnostic aid. In a drawn out case of silent mastoiditis, in which repeated radiographic examinations are not practicable, this method might be of value.

9 *Laboratory Aids*—A great deal has been written on this phase of the subject, and the literature reflects the lack of adequate evaluation of the various laboratory procedures as diagnostic aids. These can be grouped as (1) bacteriologic, (2) hematologic and (3) radiologic.

**Bacteriologic** Bacteriologic studies are of some diagnostic and prognostic aid. Only smears obtained from the ear canal at the time of or very shortly after the paracentesis or spontaneous rupture are of value. Later on the infection becomes a mixed one.

The presence of either the hemolytic or the non-hemolytic streptococcus does not necessarily indicate serious involvement, since most of these cases, in spite of their stormy onset, subside very quickly. However, the presence of an encapsulated streptococcus should put the physician on his guard immediately. Absence of the capsule does not, per se, absolutely exclude this organism, because of its known ability to lose the capsule in certain culture mediums.

In suggestive cases the tubercle bacillus should be searched for, and guinea-pig injections may be necessary. Mycotic infection of the ear canal is not uncommon. In rare instances Vincent's organism is at the bottom of the trouble and should be looked for. The diphtheria bacillus in ear infections has been reported on a number of occasions.

**Hematologic** It is essential to bear in mind that the lesions confined to the cellular bone structure do not show as high leukocytolysis or relative polynucleosis as when the soft parts are involved. Hence a high blood count does not necessarily indicate mastoid disease, nor does a low one exclude it. In this connection the Schilling count may be helpful. The main practical feature of the Schilling count is the recognition of the nonsegmented (band) neutrophil cell, which normally constitutes from 4 to 8 per cent of all leukocytes. According to Eisenberg and Nemens.<sup>24</sup>

If the infection is progressing, the most dependable hematologic sign is the increase in percentage of the band cells regardless of whether the total leukocyte (W. B. C.) count and the total neutrophil count rise. If the two latter counts are also high, it is ever so much more favorable than when they are low. This would point to the exhaustion of the hematopoietic activity of the bone marrow. In other words, the steady rise of the band cell points to an invasive, progressive nature of the infection, pus formation and, if postoperative, to unfavorable termination.

3 **Radiologic** In every case in which mastoid involvement is suspected, a roentgenogram should be made. The following should be looked for: (1) direct evidence of bone destruction, (2) regional anatomy—whether the mastoid is pneumatic, diploic, sclerotic, large, small or mixed cell type, and the position of the lateral sinuses. Not only is this information of assistance in interpreting the clinical behavior but it is also of definite value at the time of the operation.

It is necessary to emphasize here that particular attention should be paid to the radiologic technic, careful angulation and proper exposure being employed since failure to do so may give misleading results. It is also necessary to bear in mind that a previous infection in the same ear may confuse the picture and must be differentiated from the current pathologic changes.

#### DIFFERENTIAL DIAGNOSIS

In the differential diagnosis of silent mastoiditis the following conditions, according to Turner,<sup>25</sup> must be excluded.

1 **Tuberculosis** of the middle ear, which has a painless onset. The discharge is watery in the beginning and later becomes flocculent. It may also become

<sup>23</sup> Bacon, Gorham. Laboratory Aids in the Diagnosis of Mastoid Disease, *M. Rec.* 86:13 (July) 1914.

<sup>24</sup> Eisenberg, A. A. and Nemens, H. S. Value of the Schilling Hemogram in Infections. *Am. J. Surg.* 21:56-71 (July) 1933.  
<sup>25</sup> Turner, A. L. Diseases of the Nose, Throat and Ear, ed. 3. Baltimore, William Wood & Co. 1932, p. 396-398.



offensive and purulent The lymph glands surrounding the ear are enlarged Multiple perforations of the tympanic membrane are pathognomonic Facial paralysis develops in 45 per cent of the cases

2 Syphilis, which is characterized by a rapid onset of deafness, and the labyrinth is often affected Tinnitus is marked and giddiness may be present Pain is very slight

3 Malignant conditions Carcinoma in adults and sarcoma in children are very rarely encountered Here discharge is copious and fetid The granulations are exuberant, bleed easily, and recur readily after removal

#### PROGNOSIS

The large number of chronic cases of discharging ears of many years' standing which do not respond to local conservative treatment are instances of an old, overlooked silent mastoiditis Besides being annoyed with constant or remittant otorrhea, the patient finds his hearing becoming more and more impaired on the involved side, and frequently an increased severity of symptoms may necessitate a radical mastoidectomy, with total loss of hearing as a postoperative result

The following case is an example of a silent mastoiditis on one side and a flareup on the other side in a patient who had had a silent mastoiditis twenty-five years previously The patient also suffered from chronic lymphatic leukemia and diabetes

CASE 3—S H, a man, aged 68, married seen in the office, April 17, 1929, had had a pain in the right ear, following a mild infection of the upper respiratory tract four weeks before, which discharged spontaneously forty-eight hours later with abatement of the local pain There followed a profuse aural discharge, for which he had been under the care of a local physician. A week before the examination he had been suffering from a severe hemiparesis, with an impairment of hearing on the affected side There was a history of diabetes mellitus of long duration About twenty-five years before, after a mild acute otitis media, his left ear drum had ruptured spontaneously There had been a remittent aural discharge, which, except for the deafness on that side, had given little trouble.

On examination, both ears were found to be filled with thick pus There was a large central perforation in the left ear drum, with pus under pressure coming out constantly The left tympanic membrane was practically destroyed There was no local tenderness or edema in either mastoid region and no Romberg sign, spontaneous nystagmus, ataxia, or past pointing He could hear only loudly spoken voices The rectal temperature was 98.6 F Hospitalization was advised for immediate treatment of what seemed to be right silent mastoiditis

The patient was admitted to Sydenham Hospital the same day Urine examination revealed sugar, 27 per cent, acetone, present, blood sugar, 250 mg per hundred cubic centimeters, blood count hemoglobin, 79 per cent, red blood cells, 4,064,000, white blood cells, 9,600, polymorphonuclear leukocytes, 18 per cent, of which 12 per cent were band forms, large lymphocytes, 78 per cent, mononuclears, 2 per cent, lymphoblasts, 4 per cent, and many basket-shaped cells At a subsequent blood examination the large lymphocytes increased to 92 per cent

After the administration of sufficient insulin to control the excess of blood sugar, the patient was operated on the following day The right mastoid was filled with thick pus There was enormous destruction of bone, with epidural and perisinuous abscesses Culture from the mastoid showed *Streptococcus nonhaemolyticus* The postoperative course was uneventful, and the patient left the hospital on the tenth day in the care of his local physician He was again seen, May 6 The right mastoid wound was almost completely healed, the ear was dry, and the perforation was closed. He complained, however, that shortly after reaching home he had discovered that his left ear had flared up with profuse discharge and

almost constant pain. There had been an extremely severe left hemiparesis for the past five days, which also kept him awake at night

Exacerbation of the left chronic mastoiditis was evident, and he was operated on the next day Although a radical mastoidectomy was indicated, a simple one was performed at this time because of the patient's debilitated condition On this occasion as well, the postoperative course was uneventful, and he returned home two weeks later When examined three months later, both mastoid wounds were healed, the ears were dry, and the left tympanic membrane even showed a tendency toward regeneration Hearing in both ears improved considerably but did not return to normal

It is safe to say that, in many instances in which a patient is advised to submit to an operation and apparently recovers without it, there is no proof that the advice was wrong While in some cases the recovery may be permanent, not infrequently recurrences requiring operative intervention take place sooner or later In discussing this point, Braun<sup>2</sup> says

Where the symptoms of an acute mastoiditis have subsided under conservative treatment and after several weeks or months of good health the symptoms recur, we are not dealing with a second attack of mastoiditis in the majority of cases We will usually find that the disease has been progressing continually since the first attack, and these cases always show extensive bone involvement with (not commonly) some intracranial complications

The following experience confirms this opinion

CASE 4—M W, a girl, aged 9½ years, admitted to Sydenham Hospital March 3, 1933, had suffered an attack of acute otitis media two years previously At that time the ear drum drained for one week. Since then there had been a thin discharge from that ear at regular intervals During the early part of January 1933 she had a recurrent acute attack of right otitis media, and the drum ruptured spontaneously This time the discharge persisted For one week before admission she complained of severe pain in the right supra-orbital region, which was accompanied by projectile vomiting No speech, mental, gait or psychic disturbances were noted She had no convulsions or other neurologic manifestations

On examination the ear showed slight mastoid tenderness without edema. The ear drum had a large central perforation with a thin discharge exuding She had, however, well marked meningeal signs, which were described by Dr Wechsler, neurologist, as follows "Child alert and cooperative, apparently in no pain Mild neck rigidity, bilateral Kernig, hyperactive reflexes, with ankle and patellar clonus, bilateral Babinski, good abdominal reflexes, corneal reflexes present. No palsies, no ataxia, no sensory disturbances, no ocular, facial, palatal or tongue palsies, slight horizontal and vertical nystagmus, particularly to right side, somewhat to left. There is a slight blurring of the right disk margin. There are no signs of cerebellar or temporal lobe abscesses"

Urinalysis revealed from 5 to 15 white blood cells per low power field Examination of the blood showed hemoglobin, 75 per cent, red blood cells, 4,990,000, white blood cells, 9,050, subsequently increased to 31,900, segmented forms, 44 per cent, band forms, 16 per cent, small lymphocytes, 34 per cent, large lymphocytes, 6 per cent. Spinal fluid was under increased pressure and showed 650 polymorphonuclear leukocytes per cubic millimeter Cultures of the blood, spinal fluid and smear from the mastoid at operation were positive for *Streptococcus brevis*

An epidural abscess was found at operation, with old granulations and necrotic mastoid cells The dura was covered with granulations and seemed under pressure.

In spite of the obliteration of the lateral sinus, the ligation of the jugular vein, repeated forced spinal drainages, and administration of antistreptococcus serum and whole blood transfusions, the child died on the twenty-fourth day after admission

It seems fair to assume that the present pathologic process was a continuation of the process initiated two years previously and that this life might possibly have been saved by an early mastoidectomy.

However, such instances are not uncommon. Otolgic literature is replete with many cases of brain abscesses, general sepsis, and other complications following silent mastoiditis.

#### COMMENT

It is not the intention to convey in this paper the impression that every case of ear infection that does not clear up quickly is necessarily surgical. Watchful waiting is often the best procedure. It is necessary, however, to realize that the mildness of the symptoms is not indicative of the extent of the involvement of the mastoid process. When the case becomes protracted, vigilance on the part of the attending physician is of importance. Unless the ear becomes perfectly dry, the perforation of the drum healed and its luster regained within a reasonable length of time, the physician must not give the patient a false sense of security, even if pain and fever are absent. It is certainly unwise to allow a patient who is otherwise well to go on to the stage of chronicity until all means, including surgical, have been exhausted. Even if meningeal and other complications are comparatively rare, the patient is often doomed to a steady or intermittent otorrhea with marked impairment of hearing. In many instances, timely surgery will prevent these distressing sequelae.

#### SUMMARY AND CONCLUSIONS

1 Attention is again called to a clinical type of mastoiditis, perhaps best characterized as silent mastoiditis because of the lack of frank clinical manifestations in the presence of a progressive pathologic process.

2 This condition is important because it is relatively common, frequently produces serious auditory damage and not uncommonly causes death through intracranial or systemic complications.

3 Mastoidectomy is the rational, conservative and effective treatment for this condition. This operation in competent hands is always safe and is practically without mortality. It should therefore be preferred to chronic invalidism and possible dangerous complications.

4 Headaches during the course of ear infection should be regarded as an early warning against procrastination of adequate surgical therapy.

5 The cases that have been presented illustrate the clinical features of silent mastoiditis, the diagnostic problems it may present, and the therapeutic procedures required to obtain satisfactory results.

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**Anatomy and Physiology of the Psyche**—The outstanding goal of our efforts as I see them today and as they are represented by the psychoanalytic school is to build up slowly and painstakingly an anatomy and a physiology of the psyche comparable in exactness of its outlines and complexity of its structures to the anatomy and physiology of the body. If our thinking is moving along in the right direction we much believe that bodily and mental states are not either separate or different from one another but are only two aspects of the organism as a whole, from either one of which we may view its activities. If this is so as I have reiterated so many times then the history of the psyche reaches as far into the past as that of the soma and for each state of one there is a corresponding repercussion in the other.—White W. A. Psychiatry as a Medical Specialty, Thomas W. Salmon Memorial Lecture, read before the New York Academy of Medicine, April 12 1935.

## INJURIES TO MUSCLES AND TENDONS

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AND

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The accuracy of diagnosis that one associates with fractures is lacking when the injury involves muscles and tendons. The overlapping of the latter structures and their supplementary actions make for confusion in diagnosis, often render treatment illogical and prolong convalescence. It is only by a careful segregation of the distinct clinical entities that real progress can be made. In order to review the clinical picture of these injuries we have analyzed a series of 100 injuries to muscles and tendons, which represents a cross section of private, industrial and clinic practice. We have omitted the injuries to soft parts which resulted from lacerated wounds or compound fractures.

In a consideration of the injuries of muscles and tendons, one should employ a classification such as the following, which seems to us logical because it is based on the causative forces, the contributing factors and the relative frequency.

- 1 Direct trauma
  - A blow or crushing force applied to a muscle.
- 2 Indirect trauma
  - (a) A stretching force applied to a contracting muscle or its tendon.
  - (b) A sudden or unusually forceful contraction of a muscle.
- 3 Spontaneous rupture
  - (a) Post-traumatic
    - I A single injury which so weakens a muscle or tendon that rupture occurs at a later date.
    - II Often-repeated minor injuries, for example, the rupture of the extensor pollicis longus tendon following a Colles fracture.
  - (b) Disease of the tendon or muscle: tuberculosis, gonorrhea, syphilis or typhoid.
  - (c) Senility, a factor that is often combined with one of the foregoing conditions.
- 4 Dislocation of tendons.
- 5 Herniation of a muscle through its sheath.

Statistics regarding the muscles or tendons involved, the most comprehensive of which are given by Grassheim<sup>1</sup> (500 cases), list the following ruptures in the order of their frequency. Muscles of the calf, extensors of the leg, biceps, achilles tendon and extensor of the thumb. In recent years certain other muscles have been found to be the site of frequent ruptures, namely, supraspinatus, triceps, rectus abdominis, adductors of the thigh and extensors of the fingers. From the well executed experiments of McMaster,<sup>2</sup> on the breaking weight and site of rupture of a preparation of muscle and tendon, it is concluded that the normal tendon does not rupture but that rupture occurs at one of the following sites: the attachment of tendon to bone, the musculotendinous junction, or through the muscle substance. Before we present our statistical observations, certain distinct clinical entities should be described.

From the Department of Surgery, Division of Orthopedic Surgery, University of California Medical School.  
1 Grassheim: Indirekte Muskel und Sehnenrisse in der Unfalls Medizin. Monatschr. f. Unfallh. 29:313-319 1922.  
2 McMaster: P. E. Tendon and Muscle Ruptures. J. Bone & Joint Surg. 15:705-722 (July) 1933.

## TEAR OF THE SUPRASPINATUS TENDON

Injuries to muscles that have attachment to the shoulder girdle offer some of the most perplexing problems in diagnosis. The frequency and importance of partial or complete tears of the supraspinatus tendon have been recognized only since the work of Codman.<sup>3</sup> However, we feel that Codman confused certain anatomic changes in the shoulder that are the result of senile wear and tear with purely traumatic lesions. Meyer<sup>4</sup> described the attritional changes of the shoulder, and one of us (R. S.-H.) had the opportunity to inspect a large series of his dissections of the shoulder. These shoulders present longitudinal fibrillations or fraying of the supraspinatus tendon, and even perforation into the joint. However, these perforations have round, smooth edges suggesting prolonged wear and tear. Degenerative processes are visible also on the surface of the acromion. Clinically, the fact that supraspinatus tears are rather infrequent has been strongly impressed on us,

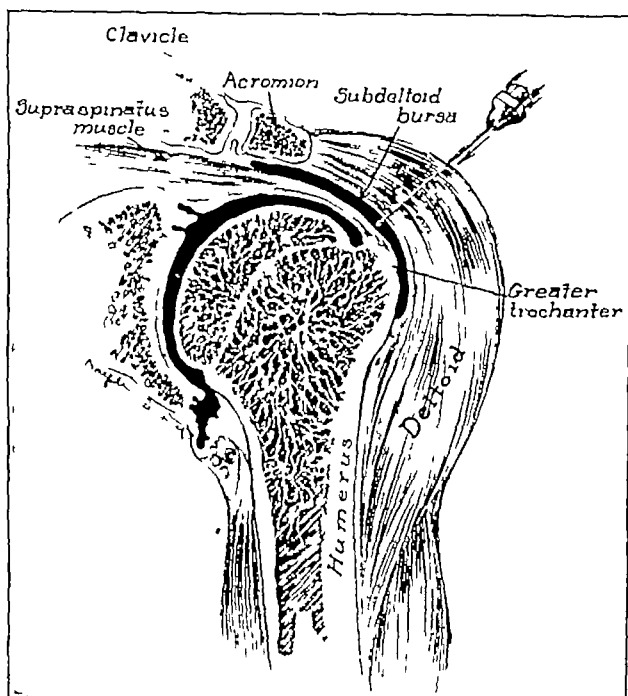


Fig 1—Frontal section of the shoulder region to show the point of insertion of the needle for the purpose of anesthetizing the subdeltoid bursa as a diagnostic and therapeutic procedure

following the injection of procaine hydrochloride into the subdeltoid bursa as a differential diagnostic method.<sup>5</sup> We believe certain acutely painful shoulders, with traumatic onset and complete loss of abduction, are the result of reflex inhibition of the supraspinatus muscle.

The supraspinatus tendon forms the roof of the shoulder joint and the floor of the subacromial or subdeltoid bursa. Conditions involving these two structures must be differentiated from tears of the supraspinatus tendon, for which purpose we have followed a routine method of examination.

1 The history in cases of injury to the supraspinatus tendon is usually that of a fall on the shoulder or on

the outstretched arm, which is followed by an immediate and complete loss of the power to initiate abduction. The gradual onset of limitation of abduction suggests an arthritis or bursitis.

2 On physical examination one observes an atrophy of the supraspinatus muscle, the extent of which depends on the period of time that has elapsed since injury. On attempting to raise the arm, the patient often leans to the affected side to permit the weight of the arm to initiate abduction. Once the arm is partially abducted, the deltoid muscle can act to complete this movement. There may be a point of tenderness over the roof of the shoulder joint just beyond the tip of the acromion, if the supraspinatus tendon is torn.

3 The roentgenogram of the shoulder with a light exposure may demonstrate or rule out calcification of the subdeltoid bursa, arthritis or fracture in the region of the shoulder. In tears of the supraspinatus tendon, the head of the humerus may be found in a higher position than normal in relation to the glenoid fossa.

4 In acute cases we have made it a practice to inject from 10 to 15 cc of 1 per cent procaine hydrochloride into the subdeltoid bursa (fig 1). The needle is directed toward the upper border of the greater tuberosity of the humerus. As soon as the bone is struck, the needle is withdrawn one-eighth inch and an attempt is made to aspirate any fluid that may be present in the bursa, then the procaine is injected, followed by a small amount of air. In those cases in which there is a reflex inhibition of function of the supraspinatus muscle as a result of subdeltoid bursitis or adhesions, the patient is able to abduct his arm actively a few minutes after this injection of procaine. Under the local anesthesia so produced it is possible to carry out stretching movements of the shoulder joint that have a valuable therapeutic effect. A similar benefit was observed from the injection of procaine into calcified subdeltoid bursae. These often show a disappearance of the calcium deposits within a few days, and the patient's subjective symptoms also disappear. In such cases no other type of treatment is required, although we sometimes repeat the injection. If no improvement in the active abduction of the shoulder results from this injection, the diagnosis of tear of the supraspinatus tendon is made certain.

5 In chronic cases in which an injury to the supraspinatus tendon is suspected, the problem is largely that of ruling out the effect of periarticular adhesions, which limit both passive and active abduction of the shoulder. We have found it possible to stretch many of these adhesions by the application of double skin traction for from five to seven days. The patient lies in a semi-Fowler position, with from 6 to 8 pounds of traction applied along the axis of the humerus with the shoulder abducted as much as possible. At the same time, the elbow being flexed at 90 degrees, about 5 pounds of traction is applied to the forearm so as to rotate the shoulder externally. The amount of abduction and external rotation of the shoulder so obtained is increased gradually, during which time the relaxation of the muscles is favored by the use of an electric pad. In many of these cases the stretching and breaking of adhesions restores the function of the shoulder and rules out the question of injury to the supraspinatus muscle.

When a diagnosis of tear of the supraspinatus tendon has been made, the treatment will depend on the completeness of the tear. The use of an abduction splint

3 Codman E. A. On Stiff and Painful Shoulders. Boston M. & S. J. 154: 613-620, 1906. The Shoulder. Rupture of the Supraspinatus Tendon and Other Lesions in or About the Subacromial Bursa. Boston: Thomas Todd Company, 1934.

4 Meyer A. W. Spontaneous Dislocation and Destruction of Tendon of Long Head of Biceps Brachii. Fifty-Nine Instances. Arch. Surg. 17: 493-506 (Sept.) 1928.

5 Soto-Hall, Ralph and Haldeman K. O. Muscle and Tendon Injuries in the Shoulder Region. California & West Med. 41: 318-321 (Nov.) 1934.

for from four to six weeks followed by physical therapy, will suffice in cases of partial tear. A complete tear should be repaired surgically as soon as its diagnosis is made, because much harm will result from delay. A short incision, made by splitting the anterior fibers of the deltoid muscle, will give sufficient exposure of the roof of the shoulder joint to permit the diagnosis of tear of the supraspinatus tendon to be confirmed. The superior end of this incision is then extended back and over the acromion (the saber cut incision) and this structure is severed at its base and turned down with the deltoid muscle, to expose the supraspinatus tendon. The ruptured tendon may be reinserted in a groove in the tuberosity of the humerus and the acromial process fixed in place with a beef bone peg. The shoulder must be immobilized in abduction for three or four weeks after operation.

#### RUPTURE OF THE LONG HEAD OF THE BICEPS

The subject of rupture of the long head of the biceps was to have been introduced by stating "The attention of the profession has been recently directed to the rupture and dislocation of the long head of the biceps" until it was found that these exact words were written by Robert Storks<sup>6</sup> in 1843. A further perusal of the literature revealed a description by J. G. Smith,<sup>7</sup> just 100 years ago, of the shoulders of five cadavers which presented tears of the tendons of the supraspinatus, infraspinatus, subscapularis and long head of the biceps in various combinations. This author also observed the medial dislocation of the latter tendon out of the bicipital groove and described graphically the arthritic changes that were associated with ruptures of the tendons around the shoulder joint. Picard<sup>8</sup> in 1838 described a rupture of the biceps tendon at the commencement of its groove, in the autopsy of a patient who had presented a nutlike swelling of the biceps muscle during life.

Of the many other authors who have written on this subject during the past century, mention should be made of Morton,<sup>9</sup> who in 1886 was the first to describe the operative repair of a ruptured biceps tendon, and of Ledderhose,<sup>10</sup> who reviewed the literature thoroughly up to 1909 and advanced the thesis that degenerative changes must be present in a biceps tendon prior to its rupture. Of recent articles, the most comprehensive have been written by Ghetti,<sup>11</sup> who presented seven cases and reviewed the European literature, by Gilcreest,<sup>12</sup> who made a painstaking analysis of 100 cases of injury to the biceps muscle, and by Meyer,<sup>4</sup> who described fifty-nine dissections of shoulders showing a rupture or dislocation of the long head of the biceps.

Tears of the biceps tendon become more frequent with advancing years because of the fraying out of the tendon where it is subjected to constant friction in the bicipital groove and over the head of the humerus. The actual rupture usually results from a sudden forceful contraction of the biceps muscle against a counterforce

The presence of such an injury becomes apparent when the patient flexes his elbow against resistance. If the long head is ruptured, the belly of the biceps muscle will assume a spherical shape as the result of an abnormal depression at its superior lateral border, which is in striking contrast to the oval contour of the normal contracting biceps. (Five of our patients are shown in figure 2, in all of whom the diagnosis was later confirmed by operation.) This injury results in marked weakness of the flexor muscles of the elbow and is frequently accompanied by pain over the anterior aspect

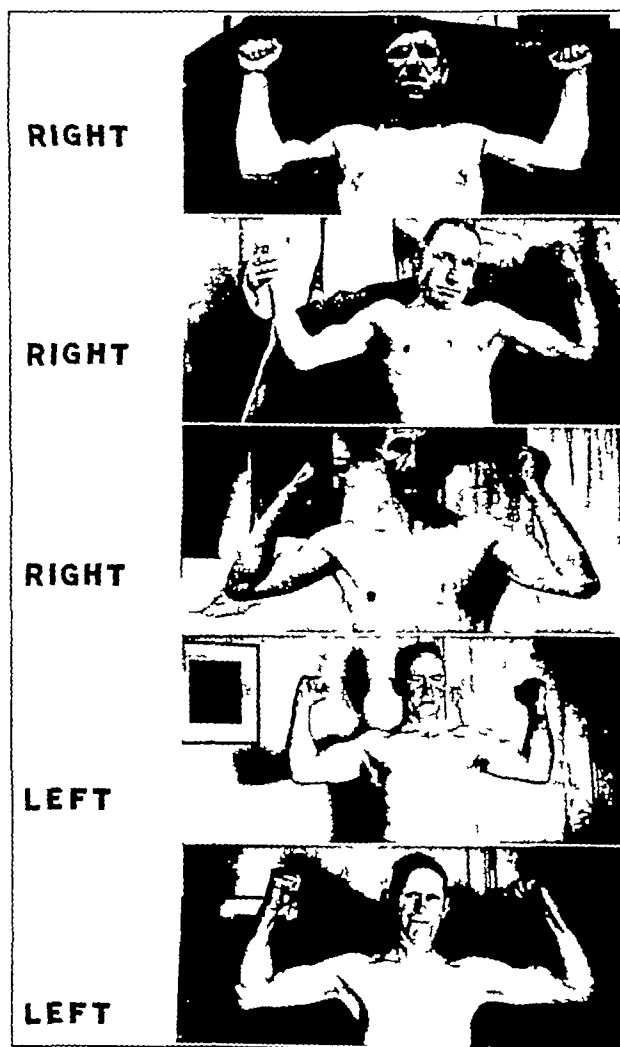


Fig. 2—Preoperative appearance of five patients in whom the diagnosis of rupture of the long head of the biceps muscle was later confirmed by exploration. A depression is visible in the contour of the injured muscle near its upper pole.

of the shoulder joint or over the bicipital groove. Patients for whom no repair is done lose some of the power of abduction, owing to the formation of peri-articular adhesions.

In recent years, an interesting diagnostic problem arises. The hematoma produced by a tear in the upper part of the tendon gravitates downward through the sheath to the region of the belly, where it presents. The ecchymosis and tenderness suggest that the tear took place at the musculotendinous junction. This occurred in two cases in which we exposed the belly of the biceps muscle and then had to carry the incision upward to find the tear in the bicipital groove.

- 6 Storks, Robert. Rupture of the Tendon of the Biceps. *Lancet* 2: 621, 1842-1843.
- 7 Smith, J. G. Pathological Appearances of Seven Cases of Injury of the Shoulder Joints with Remarks. *Am. J. M. Sc.* 16: 219-224, 1835.
- 8 Picard. Extracts from the Proceedings of the Société anatomique. *Bull. Soc. anat. de Paris* 13: 41-42, 1838.
- 9 Morton. Rupture of Long Tendon of the Biceps Muscle Due to Muscular Effort. Suture and Successful Result. *Philadelphia M. Times* 17: 120, 1886.
- 10 Ledderhose, G. Zur Frage der Ruptur des Bicepsbrachii. *Deutsche Ztschr. f. Chir.* 101: 126-176, 1909.
- 11 Ghetti, L. Contributo allo studio della rottura sottocutanea dei tendini di inserzione del muscolo bicipite brachiale. *Chir. d'org. di movimento* 17: 137-170 (June), 1932.
- 12 Gilcreest, E. L. The Common Syndrome of Rupture, Dislocation and Elongation of the Long Head of the Biceps Brachii. An Analysis of 100 Cases. *Surg. Gynec. & Obst.* 58: 322-340 (Feb. [No. 24]), 1934.

It is extremely important for the return of function that such an injury be diagnosed early and that an adequate repair of the torn tendon be carried out. We usually operate for this condition under local anesthesia, with the patient sitting erect in a chair. The conscious cooperation of the patient is of great value in all operations for the repair of muscles and tendons. When the site of rupture has been exposed by an incision along the anterior border of the deltoid muscle, the type of reconstructive operation chosen will depend on the condition of the tendon and the site of rupture. If the tendon is separated from its glenoid origin, we attach it to the coracoid process along with the short head. A rupture at the musculotendinous junction may be repaired with braided silk. Rarely it has been necessary to shorten the tendon of the long head by a reefing procedure or to pass it through a hole drilled in the head of the humerus.

#### DISLOCATION (SLIPPING) OF THE BICEPS TENDON

Occasionally the long head of the biceps shows a tendency to slip medially out of the bicipital groove when the humerus is rotated externally, with the biceps contracting and the shoulder in abduction. In the dissecting room, Meyer<sup>4</sup> observed this condition to be present in thirty-nine subjects. A clinical presentation of this injury was made by Abbott<sup>13</sup> in 1934.

Clinically, the diagnosis is made on the occurrence of a snap, which is felt and heard over the bicipital groove and which may be painful. In patients presenting a permanent dislocation of the tendon out of the bicipital groove, the usual complaints are those of weakness of the arm and localized tenderness. There is some resemblance between the clinical pictures presented by the slipping of the biceps tendon and the crepitations found in subdeltoid bursitis. The latter diagnosis is confirmed if one is able to relieve the symptoms and cause a disappearance of the snap by the injection of procaine hydrochloride into the subdeltoid bursa, which procedure, as one patient recently put it, "seems to oil the joint."

The treatment of permanent or recurrent dislocation of the biceps tendon is operative. The presence of adhesions in the bicipital groove usually renders impossible the restoration of the normal gliding mechanism, for which reason the best results have been obtained by the insertion of the tendon of the long head through a hole drilled in the head of the humerus, or by the attachment of this tendon to that of the short head.

#### STRAIN OF THE RHOMBOIDEUS MUSCLES

Strain of the rhomboideus major or minor muscles is seen rather frequently in an industrial practice and is usually caused by a sudden, incoordinated movement of the shoulder. These muscles arise from the ligamentum nuchae and the spinous processes of the seventh cervical to the fifth thoracic vertebrae. They insert along the vertebral border of the scapula, which is drawn upward by their contraction.

Physical examination following this injury shows a localized tenderness between the middorsal spine and the scapula, with the production of pain at this point when the shoulder is carried passively into extreme forward flexion or is extended actively against resistance. Treatment requires the partial immobilization of the scapula,

which is best accomplished by drawing it backward and upward with adhesive strapping. A similar result is obtained by winding a wide strip of elastic webbing around the upper part of the chest. When the acute signs of injury have disappeared it is well to apply baking or diathermy and light massage to the injured muscle. Strains of other muscles arising from the spinous processes and inserting on the scapula or the humerus (the trapezius or latissimus dorsi muscles) give a similar clinical picture and respond to the same treatment.

#### LATE RUPTURE OF THE EXTENSOR POLLICIS LONGUS FOLLOWING COLLES' FRACTURE

In our series we have one such case, a condition which, according to McMaster,<sup>14</sup> has been reported twenty-seven times in the literature. The causative relation of this rupture to the Colles fracture is of importance industrially because an interval of from one to three months may elapse before its appearance. Such an injury shows the effect of chronic trauma, which leads to degenerative changes and the ultimate rupture of the tendon. Two factors that affect the gliding mechanism are partial tears in the tendon and irregularity of the bone over which the tendon moves.

#### RUPTURE OF THE EXTENSOR TENDONS OF THE FINGERS

Among ruptures of the tendons of the fingers, detachment of the extensor tendon at its insertion (the so-called baseball finger) is one of the commonest and most troublesome injuries. The characteristic deformity can often be avoided by immediate hyperextension of the terminal joint for at least six weeks. Thoroughness in this conservative treatment is important because later operative repair is often unsuccessful.

#### RUPTURE OF THE RECTUS ABDOMINIS MUSCLE

An injury that may be mistaken for some intra-peritoneal disease, such as appendicitis, is the rupture of the rectus abdominis muscle. This may occur during pregnancy or labor, or following typhoid that results in Zenker's degeneration of the muscle fibers. The rupture may result from a severe attack of coughing or sneezing. Such an accident usually tears a few branches of the epigastric vessels, causing a large hematoma to form within the aponeurotic sheath. Treatment may require the evacuation of this sheath surgically.

#### RUPTURE OF THE QUADRICEPS MUSCLE OR TENDON

Rupture of the quadriceps muscle or tendon occurs rather frequently, ranking second in the number of cases both in our series and in that of Grassheim.<sup>1</sup> The rupture may occur either at the point of attachment of the tendon to the patella or at the musculotendinous junction, with occasional cases through the purely muscular or tendinous portions. A direct blow is the usual cause, the patient often falling on the flexed knee. This injury occurs about as often in the young as in the aged. The diagnosis is suggested by the inability of the patient to extend the knee actively and is confirmed by the observation of a hiatus in the substance of the muscle or tendon. A lateral roentgen examination may be of value in demonstrating the gap in the muscle. The superior border of the patella is usually seen to tilt anteriorly. Many cases of partial tear of the

<sup>13</sup> Abbott L. C. Saunders, J. C. de C. M. and Smith D. W. Traumatic Dislocation of the Tendon of the Long Head of the Biceps Brachii, presented before the sixty-third annual session of the California Medical Association in May 1934 (unpublished).

<sup>14</sup> McMaster P. E. Late Ruptures of Extensor and Flexor Pollicis Longus Tendons Following Colles' Fracture. *J. Bone & Joint Surg.* 14: 93-101 (Jan.) 1932.

quadriceps muscle may escape diagnosis and leave a depression in the substance of the muscle, without any permanent disability. Treatment in cases of complete rupture of the quadriceps muscle or tendon should be an early operative repair with the use of sutures of fascia lata or braided silk. Cases of partial tear heal readily if the leg is splinted in full extension for three or four weeks, followed by a period of gradual mobilization.

#### PARTIAL RUPTURE OF A MUSCLE OF THE CALF

"Tennis leg" is the term usually applied to a partial rupture of one of the muscles of the calf. The plantaris muscle is most often affected, although one of the bellies of the gastrocnemius may be similarly involved. The patient describes a sudden burning pain in the calf during strong contraction of its muscles and may hear or feel something snap. Pain often extends up the middle of the calf to the popliteal space and is increased by passive dorsiflexion of the ankle. Treatment should consist of the immobilization of the ankle in plantar flexion with adhesive strapping for two or three weeks, after which baking, massage and active exercise are used.

#### RUPTURE OF THE ACHILLES TENDON

Injury to the achilles tendon occurs most often as a result of violent exercise, as performed by sprinters, boxers and mountain climbers. The site of rupture is commonly at the junction of muscle and tendon. Incomplete rupture is shown by tenderness and ecchymosis over a depression in the achilles tendon. Such cases require immobilization in plantar flexion by a cast or adhesive strapping.

The complete tears of the achilles tendon are evidenced by a marked depression caused by the separation of its fibers, and an inability to flex the foot in the plantar direction actively against resistance. Treatment,

sheath. This defect, which measured 6 by 3 cm., was repaired with strips of fascia lata, the pain on walking disappeared and the contour of the leg became normal.

A true herniation of muscle is characterized by a bulging of the relaxed muscle through a defect in its sheath and the disappearance of this bulge when the muscle contracts. On the contrary, as has been pointed

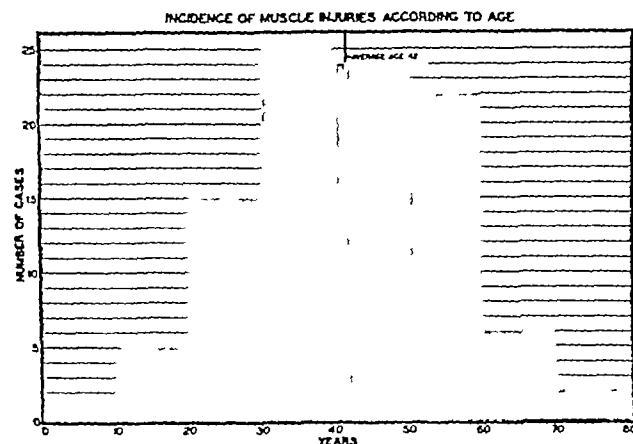


Fig. 3—Incidence of muscle injuries according to age.

TABLE 2—Mechanism of Injury

Contracting muscle subjected to stretching force	88
Direct trauma	23
Sudden forceful traction	26
Spontaneous rupture	5
Indeterminate	6
<b>Total</b>	<b>100</b>

out by Ledderhose,<sup>10</sup> the increased prominence of the belly of the biceps muscle, which is associated with a rupture of its long head, is most noticeable when this muscle is contracted.

#### SUMMARY AND CONCLUSIONS

Certain features are common to most ruptures of muscles. The history of a sudden sharp pain or snapping sensation, which occurs during violent muscular effort and is followed by the inability to perform certain definite movements, is very suggestive. The appearance of a defect in the belly of the muscle or in the tendon and the subsequent development of ecchymosis makes the diagnosis more certain.

Among diagnostic aids, if the lesion is not accessible, should be mentioned the lightly exposed roentgenogram which shows the soft tissues, electrical stimulation and the local injection of procaine hydrochloride. The former often shows a defect in the shadow cast by the muscle and may reveal a small chip of bone attached to a tendon that has been torn from its insertion. The faradic current, when applied to a muscle, causes it to contract, with the production of pain at the site of a tear in the muscle or its tendon. The use of procaine to test muscular function, with pain eliminated, should not be overlooked in solving those cases presenting a difficult differential diagnosis.

From our statistical study it appears that in the upper extremity the supraspinatus muscle or tendon is the most likely to be torn, while in the lower extremity the quadriceps is most vulnerable (table 1). Senility appears to play a more important role in the former than in the latter condition. In view of the prevailing belief that a degenerative process is a prerequisite of the rupture of a muscle or tendon, it was interesting to find

TABLE 1—Incidence According to Muscle or Tendon

A. Upper Extremity		B. Lower Extremity	
Supraspinatus	15	Quadriceps	14
Rupture of long head of biceps	9	Patellar tendon	5
Extensor of finger	7	Achilles tendon	5
Rhomboides major	6	Plantaris	5
Pectoralis major	4	Gastrocnemius	4
Dislocation of long head of biceps	3	Iliopsoas	2
Infraspinatus	3	Obturator externus	2
Flexor of finger	3	Extensor of foot	1
Short head of biceps	2	Hernia of anterior tibial muscle	1
Triceps	2	<b>Total</b>	<b>39</b>
Latissimus dorsi	2		
Abductor pollicis	3		
Trapezius	1	C. Axial Muscles	
Flexor carpi ulnaris	1	Rectus abdominis	4
Flexor carpi radialis	1		
<b>Total</b>	<b>51</b>		
Total number of muscles or tendons (in four cases two muscles were injured)			104

in this type should be operative, with the repair of the tendon either with braided silk or with a suture of fascia lata.

#### HERNIATION OF A MUSCLE

A rare condition which is seldom described, and one case of which we have treated surgically, is the herniation of a muscle through its sheath. In our case this injury resulted from a direct blow to the anterior tibial muscle, which occurred when the patient's leg was hanging over the side of a truck and was struck by a passing automobile. The patient was disabled and continued to have pain on walking at the site of a bulge of the anterior tibial muscle through a defect in its

that the average age of the patients in our series was 42 years, which corresponds to that period in which the greatest activity is associated with the onset of degenerative changes (fig 3). In our series of 100 patients, eighty-three were males, which fact can be attributed to the predominance of men in those branches of industry which require violent muscular effort and entail the risk of falls and other injuries.

The rôle of acute trauma seems to be much greater than all other causes of injury to muscles, including age, disease and chronic trauma. The most common mechanism producing injury to a muscle or tendon was the sudden application of a stretching force to a muscle that was contracting strongly (table 2). Spontaneous rupture was relatively rare. The treatment must be shaped to fit each situation, depending on the site, nature and severity of the injury. In general, a complete rupture should have an early operative repair, whereas in a case of partial tear immobilization may be sufficient.

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### REVERSED COLLES FRACTURE WITH SPECIAL REFERENCE TO THERAPY

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AND

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The extraordinary increase in bodily injuries within the past few years warrants frequent reviews of the knowledge of trauma therapy, to bring about a more accurate evaluation of all available information and its wider dissemination. Fractures about joints occupy an exceptionally important place in such a review. Because of the prehensile functions of the hand, fractures about the wrist have rightfully attracted a great deal of attention, thought and therapeutic endeavor. The importance of the typical Colles-Pouteau or Dupuytren fracture has been stressed by numerous authors recently, as well as in former years, but very little can be found in medical writings about the reverse Colles fracture or the so-called Smith fracture. It is true that this type of fracture, the characteristics of which will be elucidated later, is not frequently encountered. Nevertheless the surgeon should be familiar with the nature of this lesion, as it must be reckoned with from time to time.

The available literature at present is scanty, and though the etiology and pathology have been thoroughly discussed, no remarks about therapy can be found with the exception of the following statement: "Reduction should be performed under anesthesia similar to the type of reduction utilized in Colles fracture, except that the force is applied in the reverse direction."

The reverse Colles fracture is a flexion fracture and is most frequently the result of a fall on the dorsum of the hand while the hand is in flexion, causing displacement of the distal fragment anteriorly. The line of fracture through the radius is usually oblique, forming a distal triangular fragment with its base on the anterior surface of the radius and its apex on the dorsal surface of the bone. Occasionally the line of fracture will be transverse or almost so, forming a more or less square distal fragment. The characteristic feature of the fracture is, of course, the anterior displacement of the distal fragment, creating a deformity aptly described by Roberts as a "gardener's spade" hand.

With this fracture there may be associated injuries to the adjacent bones, such as fractures of the ulnar, styloid, navicular or lunate bones. The clinical manifestations are at times difficult to interpret and a reverse Colles or Smith fracture may be confused with a forward dislocation of the carpus (exceedingly rare), dislocation of separate carpal bones and Madelung's disease. Edema of the soft tissue frequently obscures the landmarks so that only roentgenograms will finally clinch the diagnosis. Functionally, motion is greatly impaired at the wrist joint, extension suffers considerably more than flexion, which is exaggerated. The present-day recorded concepts on the matter are based on reports of Smith, Callender and Roberts.

In 1854 Robert William Smith<sup>1</sup> in his textbook devoted a page to the description and discussion of a case. The patient had fallen on the back of the hand many months before. After the fall, a deformity had occurred at the wrist. This was characterized by a dorsal tumor, by the distal projection of the end of the proximal radial fragment and by a palmar swelling formed by the lower radial fragment. No remarks were made as to treatment.

In 1865 George W. Callender<sup>2</sup> reported several cases. The first was of a woman, aged 51, with a four weeks old fracture of the right radius. Typical deformity was present, flexion was exaggerated, but extension of the hand was limited. The second case was that of a man who had fallen on the flexed hand. Typical deformity was present. Attempts at reduction were unsuccessful. Callender says "No crepitus could be detected, nor could I in any way reduce or lessen the deformity." Ten months later the deformity was still present. Two museum specimens showing this fracture are also presented.

Following this, the next publication was that of John B. Roberts<sup>3</sup> in 1897. Twenty-four cases were presented in that paper. Our analysis of the cases revealed that only three were from the author's own experience. They were all old cases, and no reduction was obtained

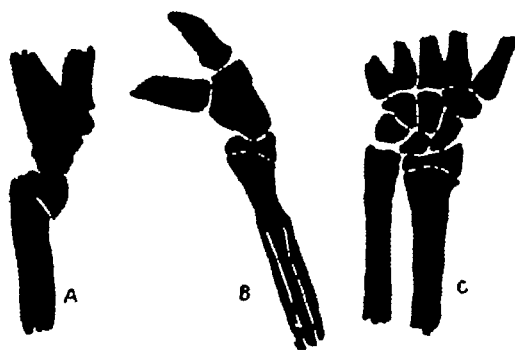


Fig. 1 (authors' case)—A, before reduction; B, following open reduction; C, anteroposterior view following reduction.

in any of them. Nine cases were culled from the literature, but the sources were not mentioned nor the cases described. The other twelve cases were collected by correspondence with contemporary surgeons. Again, details as to cure or adequate reduction were withheld.

Roberts was able to find thirty-one museum specimens demonstrating the fracture, showing that the lesion was by no means a great rarity. In eleven of his twenty-four cases it was definitely established that the injury had

<sup>1</sup> Smith, R. W. *A Treatise on Fractures in the Vicinity of Joints*. Dublin: Hodges and Smith, New York: Samuel and William Wood, 1854.

<sup>2</sup> Callender, G. W. *Fractures Injuring Joints*. St. Bartholomew Hosp. Rep. 1, 1865.

<sup>3</sup> Roberts, J. B. *Am. J. M. Sc.* 113:10, 1897.



been sustained on the back of the hand. The typical clinical changes and deformity were described.

In 1905 appeared a second article by Dr. Roberts.<sup>4</sup> The type of deformity was again described and the name of "gardener's spade" hand attached to it. The author considered closed reduction to be the treatment of choice.

In 1902 Bennet<sup>5</sup> recognized and described a case of reversed Colles fracture, which likewise did not yield to closed methods of reduction.



Fig. 2 (Dr. Gaston's case).—A, before reduction; B, following closed reduction; C, one week after reduction—recurrence of displacement; D, anteroposterior view of wrist at discharge, one week after closed reduction.

It must be emphasized at this juncture that not one successfully reduced fracture of this type had as yet been reported at the time of Roberts' article in 1905. At the present time, the prevailing opinions as to the manner of injury, as given in the various textbooks on fractures, are not dissimilar from views expressed by Roberts. These statements occur in Key and Conwall,<sup>6</sup> Scudder,<sup>6</sup> Wilson and Cochrane,<sup>7</sup> Lewis Stimson,<sup>8</sup> Kellogg Speed<sup>9</sup> and Cotton.<sup>10</sup> These various textbooks note the uncommonness of the lesion and suggest reduction by manipulation under anesthesia.

The following case report is one of an anteriorly displaced distal radial fragment treated in the Third Surgical Service of the Coney Island Hospital.

A R., a boy, aged 15 years, while playing football, fell backward, striking his wrist. Immediate pain and disability about the wrist were noted and the patient was brought to the hospital. Physical examination on admission revealed diffuse swelling about the wrist. The distal end of the radius was tender.

Roentgen examination on admission revealed a complete oblique fracture of the distal and anterior aspect of the lower end of the radius, with the distal fragment and radial epiphysis displaced anteriorly (fig. 1A). Closed reduction, under anesthesia, was attempted but could not be accomplished in spite of expenditure of considerable force and manipulation. The roentgenographic appearance was unchanged after the closed reduction. The following day open operation was resorted to, the impacted fragments were pried apart by a chisel and reduction was then accomplished. Maintenance of the reduced fragment was obtained by use of a light plaster cast (fig. 1B).

Two other cases of this type of fracture were encountered in our service at the Coney Island Hospital. Neither one of these could be reduced by closed methods, so open operation had to be resorted to.<sup>11</sup> Dr.

J. M. Morehead permitted us to include a case in which he operated at the Post-Graduate Hospital, New York, several years ago, in which the typical changes, both roentgenologic and clinical, were evident and in which attempted closed reduction was likewise unsuccessful. Here, operative reduction was also employed with excellent result.

With the permission of Dr. J. H. Gaston of the Reconstruction Hospital, New York, we are able to present illustrations of another typical case of Smith fracture (fig. 2) reduced by him by closed manipulation. Six days later, however, recurrence of the displacement and deformity were noted by Dr. Gaston and operative intervention was contemplated. Dr. Gaston stated in a personal interview that, in a second similar case of his, closed reduction was likewise unsuccessful.

In view of the absence of authentic reports wherein closed reduction was accomplished and maintained and of our personal experience with this type of fracture, we feel that the reverse Colles fracture is in the majority of instances an irreducible fracture if only closed manipulation is attempted and that for some unaccountable reason it will yield only to open intervention. We feel, however, that closed manipulation should always be attempted first but that failure to succeed by this method is to be expected. We realize that the number of cases involved is too small to make any real statistical deduction.

Nevertheless, because of the uncommonness of this injury, one must needs deal with a small number of cases. It is very suggestive that in virtually all the cases cited in the early literature not one reduction was accomplished. This represents six reported cases: one of Smith's, two of Callender's and three of Roberts'. It is equally important that in our three cases and the three cases courteously communicated to us by Drs. Morehead and Gaston, not one could be successfully reduced without open operation.

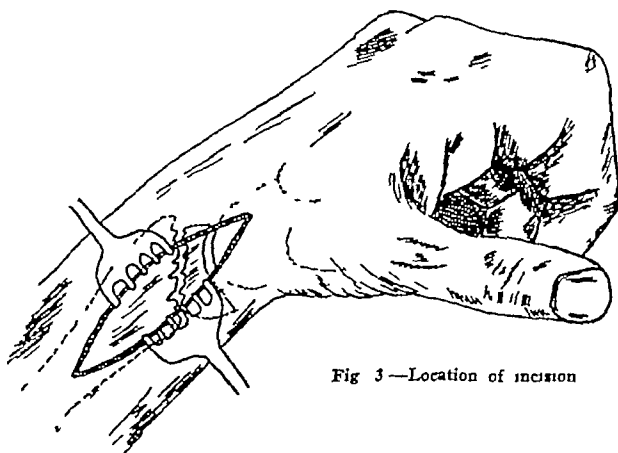


Fig. 3—Location of incision.

The technic of the operation is simple (fig. 3). The incision is placed on the radial aspect of the wrist immediately proximal to the distal wrist fold, extending about 6 cm up the radial shaft. The superficial fascia is split the whole length of the incision. The veins of the plexus about the wrist are ligated, the tendons being retracted either anteriorly or posteriorly. The fracture line lies exposed in the depth of the wound. An osteotome is inserted between the fragments, and the impaction, if one is present, is broken up. The hand is then forcibly extended, the osteotome being used as an inclined plane on which the distal fragment slides. To facilitate this sliding motion, the osteotome

<sup>4</sup> Roberts, J. B. *Med. Rec.* 67, 1905.

<sup>5</sup> Bennet, E. H. *Dublin J. M. Sc.* 113, 242-244, 1902.

<sup>6</sup> Scudder, C. L. *Treatment of Fractures*, ed. 10. Philadelphia: W. B. Saunders Company, 1926.

<sup>7</sup> Wilson, P. D., and Cochrane, W. A. *Fractures and Dislocations*. Philadelphia: J. B. Lippincott Company, 1925.

<sup>8</sup> Stimson, L. A. *A Practical Treatise on Fractures and Dislocations*. Philadelphia: Lea and Febiger, 1917.

<sup>9</sup> Speed, Kellogg. *Fractures and Dislocations*, Philadelphia, Lea and Febiger, 1916.

<sup>10</sup> Cotton, F. J. *Dislocations and Joint Fractures*. Philadelphia: W. B. Saunders Company, 1924.

<sup>11</sup> The histories and roentgenograms of these two cases were filed under Colles fractures and the authors were unable to locate them for detailed presentation.

is rotated in an arc corresponding to the motion of the reduction. Because of the pronounced tendency to recurrence of the deformity, overcorrection of the reduction is desirable. With the wrist held in hyperextension, the fascia and skin are sutured in layers and a light circular cast extending up to the metacarpophalangeal joints is applied. From ten to fourteen days later this cast may be split, the posterior shell being removed for massage and baking. Active motion of the joint should be begun about the eighteenth to the twentieth day. The type of immobilization following operative reduction should be carefully considered. We have found the cock-up position in a light plaster cast to be the best so far.

As in all injuries in close proximity to joints, immobilization over a long period of time is undesirable. Physical therapy and motion should be begun early. In this connection it is important to realize, however, that the reversed Colles or Smith fracture has a marked tendency to recurrence, and active manipulation of the injured member should be undertaken with great care.

#### SUMMARY

- 1 The reversed Colles fracture is not uncommon.
- 2 No cases of successful reduction of the described fracture, by the closed method, have been reported in the literature.
- 3 The fracture is therefore considered irreducible and operative reduction is advisable.

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## TAR CANCER OF THE LIP IN FISHERMEN

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BOSTON

The problem of tar cancer in fishermen was brought to my attention by an interesting case observed in the surgical wards of the Peter Bent Brigham Hospital. A brief summary of this case follows:

R. C., a healthy-appearing laborer, aged 41, admitted in September 1932, had a moderately painful swelling of the right side of the neck which had been present for six months. This was at first taken to represent tuberculous lymphadenitis, and the patient was treated for a month in the outdoor department.

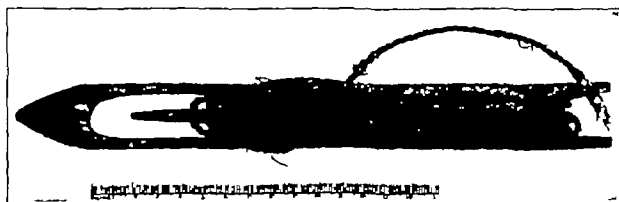


Fig 1—The needle used by fishermen in repairing nets

with the ultraviolet lamp. Since there was no improvement he was sent into the hospital, where a mass of hard adherent tissue was removed, which proved microscopically to be epidermoid carcinoma involving the lymph nodes and invading the submaxillary gland. The primary source of the growth, however, was obscure, since there was no discernible lesion about the mouth. Finally the chance observation of a very tiny puckered scar on the right side of the lower lip, which had been overlooked on previous examinations, led to the following interesting story:

From the Cancer Commission of Harvard University and the Surgical Service of the Peter Bent Brigham Hospital

The patient had been employed as a fisherman for a period of six years up to three years before his admission. During this period he had used tarred nets exclusively, and in mending these nets he had been in the habit of holding the tar-smearing wooden needle between his lips on the right side of his mouth. Thus during each fishing voyage there would be, for several weeks at a time, a smudge of tar on the lips at this point. At the point of this irritation there developed a small, hard, nontender growth on the lower lip which, he was told by his



Fig 2—Tar warts on both hands of a net loft worker aged 56 who had been handling tarred nets for forty years

mates, was a "fisherman's sore." On the advice of his captain he placed himself in the care of a cancer charlatan. The lesion was treated with salves for about two weeks, when it disappeared and did not return. He had smoked a pipe but was very certain that he always held it on the left side of the mouth.

The patient was given a course of roentgen therapy to the neck, but a recurrence soon appeared and he died five months later with an esophageal fistula.

On the basis of this story an investigation was made into the industrial hazard involved in this use of tar by fishermen.

#### FREQUENCY OF SKIN CANCER IN FISHERMEN

Statistical studies have clearly demonstrated that fishermen are prone to develop skin cancers.<sup>1</sup> This high occupational incidence has been generally attributed to exposure to the sun, and but scant consideration has been given to the possibility that contact with tar might be a contributing factor.

In this country there are no statistical sources through which the incidence of skin cancer among fishermen can be accurately determined. In the course of this investigation, however, a large number of fishermen were interviewed in the various centers of the Massachusetts fishing industry—Boston, Gloucester, New Bedford and Provincetown—and in this way certain definite impressions were gained. Cancer of the lip was found to be common, and it was an interesting fact that almost all these cases, after the diagnosis had been made by local physicians, had been treated by the same woman who had treated my original patient, R. C., three years before he came under my observation. This cancer charlatan was known to most of the older fishermen from Gloucester to New Bedford, and her treatment by salves was considered by them to be

<sup>1</sup> Young, M. and Russell W. T. An Investigation into the Statistics of Cancer in Different Trades and Professions, London H. M. Stationery Office, 1926. Haggensen, C. C. Occupational Neoplastic Disease. *Am. J. Cancer*, 15: 641 (April) 1931. Hoffman, F. L. The Cancer Death Rate in Selected Occupations. *American Academy of Medicine* 1915.

more efficacious than the radium or surgery advised by the physicians

This charlatan was visited in the course of the investigation. She proved to be an elderly woman who seemed to have a very accurate idea of the gross pathology of cancer of the lip. She stated that she had treated several hundred fishermen for this condition during the past twenty-five or thirty years.

#### EXPOSURE OF FISHERMEN TO TAR

Tar is employed extensively in the fishing industry, being used on the nets to prevent rotting. It becomes smeared on the hands and arms of the fishermen, particularly in hot weather when the tar is soft, and it is then carried by the hands to the face. Moreover, it is a common practice to hold the large wooden shuttle-like "needle" (fig 1) in the mouth while the nets are being mended. The needle soon becomes smeared with the tar, which is thus carried onto the lips.

The men who are most constantly exposed to tar are those who work in the "net lofts," where the nets are repaired and retarred. Two of these establishments were visited in Gloucester, each employing three or four men. It was found that the older workers who had been exposed to the tar for many years showed typical tar warts on the hands and forearms (figs 2 and 3). None had cancer, but they recalled that three of their predecessors, who had been engaged in the business for similarly long periods, had suffered from skin cancers. One was said to have had several cancers involving the cheek and lower lip, all successfully treated with radium. The other two died from cancer

of the lip. All of these had been accustomed to hold the needle in the mouth while mending the nets, and it was definitely known that at least one of these had never used tobacco in any form.

It is well known that the carcinogenic properties of the various kinds of tar varies widely, wood tar is apparently innocuous, whereas coal tar has been widely incriminated. Of the various types of coal tar the most highly carcinogenic is that which is produced as a by-product in the destructive distillation of coal to form coal gas. This distillation is carried

Although pine tar is used to some extent on fishing nets, by far the bulk of the tarred nets are treated with coal tar. An investigation into the source of this tar revealed that it is obtained from local gas works that employ the horizontal type of retort. Thus it is seen that the tar to which the fishermen in the Massachusetts area are exposed is the most potent carcinogenic variety known.

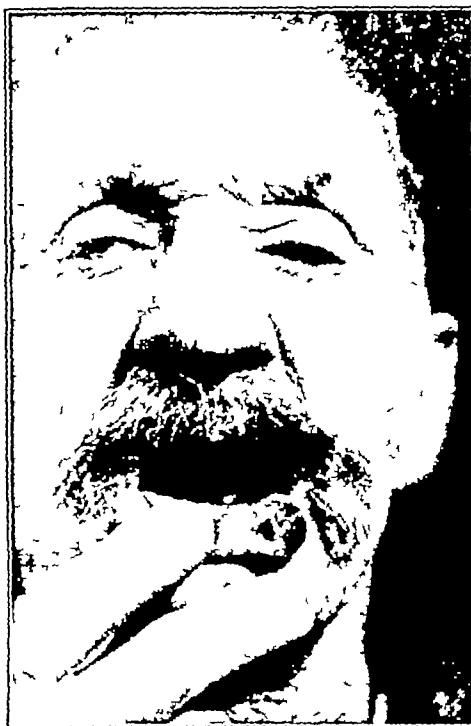


Fig. 4 (case 2)—A fisherman aged 77 who developed an epidermoid carcinoma on the lip at the site where he habitually held the needle in repairing tarred nets. (He was a pipe smoker but always held the pipe in the right side of his mouth.)

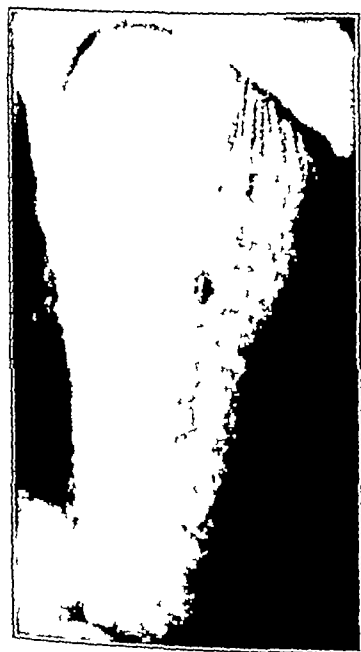


Fig. 3—Tar wart on the forearm of a net loft worker aged 75 who had been handling tarred nets for sixty years.

out in either the horizontal retort or in the vertical type of retort. The tar produced in the old fashioned and relatively inefficient horizontal types comes off at a much higher temperature and contains more carcinogenic agents than that produced in the vertical type.<sup>2</sup>

It is interesting that the fishermen themselves appreciate the difference between the coal tar and the pine tar. The latter they recognize as healing and frequently apply it to their minor abrasions or hemorrhoids. On the other hand, they complain bitterly of the coal tar, which is especially troublesome in hot weather, when it causes an intense burning of the skin. It also causes an irritative condition on the forearms which they call "pingmits", evidently a pustular folliculitis, similar to the condition described by Schamberg<sup>3</sup> as occurring commonly among workers in a tar paper plant.

#### TAR CANCER IN FISHERMEN

In spite of this exposure to carcinogenic tar there is but little mention in the literature of the occurrence of tar cancer in fishermen. Young and Russell<sup>4</sup> mention a relatively high incidence of cancer of the ear in fishermen and suggest that this might be due to tar. Bridge and Henry<sup>5</sup> in 1928 reported two cases of tar cancer attributed to net fixing, and since then four additional cases have been reported to the British Factory Department.<sup>5</sup> The lesions in these six cases were situated on the scrotum (two cases), forearm, hand, ear and neck. It would appear rather surprising that none of these cases were lip cancer, since the habits of net repairers

<sup>2</sup> Kennaway E. L. On Cancer Producing Tars and Tar Fractions *J Indust. Hyg* 5:462 (April) 1924. Heller Imre. Occupational Cancers *J Indust Hyg* 12:169 (May) 1930.

<sup>3</sup> Schamberg J. F. Cancer in Tar Workers, *J Cutan Dis* 28:644 1910.

<sup>4</sup> Bridge J. C. and Henry S. A. Industrial Cancers. Report of the International Conference on Cancer, London 1928 p. 258.

<sup>5</sup> Henry S. A. Personal communication to the author.

must be more or less the same in England as in this country. A possible explanation is that when cancer of the lip has occurred in net fixers it has been attributed to causes other than tar, with the result that these cases have not found their way into the aforementioned statistics.

In an effort to determine the etiologic importance of tar in cancer of the lip a study was made of the cases of cancer of the lip treated at the Collis P Huntington Memorial Hospital, Boston, during the years 1932 and 1933. One hundred and forty-one cases were investigated by questionnaire. There were seventy-nine replies, and in this number there were four who had been employed as fishermen. All four of these men had used tarred nets, and one volunteered the information that he had always held the needle in the same side of his mouth on which the sore appeared (fig 4). This man had never used tobacco, while the remaining three were pipe smokers. However, in two of these the lesion had developed on the side of the mouth opposite from the site of holding the pipe.

sure to tar was probably the important factor in these particular cases, especially so in view of the practice of holding the tar smeared needle in the mouth.

The causative role of pipe smoking, in spite of its generally accepted importance, has not been definitely established. Although pipe smoking is common in patients suffering from lip cancer, there is little evidence that it is more common than in the general male populace of a similar age group. Moreover, the few available reports that include statistics as to the site of holding the pipe do not show an increased tendency for cancer to develop at this site.<sup>6</sup> This point was particularly investigated in our analysis of the cases of lip cancer treated at the Collis P Huntington Memorial Hospital in 1932 and 1933. There were seventy-nine replies to the questionnaire. Of these, sixty patients or 76 per cent, had been pipe smokers. However, of these sixty pipe smokers, the lesion had developed on the same side as the site of holding the pipe in only thirty-four, or 56 per cent. In the eight cases of tar cancer of the lip here reported, two used no tobacco at

*Cases of Tar Cancer of the Lip in Fishermen*

Case	Patient	Age	Duration of Exposure	Nature of Exposure	Location of Cancer	Diagnosis	Source of Case
1	R. O.	41	6 years	Tarred needle held in mouth	Right lower lip	Epidermoid carcinoma (microscopic)	Peter Bent Brigham Hospital
2	D. D.	77	60 years	Tarred needle held in mouth	Left lower lip	Epidermoid carcinoma (clinical)	Collis P. Huntington Hospital
3	J. F.	62	10 years	Repairing tarred nets	Middle half lower lip	Epidermoid carcinoma grade 2 (microscopic)	Collis P. Huntington Hospital
4	E. H.	70	5 years	Tarred nets in lobster pots	Midline of lower lip	Epidermoid carcinoma (clinical)	Collis P. Huntington Hospital
5	J. S.	73	10 years	Repairing tarred nets	Midline of lower lip	Epidermoid carcinoma grade 2 (microscopic)	Collis P. Huntington Hospital
6	B. F.	61	40 years	Tarred needle held in mouth	Left lower lip	Epidermoid carcinoma grade 2 (microscopic)	Massachusetts General Hospital
7	F. W.	56	30 years	Tarred needle held in mouth	Right lower lip	Epidermoid carcinoma (clinical)	Observed at Boston Fish Pier
8	C. M.	72	56 years	Repairing tarred nets	Right lower lip	Epidermoid carcinoma (clinical)	Observed at Gloucester

The cases of cancer of the lip in which tar seemed to have played an etiologic role are given in the accompanying table. In addition to these eight cases there were others indirectly brought to my attention, including the two cases, previously mentioned, of fatal cancer of the lip in net loft workers.

#### COMMENT

Although it is felt that exposure to tar may be a factor in the high incidence of cancer of the lip in fishermen, it is certainly not the only factor involved. The outdoor life and exposure to the sun is probably a more important cause, and in addition the etiologic role of pipe smoking must of course be considered.

A statistical analysis of 750 deaths from lip cancer in England and Wales from 1911 to 1913 showed a death rate of 79.8 per million years of life among agricultural laborers and 55.0 per million among farmers as compared to only 21.2 per million among all occupied and retired males.<sup>6</sup> Fishermen are probably even more exposed to the irritating action of sun and wind than are farmers. They almost universally complain of the susceptibility of the lower lip to sunburn and some wear an overhanging moustache for its shading effect on the lower lip. The fact, however, that cancer of the lip was found to occur in many net loft workers who remain largely indoors and several of whom were not pipe smokers would indicate that expo-

sure to tar was probably the important factor in these particular cases, especially so in view of the practice of holding the tar smeared needle in the mouth.

One might expect that fishermen would develop tar cancer on the arms and hands more frequently than on the lip, since the former are necessarily more constantly exposed to the tar. Although tar warts of the hands and arms were observed in several net loft workers, only one case of cancer of the arm was brought to my attention, and the impression was gained that this must be rare. This high incidence of lip cancer is, however, in accord with the observations of those who have investigated tar and pitch cancer in other industries<sup>7</sup> and is probably due to the relatively high vulnerability of the lip to cancerous changes. Moreover, in fishermen there is the added factor of direct contamination of the lip by the tarred needle which is not present in the industries investigated by other writers.

#### SUMMARY

1. Fishermen in the Massachusetts region are exposed, in the handling and repairing of tarred nets, to the most strongly carcinogenic type of tar, namely, horizontal retort gas-works tar.

2. The lips are especially apt to be contaminated with the tar owing to the frequent practice of holding the tar-smeared needle in the mouth while repairing the nets.

6 Lane-Clayton, Janet E. Report on Cancer of the Lip, Tongue and Skin. London: H.M. Stationery Office, 1930.

7 Kennaway, E. L. The Anatomical Distribution of the Occupational Cancers. J. Indust. Hyg. 7: 69 (Feb.) 1925.

3 In eight cases of cancer of the lip in fishermen here reported it is believed that such an exposure to tar was an important causative factor

4 These observations suggest that exposure to tar may be partially responsible for the apparent high incidence of cancer of the lip in fishermen

## THE TREATMENT OF MALARIA WITH SMALL AMOUNTS OF QUININE

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AND

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From time immemorial the physician has been inclined to prescribe, and the patient to take, quinine only so long as fever continues. Since the organization of malaria campaigns, the malariologist has been concerned over the frequency of relapse—not always distinguished from reinfection—and has tended to combine the treatment of the acute attack with the prevention of relapse. He has therefore encouraged longer and longer treatments, hoping thereby to obtain a radical cure.

This tendency culminated, in the United States, in the "standard treatment," developed by Bass and recommended by the National Malaria Committee, in which intensive treatment was given for two months. Bass<sup>1</sup> stated that most patients will relapse after treatment of a week or less but that 100 per cent of cases would be cured with daily treatment for three or four months.

Recent researches, however, especially in therapeutic malaria, are giving new light on the natural history of the disease and are changing the conceptions of treatment. The Malaria Committee of the Health Section of the League of Nations<sup>2</sup> gives the usual course of an infection as follows. The cure of the primary attack by quinine treatment is followed by a period of two months in which one or more recrudescences may occur. Then comes a period of from seven to ten months of probable freedom from fever, followed by a probable reappearance of fever and parasites, but with complete recovery in a year. To distinguish between subsequent attacks of fever, James<sup>3</sup> has recommended the following nomenclature:

Recrudescence. Return of fever within eight weeks after subsidence of initial attack.

Relapse. Fever between the eighth and twenty-fourth weeks.

Recurrence. Fever after the twenty-fourth week.

This separation is useful for malariologists, but to avoid confusion the word "relapse" should be retained as a general term, and another used for the special meaning that James gives it. We would suggest the term "recidivation" for the return of fever between the eighth and the twenty-fourth week after the initial attack.

The studies on which this report is based were made under the auspices and with the aid of the International Health Division of the Rockefeller Foundation.

<sup>1</sup> Bass, C. C. International Conference on Health Problems in Tropical America, Boston, United Fruit Company 1924 p. 85.

<sup>2</sup> Health Committee, League of Nations Quart Bull Health Organ League of Nations 2 197-300 1933 (French edition).

<sup>3</sup> James, S. P. Some General Results of a Study of Induced Malaria in England. Tr Roy Soc Trop Med & Hyg 24 478-525 (March) 1931.

Sinton,<sup>4</sup> whose work on treatment is fundamental, reports that in 251 probably fresh (new) infections, treated with varying doses of drugs from one week to six weeks, the recrudescence rate was 24 per cent, while in 667 chronic cases treated from ten to fifty-six days with from 16 to 56 Gm of quinine, or of quinine plus alkali, there were recrudescences in 68 per cent. Sinton says "the evidence is very strong that the former [fresh] infections are more easily cured than the latter [chronic] infections."

Fletcher<sup>5</sup> found that the average number of days of quinine treatment necessary to control the fever was 3.5 in quartan, 4.8 in benign tertian, and 4.7 in malignant tertian infections, but to cause the disappearance of parasites from the peripheral circulation 8.7 days of treatment was necessary in quartan, 4.5 in benign tertian, and 6.6 days in malignant tertian malaria.

James<sup>3</sup> was able to infect patients with one strain of *Plasmodium vivax* after another strain had failed to produce infection. Swellengrebel,<sup>6</sup> whose fifteen Dutch volunteers all had relapses after treatment with 1 Gm of quinine plus 0.03 Gm of plasmochin daily for fourteen days, used the Madagascar strain of *Plasmodium vivax* commonly employed by James. He contrasts these results with those of Piebenga, who successfully prevented relapse in sixty-seven persons who had contracted malaria naturally in Holland (local strain of *Plasmodium vivax*) and were given the same treatment.

Lowe<sup>7</sup> observed sixteen persons with untreated benign tertian malaria who probably had acquired a certain amount of immunity from previous attacks years before, he found that eleven had spontaneous arrest in an average period of six days. Among twenty-nine other patients treated with 1.65 Gm of cinchona febrifuge daily for a week, there were no relapses in six months. In twenty-one *Plasmodium falciparum* infections it was necessary to give quinine within forty-eight hours to control the attack.

On the other hand, Caccini in 1902 found that all except one of 120 *Plasmodium vivax* untreated infections relapsed. Of 145 *Plasmodium vivax* infections treated early and systematically, a relapse occurred in 37 per cent. By systematic treatment Caccini meant giving from 1.5 to 2 Gm of quinine on alternate days for seven days. In 102 patients treated daily for a week with from 1.5 to 2 Gm of quinine daily, relapse occurred in 15 per cent. Some of Caccini's patients were observed for as long as nine months. Evidently the strains of *Plasmodium vivax* observed by Caccini and James and Swellengrebel were more virulent than those of Piebenga and of Lowe.

It would seem, therefore, that in the treatment of malaria one should take into account the species of parasite, the virulence of the local strain, whether infection is recent or chronic, and the amount of immunity that the patient may have acquired. A treatment that is adequate in one region may not be so in another.

<sup>4</sup> (a) Sinton, J. A. Indian J. M. Research 13: 565-577 (Jan) 1926. (b) *ibid* 18: 831-844 (Jan) 1931. (c) *ibid* 18: 845-853 (Jan) 1931. (d) Sinton, J. A., and Bird, W. *ibid* 18: 725-746 (Jan) 1929. (e) Sinton, J. A., Smith, S., and Pottinger, D. *ibid* 17: 793-814 (Jan) 1930.

<sup>5</sup> Fletcher, W. Notes on the Treatment of Malaria with the Alkaloids of Cinchona. London 1923 quoted by Sinton references 4, b and 4 c.

<sup>6</sup> Swellengrebel, N. H. Tr Roy Soc. Trop Med & Hyg 25: 114-115, 1932. Proc Roy Acad Sc Amsterdam 34: 1216 1932. Malaria in Deltas. Health Committee, League of Nations Health Organization Malaria 1933 p. 208.

<sup>7</sup> Lowe, J. Indian M. Gaz. 69: 16-23 (Jan) 1934. abstr Trop Dis Bull 31: 420, 1934.

Nocht has stated that "quinine therapy is never a 'therapia magna sterilisans'." The work of James, and of Boyd,<sup>8</sup> Lowe and others, has shown that in some cases spontaneous regression of symptoms will take place even without treatment. Other cases will yield to a very small amount of quinine, while others, as Sinton has shown, will relapse later no matter what method of treatment is followed. Yorke<sup>9</sup> also states that the amount and duration of treatment have no influence on whether or not a relapse will occur. In the experience of Nicol,<sup>10</sup> no known method of quinine treatment is effective in preventing relapses in induced malaria. It seems logical, therefore, to concentrate on the cure of the acute attack and later treat the recrudescences, recidivations and recurrence if and when they occur.

Collins<sup>11</sup> treated two groups of patients with a long (Seiffert) and a short method (1 Gm daily for three or four days). Aside from the difficulties inherent in supervising a treatment lasting for seventy-seven days, he found but little advantage in the long treatment. While the number of recrudescences was less after the long treatment than after the short treatment, it appears that the number of recurrences the following year was greater among those who had received the long treatment. Patients receiving the short treatment tended to remain free from subsequent attacks longer than those given prolonged treatment.

Rogers<sup>12</sup> holds that the vast majority of malarial cases will yield within from five to seven days to oral quinine in 2 Gm daily doses. Sinton<sup>13</sup> recommends 2 Gm of quinine daily for seven days, which he says will cure 70 per cent of fresh infections, without regard to the species of parasite. He considers that 1.3 Gm a day is usually adequate when *Plasmodium vivax* is the common species.

The present tendency, thus, is toward shorter treatments. The Malaria Committee of the Health Section of the League of Nations<sup>2</sup> recommends as a minimal treatment in benign tertian malaria 1 Gm of quinine hydrochloride daily for five days. The opinion of the committee is that larger doses over longer periods are not more efficacious than shorter courses of treatment.

On the basis of the observations that we are reporting here, we have become convinced that with the strains of *Plasmodium vivax* with which we are dealing locally and in the absence of a large percentage of *Plasmodium falciparum* infections, a small amount of quinine is practically as efficacious as a long course of treatment. The saving of quinine is of course very considerable, and administration is greatly simplified.

#### MATERIAL AND METHODS

In 1931 a malaria station was established in Campo Lugar, Spain, to test the value of an antilarval campaign under local conditions. A malaria dispensary was opened to ascertain the amount of malaria occurring. To interfere as little as possible with the natural malaria transmission, and at the same time attract

patients to the laboratory, we wished only to control the acute attack. It was decided to give, as an adult dose, 1 Gm of quinine sulphate daily for four days, a total of 4 Gm. While the dispensary operated during 1931, no antilarval measures were begun until 1932.

In analyzing our cases at the end of the first year, we found that most of the recrudescences had occurred in the spring recurring cases. Only about 15 per cent of the new infections recrudesced. The experience of the two subsequent years has confirmed our first year's observation.

Campo Lugar is a town of 1,200 inhabitants, with a stable population. The patients on whom we are reporting are all residents of the town and are known to us personally. We have thus been able to follow our cases carefully, and we believe that our statistics are as reliable as they can be under field conditions.

In 1931 about 15 per cent of the total population had new infections, this percentage being reduced to 7 in 1932 and to 2 in 1933. It is unlikely, therefore, that there were many cases of reinfection during any one year or that many of what we have called recrudescences were really new infections. There is, however, the possibility of reinfection, since the town was not entirely free from malaria. However, any error is on the conservative side, since the classification of a case as a relapse instead of a new infection makes the test of treatment more severe.

#### Schedule of Treatment

Age	Daily Dose in Grams
0-1	0.10 tannate in chocolate tablets
1-2	0.20 tannate in chocolate tablets
3-4	0.30 0.40 sulphate candy coated pills
5-8	0.50 0.60 sulphate in tablets
9 and up	0.75 1 sulphate, in tablets

Since this has always been a region of endemic malaria, a certain number of the inhabitants had also had previous attacks of malaria. We have no way of estimating this percentage, but there must have been some degree of acquired immunity.

The finding of parasites in the peripheral blood by the thick film method was the sole criterion for the diagnosis of malaria. For such patients the accompanying schedule of treatment was used, both in original and in subsequent attacks.

The duration of treatment was uniformly four days. The entire dose was given to the patient to be taken on his own responsibility. We believe that the total amount was usually taken. If it was not, our results are better than we report. Succeeding examinations for recrudescences and relapses were made at irregular intervals until 1933, when all cases were followed throughout the season on a regular schedule. If a recrudescence occurred, the routine treatment was repeated.

#### RECRUDESCENCES OF OLD AND NEW INFECTIONS

In 1931 there were eighty-six *Plasmodium vivax* infections, seen before June 1, in persons with a history of malaria in 1930, hence these infections were almost certainly recurrences from the previous year. Fifty of the infected persons, or 59 per cent, had more than one attack (recrudescence) during the year. After July 1 there were at least 137 *Plasmodium vivax* and thirty-seven *Plasmodium falciparum* infections, which

<sup>8</sup> Boyd, M. F. South M. J. 27: 155-159 (Feb.) 1934. Boyd M. F. and Stratman Thomas W. K. Am. J. Hyg. 17: 55-59 (Jan.) 1933. 666-685 (May) 1933.

<sup>9</sup> Yorke W. Tr. Roy. Soc. Trop. Med. & Hyg. 10: 108-122 (June) 1925.

<sup>10</sup> Nicol W. D. J. Ment. Sc. 73: 209-217, 1927, quoted by Sinton.<sup>4</sup>

<sup>11</sup> Collins R. K. Am. J. Trop. Med. 14: 329-338 (July) 1934.

<sup>12</sup> Rogers L. International Conference of Health Problems. Boston United Fruit Company 1924. p. 101.

<sup>13</sup> Sinton (references 4 b and 4 c).

were probably new infections. Of the benign tertian cases, twenty-four, or 17 per cent, recrudesced. Of the thirty-seven malignant tertian cases, thirty-three recrudesced after our treatment.

Of the 201 cases seen in 1932, 112 *Plasmodium vivax* cases were probably recurrences of previous infections. Sixty-six of these (again 59 per cent) recrudesced after treatment. Only six of the seventy-three new *Plasmodium vivax* infections, or 9 per cent, recrudesced. There were sixteen *Plasmodium falciparum* infections in 1932, of which three were possibly old infections. Thirteen of these sixteen cases recrudesced.

In 1933, of thirty-three persons with *Plasmodium vivax* infections recurring from 1932, twenty-four, or 73 per cent, had repeated attacks. We had twenty-four new *Plasmodium vivax* infections, of which five, or 21 per cent, had showed recrudescences. There were only three *Plasmodium falciparum* cases, all new infections. All three recrudesced after treatment.

For the three years combined we therefore have the following figures:

Of 234 new *Plasmodium vivax* infections, thirty-five, or 15 per cent, recrudesced following treatment. But of fifty-three new *Plasmodium falciparum* cases, forty-six, or 90 per cent, recrudesced following the same treatment.

Of 231 persons with old *Plasmodium vivax* infections (recurrences from the previous year), 140, or 60 per cent, presented multiple attacks or recrudescences following treatment. The initial attack of the year, or recurrence, takes place in the spring, and the succeeding recrudescences begin within from two weeks to a month but may be continued for two months or more.

The fresh *Plasmodium vivax* infections, therefore, have but little tendency to recrudescence following a short course of quinine treatment, but of those which recur the following spring approximately 60 per cent will be multiple attacks in spite of treatment. This is no doubt a provision for the perpetuation of the species and explains the appearance of new *Plasmodium vivax* infections in June, with the peak in the latter part of July.

#### RECURRENCES OF INFECTION THE FOLLOWING YEAR

Of the 137 new *Plasmodium vivax* infections in 1931, at least fifty recurred in 1932, of the seventy-three new *Plasmodium vivax* infections in 1932, at least nineteen recurred in 1933, and eleven of the twenty-four fresh *Plasmodium vivax* infections of 1933 recurred in 1934, giving a total of at least eighty recurrences in a total of 234, or a minimum of 34 per cent of recurrences the following year. We have eliminated all doubtful cases, so that the actual percentage of recurrences is probably higher.

In fifty-six *Plasmodium falciparum* infections, however, only three presented possible recurrences the following year. These cases, as already noted, had practically all recrudesced the same year and had received additional treatment. Camara has noted similar results with a combination of quinine and acetarsone.

#### DURATION OF INFECTION

We have already seen that, of the 137 persons with new *Plasmodium vivax* infections in 1931, fifty experienced a recurrence in 1932. Nine of these, or 7 per

cent of the original number, again exhibited fever and parasites in the spring of 1933. Similarly there were seventy-three new infections in 1932, of which nineteen recurred in 1933, and four again recurred in the spring of 1934, a percentage of 6.

Furthermore, two other persons, newly infected in September 1932, and examined on more than one occasion in 1933 with negative results, had recurrences early in April 1934.

In all these cases there is of course the possibility of a reinfection in the second year, but a careful study of each case leads us to believe that they are examples of persistence of infection for more than twelve months.

#### HEMIC AND CLINICAL RELAPSES

In 1933 we followed our cases intensively from the time of the first attack until the end of October, in an attempt to study the relation between parasites in the peripheral circulation and clinical recrudescences. The schedule called for three examinations four days apart, beginning one week after the end of the initial attack, then weekly for the remainder of the month, and monthly thereafter, unless clinical symptoms supervened, in which event an examination was made at once. We divided the recrudescences into two types: (1) clinical, when parasites were found and the patient had fever, and (2) hemic, when there were parasites but no clinical symptoms.

Of the sixty persons found with positive reactions during the year, fifty-eight returned for subsequent examinations more or less in accordance with the schedule. The other two removed from the area. A total of 336 reexaminations were made, an average of more than five examinations per person. The number ranged, however, from three in nine persons to fifteen in one case.

Twenty-six persons gave consistently negative results in a total of 103 reexaminations. In other words, 45 per cent had no discovered clinical or hemic relapses during the season. Seventeen of those negative on reexamination were persons who had had new infections, and two others had probably had recurrences of infections of two years before.

Thirty-two patients were positive sixty-eight times and negative 165 times, in a total of 233 reexaminations. Three of these thirty-two cases were new *Plasmodium falciparum* infections, five were recrudescences of the twenty-four new *Plasmodium vivax* infections, and the remaining twenty-four were recrudescences of recurring old infections. Of the latter, eight had only hemic relapses, nine had only clinical relapses, and seven had the two types at one time or another. The same proportion held in the new infections.

If one may judge from the small number of cases, parasites may at times be found in the peripheral circulation in about half the cases without producing clinical symptoms. An extreme case is patient 17, a child, aged 6 years, who was reexamined seven times. On six occasions parasites were found, and the spleen was slightly enlarged, but no rise in temperature was noted at any time.

No parasite counts were made, so that we are not sure that the number of gametocytes present in the circulating blood was sufficient to produce anopheline infection, but it seems probable that some of these patients were infective for considerable periods of time.



## COMMENT AND CONCLUSIONS

We have shown that in new *Plasmodium vivax* infections approximately 15 per cent will recrudesce during the same year, after treatment with 4 Gm of quinine. In the following year at least 35 per cent will recur. The real percentage is probably higher. Thus, as many authors have shown, may occur no matter what method of treatment is followed. It would therefore seem unnecessary to give a long course of treatment in fresh infections unless one wishes to reduce the recrudescences to the absolute minimum, which is probably about from 5 to 8 per cent. Considering the difficulties involved in giving and assuring the faithful following of a long course of treatment, it is doubtful whether the results obtained are worth the effort and expense involved, at least in an organized campaign.

In *Plasmodium falciparum* infections, however, more than 80 per cent of our cases persistently recrudesced following the short treatment. Each recrudescence was treated, so that finally these patients took enough quinine—from 8 to 16 Gm—to effect a cure, and recurrences the following year were the exception.

On the other hand, in the spring recurrences of old *Plasmodium vivax* infections, 60 per cent of the patients had multiple attacks following the short treatment. Therefore, quinine treatment in these cases, which are important in the production of the summer epidemic, does not give such good results. A longer treatment might have given a lower percentage of recrudescences, although from Sinton's extensive experience, and that of others, this seems improbable. Some other drug would perhaps give better results in the treatment of the spring relapses.

The foregoing considerations suggest that in Spain new *Plasmodium vivax* infections may safely be given a short quinine treatment similar to ours, that *Plasmodium falciparum* infections should be treated for a longer period of approximately twelve to fifteen days, and that in chronic infections, or spring recurrences, one of the newer drugs should perhaps be used.

## SUMMARY

A three year trial with a short treatment of 1 Gm of quinine sulphate daily for four days was made.

Of 234 new *Plasmodium vivax* infections, 15 per cent recrudesced, and at least 35 per cent recurred the following year.

Of 231 spring *Plasmodium vivax* recurrences of infections of the previous year, 60 per cent recrudesced following treatment.

Of 56 *Plasmodium falciparum* infections, 90 per cent recrudesced following the short treatment. The recrudescences were also treated, and only three recurred the following year.

It is therefore suggested that fresh *Plasmodium vivax* infections need only a short quinine treatment in the region under study but that *Plasmodium falciparum* infections should be treated for a longer period, while some other drug may be tried for the spring relapses.

49 West Forty-Ninth Street

**Probably Four Eggs a Week**—It is probably in the interests of good nutrition to consume at least four eggs (or egg yolks) per week unless there are reasons to the contrary. More liberal egg consumption is usually practicable and probably advantageous if the combined consumption of meats, fish and eggs is not allowed to become too high.—Sherman H. C. Food and Health, New York, Macmillan Company 1934.

## A STUDY OF ONE HUNDRED CASES OF SKULL FRACTURES

FOLLOWED FROM FIVE TO THIRTEEN YEARS

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My purpose in this report is to present a study of the condition of patients several years after a severe skull fracture. An attempt has been made to determine the effect of age, type of skull fracture, and treatment on the ultimate general condition of the patient.

The mortality in a large series of skull fractures treated in this clinic was studied by Dr. B. N. Carter in 1927. He found a total mortality rate of 37.2 per cent in 389 cases irrespective of associated injuries and length of time the patients survived. Excluding the cases that were moribund or obviously hopelessly injured, the mortality rate was 18.1 per cent.

TABLE 1—Summary of the Effect of Age on the Hundred Cases Studied

Age	Cases	Complete Recovery	Partial Recovery	Incapacitated
1-20 years	38	27	10	1
21-40 years	33	22	13	3
41-60 years	18	9	6	3
61-80 years	7	5	2	0

At that time Dr. Carter also outlined the method of treatment employed in the series of patients on which the present report is based. Patients with the following conditions were operated on as soon as practicable: (a) compound fractures, depressed fractures, and compound depressed fractures, (b) extradural hemorrhage or localized subdural clot, and (c) persistent weakness of an arm or leg.

Patients not requiring immediate operation were treated in the following manner. Repeated lumbar punctures were done both as a therapeutic procedure and as an indicator of the degree of intracranial pressure. On the results of this procedure subsequent therapy was based. If the intracranial pressure was

TABLE 2—Study of the Effect of the Type of Skull Fracture on the Hundred Cases Studied

Type of Fracture	Cases	Complete Recovery	Partial Recovery	Incapacitated
Vault	35	25	9	1
Basal	25	13	10	2
Vault and base	21	14	5	2
Extradural hemorrhage	5	3	2	0
Compound depressed fracture	12	7	4	1
Subdural clot	1	0	1	0

controlled by lumbar punctures, they were repeated as often as indicated. Cases of increased intracranial pressure that did not respond to repeated lumbar punctures were treated by subtemporal decompressions.

The 100 patients studied in this report suffered their injuries from five to thirteen years prior to the follow-up examinations. Patients who had no subjective signs or symptoms and no positive physical or neurologic manifestations were considered completely well. Patients who had subjective signs or symptoms or who had positive physical conditions not of sufficient

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seriousness to keep the patient from following his work were considered to have residual symptoms and to be partially cured. Patients who were unable to work because of some disability due to the head injury were considered incapacitated.

Of the 100 patients examined, sixty-three were completely well. Thirty-one had residual symptoms but were able to maintain a reasonably normal life. Six were incapacitated.

Of the thirty-seven partially cured and the incapacitated patients, nineteen had headaches that were severe and frequent enough for the patient to attribute them to the head injury. Fifteen had vertigo, which was brought on by movement of the head. Seven had defective memory. In three a traumatic psychosis developed, in one patient the psychosis disappeared two months after the discharge from the hospital, the other two patients are still confined to a sanatorium. In four, having the petit mal type of convulsions, two had generalized convulsions, which continued for four years and subsequently stopped, two had generalized convulsions for five years, followed by petit mal seizures, which have persisted now for four years, two other patients were known to have epilepsy before their injuries, and their convulsions have continued. Five patients are still having diplopia associated with weakness of one or more extrinsic eye muscles. Thirty-one patients were bleeding from the ears at the time of admission to the hospital. The follow-up examination of these patients revealed seven with impaired hearing, and all seven had a persistent perforation of the tympanic membrane of the ear. Two of these seven patients had a peripheral facial palsy. Bone conduction was normal in all patients. Seven patients had loss of smell. Neurologic examination revealed six patients with facial palsy of the central type. Three patients exhibited weakness of one side of the body.

With regard to treatment, twenty-six of the hundred patients were operated on, fourteen, or 53.8 per cent, recovered completely, nine, or 34.6 per cent, partially recovered, and three, or 11.6 per cent, were incapacitated. The operations performed were

- 1 Subtemporal decompression for sustained high intracranial pressure, eight patients complete recovery four, partial recovery three, incapacitated one
- 2 Debridement and elevation of fragments for compound depressed fracture, twelve patients complete recovery seven, partial recovery four, incapacitated one
- 3 Craniotomy for extradural hemorrhage, five patients complete recovery three, partial recovery two
- 4 Craniotomy for subdural clot, partial recovery, one patient

Of the seventy-four patients receiving conservative treatment, forty-nine, or 66.2 per cent, completely recovered, twenty-two, or 29.7 per cent, partially recovered, and three, or 4.1 per cent, were incapacitated.

The fact that 37.0 per cent of these 100 patients with skull fractures who were followed over a period of from five to thirteen years showed residual symptoms reveals the seriousness of head injuries. It is possible that these figures are slightly high, owing to the fact that patients with symptoms are more apt to report back to the hospital than are those who are perfectly well.

Of the cases which do not require surgical operations it is my belief that (1) prompt and continued reduction

of increased intracranial pressure to normal, (2) bed rest in the hospital for a period of at least three weeks and (3) a long period of physical and mental rest after discharge from the hospital may materially lessen the distressingly high incidence of serious disability following skull fractures.

## Clinical Notes, Suggestions and New Instruments

### THERAPEUTIC USE OF LOCALIZED ALLERGY

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During the last few years extensive studies have been made on the circulating antibody (atopic reagin) usually present in atopy as well as the reaction of the sensitized tissue when brought in contact with the atopen.

The discovery by Prausnitz and Küstner<sup>1</sup> in 1921 that the normal skin can be passively sensitized by the intradermal injection of serum containing atopic reagin has been utilized for the diagnosis of atopic conditions. Walzer<sup>2</sup> in 1926 demonstrated that the passive transfer site often reacts in the characteristic manner when the specific atopen is ingested orally instead of injected into the sensitized area.

The histologic picture of the allergic wheal has recently been studied by Kline and his associates.<sup>3</sup> They find that the essential picture is an inflammation of the dermis and subcutaneous tissue, with edema, vascular engorgement and leukocytosis. At first the eosinophilic leukocytes predominate (first hour), but later the polymorphonuclear neutrophilic and mononuclear cells replace the eosinophils.

It occurred to us that advantage might be taken of such an induced inflammatory reaction with its consequent mobilization of defensive agents at a local site in the treatment of indolent ulcers.

Serum containing atopic reagin was obtained from E. R., a white woman, aged 24, who is highly sensitive to chicken egg protein. This is shown by the onset of an asthmatic attack, vomiting and an eruption about the face and mouth on ingestion of eggs, and further demonstrated by scratch tests, the Prausnitz-Küstner reaction and the Walzer reaction. Her serum always shows a high titer against egg antigen. Serologic tests for syphilis were negative.

The one case reported is of C. T., a white boy, aged 11 years, who had chickenpox in October 1934. Several vesicles became secondarily infected and a large ulcer resulted over the middle of the anterior surface of the left tibia, measuring 3 by 4 cm, irregular in contour and about 3 mm in depth, with undermined border and purulent exudate over the base. This ulceration was treated for two months in the outpatient surgery clinic of the Colorado General Hospital, with no improvement. Blastomycosis, tuberculosis and syphilis were excluded by laboratory tests. Personal and family histories were negative for allergy. The boy was referred to the outpatient dermatology clinic, Jan. 11, 1935, and a diagnosis of indolent pyogenic ulcer was made.

January 18 0.1 cc. of serum obtained from the girl sensitive to egg was introduced intradermally at each of four equidistant sites just outside the area of inflammation and about one-half inch from the edge of the ulcer. The patient had been told not to eat egg in any form for two days preceding and following the injection. Forty-eight hours after injection of the skin he was given three soft boiled eggs. Forty-five minutes after eating the eggs he complained of itching and burning in and around the ulcer. Within two hours the area around the ulcer was red and edematous, and the erythema and swelling later almost circumscribed the leg. In twenty-four hours the reaction had completely subsided, and the ulcer was considerably

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1 Prausnitz C and Küstner H. *Zentralbl f Bakt* 86 160 1921  
2 Walzer, Matthew J. *Immunol* 11:249 (April) 1926  
3 Kline B S, Cohen M B and Rudolph, J A. *J Allergy* 3 531 (Sept.) 1932

reduced both in area and in depth. With no general or local treatment except the use of compresses of physiologic solution of sodium chloride to keep the ulcer clean it progressed to rapid healing. Seven days after the intradermal injections, the surface of the ulcer was level with that of the surrounding skin, epithelial islands were scattered over the surface and complete healing occurred in seventeen days. The patient was ambulant throughout the treatment.

The results that we obtained in this case have suggested the use of this procedure in other indolent conditions, and further study is being made. We make this preliminary report in the hope that a wider use of this procedure will prove or disprove its possible value.

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## Special Article

### GLANDULAR PHYSIOLOGY AND THERAPY

#### THE PATHOGENESIS AND PREVENTION OF SIMPLE OR ENDEMIC GOITER

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Important contributions have been made during the last thirty years to the etiology and prevention of simple or endemic goiter. Progress in its prevention, wherever attempted, both in man and in animals, has been especially striking, and as the results are cumulative, greater benefits—indeed, complete prevention—can be predicted.

Extension of knowledge of the etiology has come about mainly through studies of thyroid chemistry, the correlation of anatomic changes with variations in the iodine content, interrelations of the thyroid with other organs of internal secretion, particularly the pituitary and sex glands, and the pharmacology, first of whole thyroid substance and later of thyroxine.

While goiter (thyroid hypertrophy and hyperplasia) is only the anatomic expression of the specific physiologic disturbance or deficiency, the anatomic changes are, however, a constant delicate and objective indicator of the course, degree and intensity of the disturbance. On this account a brief summary of the anatomic cycle offers a good background for the discussion of etiology.<sup>1</sup>

This cycle may be represented schematically as in the accompanying chart.

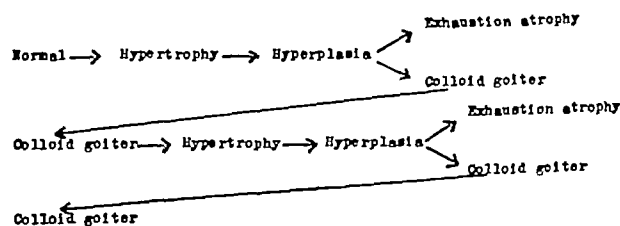
So far as has been determined, this is the only morphologic cycle that the thyroid cell is capable of exhibiting. Thus the series of changes observed in simple or endemic goiter, in exophthalmic goiter, in compensatory hypertrophy following partial thyroidectomy, and following the administration of the thyrotropic hormone are all essentially identical. Many investigators<sup>2</sup> have asserted that there are several

different forms, even of endemic goiter, but I cannot find adequate support for such a view. Virchow's view,<sup>3</sup> that the various morphologic forms of goiter are only terminal metamorphoses of a single initial type, more nearly embraces the facts.

The structural unit of the thyroid is the follicle. Normally it is a rounded, grapelike, closed vesicle distended with clear viscid colloid (thyroglobulin). The epithelial lining is composed of flat cuboidal cells (never higher than cuboidal) arranged in a single layer, the bases of these cells are attached to a delicate vascular connective tissue framework. The cells are of two types, as first determined by Langendorf<sup>4</sup> (1) chief cells and (2) colloid cells, and the necessary intermediate stages. These two types of cell occur in varying proportions, but the chief cells in the normal gland always predominate. The proportion of chief cells to colloid cells can be varied and controlled experimentally, and because of this the two types are considered as indicating only different stages of secretory activity of a single cell type. The chief cell is the actively secreting cell and the colloid cell is the collapsed spent cell.

#### HYPERTROPHY AND HYPERPLASIA

Whenever the amount of thyroid tissue becomes insufficient to supply sufficient thyroid secretion whether from reduced iodine intake, or from increased demands or following partial thyroidectomy, compensatory hypertrophy occurs. This hypertrophy, whatever the contributing cause, appears always to be the result of direct stimulation by the thyrotropic hormone. This is characterized principally by a decrease in the stainable colloid and in the iodine content, by an increase in the blood supply and by a change in the follicular epithelium from low cuboidal and cuboidal to high cuboidal or even columnar. There are infoldings and plications of the lining epithelium, mitoses and new follicle formation if the stimulation is of sufficient intensity and duration. This entire series of hypertrophic cell changes may now be produced in the guinea-pig in from three to four days by injecting the thyrotropic hormone of the anterior pituitary,<sup>5</sup> in the dog it occurs in about two



weeks following removal of three fourths of the gland and in the rabbit within a month when kept on a diet of cabbage<sup>6</sup> or of alfalfa hay and oats<sup>7</sup> of low iodine content.

#### INVOLUTION (COLLOID GOITER)<sup>8</sup>

When physiologic compensation occurs, whether as a result of increased iodine intake, increased secretory epithelium or decreased demands in the organism (decreased thyrotropic stimulation), the gland slowly or rapidly returns to its quiescent, colloid or physio-

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<sup>1</sup> Marine, David and Lenhart, C. H. The Pathological Anatomy of the Human Thyroid Gland. Arch. Int. Med. 7: 506 (April) 1911.

<sup>2</sup> McCarrison, R. Reports of the International Conference on Goiter, Bern 1927. Aschoff, Ludwig. Reports of the International Conference on Goiter, Bern 1927.

<sup>3</sup> Virchow, Rudolf. Die Krankhafte der Geschwulste 3:4 1863.  
<sup>4</sup> Langendorf, O. Arch. f. Anat. u. Physiol. (suppl.) 1899 p. 219.  
<sup>5</sup> Loeb, Leo and Bassett, R. B. Proc. Soc. Exper. Biol. & Med. 26: 860 (June) 1929.

<sup>6</sup> Chesney, A. M., Clawson, T. A. and Webster, B. Bull. Johns Hopkins Hosp. 43: 261 (Nov.) 1928. Marine, David, Baumann, E. J., and Cipra, Anna. Proc. Soc. Exper. Biol. & Med. 26: 822 (June) 1929.

<sup>7</sup> Marine, David and Baumann, E. J. Tr. A. Am. Physicians 47: 261 1932.

<sup>8</sup> Marine, David and Lenhart, C. H. Bull. Johns Hopkins Hosp. 20: 131 1909.

logically normal stage. The anatomic changes in such a gland are the reverse of those which occur during hypertrophy and hyperplasia. The gland as a whole becomes firmer, the color changes from an opaque grayish red to a translucent amber red when involution is complete. The blood supply diminishes. Colloid (thyroglobulin) accumulates, fills and even distends the follicles. There is a rise in the iodine store, somewhat paralleling the increase in storable colloid. The columnar epithelium slowly or rapidly shrinks to cuboidal and finally flat cuboidal if the involution is complete. Just as the active hypertrophies may be arrested at any stage of their progress, so also involution may be arrested at any stage. The stroma becomes less prominent, from compression, decreased vascularity or absorption. The completely involuted thyroid (colloid goiter) is the closest condition to normal physiologically, chemically and anatomically that a thyroid which has once been actively hyperplastic can again assume.

The old view (Virchow, Berry) that colloid goiter is a degenerative process is disproved by the fact that such a gland is capable of undergoing hyperplasia (regeneration) and involution many times during its life history. This has been demonstrated both in man and in animals. Involution is usually accompanied by a decrease in the size of the gland. This is not essential, however, and frequently in man not only does the size not diminish but actual painful temporary enlargement may occur (so-called iodine thyroiditis), especially when iodine is given suddenly in large doses to individuals with actively hyperplastic (parenchymatous) goiters. The development of a colloid goiter from a normal gland by pressure distention of the follicles with colloid, I consider impossible.

All the evidence at present available indicates that the thyroid enlargement is always initiated as an active hypertrophy and hyperplasia. Distention of the follicles with colloid undoubtedly causes further enlargement in certain long standing goiters, of the type designated as struma diffusa colloides proliferans, which are incompletely involuted and yet oscillate between slight further hypertrophy and slight further involution.

#### ATROPHY

While involution or recovery is the usual termination of compensatory hypertrophy, it occasionally happens (notably in endemic cretinism) that the maximum degree of hyperplasia possible fails to bring about functional compensation and sooner or later exhaustion, atrophy and death of the epithelial cells ensue. This outcome is most frequently seen in goitrous endemic cretins, both in man and in animals, and occasionally in the late stages of exophthalmic goiter. The morphologic changes observed are best interpreted as the result of long continued hyperactivity of the cells without sufficient physiologic rest, a lack of the thyrotropic hormone or a combination of the two. In such glands the most striking changes are seen in the epithelium and stroma. In the first stages the picture is that of an extreme degree of active hyperplasia with only an occasional pyknotic or atypical cell mass. In the more advanced stages the cells lose their uniform arrangement in the follicle wall. Desquamation and disintegration of the cells may be seen in the same follicle with mitotic figures and normally hypertrophic cells. Nuclei of the affected cells show great irregularity, sometimes they are enlarged and hyperchromatic, sometimes small and pyknotic, but always variable in size and staining

intensity. The colloid is usually greatly reduced, although occasionally dense masses of colloid may appear to be embedded in the stroma with little remaining evidence of the original follicular epithelium. As the atrophic process continues, the follicle becomes reduced in size by cell death and advancing sclerosis, until the remaining epithelial cells appear as compressed nests of distorted cell masses. The stroma is always relatively increased and in some instances seems to be absolutely increased.

It has long been known that, in spontaneous Gull's disease, atrophy of the thyroid may occasionally occur as a progressive shrinkage in the size of the follicles without previous enlargement. The exact nature of such atrophies are still difficult to understand despite the fact that Allen<sup>9</sup> and Smith<sup>10</sup> have shown that removal of the anterior hypophysis causes a rapid shrinkage in all the elements of the thyroid and that such atrophic glands can be restored to normal or even be made hyperplastic by the parenteral administration of whole anterior pituitary or of hypophyseal extracts. On the basis of this work one could look on the thyroid atrophy in certain cases of Gull's disease as primarily due to a loss of the thyroid stimulating principle of the anterior pituitary, although there is important evidence against this view, whereas the thyroid atrophy of endemic cretinism is always preceded by parenchymatous goiter and is due to a primary thyroid exhaustion.

#### STRUMA NODOSA (ADENOMATOUS GOITER)

This secondary morphologic feature of goiter is restricted almost entirely to man and on this account it has been impossible to test experimentally any hypothesis regarding its mode of origin or nature. Wegelin<sup>11</sup> has shown that adenomas are rarely seen in the developmental stages of goiter and that the percentage of adenomas increases with the duration of the goiter. While the fetal rest hypothesis<sup>12</sup> may explain some instances (congenital adenomas), it is certain that the great majority arise from previously differentiated thyroid tissue and in their beginning are due to the same physiologic stimulus that causes the diffuse goiter in which they arise. Prevention of thyroid hyperplasia completely prevents the development of these adenomas. They usually begin in the deeper portions of long standing, partially involuted goiters that have been oscillating between involution and hyperplasia for years.<sup>13</sup> Such secondary hyperplasias appear at first as islands of regeneration surrounded by quiescent colloid goiter. If the thyroid stimulation is sufficiently intense the entire gland will become hyperplastic, and in such glands the nodules or adenomas are temporarily masked.

A satisfactory explanation for these different rates of growth is not available, but it would seem that variations in the blood supply and lymphatic drainage are important factors, particularly because the normally cystic structure of the thyroid predisposes this tissue to greater pressure effects from stroma bands, colloid retention, cyst formation and the like. Thyroid adenomas are more analogous to uterine fibroids than other forms of new growths. Since they develop as a result of the same stimulus that causes the thyroid as a whole to undergo hypertrophy, so also they tend to exhibit the same cycle of cell changes (hypertrophy and involution), but much more irregularly and to a

9 Allen B M Biol Bull 32 117 1917

10 Smith P E Proc Soc Exper Biol & Med 16 81 1919

11 Wegelin C Handb d spez path Anat u Histol 8: 175 1926.

12 Woelfler Anton Arch f klin Chir 29 1 1883

13 Graham A Am J Surg 7: 163 (Aug) 1929

lesser degree. They are also capable of selectively taking up iodine and of producing, secreting and storing thyroxine, though with less constancy and regularity than thyroid tissue under full physiologic control. In the late stages they become more autonomous, lose more of their physiologic attributes and become true tumors, this is indicated by the fact that 95 per cent of the malignant epithelial tumors of the thyroid arise from them.

In this brief summary of the principal and sequential stages of the morphologic cycle concerned in the developmental (parenchymatous) and recovery (colloid) phases of goiter, discussion of the multitude of secondary changes (except adenomas) has been purposely omitted. It is believed that this cycle is the only morphologic response to variations in functional activity of which the thyroid is capable and therefore that it is not specific for any given disease, although it is a constant and readily measured expression of the variations in the supply of or in the demands of the body for thyroid secretion.

What is known of the function of the thyroid may be summed up as follows. It provides the means through its specific iodine containing secretion for maintaining a higher rate of metabolism than would otherwise obtain, and also, through variations in its activity, it provides a means for varying the rate of metabolism to meet changing physiologic needs. That a very efficient mechanism exists for stimulating the thyroid by way of the blood stream has long been suspected. The existence of such a mechanism was assumed in order to explain compensatory hypertrophy of the remaining fragment following partial thyroidectomy or the enlargement of transplants located in any part of the body and their dependence for growth on the amount of the animal's own thyroid tissue removed. Marked hypertrophy of the anterior pituitary in individuals with endemic goiter has been known for nearly 100 years.<sup>14</sup> Experimental hypertrophy of the pituitary following thyroidectomy was first demonstrated by Rogowitsch,<sup>15</sup> but the first proof of a pituitary hormone regulating thyroid activity followed the demonstration by Allen and by Smith that hypophysectomy caused atrophy of the thyroid and Smith's later demonstration<sup>16</sup> that implants of fresh pituitary restored such atrophic thyroids to normal or even increased activity.

Subsequent work by many investigators from many angles has led to the conclusion that probably the thyroid can be stimulated only by this pituitary hormone (thyrotropic). As already pointed out, the morphologic and chemical changes in the thyroid following injections of the thyrotropic hormone are identical with those seen in compensatory hypertrophy following partial removal or in the developmental stages of spontaneous goiter in man and animals.

While the thyrotropic hormone of the anterior pituitary appears to be the sole means of stimulating the thyroid, there is ample evidence also that the thyroid secretion exercises a great influence on the anterior pituitary, particularly as regards control of the production and excretion of its thyrotropic hormone.<sup>17</sup> Thus, desiccated thyroid will prevent the loss of acidophilic granules and the pituitary hypertrophy that normally follows thyroidectomy, and iodine alone will restore the

acidophilic granules and greatly reduce the volume of the pituitary in animals with hyperplastic thyroids.

The thyroid and anterior pituitary glands are delicately balanced. Any deficiency in the thyroid secretion quickly stimulates the pituitary, either directly or by way of a nervous mechanism, to produce more thyrotropic hormone, and, conversely, supplying the thyroid secretion reduces anterior pituitary activity.

Any modern conception of the etiology of goiter must therefore involve consideration of the availability of thyroxine, the activity of the thyrotropic hormone and the interplay of these two substances as basic factors. Such a theory must also include all the conditions that influence the quantity and action of these two substances.

The principal clinical diseases associated with disturbance of function of the thyroid may be grouped as follows:

#### I Thyroid insufficiencies

- 1 Simple goiter (endemic, epidemic, sporadic)
- 2 Myxedema
  - (a) Infantile (cretinism)
  - (b) Adult (Gull's disease)

#### II Exophthalmic goiter

The discussion of exophthalmic goiter is not part of this paper, but certain features of this disease may be referred to for comparison. Exophthalmic goiter is not a primary thyroid disease. The thyroid reactions in exophthalmic and endemic goiter are, however, similar anatomically and are apparently the result of increased pituitary (thyrotropic) activity. The anterior pituitary is usually enlarged in simple goiter, while in exophthalmic goiter it is not. In simple goiter the pituitary stimulation is dependent on deficient thyroid secretion, while in exophthalmic goiter the pituitary stimulation, if present, is probably the result of a deficiency of some factor or factors related to the sex glands and adrenal cortex. Attempts to treat exophthalmic goiter with estrogenic substance, while not entirely negative, suggest that the essential deficiency is not the estrogenic hormone. Also experiments with cevitic acid,<sup>17a</sup> a constituent of both the adrenal and the sex glands, have not established that this substance has any definite connection with the disease. In exophthalmic goiter the iodine supply is ample, while in endemic goiter this is deficient. The adequate iodine intake makes possible the hyperthyroidism, and this in turn may further depress gonadal functions. Endemic goiter occurs more frequently before sexual maturity, while exophthalmic goiter is more common after the age of sexual maturity, and the cases may be divided roughly into two groups: (1) those occurring in young adults and (2) those occurring during the decline of sexual life. Many students of exophthalmic goiter have been convinced that the primary deficiency in this disease lay in the gonadal sphere (sex glands and adrenal cortex), and the discovery of the possible pituitary link offers a rational hypothesis of how the gonadal insufficiency may stir up the thyroid.

Endemic goiter and cretinism are believed to be different degrees or stages of the same nutritional fault, and all the evidence indicates that they are primarily due to thyroid failure. Paracelsus<sup>18</sup> was the first to emphasize this close relationship, which all subsequent work has confirmed. This relationship was perhaps

14 Niépce B. *Traité du goitre et du crétinisme*, Paris, 1851.  
 15 Rogowitsch N. *Beitr z path Anat. u z. allg Path* (Ziegler's) 4: 453, 1889.  
 16 Smith P E and Smith I P. *J M Research* 43: 267 (June July) 1922.  
 17 Marine, David, Rosen S H and Spark C. *Proc Soc Exper Biol & Med* 32: 803 (Feb.) 1935.

17a Cevitic acid is the name adopted by the Council on Pharmacy and Chemistry for crystalline vitamin C formerly designated ascorbic acid.—Ed.  
 18 Paracelsus A P T. *De generatione stultorum* Opp. Strasbourg 2: 74 1616.

most briefly expressed by Morel<sup>19</sup> is follows "Goiter is the first stage on the road to cretinism." Spontaneous myxedema (Gull's disease) in the light of recent work may be primarily a failure of certain functions of the anterior pituitary, particularly a deficiency of the thyrotropic and gonadotropic hormones, so that while the end result in myxedema on the one hand and that in cachexia thyropriva and endemic cretinism on the other are similar in that they have thyroid insufficiency in common, the thyroid insufficiency in the two diseases may be attained by different means. There are important general differences between spontaneous myxedema and cachexia thyropriva. For example, in Gull's disease exophthalmos does not develop and there is gonadal atrophy accompanying or even preceding manifestations of myxedema, while after thyroidectomy exophthalmos may occur and not only does gonadal atrophy not occur but increased sexual activity usually results, particularly in rabbits. The sex gland atrophy of myxedema would now be considered as another indication of anterior pituitary failure, while the exophthalmos and increased gonadal activity of thyroidectomized sexually mature animals would be explained as due to pituitary stimulation.

#### SIMPLE ENDEMIC GOITER AND CRETINISM

*Occurrence and Distribution*—Simple goiter (endemic, epidemic, sporadic) may occur in any land or fresh water animal with the ductless thyroid, although there are species and individual differences in its incidence in animals living in the same general environment. Animals living in the sea are free from the disease. On the seacoast generally, simple goiter is rare. In man it occurs in all races, in all climates and at all habitable altitudes. In the temperate zones there is a seasonal variation corresponding to the seasonal variation in the iodine store of the thyroid (Seidell and Fenger).

While goiter may occur anywhere, even in midocean, as on one of Captain Cook's voyages in 1772 (associated with scurvy), one of the most striking features is the increased incidence in certain more or less defined regions of the world—the so-called districts of endemic goiter. The most notable of these districts are the Himalayan Mountain region of South Central Asia, the Alps, Pyrenees and Carpathian Mountain regions of Europe, the Andean Plateau and southeastern Brazil in South America, and the St. Lawrence and the Great Lakes basin extending through Minnesota, the Dakotas and adjacent Canadian provinces and the Pacific Northwest including Oregon, Washington and British Columbia in North America.<sup>20</sup> It will be noted that most of these regions are mountainous, although there are important exceptions. Of greater importance is the occurrence of endemic goiter for the most part on the leached soils deposited from the last glacial period. There is also general evidence of decreases in the incidence of goiter in many of the minor endemic goiter districts during the past 100 years in addition to the rapid decrease since iodine prophylaxis was introduced.

There are many reports of the sudden occurrence of goiter in large numbers of men and animals—so-called epidemics. In man these epidemics have for the most part occurred in new arrivals in military garrisons, in

institutions, in schools or in new settlements in districts where goiter was endemic. These individuals usually recover from goiter on returning to nongoitrous districts. Outbreaks are reported from time to time in the lower animals, for example in fish hatcheries, on poultry farms and in dairy herds. Some of these acute outbreaks have been in goiter regions while others have not, indicating that with optimal conditions for its development goiter may occur anywhere.

*Age*—Goiter develops more frequently before sexual maturity than in the older age groups. The major periods in life when goiter in man most frequently develops are (1) during fetal life (congenital goiter), (2) during puberty, (3) during pregnancy and lactation and (4) during the decline of sexual life.

Heredity is not an important factor in simple goiter. The thyroid has such a wide range of physiologic compensations that its functional derangements may be compensated for in one generation.

Beginning with puberty, goiter in man is much more frequent in females, but in districts of severe endemic goiter this sex difference may be masked. In lower animals and in man before puberty a difference in the incidence of spontaneous goiter due to sex has not been definitely established. In experimental goiter (alfalfa hay-cyanide) in rabbits, males are more frequently affected.

The cause or causes of goiter have interested physicians from the remotest times, and in general the views concerning etiology have reflected the state of medicine existing at the time. A great variety of physical and chemical agents and hypothetical goiter noxae have been brought forward as causal factors. St. Lager<sup>21</sup> grouped them under forty categories. Most of them are now of historical interest only, but some are of present-day importance. Poverty, unhygienic living conditions, unbalanced diets, and lack of transportation are important indirect and contributing causes. McCarrison<sup>22</sup> states that in northern India it is an old saying that families who could afford the luxury of table salt were free from goiter. This statement implied poverty versus riches, but today it would imply a source of iodine. The idea of a goiter noxa has come down through several centuries. This noxa has been interpreted in different periods as miasma or emanations from decomposing animal and vegetable matter, as a colloidal organic agent in water, or as various inorganic substances dissolved or suspended in water, particularly salts of calcium and magnesium,<sup>23</sup> fluorides, silicates and sulphides. With the rise of bacteriology and protozoology, the view that the noxa might be a living organism or its toxin was extensively investigated. McCarrison<sup>24</sup> believed that organisms of the colon group were causal factors. Chagas<sup>25</sup> reported a type of endemic goiter in Brazil which he thought was due to a trypanosome (*Schizotrypanum Cruzi*). Subsequent work has shown that this infection may exist without thyroid enlargement and that the thyroid enlargement may exist without the infection. That many toxins or poisons of bacterial or other origin may indirectly stimulate the thyroid to increased activity and visible enlargement is well known. Thyroid enlargements are of frequent occurrence in early pulmonary tuberculosis, in secondary syphilis, in the acute fevers

<sup>19</sup> Morel. Du goitre et du crétinisme. Etologie prophylaxie traite-  
ment, Paris 1864.

<sup>20</sup> Careful goiter surveys of the school population in selected dis-  
tricts of the United States have been made by Olesen (Pub. Health  
Rep. 44 1463 [June] 1929) of the United States Public Health Ser-  
vice. A resurvey in the same districts with similar methods would be  
of great value.

<sup>21</sup> St. Lager. E. R. Etudes sur les causes du crétinisme et du  
goitre endémique. Paris. Balliere et fils 1867.

<sup>22</sup> McCarrison. Robert. Etiology of Endemic Goiter. London. John  
Bale Sons & Danielsson Ltd., 1913.

<sup>23</sup> Grange. Arch. gén. de méd. January 1850 p. 108.

<sup>24</sup> McCarrison. Robert. Indian M. Gaz. 46 253 1911.

<sup>25</sup> Chagas. Carlos. Mem. Inst. Oswaldo Cruz 3 219 1911.



and in many intoxications. The thyroid reaction in these conditions is now looked on as a part of the general defensive mechanism against infection, the thesis of infection as a causative agent would not explain the age, seasonal, geographic and sex distribution of simple goiter. No evidence exists that goiter may be transmitted by contact, nor is it possible to transmit the disease from animal to animal either through feeding or through injecting the tissues of goitrous animals. Toxins and infections could be contributing causes of goiter only in somewhat the same way that they may contribute to the onset of diabetes mellitus, i. e., by increasing the needs of the body for thyroxine or for insulin.

Water has been associated as the carrier of the goiter toxin by all peoples from the remotest times.<sup>26</sup> All the experiments so far conducted with water have yielded negative or doubtful results. These results could be as easily interpreted as indicating a deficiency of some essential element, iodine, as indicating the presence of some specific substance. It is not in accord with the facts to state that water in goitrous regions is always polluted. There is the interesting experiment of Portland, Ore., where the incidence of goiter rose sharply after the introduction of the water from Mount Hood, which, from the standpoint of organic contamination, is one of the purest of waters.

One substance in water, calcium, stands out as an important factor in goiter and has been considered an etiologic factor for more than a century.<sup>27</sup> The high calcium content of water in many goiter regions is significant, but there are many areas where the calcium content is high without goiter and other areas where the calcium content is low with goiter. This would indicate that calcium is not an essential factor, though it probably is an important contributing factor.

A low iodine content of water, food and soils in regions where goiter was common was first established by Chatin.<sup>28</sup> His work was unfortunately discredited and further advance was blocked for forty-five years, until Baumann<sup>29</sup> and his pupils discovered the normal occurrence of iodine in the thyroid. Hirsch's<sup>30</sup> criticism of Chatin's work may be quoted as representative of the prevailing opinion up to the time of Baumann's discovery.

A short lived opinion was that advocated by Chatin (before him by Prevost and Maffoni and after him by Marchand and Fourcault) to the effect that the cause of goiter and cretinism lay in the absence of iodine in the drinking water and in the air. Chatin pointed to his numerous inquiries which showed that wherever the amount of iodine was relatively large, as in the basin of the Seine, Yonne and other rivers, the two diseases were unknown, that they both became prominent with a smaller amount of iodine, as in the Rhone valley, and that this inverse ratio obtained with even greater force in the valley of the Isere. If Chatin's theory is true it would then remain a question, and a very doubtful one, whether iodine has a prophylactic power against goiter as well as a curative.

Virchow<sup>31</sup> also voiced his opposition to the idea that the absence of a substance could be a causal factor in goiter and insisted that the active agent must be a positive factor.

Deficient chlorides (also indicating a low iodine content) in waters of goiter regions was pointed out by

Eulenberg.<sup>32</sup> Today Chatin's observations have been generally confirmed by all workers, including McClelland<sup>33</sup> and Remington<sup>34</sup> in this country, von Fellenberg<sup>35</sup> in Switzerland, and Hercus<sup>36</sup> in New Zealand.

The two positive contributions that have come out of all the early work on the etiology of goiter are (1) the high calcium and (2) the low iodine content of water in districts of endemic goiter.

Most of the recent experimental work has tended to add further support to both the low iodine and the high calcium intake as factors in the etiology of goiter.

The part that calcium plays in goiter development is not understood, although the recent experimental work of Tanabe,<sup>37</sup> Hellwig,<sup>38</sup> Thompson<sup>39</sup> and others abundantly confirmed the older geological and chemical studies and established the fact that an excessive intake of calcium in some manner increased the goiter-producing effect of a given diet. There is some evidence that it acts partly by neutralizing the effect of thyroid secretion, that is, by creating a relative insufficiency of iodine. Thus, Zondek and Reiter<sup>40</sup> showed that the metamorphosis of tadpoles by thyroxine was notably delayed by adding a soluble calcium salt ( $\text{CaCl}_2$ ) to the water. The work of Abelin<sup>41</sup> and others showed that calcium greatly lessened the metabolic effects of thyroxine, that is, animals (rats) given an excess of calcium in a given diet showed much less effect from thyroxine administration than did the controls. The work of Tanabe showed that when excessive amounts of calcium chloride were given to rats in the drinking water, together with a low iodine intake, enlargement of the thyroid occurred. Hellwig has confirmed this observation. More recently Thompson has further extended this work with calcium and has demonstrated that calcium carbonate is increasingly effective the lower the iodine intake, she has further shown that always with a constant iodine intake the thyroid reaction is greatly increased by increasing the calcium intake. What effect the phosphorus and magnesium levels have on this action of calcium in blocking the action of thyroxine is not known. The parathyroids are constantly enlarged in the experimental (low iodine-high calcium) goiter of rats and also in the cabbage and alfalfa hay-cyanide goiter of rabbits.

A great many food factors are known to affect the thyroid. St. Lager stated that it was a common belief that a high fat diet was a factor. McCarrison, Mellanby and others have confirmed this view. Baumann and his pupils noted that feeding foods rich in iodine (codfish) caused a storage of iodine in the thyroid and that fresh meats caused a decrease in the iodine store. Watson also found that a meat diet caused hypertrophy of the thyroid. Marine and Lenhart showed that pig's liver was the most potent of a variety of meat products in causing thyroid hyperplasia in brook trout and dogs. Chesney and Webster reported that a diet consisting solely of cabbage often produced goiter in rabbits. This finding has been confirmed, but there are important

32 Eulenberg. *Gaz de méd Paris* 1859 p 347

33 McClelland J F. *Physiol Rev* 7 189 (April) 1927

34 Remington R. E. J. *South Carolina M A* 25 445 (June) 1929

35 von Fellenberg T. *Biochem Ztschr* 139 371 1923

36 Hercus C. E. Benson W. N. and Carter C. L. *J Hyg* 24 321 (Dec) 1925

37 Tanabe H. *Beitr z path Anat u z allg Path (Ziegler's)* 73: 415 1925

38 Hellwig C. A. *Iodine Deficiency and Goiter Arch Path* 11: 709 (May) 1931

39 Thompson J. *Influence of the Intake of Calcium on the Thyroid Gland of the Albino Rat, Arch Path* 16: 211 (Aug) 1933 *Endocrinology* 17 537 (Sept Oct) 1933

40 Zondek, H. and Reiter T. *Klin. Wchnschr* 2 1344 (July 16) 1923

41 Abelin I. *Biochem Ztschr* 199: 72 1928

26 Pliny. *Historia naturalis lib ix cap 37 sect 68*

27 McClelland. *Dublin J M Sc* 11: 295 1837

28 Chatin A. *Gaz d hop* 25: 14 38 50 86 and 94 1852

29 Baumann E. *Ztschr f physiol Chem* 21: 319 1896

30 Hirsch A. *Geographic and Historical Pathology ed 2 Tr New Sydenham Soc* 2: 196 1885

31 Virchow Rudolf. *Die Krankhafte der Geschwülste* 3 1863



annual and seasonal variations in the goiter-producing capacity of cabbage. My collaborators and I have many times referred to the frequency with which thyroid hyperplasia develops in prepubertal rabbits maintained on a diet of alfalfa hay and oats. There are great differences in the goitrogenic action of different samples of alfalfa hay, which are related, but not entirely, to the variations in iodine content. We have frequently pointed out that methyl cyanide ("acetonitrile") materially augments the goitrogenic action of both cabbage and alfalfa hay diets and that traces of iodine entirely prevent the thyroid overgrowth with these diets. It should be pointed out that both cabbage and alfalfa have high calcium and relatively low phosphorus contents and that they do not produce goiter unless the iodine content is low.

In recent years, vitamin deficiencies<sup>42</sup> have been brought forward as causal factors in goiter. There is no evidence that a vitamin deficiency plays any primary role, although there is some evidence that deficiencies of vitamin B complex and vitamin C are contributing factors. Radioactive substances in water have also been considered causal factors, but no positive connection has been established.

Halsted<sup>43</sup> first produced experimental congenital goiter in puppies by removing most of the mother's thyroid early in pregnancy. Marine and Lenhart<sup>44</sup> confirmed this and showed also that congenital goiter could be easily prevented in such experiments by giving the mother a few milligrams of iodine during pregnancy. The extensive studies of the relations of iodine to histologic structure in representative series of mammals including man have shown that this element was always lowered to a critical level before hypertrophic changes in the thyroid began.<sup>45</sup> It was further shown that hypertrophic and hyperplastic changes could be readily controlled by giving or withholding traces of iodine, in puppies 1 mg of potassium iodide administered by mouth at weekly intervals was more than sufficient to prevent thyroid enlargement, while control puppies of the same litter, living in the same kennel and partaking of the same food, developed large goiters.<sup>46</sup> Similar evidence of iodine controlling the growth of thyroid transplants located in any part of the body has been reported by Manley and Marine.<sup>47</sup>

To sum up the evidence at present available concerning the etiology of goiter, I believe that the view that goiter is caused by a specific virus or toxin or by the presence of a specific substance may be permanently abandoned and that one is justified in concluding that simple or endemic goiter is a work or compensatory hypertrophy instituted immediately by the thyrotropic hormone of the anterior pituitary in response to the demands, normal or abnormal, of the body for thyroid secretion. The essential cause of simple goiter centers about the supply of thyroxine and the needs, normal or abnormal, of the thyroid for iodine. Since there is no evidence that the ability of the thyroid to build up di-iodotyrosine and thyroxine is lacking in such thyroids, one must conclude that goiter is a deficiency disease due to an insufficient supply of iodine. This iodine

deficiency may be relative or absolute and may result from (1) factors that increase the needs of the body for thyroxine, such as puberty, pregnancy, the menopause, certain infections and intoxications, exposure to cold excess of certain substances in the dietary, including fats, proteins and calcium (the ratios of the latter with phosphorus and magnesium are also important), and deficient oxidation (for instance, thyroid reaction in anemias or in the presence of oxygen deficiency such as occurs at high altitudes), (2) factors that interfere with the absorption or utilization of a normal intake of iodine, and (3) factors that bring about an abnormally low intake of iodine.

All the factors enumerated in group 1 are examples of relative iodine deficiencies. In specific examples, such as pregnancy, the relative insufficiency is assumed to be associated with increased physiologic demands. An excessive calcium intake might neutralize thyroxine or protect the cells against thyroxine, or the calcium effect might be due to altered ratios with phosphorus and magnesium. Deficient oxidation might result from a lowered oxygen transport, anemia or lowered oxygen pressure in the atmosphere.

Concerning the second group there is no knowledge. It has been suggested that the flora and fauna of the alimentary tract might divert the iodine intake. It has also been suggested that the thyroid cells, through age or heredity, might lose their capacity to build up di-iodotyrosine and thyroxine, but no one has obtained such evidence, and with a moderately extensive experience I have seen nothing that would support such a view.

Regarding the third group, the outstanding facts are (1) that in districts in which goiter is common the iodine content of the soil, water and foodstuffs is low, (2) that in experimental goiter a low iodine intake is essential for goiter development, and (3) that the addition of from 0.5 to 1 microgram (one millionth of a gram) of iodine daily will prevent the occurrence of goiter in rats.<sup>48</sup> Iodine effective in such amounts would appear to be acting in the realm of a true physiologic need rather than as a neutralizer of toxins or as an antiseptic.

While it does not seem likely now that a single positive agent—physical, chemical or biologic—will account for all thyroid hyperplasias and even though the iodine deficiency (relative or absolute) theory does account for all the known facts, nevertheless one must still consider the possibility that some positive agent may be found and must bear in mind that much of the advance so far made has been due to the zeal with which individual investigators have followed up different hypotheses.

#### PREVENTION

There is sufficient evidence to show that during the last century, in both the severely and the mildly endemic regions, the incidence of goiter has slowly decreased. This result is probably an indirect effect of the general economic betterment—higher standards of living, improved sanitation, larger varieties of food, control of infectious and contagious diseases, and, in particular, better and more rapid means of transportation. Prevost<sup>49</sup> especially emphasized the need for better transportation facilities as a fundamental factor in planning control.

<sup>48</sup> Levine A, Remington R. E. and von Kolnitz H. *J Nutrition* 6: 325 (July) 1933.

<sup>49</sup> Prevost J. L. *Traite du goitre et du cretinisme* Paris 1864.

<sup>42</sup> Sure Barnett and Smith M. E. *J Nutrition* 7: 547 (May) 1934.

<sup>43</sup> Halsted, W. S. *Johns Hopkins Hosp Rep* 1: 373 1896.

<sup>44</sup> Marine, David and Lenhart, C. H. Effects of the Administration or the Withholding of Iodine Containing Compounds in Normal Colloid or Actively Hyperplastic (Parenchymatous) Thyroids of Dogs. *Arch Int Med* 4: 283 (Sept.) 1909.

<sup>45</sup> Marine, David and Lenhart, C. H. Relation of Iodine to the Structure of Human Thyroids. *Arch Int Med* 4: 440 (Nov) 1909.

<sup>46</sup> Marine, David and Kimball, O. P. *J Lab & Clin Med* 3: 40 (Oct.) 1917.

<sup>47</sup> Manley, O. T. and Marine, David. The Transplantation of Ductless Glands. *J A. M. A* 67: 260 (July 22) 1916.

Historically, the methods suggested for controlling goiter have reflected the views as to its cause prevailing at the time. Thus, when heredity was considered a causal factor, marriage with individuals from non-goitrous regions was recommended. Changing and purifying water supplies as a means of prevention have been practiced for more than a century, primarily on the theory that water was a carrier of the noxa, whether it was some inorganic or organic chemical substance or a living virus. The search for methods of prevention was one of the main purposes of the goiter commissions appointed by the Sardinian government in 1845, by the Austrian government in 1860, by the French government in 1863, by the Swiss government in 1908 and more recently by the Italian government.

The theory of Chatin<sup>28</sup> that goiter was due to a deficient intake of iodine would probably have quickly led to the prevention of goiter by supplying additional iodine if supporting facts of the physiology, pathology, pharmacology and chemistry of the thyroid had then been available. The keystone for this scientific background was supplied by Baumann and his pupils in 1896 when they discovered that iodine was a normal constituent of the gland. Within fifteen years after this discovery sufficient physiologic, pathologic, pharmacologic and chemical correlations of iodine with thyroid function were available to supplement the observations of Chatin and to establish an adequate scientific basis for large scale experiments in goiter prevention with iodine.

Such experiments were carried out (1909-1910) in a colony of approximately 400,000 brook trout, varying in age from newly hatched to 4 years<sup>50</sup>. It was demonstrated that iodine added to the water supply at its source in amounts not exceeding 1 mg per liter entirely prevented the development of goiter and brought about involution in those fish with hyperplastic thyroids. It was later shown that changing the diet from fresh pig's liver to whole sea fish (as the source of iodine) was equally efficacious. McClendon has recently pointed out that the low incidence of simple goiter in Japan is probably due to the widespread consumption of sea foods, particularly seaweed, among the inhabitants. Following the brook trout experiments, the administration of iodine in some form or manner has been extensively and successfully applied in the large scale prevention of goiter and cretinism in sheep, cattle, pigs and domestic birds.

All attempts to arrange large scale experiments in goiter prevention with iodine in man were unsuccessful until 1917, when through the efforts of Dr O P Kimball, a former teacher in the high schools of Akron, arrangements were made to carry out such experiments in the school population of Akron<sup>46</sup>. The simplest and cheapest method had to be used, and it was decided to administer 2 Gm of sodium iodide in 0.2 Gm doses distributed over a period of two weeks, to be repeated each spring and autumn. Reexamination of the pupils at the end of the first year revealed essentially the same striking preventive and curative effects that had been observed in the lower animals, and the generalization made from the work with fish, birds, sheep and pigs that goiter is the simplest, easiest and cheapest of all known diseases to prevent was equally applicable to human endemic goiter. Experiments in the prevention of human goiter were begun in Switzerland by Klinger<sup>51</sup> in 1918 with such striking results that in 1922 the

Swiss Goiter Commission recommended the introduction of state-wide prophylactic measures against endemic goiter.

Iodine is effective in prevention when administered in any form and by any means. This fact introduces difficulties and advantages—difficulties in selecting the most convenient form and means and advantages in that prevention may be accomplished with certainty by the use of iodine in any form. Historically and quite unknowingly, iodine-containing salt (sea salt) was the first means of administration, and since 1920, when artificially iodized salt was first introduced in this country at the suggestion of Dr H G Sloane of Cleveland, it has largely replaced other means of administration for general, practical prophylaxis. During the seventeen years since large scale prophylaxis of simple goiter in man with iodine was begun in the United States, it has been extended to Canada,<sup>52</sup> Switzerland,<sup>53</sup> Germany,<sup>54</sup> Austria,<sup>55</sup> Italy<sup>56</sup> and New Zealand,<sup>57</sup> with equally favorable results.

During the first years of goiter prophylaxis there was considerable opposition, both here and in Europe, because of possible untoward effects, especially that of aggravating or even causing exophthalmic goiter. During the past five or six years this criticism has largely disappeared. The reports of Plummer<sup>58</sup> and of McClure<sup>59</sup> showed a distinct increase in the number of goiter operations in the years 1926 and 1927 in Michigan and Minnesota. This increase occurred mainly in the group of patients with long standing adenomatous goiters (so-called toxic adenomas), who had undoubtedly received too much iodine. I have had an opportunity of investigating twelve cases in which physicians thought the exacerbation was entirely due to the iodized salt, but in each instance it was established that other preparations of iodine had been used at the same time. Coindet<sup>60</sup> had noted in 1821 that iodine administration to individuals with adenomatous goiter often had injurious effects. Kocher<sup>61</sup> was perhaps the greatest opponent of iodine therapy in cases of adenomatous goiter, and Plummer,<sup>62</sup> in a large series of carefully studied cases, clearly established that iodine, instead of bringing about a temporary remission as in cases of exophthalmic goiter with diffuse parenchymatous goiter, more often increased the metabolic rate. Undoubtedly much of the literature on "iodine-Basedow's disease" and Kocher's opposition to the use of iodine in goiter came from administering iodine in susceptible or latent cases of exophthalmic goiter presenting adenomatous goiters. There is sufficient evidence to show that there is a real danger in giving iodine to individuals with adenomatous goiter, and unquestionably the more concentrated iodized salts (from 1 10,000 to 1 5,000) cause injurious effects (iodine-Basedow's disease) in this particular group of patients, while such doses, as is well known, have no injurious effects in normal individuals or in individuals with simple parenchymatous goiter. The elimination of this group with long standing adenomatous goiter I believe will largely prevent

52 Cameron A T. *Canad. Pub. Health J.* 21:495 (Oct.) 1930.

53 Silberschmidt W. *Reports of the International Conference on Goiter.* Bern 1927.

54 Dieudonné A. *Reports of the International Conference on Goiter.* Bern 1927.

55 Wagner Jauregg. *Reports of the International Conference on Goiter.* Bern 1927.

56 Muggia G. *Rassegna di studi psichiat.* 22:718 (July-Aug.) 1933.

57 Hercus C E and Roberts K C. *J. Hyg.* 28:49 (March) 1927.

58 Plummer H S. *Tr. A. Am. Physicians* 46:171 1931.

59 McClure R D. *Ann. Surg.* 100:924 (Nov.) 1934.

60 Coindet. *Ann. de chim. et phys.* 16:252 1821.

61 Kocher T. *Arch. f. klin. Chir.* 92:1166 1910.

62 Plummer H S. *Tr. A. Am. Physicians* 43:159, 1928.

50 Marine David and Lenhart C H. *J. Exper. Med.* 12:311 1910.

51 Klinger R. *Schweiz. med. Wchnschr.* 51:12 (Jan. 6) 1921.

the occurrence of iodine-Basedow's disease and remove the most important objection to generalized iodine prophylaxis. In the Akron experiment, lasting three years, eleven instances of mild iodism and no case of exophthalmic goiter occurred in 2,190 girls between the ages of 10 and 20 years. Klinger in 1921 did not observe a case of iodism or of exophthalmic goiter in more than 1,000 children observed over a period of sixteen months. These earlier observations have been repeatedly confirmed and offer the best explanation for the decline in the criticism against iodine prophylaxis.

The daily amounts of supplementary iodine required for prevention of goiter obviously must vary with different districts, with different age groups, with different physiologic epochs of life and with different diets and climates. The normal requirements of the body for iodine are not yet known. It has been stated that from 0.04 to 0.08 mg probably would cover the normal daily needs of an adult.<sup>63</sup> The most commonly used iodized salts now contain an added quantity of from 5 (1/200,000) to 10 (1/100,000) mg of potassium iodide or its equivalent per kilogram of salt. In Switzerland the former concentration has been in general use for the past nine years, with no untoward effects. As recently pointed out by de Quervain<sup>64</sup> it has reduced the incidence of goiter in school children from as high as 100 per cent to 5 per cent and has controlled congenital goiter, but there has been no change in the incidence of goiter of pregnancy or of goiter in army recruits. These observations further illustrate that amounts of iodine sufficient to prevent goiter may be insufficient to cure goiter and also that the amounts of iodine administered were insufficient to meet the greater requirements for iodine in the physiologic epochs of puberty and pregnancy. I myself feel that the addition of 10 mg of potassium iodide per kilogram (1/100,000), because it takes care of a wider range of iodine deficiencies with no appreciably greater risk, is the concentration to be preferred. As Cameron<sup>65</sup> has pointed out, it would not be desirable to use minimal normal requirements of iodine, if these were known, because of the highly variable requirements previously referred to.

There are several side-effects of goiter prevention that may be mentioned. The first is the elimination of congenital goiter and cretinism. This result becomes manifest within the time limits of a single pregnancy, but in man it will require a complete reproductive cycle to provide full proof.

The second is the reduction in the number of individuals requiring partial strumectomy. This result is beginning to become manifest after ten years of general prophylaxis. McClure in 1934 reported that the number of thyroid operations in seven southern Michigan hospitals had fallen from 1,452 in 1927 to 591 in 1933, a drop of 60 per cent in thyroid operations as compared with a drop of 17 per cent in all surgical operations during this period.

The third benefit—the decline in the incidence of benign and malignant epithelial tumors of the thyroid—will likewise require another decade in the case of benign and longer in the case of malignant tumors before adequate statistical proof becomes available. The figures given by Wegelin<sup>66</sup> for malignant tumors of the thyroid in Berlin, where the incidence of goiter

is low, and in Bern, where it is high, illustrate the influence of goiter on thyroid carcinoma and indicate the change that must take place when the incidence of goiter in the tumor age group is reduced. In Berlin there were thirteen malignant thyroid tumors in 13,426 necropsies while in Bern there were 159 malignant thyroid tumors in 15,250 necropsies.

## Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION  
OF THE FOLLOWING ARTICLE HOWARD A. CARTER, Secretary

### ELECTROSURGERY

A DISCUSSION OF INDICATIONS, ADVANTAGES,  
DISADVANTAGES AND WARNINGS CON-  
CERNING ITS USE

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In presenting this article I do not intend to dwell on the technic or attempt to add to the knowledge of men who have specialized in this method, but rather to present to the general profession certain surgical conditions in which electrosurgery has been tried and found good, and to point out both the advantages and disadvantages of this method of surgery. The Council on Physical Therapy has studied and evaluated many different kinds of electrosurgical machines and has placed their approval on a number of them. This does not mean that the Council feels that electrosurgery is the method of choice for the general man in a great many of the surgical conditions for which it has been recommended, either by manufacturers' agents or by certain authors who have more or less specialized in electrosurgery. It has become quite apparent that, if electrosurgery is to retain its proper place in the surgical world, the profession must be enlightened concerning the disadvantages as well as the advantages of this form of surgery.

Electrosurgery, or the application of certain electrical currents to the body tissues for surgical reasons, is no longer experimental but is rapidly becoming the procedure of choice in a limited number of surgical conditions. There are three end results which can be obtained by the application of certain electrical currents to body tissues: dehydration, coagulation and section, or a cutting effect. A different type of electrical current is necessary to obtain these various results. In dehydration, as the name implies, there is an actual drying out or shrinking of the tissues, while coagulation produces more destruction, a homogeneous granular debris, as when applied to sensitive tumor cells. In cutting, there is a rapid destruction of a thin line of tissue, with a separation resulting, quite similar to that obtained by incision with the scalpel.

There are a great many electrosurgical machines on the market. The majority of them will give these types of currents, although some may excel in one current and be deficient in another. In selecting a machine, the surgeon must bear in mind that constant improvements and certain refinements are being added to these machines for the purpose of making them fool proof or prolonging their usefulness, or to make the three currents uniformly adequate in the given machine.

It is not necessary for the surgeon to master the physics of the machine producing these currents, but

<sup>63</sup> Eggenberger, H. *Munchen med Wchnschr* 71: 972 (July 18) 1934.  
<sup>64</sup> de Quervain, F. *Centralbl f allg Path u path Anat. (abst)* 60: 360 1934.  
<sup>65</sup> Wegelin, C. *Handb d spez path Anat u Histol* 8: 306 1926.

it is imperative that every surgeon attempting to use electrosurgery should become thoroughly familiar with the effects on the tissues of these various currents. This can be obtained at first by experimentation on dead tissues and on the tissues of experimental animals. Naturally, continued use of electrosurgery in operative work adds to the surgical proficiency in the method. The mere possession of an electrosurgical machine by a physician in his office, or by a hospital, for his use, does not mean that that physician or the staff members of the hospital are competent to perform surgical operations. Surgical experience and judgment are still of paramount importance. Knowledge in the use of electrosurgery alone does not mean that one can enter one or all of the special fields of surgery through this gateway. One must have mastered thoroughly the special fields of surgery before one is competent to perform operations by means of electrosurgery. This statement is so obvious that it seems unnecessary, yet there are manufacturers' agents who are selling these machines on the premise that it makes surgery easy and can make a specialist out of any surgeon.

Three things have limited the use of electrosurgery, even in those surgical conditions in which it is definitely indicated and offers the greatest advantages and greatest safety to the patient:

- 1 The experienced surgeon has become so familiar with the use of the scalpel that he is slow to give up this method for the adoption of another method which requires more or less special training in its use.

- 2 Too many inexperienced surgeons have adopted electrosurgery, and have used it in special fields wherein they were not even specialists, with an ever increasing number of poor results and an accompanying condemnation of electrosurgery.

- 3 Many hospitals have bought electrosurgical machines, too often on the advice of the salesman rather than at the special request of a staff member deeply interested in the method. Lukewarmly, various members of the staff have tried to use the machines without first making themselves proficient in the method. The operations were not successful, and, naturally, the staff ceased to use electrosurgery.

Recently a surgeon from a neighboring city visited the clinic with which I am associated, for the purpose of observing electrosurgery in the case of malignant breast tumor. He stated that his hospital had two electrosurgical machines, but, for some reason, the staff was lukewarm about using them. On further questioning, it soon became evident that none of the surgeons on this staff had perfected themselves in the use of these currents. One must guard against over-enthusiasm in this method. My associates and I have learned by sad experience not to attempt operations by this method in fields in which the specialist's judgment and his familiarity with the parts involved are of greater importance than simply knowing how to use electrosurgery. Fortunately, there is an ever increasing number of surgeons trained both in their specialty and in the use of electrosurgery to insure an increasing use of the method in the limited number of conditions in which it is definitely indicated.

These warnings cannot be overemphasized. Ward<sup>1</sup> says:

As in any surgical procedure, the essential feature of success in the use of the electrosurgical method in the treatment of malignancy is the development of an accurate judgment as to the extent of the disease and a thorough knowledge of the current being used, and the extent of the after-slag with the chosen current. This is obtained by practice. It is impor-

tant, however, that any one attempting to develop the perfect technic should have a thorough surgical training. By no means can electrosurgical methods be picked up quickly and in a slipshod manner. One is dealing with a tremendous force which, when rightly applied, produces splendid results, but if carelessly handled, causes disaster.

Skilern,<sup>2</sup> from the standpoint of the specialist, in his discussion "Is Electrocoagulation the Best Method for the Removal of the Faucial Tonsil?" emphasizes these facts as follows:

It is the most difficult and dangerous method in the hands of the inexperienced. The dangers and difficulties are multiple in ratio to the lack of knowledge, and no one who is not capable of removing tonsils by other surgical technic and meeting all complications that may arise during or after the operation should ever attempt their removal by electrocoagulation.

#### ANESTHESIA IN ELECTROSURGERY

One of the drawbacks frequently mentioned in the use of electrosurgery is the danger of explosions when general anesthesia is used. It goes without saying that electrosurgery should never be used in the same room in which ethylene is being given. One should refuse to use it if ethylene was given in the same operating room within the last thirty minutes. On the other hand, I do not hesitate to use either ether or nitrous oxide anesthesia in all electrosurgical operations except those about the mouth and face. The combination of nitrous oxide and ether anesthesia is not used because, when combined, they are more explosive.

When the indication is for a general anesthetic in a thyroidectomy, performed by electrosurgery, I have used both ether and nitrous oxide on many occasions. The one precaution taken is that a wet blanket hangs between the ether or nitrous oxide mask and the field of operation. A sterile sheet covers this wet blanket. The same is true in breast amputations. This wet blanket should be tucked well around the mask and close to the sides of the patient's face, and down behind the shoulders, so that the ether fumes cannot get under the sterile sheet and run the slight risk of being ignited by the electrosurgery. Careful attention to these details makes the use of ether and nitrous oxide possible in all operations except those in the immediate neighborhood of the mask, namely, the mouth and face.

In the latter situations, a local anesthetic is always used. It may be preceded by morphine, scopolamine or sodium amytal. For the removal of small benign tumors or other lesions on the body, local anesthesia is usually indicated. Patients seldom complain of the electric current under local anesthesia.

#### WOUND HEALING

From actual clinical observations in a large series of malignant conditions of the face, neck and breast especially, I am convinced that the wound made by electrosurgery is just as free of sepsis as is true of scalpel surgery, but wound healing is slower and, the larger the wound, the slower is the healing. Furthermore, the resulting scar from the incision through the skin by electrosurgery, other things being equal, is just as good as the scar following the scalpel, but the skin wound heals more slowly. Because of this fact, unless there is definite contraindication because of the nature of the tumor, I always make the incision through the skin with the scalpel. In electrosurgery the skin sutures are left in situ for two to five days longer, depending on the extent of the incision. Provisions for drainage of

<sup>1</sup> Ward G E. Electrosurgery chapter 8 in volume 7 of Lewis's Practice of Surgery p 10

<sup>2</sup> Skilern S R. Arch Phys Therapy 13 587 (Oct) 1932

serum should always be made when much tissue has been removed, and especially if much coagulation has been necessary.

Burgess of England and John D. Ellis of Chicago have done considerable experimental work in the healing of wounds in electrosurgery. Burgess<sup>3</sup> says:

Provided that an equally rigid aseptic technique be adopted as is employed in scalpel surgery, my experience is that operations performed by electrosurgical methods—the cutting current for the incisional work and the coagulating current for all but the largest vessels, and using fine tungsten wire as the electrode—are attended by primary healing with a frequency at least equal to that of scalpel surgery. On theoretical grounds one would expect healing to be rather slow since with the cutting current, there must necessarily be some slight necrosis of the wound surface, however microscopic, which will require to be dealt with by the phagocytes as a preliminary step toward healing. I therefore usually retain the skin sutures two or three days longer than when scalpel surgery has been used, though I am not convinced that this is essential. The ultimate scar can be just as inconspicuous, as supple and as strong as after the scalpel, and some of the scars upon the face and neck of female patients of the inconspicuousness of which I, and they, too, are most proud, have resulted solely from electrosection.

Ellis<sup>4</sup> writes:

Experimental cuts were made with both types of current on the skin of the human being, dog, rabbit and frog. The first three of these have a skin with a stratum corneum, and in the presence of this layer, some coagulation results before penetration of the skin can be accomplished, even with a pure cutting current. This coagulation does not necessarily interfere with primary healing, but only 60 per cent of the cuts produced in dog's skin healed by primary intention. The skeletal muscle and muscular layers of the stomach and intestine can be severed by a cutting current without coagulation. The phenomenon of vessel closure with a coagulating current is interesting, involving collapse, shrinkage and agglutination of the vessel walls without extensive thrombus formation. A large amount of thrombokinase seems to be liberated in the cutting of capillaries and small vessels. There are many serious errors to be avoided in the coagulating of vessels. Too rapid coagulation causes explosion and subsequent hemorrhage.

In coagulation of tissues, the specific resistance of the tissues varies tremendously, e. g., fat is more than eight times as resistant as muscle, making the direction of the penetration of deep coagulation uncertain and dangerous.

#### INDICATIONS FOR ELECTROSURGICAL TECHNIC<sup>5</sup>

Electrosurgery, from a theoretical standpoint, is an ideal method in the majority of major and minor surgical procedures. From a practical standpoint, however, its usefulness is limited by the cumbersome machine, by the lack of trained assistants in its use, and by the fact that in the majority of conditions the scalpel is just as simple and just as safe a method. Certainly, in the hands of the inexperienced in electrosurgery the scalpel is a much safer method in the average surgical operation. I am positive that electrosurgery will never replace the scalpel, scissors and artery forceps. There are certain surgical conditions, however, which I am just as positive can be handled better and more safely, from the standpoint of the patient, by means of electrosurgery.

The chief indications for electrosurgery are found in those cases of malignant conditions located on the skin, in the oral cavity, in the extremities, in the breasts, or in other locations where it is easy to use as an

adjutant to scissors and the scalpel. It is indicated in extremely toxic goiters for the same reason that it is indicated in malignant growths, namely, to seal the blood vessels and the lymphatics and to prevent the entrance of thyroid toxins into the general circulation. It has been used and is sometimes indicated in attacking certain septic conditions for the same reason. A notable example of this is complete excision of the necrotic core of a carbuncle from the back of the neck. It is indicated, according to certain authorities, for the removal of badly infected tonsils or for the removal of tonsils in debilitated patients. Next to malignant conditions, electrosurgery is chiefly indicated for the removal of moles, benign tumors on the surface of the body, and certain types of nevi. Finally, it is indicated in certain conditions in neurologic surgery, chest surgery, gynecology and rectal surgery, in which the elimination of hemorrhage, in order to facilitate the operation, is the chief desideratum.

Some authorities have advocated the use of electrosurgery for many other surgical operations, for example, in amputations, in incising the abdomen, in stomach and intestinal resections, in hysterectomies, in cholecystectomies,<sup>6</sup> and in many minor operations. Space will not permit the discussion of these operations. It will take considerably more experimental and clinical work to convince the majority of surgeons, including myself, that some of these operations can better be performed by electrosurgery than by the usual methods.

The indications for electrosurgery can best be approached, first, from the point of view of the general surgeon and, secondly, from the point of view of the specialist. As a general surgeon, I have used electrosurgery in approximately 500 operations. I am convinced of its value in selected cases, for example, the following:

#### BREAST

Malignant tumors of the breast can best be attacked by electrosurgery for the following reasons:

(a) If, as many people believe, it is possible to disseminate cancerous cells by direct implantation on healthy tissue by means of the scalpel or by dissemination of the cancerous cells through the blood stream or the lymphatics to other parts of the body, any method of operation that will kill the cancerous cells if the tumor is accidentally cut into or which will seal the blood vessels and the lymphatics at the time they are sectioned is certainly the method of choice. Tissue cells that remain on the electrode are immediately coagulated or killed and therefore cannot be transplanted. The cutting current, especially if combined with a slight coagulating current, will not only section the tissues but also seal the blood vessels and the lymphatics at the same time. Thus electrosurgery, not only in breast tumors but in any other type of malignant condition, offers the best means of preventing the spread of the cancerous cells during the period of operation, provided the hypothesis concerning lymphatic and blood stream dissemination is correct. I realize that this is a disputed point.

(b) The operating time, after one becomes familiar with electrosurgery, can be reduced approximately one third. One can incise the tissues more rapidly with the cutting electrode than with the scalpel, owing to the fact that the smaller blood vessels are immediately sealed and therefore bleeding does not interfere with

<sup>3</sup> Burgess, Arthur. *Lancet* 2: 1355 (Dec. 16) 1411 (Dec. 23) 1933.

<sup>4</sup> Ellis, J. D. *Electrosurgical Incisions*. *Arch. Surg.* 26: 981 (June) 1933.

<sup>5</sup> Throughout this article the term electrosurgery is used synonymously with electrosurgical methods, procedure or technique.

<sup>6</sup> Thorek, Max. *Electrosurgical Obliteration of the Gallbladder*, *J. A. M. A.* 103: 169 (July 21) 1934.

the process. The larger blood vessels must be grasped with artery forceps. A dozen artery forceps containing these larger bleeding vessels can be touched by the coagulating electrode, resulting in sealing of the vessel grasped in the forceps in the same time that it would take a fast operator to ligate two of these vessels. It is rare for a vessel thus sealed to bleed again, provided one has not grasped too much of the surrounding tissue in the artery forceps. Time and again I have performed radical breast amputations without using more than two ligatures throughout the operation. Recently, an entire breast amputation was performed without the use of a single ligature. The chief saving of time, therefore, in a radical breast amputation by electro-surgery is found in this method of hemostasis.

(c) The absence of pain following a radical breast amputation by electro-surgery is so universally noted that it has caused frequent comment, both on the part of my associates and on the part of the patients themselves. Recently I have operated on the opposite breast in the case of a doctor's sister whose first breast had been removed by the scalpel. She commented time and again on the absence of pain in her second operation as compared with the pain she suffered following the first amputation. True, some patients still complain of pain, but the number who go through their convalescence without a single complaint is noteworthy.

Burgess<sup>3</sup> in commenting on the advantages of electro-surgery, says

In comparison with scalpel surgery, electrosection has, I am convinced, certain advantages and foremost among these I would place the lesser amount of after pain, not only in the immediate postoperative period but throughout the whole course of wound healing. Dividing nerve fibers by this method seals over their ends in such a way as to render them much less sensitive than after being divided with a knife, and in extensive operation wounds, such as those of large amputations of limbs or radical breast operations, this difference is strikingly manifest.

(d) Shock and hemorrhage are less in these radical breast amputations when electro-surgery is used. The reduction of shock naturally follows the reduction of hemorrhage. The diminished afferent impulses along the nerve fibers account for further reduction of shock. Considerable heat is generated in the tissues from the electric current. By the careful protection of the already resected portion of the breast by warm wet packs, much of this heat can be retained. Without question, this lessens the shock. If one uses a machine that will give both a cutting and a coagulating current, it is possible to do a radical breast amputation without losing a noticeable amount of blood. Unless the operator pays particular attention to securing exactly the right type of current, there may be just as much loss of blood by this method as by the scalpel method. However, I have removed breasts without having a drop of blood on my gown at the end of the operation. In order to secure this result, one must take more time, but too often, in the haste to complete an operation, sufficient attention is not paid to securing this desired current.

In regard to this view, Burgess says

I am not convinced that hemorrhage is lessened to any great extent if the purely cutting current only is used. With this oozing from the capillaries is slightly less and is earlier spontaneously arrested, but vessels of any size require to be picked up with forceps much as in scalpel surgery and either ligated in the usual way or sealed with the coagulating current. Some high frequency machines deliver a current which is a compromise between the purely cutting and coagulating current,

and with these hemorrhage is undoubtedly less, but only because of the greater degree of coagulation produced over the entire wound surface, with its consequent lesser probability of perfect primary union.

In performing a radical breast amputation with electro-surgery, I always make the incision through the true skin with the scalpel. The incision starts at the xiphoid process, extends upward and outward to the lower angle of the breast, passes on either side of the breast—usually 3 to 4 inches from the nipple—and converges again at the upper angle of the breast, and then extends upward toward the clavicle, well above the anterior axillary fold, and curves outward onto the deltoid. This incision when the wound is finally closed and healed, prevents the scar from extending across the anterior portion of the axilla, a condition that usually limits the abduction and elevation function of the arm. For the same reason, the arm is never bound to the side of the body, but the patient is encouraged to abduct and elevate the arm over the head several times every day after the end of twenty-four hours. It is rarely that a patient has loss of arm function, and it is rare to have a swollen, painful arm, if this plan is followed out. The reason for making the incision through the skin with the scalpel is that the healing of the skin wound is undoubtedly faster than when the incision is made with the cutting current. Bleeding from this incision is slight and is soon checked when the cutting current is applied.

Electrosurgery is now used for the remainder of the operation, with the one exception to be detailed. By means of the cutting and slightly coagulating currents the skin and fat flaps are now dissected away from the breast, the inner flap of the skin being turned back until the midline of the body is reached, and at the upper angle until the inner third of the clavicle is reached. At this upper margin it is resected back until the clavicle itself is exposed. The outer flap of skin is dissected downward and outward until the entire axilla and the margin of the latissimus dorsi are exposed. One may now start the radical amputation of the breast. This may begin by electrosection throughout the insertion of the pectoralis major into the humerus and clavicle, next resecting the insertions of the pectoralis minor and turning these inward on the chest, exposing the axilla. Or, in many cases it may be more advantageous to start the amputation of the breast by cutting through the pectoralis major muscle attachments to the ribs, beginning near the xiphoid process and extending outward over the chest wall and likewise dissecting the pectoralis minor from the ribs when this muscle is reached, first lifting the entire breast off of the chest wall, leaving all the ribs exposed. These muscles can then be divided from the clavicle and the humerus, the axillary vein and artery having first been exposed to guard against damage to these. Since this dissection is done with the sealing of the lymphatics and the blood vessels, either of these procedures may be followed. The glands and areolar tissue in the axilla immediately below the axillary artery and vein, immediately above these vessels and above the brachial plexus, under the clavicle, and from all other spaces in the axilla surrounding these vessels, are now removed by blunt dissection, as is done when the scalpel is used. As soon as these vessels have been completely exposed by the removal of the glands and areolar tissue, further dissection of the axilla is performed by a combination of blunt dissection and the use of electro-surgery. As one becomes more proficient in electro-surgery, one can use the method closer and closer to these large vessels. There is a certain amount



of the work, however, that must be done by blunt dissection. This is the only weak point in the operation.

When the operation is completed, one has the entire breast and every bit of the areolar tissue and glandular tissue of the axilla completely removed, with the ribs, the axillary artery and vein, and the lower portion of the brachial plexus exposed. A counter opening is made at the lower angle of the outer flap, through which a soft drainage tube is inserted for drainage of this space. The operation is then completed by closing the skin flaps.

There are certain disadvantages that must be mentioned in connection with this operation by electro-surgery.

(a) Wound healing is somewhat slower. I have learned from experience to leave the sutures in place for fourteen to sixteen days rather than remove them on the tenth or twelfth day, as is done with scalpel surgery. In only one case has a wound broken completely open after the sutures were removed, and in this case they were removed on the tenth day.

(b) In the majority of cases there is more serous drainage than occurs with scalpel surgery.

(c) Hemorrhage may follow this method just as it may follow scalpel surgery. In only two cases has there been large hemorrhage, with formation of blood clots filling the axilla. There were no bad results in these two cases, except the delay in healing, due to its being necessary to open a portion of the wound for evacuation of these clots.

(d) Caution must be used in removing the pectoralis major and minor muscles from the ribs to prevent cutting or coagulating the intercostal tissue. In one case the current penetrated this tissue, opening the pleura. The small opening was immediately closed by suture, without any bad effect on the patient.

(e) Postoperative irradiation is now used in almost all of my cases. Dr. William Brown, radiologist, and I have become convinced that it is better to wait at least ten days before applying radium in these cases. Used earlier, the skin reaction seems more marked, and in one case there was marked sloughing of the skin. This would seem to indicate that there is more disturbance of circulation to the skin by this method.

Only one postoperative death in approximately 200 radical breast amputations, performed either by the scalpel method or by electro-surgery, has occurred. In this case the method used was electro-surgery. On the second day following the operation, a massive collapse of the left lung suddenly occurred and by the next day there was a serous discharge from the wound, cultures from which showed hemolytic streptococci. Death occurred at the end of the third day. At autopsy there was an opening into the pleural cavity, between the third and fourth ribs in the midaxillary line. A rubber drainage tube that had been inserted lay in proximity to this opening. It is my belief that the tissues at this point were weakened by the electro-surgery, and the pressure of the tube against this point caused an ulceration into the pleura. Since then, only the softest rubber drainage tubes have been used, and great caution has been exerted to avoid damaging the intercostal tissue.

#### THYROID

In 1930 I<sup>7</sup> gave the first published report on electro-surgery in thyroidectomy. At that time only fifteen thyroidectomies had been performed by this method, but since then I have used it in approximately fifty cases. Its use is reserved for cases of marked thyrotoxicosis and for the purpose of preventing the spread of thyroid toxins into the general system by means of sealing the blood vessels and lymphatics while removing the goiter. For the average case that is not

highly toxic I prefer the scalpel. It seems that there is less serous secretion with subsequent drainage and better wound healing when the scalpel is used than when electro-surgery is used. In the majority of thyroidectomies I use a combination of the scalpel and electro-surgery. Much time can be saved in this operation by sealing all but the largest blood vessels with the coagulating current, reserving ligatures only for the latter. Without doubt, the use of the scalpel is more artistic and appeals to the surgeon more than the use of the cumbersome electrode. However, I am convinced that electro-surgery should be used in the extremely toxic cases. In thirty-five serious cases, with metabolism rates at the time of operation varying from 35 to 95 and showing extremely toxic symptoms, the operation was performed with electro-surgery without a single case showing the postoperative reaction or crisis that is so terrible to witness in some of these cases when only the scalpel is used. Several surgeons, by personal communication, have testified to the value of electro-surgery in these extremely toxic goiters. Dr. Martin Tinker<sup>8</sup> is quoted by Clark<sup>9</sup> as follows:

I have found the high frequency knife to be successful in goiter operations. Electrosurgical outfits have been used by a number of outstanding surgeons in this country for a good many years, especially in the management of malignancies. Several advantages have become apparent to many members of the profession, and I believe that shortly the electrosurgical unit will be considered a necessary part of every modern operating room, especially where much goiter surgery is done.

The advantages and disadvantages of electro-surgery in thyroidectomy, as set forth in my previous article, apply in almost all conditions wherein electro-surgery is used. For this reason, these are quoted in full.

Although this is too small a series of cases to justify positive conclusions, a few definite advantages are apparent.

1 The time of the operation is definitely shortened by this method through the sealing of the bleeding vessels rather than the use of the time-consuming method of applying ligatures.

2 In every case, even in the most serious, with marked cardiac involvement, there has been a complete absence of postoperative shock. One patient was in such extreme condition that his family physician called at the hospital just before the operation and begged both the patient and his wife to forego the operation, stating that he would surely die if submitted to this ordeal, yet the patient made an absolutely normal recovery, free from all shock and pain.

3 A convalescence so free from postoperative pain that even the patient remarks about the complete lack of suffering is almost the universal rule. This result, occurring in a group of patients who are usually emotional, given to complaints and often seeking sympathy, is especially noteworthy.

4 When one has used the electrosurgical method in the removal of a large number of malignant growths in breasts, tongues, lips and parotid glands, one becomes deeply impressed with the bloodless field, the absence of postoperative shock and the freedom from postoperative pain. The greatest impression, however, and the greatest sense of security, lie in the sealing of the blood and lymph channels simultaneously with the incision in and around the malignant growth. The old fear of opening up channels for the escape of carcinomatous cells to other parts of the body is at once eliminated to a great extent.

The same principle holds true in the removal of a very toxic goiter by the electrosurgical method. There has been no case thus far in this small series that has shown the least evidence of a postoperative thyroid toxicosis. It would seem logical to ascribe this to the same sealing of the blood and lymphatic channels, thus preventing the escape of toxic substances from the cut thyroid gland.

<sup>7</sup> Mock H. E. Electro-surgery in Thyroidectomy. *J. A. M. A.* 94: 1365 (May 3) 1930.

<sup>8</sup> Tinker M. B. *Surg., Gynec. & Obst.* 52: 508 (Feb. 15) 1931.  
<sup>9</sup> Clark W. L. in *Principles and Practices of Physical Therapy*. Hagerstown Md. W. F. Prior Company 1934.



I am not yet ready to say that this will be my method of choice in every case of thyroidectomy. I am, however, convinced that it is by far the most rational procedure in all cases of malignant growths susceptible of being attacked by electro-surgery. For the same reasons, it would seem an equally rational procedure in malignant conditions of the thyroid or in severe cases of toxic or exophthalmic goiter.

#### DISADVANTAGES

1 The machine for the generating of this electric surgical current is large and cumbersome and is transported from one hospital to another with great inconvenience. It is an expensive apparatus and therefore will usually be purchased only by surgeons or hospitals interested especially in malignant conditions or by those who may come to recognize its value in thyroidectomies. Its general usefulness is therefore greatly limited.

2 The surgeon must have at hand a carefully trained assistant who understands the mechanism and who can manipulate the various switches that modulate the current from a light cutting stage, through intervening stages, to a heavy coagulating current. Unfortunately there are only a few persons thus far trained to operate this particular machine.

3 It requires considerable experience to use just sufficient current to make a clean-cut incision in the skin that will heal as readily and with as little remaining scar as follows a properly executed scalpel incision. With practice, however, this can be accomplished. If too strong a coagulating current is used in sealing the blood vessels, one may have a greater amount of serum drainage than is the rule when hemostats and ligatures are used. Here, again experience with the current is necessary to overcome this difficulty.

4 Care must be used not to allow the current to come in contact with a hemostat lying across the skin or a metal retractor, otherwise, cooking of the skin or of the tissue under the retractor will follow to a degree depending on the strength of the given current. This of course can be easily avoided.

#### OTHER MALIGNANT CONDITIONS

Electrosurgery is adaptable to a considerable number of other malignant conditions, as follows:

*Malignant Conditions of the Tongue*—All malignant conditions of the tongue susceptible for removal with the scalpel can be attacked with the cutting current, or better, the cutting and slightly coagulating current, equally well. As much as two thirds of the tongue has been removed by electro-surgery with very little hemorrhage and very little more sloughing than follows the use of the scalpel. A wide removal of the malignant tumor is indicated, and this can best be done by sealing the lymphatics and blood vessels with the electric current at the same time the tumor is removed. Extensive tumors, requiring resection of the mandible for their attack, have been removed by means of electro-surgery.

Radical dissection of the glands of the neck may be performed by a combination of scalpel and blunt dissection and electro-surgery. Removal of an isolated gland of the neck after it has been exposed can well be performed by electro-surgery.

*Malignant Conditions of the Lips*—There are many malignant conditions of the lips that can best be treated by radium. In many of these, consultation with a dermatologist is definitely indicated. There are certain malignant conditions of the lip, however, that must be widely resected. A number of these have been removed, the entire operation being performed by electro-surgery, including the incision of the skin. As a rule, a slight incision through the skin can be made by the scalpel, and then the cutting current is resorted to. However, with a pure cutting current quickly drawn through the skin, there is little delay in healing, and the resulting scar is practically as good as when the scalpel is used.

*Malignant Conditions of the Face*—A number of extensive malignant growths about the nose, cheeks, parotid gland and ears, and involving the eye, have been attacked by means of electro-surgery. Some of these have been so extensive that no effort at operation would have been made if scalpel surgery alone was available.

Some of these tumors can be completely excised and the wound closed. In one case of extensive malignancy of the nose and eyelids and involving the orbit, the entire dissection was done, including the enucleation of the eye and the cleaning out of the orbit, with electro-surgery. The wound was left open to granulate. Within two weeks there was such a good granulating surface that a pedicle graft was turned in to close the defect of the orbit, and Thiersch grafts were applied to the granulating surface of the nose. The resulting defect was not repulsive. This patient lived five years, and at the time of his death from pneumonia had no evidence of recurrence. Without doubt, electro-surgery offers the means of attacking some of these extensive, foul-smelling, ulcerating growths with considerable relief to the patient and the prolongation of his life. In many of these, surgery with a scalpel would be contraindicated.

In these lesions, as well as in malignant growths of the tongue and the lip and other skin cancers, one may prefer to coagulate thoroughly the entire cancer. By introducing the needle at various places around the margin of the cancer and working from the margin toward the center, and after the tumor is thoroughly coagulated, the cutting current may be used to incise the charred tumor mass. This method is indicated in certain of these tumors and is the method that is preferred by many operators. The wound remaining when a tumor is thus treated is usually left open and allowed gradually to close.

There have been a few cases of cancer of the breast of a year or more standing in which large ulcerated, foul-smelling areas have been removed by electro-surgery. Some of these have been recurrences following a radical breast amputation. These foul-smelling, ulcerated areas can be completely removed by means of electro-surgery with little hemorrhage if the current is damped, or made partly coagulating, and a large granulating area is left behind, which, in one case, healed sufficiently to allow skin grafting. Many of these patients can be relieved of their discomfort and suffering by this palliative operation, made possible only by electro-surgery.

Electrosurgery has been used as an adjunct to ordinary surgery in resection of the stomach, resection of the bowel, and resection of the rectum in the presence of malignant growths. After the mass is once freed, usually by careful scalpel and scissors dissection, its removal can be facilitated by resorting to electro-surgery.

#### NONMALIGNANT CONDITIONS

The chief nonmalignant conditions in which electro-surgery has been used have been moles, small benign tumors of the skin, excision of ulcerated areas following radium burns, two cases of plantar warts, and a few cases of large hemangiomas.

Recently a hemangioma that was slightly larger than an egg and was raised about half the height of an egg, and which was located on the front of the chest of a girl, aged 4 years, was removed. An elliptic skin incision was made by means of a scalpel around this nevus, completely outside the discolored area. The complete dissection of the nevus, down to the pectoral

muscles, was then made with electrosurgery. The cutting-coagulating current was used, and the entire mass was removed without a particle of hemorrhage. No ligatures were necessary after its removal. The skin margins were then undermined with the cutting current, and the wound was completely closed, giving only a hair-line scar, which, in time, will fade and will leave no noticeable defect. A similar nevus, about half the size of this one, was removed from a child's forehead with the same result. In the first case, Dr. William Brown, radiologist, was consulted before the operation was performed. It was his opinion that he could reduce the elevation of the nevus and the discoloration of the skin about 80 per cent, but could not eliminate the condition completely. He was consulted because I have referred several small nevi to him with their complete eradication by means of radium.\* His opinion, therefore, was valued. Other nevi removed by this method have shown no signs of recurrence. In my opinion it is definitely indicated in the larger nevi that cannot be eradicated with radium.

Burgess says "In surgery of nonmalignant and non-infected conditions we are upon more debatable ground, and it has been in an attempt to ascertain for myself the possibilities of electrosection in general surgery that I have used it so largely and in such a variety of operations during the past six years." He has used the method a number of times in amputations of the extremities and stresses the point that there is less shock and less after-pain. He prefers it in operations on sensitive regions, such as the anal canal and says "The pain following operations for hemorrhoids, particularly that associated with the first action of the bowel, is markedly alleviated."

#### ELECTROSURGERY IN THE SPECIALTIES

Electrosurgery outfits have become a necessary part of the armamentarium of many of the specialists in surgery. There are certain operations in various fields wherein electrosurgery is now the only method used.

**Brain Surgery**—In 1931 Dr. Harvey Cushing<sup>10</sup> published his article entitled "Electrosurgery as an Aid in Removal of Intracranial Tumors." Since then this method has been adopted by the majority of brain surgeons for attacking certain types of intracranial tumors. Cushing says

During the two years just elapsed since we hesitatingly began to employ electrical currents in craniocerebral surgery, 547 operations for tumors have been performed. Though for some of these operations the electrical methods were not essential, there were few of them, even when no tumor was found, in which they could not have advantageously been employed.

Dr. Ernest Sachs, in discussing a paper on this subject before a recent meeting of the American College of Surgeons, said "Electrosurgery is the most important addition to neurosurgical technic that has been devised in many years."

Dr. Loyal Davis<sup>11</sup> says

1. Electrosurgery is a distinct addition to the neurologic surgeon's armamentarium. It does not, however, completely supersede the well established principles of osteoplastic cranial cerebral surgery.

2. At present it may be employed to its greatest extent in the removal of meningiomas, in particular to the relatively inaccessible meningiomas.

3. The improvement of the use of electrosurgery in the treatment of gliomas offers the possibility for its greatest contribution to the surgery of the nervous system.

These authors and others who have written or spoken on the matter mention many of the disadvantages that have been previously brought out in this article. Davis points out the danger of electrosurgery leading to less meticulous care in the handling of these serious brain conditions. It must be stressed here, as elsewhere, that electrosurgery cannot be used safely in neurologic surgery unless one first is a thoroughly trained neurologic surgeon.

**Eye**—Surgical diathermy has proved itself in the field of the ophthalmologist. Walker<sup>12</sup> has said

Three years ago, surgical diathermy could have been dispensed with by the ophthalmologist and practically all the numerous valuable treatments which it provides could have been imitated and approximated by other treatments already at hand. Now, it has been definitely established, with the addition of separated retina to the list of surgical diathermic treatments, by the work of Larsson, Weve, Safar and others so that the ophthalmologist can hardly afford to ignore the subject longer from a practical standpoint, or, if surgically inclined, he should not be without recourse, either in office or hospital to at least the more economical surgical diathermic equipment.

**Throat**—Tonsillectomy by electrocoagulation has no doubt been abused. All of us have been questioned by the laity as to this easy, simple method. Skillern<sup>3</sup> has best covered this subject.

I have talked to many laryngologists who are using this method, and they all tell me they have difficulty in removing the last vestige of tonsil, as it is very perplexing to differentiate tonsil from the surrounding tissue. If the experienced tonsil operator has difficulty, what must the occasional tonsil coagulator have when he reaches that remaining portion of the tonsil stump buried deep in the fossa and covered by a stiffened anterior pillar?

Dillinger, the champion of electrocoagulation for the removal of the tonsils, says "This method requires more skill and training than the ordinary surgical tonsillectomy, and no one except a throat specialist should attempt to use diathermy in the throat."

Beals speaks of the general practitioner being misled, because he believes he can easily master this apparently simple but in reality arduous method, and decries the unethical manufacturer adding chaos by sending out high pressure salesmen to sell to any one for the sake of a sale.

Coates, in discussing this paper, advocated that the laryngologist should include electrocoagulation to keep it out of the hands of those who are not qualified.

Myers reported thirty casualties and says that it is no method for the neophyte.

In spite of all this advice and warning by the leading men of the country, the manufacturers continue to install their machines wherever the salesman can procure an order.

When the public learns of the dangers and complications that may occur during the removal of tonsils by electrocoagulation, and, what may be even worse, leaving a buried focus of infection from an incomplete removal, it will shun this operation as it would a rabid dog, and the laryngologist will have difficulty in persuading the person with an otherwise inoperable condition to accept this method as the operation of necessity.

Occasionally cases are referred in which there is a history of advanced tuberculosis, exophthalmic goiter or myocardial degeneration requiring the removal of the tonsils. Electrocoagulation is the salvation of these patients.

<sup>10</sup> Cushing, Harvey. *Surg. Gynec. & Obst.* 52:129 (Feb.) 1931.  
<sup>11</sup> Davis, Loyal. *Principles and Practice of Physical Therapy*.

<sup>12</sup> Walker, C. B. *Am. J. Ophth.* 17:1 (Jan.) 1934.

Again, there is the patient who has an actual horror of a hospital or a real fear of a general anesthetic but refuses a local anesthetic, as the sight of the instruments fills his very soul with terror. Here again electrocoagulation with its multiple applications of the needle cannot be mentioned in the same category with that of a clean surgical tonsillectomy by a trained operator.

I consider electrocoagulation a method of removing the tonsils that every laryngologist should master, as he will find it is necessary to remove them occasionally by this procedure. It should be spoken of not as the operation of choice but as the operation of necessity. It is the most difficult and dangerous method in the hands of the inexperienced. The dangers and difficulties are multiple in ratio to the lack of knowledge, and no one who is not capable of removing tonsils by other surgical techniques, and of meeting all complications that may arise during or after the operation should attempt their removal by electrocoagulation.

I have used electrosurgery in one case of carcinoma of the tonsil. This condition should be added to the definite indications for electrosurgery, and the same method is certainly indicated in all malignant conditions of the throat.

**Chest**—Electrosurgery is receiving a great deal of attention by specialists in thoracic surgery, especially for the removal of tumors or for the excision of a lobe when indicated, as, for example, in lung abscess. The following quotation from Matson<sup>13</sup> shows the importance of this method in chest surgery.

My experience with the electrosurgical method has given me confidence in this method of cutting adhesions. Control of bleeding is the most dangerous problem and requires thorough knowledge of the character of the currents used. Electrosurgical cutting is accomplished without heat or smoke to disturb the view. There is a minimum of tissue reaction afterward, and while more complicated and technically more difficult than the galvanocautery method, it is without doubt a notable advance in this branch of surgery, which is being more widely employed.

Intrapleural pneumolysis by the closed method is not a fool-proof procedure with either the galvanocautery or the electrothermic method. The operator must be familiar with the appearance of the pleural cavity and at all times perfectly orientated regarding the nature of tissue to be cut. This training in the use of the thoracoscope in the pleural cavity is just as important to the surgeon or physiotherapist as a thorough knowledge of the cystoscopic image is to the urological surgeon. The operator should have experience with pneumothorax and must have surgical training.

**Genito-Urinary**—Electrosurgery has been used for years by many genito-urinary specialists for the removal of papillomas of the bladder and malignant growths of the bladder. In 1926 Harry Culver and I attacked a large, otherwise inoperable, carcinoma of the prostate and bladder wall with the cutting-coagulating current. The whole mass was completely excised, including considerable bladder wall. The patient, aged 76, was seen two years ago. He had lived seven years without any sign of recurrence and with the cystotomy wound completely healed. Corbus<sup>14</sup> was a pioneer in the use of surgical diathermy in many different kinds of genito-urinary conditions. He has written extensively on the treatment of gonorrhea by diathermy and on the removal of bladder tumors by this method. In more

recent years, electrosurgery has come into prominence in genito-urinary work for transurethral resection of the prostate.

In 1933 Kretschmer<sup>15</sup> gave his conclusions following 216 transurethral electric resections, as follows:

**Age Incidence** This paper is based on a series of 216 transurethral electric resections performed on 198 patients. The youngest patient in this series was 30 years of age and the oldest 89.

**Postoperative Course** Reactions following transurethral resections are generally very mild. Temperature reactions are less frequent than after prostatectomy, and, when they do occur, are less severe and do not last so long. In 117 resections in this series, the temperature lasted only from one to two days.

**Hemorrhage** As a rule, the urine remains blood tinged for a few days. Our efforts are toward sending the patient back to the ward relatively free from bleeding. As a rule, the urine is no longer blood tinged after the third day. In the occasional case it may be necessary to irrigate the bladder and to evacuate clots, but this depends upon the care exercised in controlling the bleeding at the time of the operation.

There was only one case in the 216 resections in which it was necessary to do a suprapubic for the control of hemorrhage, and that occurred early in the series. Primary bleeding can be controlled at the operating table. Secondary bleeding, that is bleeding which occurred between the tenth and the fifteenth day, was present in only seven out of the 216 resections. In six of them it was only necessary to evacuate the clots and irrigate the bladder with hot permanganate. In one case, a man with carcinoma of the bladder, it was necessary to resect the bleeding point.

**Average Postoperative Stay in the Hospital** No attempt was made to hurry the patients out of the hospital. The records show that the shortest stay in the hospital was two days, and the average stay six and one-half days. These figures refer to the straight resection cases.

The group prepared by suprapubic cystostomy had a slightly longer stay, since to the resection is added the time necessary for the suprapubic fistula to heal. These cases had an average stay of fifteen days.

**Summary** The results obtained justify the statements that have repeatedly been made to the effect that this new form of treatment carries with it a much lower mortality rate, and this in spite of the fact that many patients are operated upon by this method late in the progress of the disease, the delay having been caused because they had been told by the surgeon in charge that the case was inoperable. The records show that the mortality was only 2.77 per cent following 216 transurethral resections.

Dr Harry Culver has furnished the following statement concerning the present status of electrosurgery in prostatectomy.

Electrosurgical methods applied to the genito-urinary tract have been in common usage for many years. It has been only within the last several years, however, that adequate electric current was available for other than electrocoagulation. Gradually, loop resections of bladder tumor were done through an open bladder and even transvesical loop resections of obstructing prostatic carcinoma.

More recent developments have produced a current that will cut under water. This characteristic, together with a gradual development of nonelectrical transurethral operations, has resulted in the present status of transurethral resections of the prostate gland and certain tumors of the bladder.

All workers in this field are of the opinion that prostatic bars and prostatic carcinomas should be handled by the transurethral electro method, some being of the opinion that these two obstructions only should be handled by this method. The question of the removal of prostatic hypertrophies is one which, up to the present time, has not been thoroughly settled. There are enthusiasts of this method who operate on all hypertrophies, regardless of size or type if it is physically possible to pass the necessary urethral instruments, and a more conservative group that confines their transurethral operations to relatively

13 Matson R C. The Electrosurgical Method of Closed Intrapleural Pneumolysis in Artificial Pneumothorax. Arch Surg 19: 1175 (Dec part 2) 1929.

14 Corbus, B C and O'Connor V J. Diathermy in the Treatment of Genito-Urinary Diseases. St. Paul and Minneapolis: Bruce Publishing Company 1929.

15 Kretschmer H L. Illinois M J 64: 439 (Nov) 1933.

small hypertrophies, especially of the middle lobe type. Obviously there are many urologists whose work in this connection would place them all along the line between these two extremes. It would seem, after careful study of the present status of this method, that it is here to stay, but whether it will gain or lose in popularity will depend altogether upon the permanence of the relief obtained.

**Gynecology**—In conversations with many gynecologists, one is impressed with the fact that electrosurgery is not used in this field to the great extent indicated by certain authors. There are evidently only a few gynecologists who have used electrosurgery in the usual gynecologic operations, such as hysterectomy, oophorectomy, and salpingectomy. A large number of gynecologists have combined electrosurgery, either with x-rays or with radium, in attacking cervical carcinoma and large, otherwise inoperable carcinomas of the fundus. Here, again, surgical judgment, a thorough understanding of electrosurgical procedures and the specialist's knowledge in this field of surgery must be combined. The possession of an electrosurgical apparatus and knowledge of its use alone do not fit one to attack these major gynecologic operations.

Grant E. Ward<sup>1</sup> has recommended electrosurgery in the following gynecologic conditions:

**Urethral Caruncle and Redundant Urethral Mucosa** In treating either condition, a local injection of 1 per cent or 2 per cent procaine hydrochloride is first made, inclosing a wide margin beyond the disease, frequently requiring injection all the way around the urethral orifice. The caruncle is excised with a strong cutting-coagulating current.

**Redundant mucosa** is quickly destroyed by applying the monoterminally heating current directly to the surface, using a sharp needle electrode.

A thin, flat electrode, one-half inch long and one-eighth inch wide, is placed in direct contact with the mucosa. A slow biterminal current is preferred, as the entire depth of the mucosa should be destroyed.

**Venereal Warts** Local anesthesia is necessary here. The warts dry up quickly under the application of a monoterminally desiccating current.

**Cysts** Bartholin's gland cysts are opened with the cutting current with very little or no bleeding.

**Infections in Skene's and Bartholin's Glands**, causing recurrent infections in the urethra and cervix. A long, thin needle is inserted to the depth of the gland, the current turned on and continued until the tissues adjacent are blanched, indicating dehydration.

**Endocervicitis** In the more mild cases, the canal and external os are cleaned up with a biterminal current under local anesthesia.

**Polyps** Small vaginal or cervical polyps are readily destroyed with a short, thick monoterminally current.

Electrosurgery in hemorrhoidectomy has now been used in a considerable number of cases. In some of these the mucosa has been excised, exposing the varicose hemorrhoidal vessel, and this has been dehydrated or, in other cases, slightly coagulated, and an effort made to close the mucosa over the area. To be successful, the electric current used must be a very light one, and the operation is rather prolonged. If a strong coagulating current is used, there is danger of considerable slough and scar formation. In more recent years, electrosurgery has been used in connection with the clamp, quite similar to the old clamp-and-cautery operation, in the majority of the cases of large hemorrhoids. I am not convinced that electrosurgery, other than as an adjunct, offers many great advantages over other surgical methods of removal of hemorrhoids.

Ward<sup>1</sup> says

It should be noted in passing that large internal and external hemorrhoids can be dehydrated (desiccated) under local anes-

thesia in the office. One or two hemorrhoids require only local injections about them, whereas multiple ones necessitate injections around the anus and up above the internal sphincter. The sphincter muscle is then dilated, releasing the spasm which causes the hemorrhoid. A desiccating monoterminally current—a short thick spark—is preferable, being applied by a suitable needle electrode. The needle is thrown into the hemorrhoid and allowed to remain until the blood is dehydrated sufficiently as to clot. Larger hemorrhoids require clamping with any suitable hemostat, stagnating the blood and rendering dehydration and clotting more prompt.

In my experience there are few hemorrhoids that are suitable for operation in the office. From observation and from conversation with many other surgeons, I feel that an erroneous impression has been given to the profession at large to the effect that electrosurgery has made hemorrhoidectomy a simple procedure, possible of being carried out in the office.

Clark<sup>16</sup> qualifies the use of electrosurgery in hemorrhoidectomy as follows:

The following technic for hemorrhoidectomy is almost identical with that of the clamp and cautery operation, except that electrodesiccation is used as the active agent instead of cautery.

**Technic** The usual preparation of the patient is carried out. Local infiltration anesthetization by classical technic may be employed, although in some supersensitive individuals a general anesthetic, preferably ether, is used. Caudal anesthesia is preferred by some operators. After stretching the sphincter muscle sufficiently, each hemorrhoid is pulled down in turn by means of suitable tenacula, and the pile is clamped at its base in the direction of the muscle fibers, which are at right angles with the anus. The pile is then electrodesiccated (by the technic described for other lesions) down to the clamp. The clamp is then removed and the hemorrhoid is permitted to slough away, or it may be excised at once not quite down to the clamp. The latter method is preferred. Postoperative hemorrhage is not greatly to be feared, there is no resulting cicatricial contraction, and as a rule postoperative discomfort is not great. In some cases, however, it is greater than in others. Patients should be hospitalized and remain in bed for a few days as a safe precautionary measure. The electrodesiccation method for removing hemorrhoids is an advance over the Whitehead ligature, clamp and cautery operations and the injection methods for the radical cure of hemorrhoids.

The electrodesiccation technic described has been found to be more satisfactory for hemorrhoidectomy than the more intense electrocoagulation method. The practice of passing the bipolar, high amperage current (diathermy) through a metal clamp after the hemorrhoid is engaged in the clamp, is not as satisfactory as the method described, owing to the possibility of unnecessarily electrocoagulating tissues adjacent to the hemorrhoids, the greater inflammatory reaction and the possibility of subsequent contracture of the lumen of the rectum.

There are many fissures, fistulas, papillomas, ulcers and certain malignant lesions of the rectum that can be attacked by electrosurgery. In resections of the rectum for a malignant condition, either with or without cholestomy, electrosurgery, when its use is thoroughly understood by the operator, offers the best method of attack. In localized malignant lesions here as elsewhere, great care must be exercised that the tumor is completely eradicated. If not, these localized growths are simply coagulated or cooked over, leaving the tumor base intact for direct extension or metastasis.

**Skin**—Without question, electrosurgery has been used in lesions of the skin to a greater extent than in any other field of surgery. It furnishes one of the simplest and easiest methods for the removal of moles. The monoterminally electrode is used, and the mole is dehydrated. It is natural that, from this simple pro-

<sup>16</sup> Clark, in *Principles and Practice of Physical Therapy* chapter 20 p. 1

cedure, the operator is led on to attempt operations on many other skin lesions, especially epitheliomas. The majority of epitheliomas, however, can best be removed by the dermatologist by means of x-rays or radium. I believe therefore that electrosurgery should be reserved for those larger malignant skin lesions which are turned over to the surgeon by the dermatologist because the latter feels that surgery rather than the usual dermatologic procedures is definitely indicated. It is necessary to emphasize that too many malignant skin lesions are only half attacked by electrosurgery, in the hands both of the dermatologist and of the surgeon. Team work with the dermatologist is the best way for the surgeon to meet this situation. If either of them decides on using electrosurgery, the lesion must be widely excised, either with or without coagulation of the tumor proper. When coagulation of the tumor alone is done, it is impossible for the operator to know positively that he has completely eradicated the entire tumor.

Predicated on a thorough understanding of its dangers and limitations, electrosurgery attains its greatest scope of usefulness in surgery of the skin and mucous membranes.

Logical and sane advice is given by MacKee and Cipollaro<sup>17</sup> in both benign and malignant conditions of the skin. Regarding verrucae keratosis, hypertrichosis, and moles they say

Carelessness and ignorance when applied to medical diathermy may result in undesirable injury to the skin and even to the underlying structures. Surgical diathermy (electrosurgery) may cause injuries which are objectionable, painful, disfiguring and, at times, dangerous.

When employing electrocoagulation, the operator must take care that he does not destroy unnecessarily important, normal, adjacent tissue. Also, hemorrhage must be guarded against. During the application of the current, there is no hemorrhage because small vessels are occluded, but a large adjacent vessel may be damaged just enough to cause a severe postoperative hemorrhage.

The cutting current seals the small vessels but not the large ones. Hemorrhage from the large vessels can be controlled often by touching the vessel for a second or two with a strong desiccating or monoterminally coagulating current. However, it is preferable to ligate large vessels, either before or during the operation.

The coagulating and desiccating currents seal the lymphatic vessels completely. The cutting current does the same, but not so thoroughly. Advocates of electrosurgery believe that this instantaneous occlusion of lymphatic vessels prevents metastasis of malignant tumors. This is probably true when every part of the growth is accessible and the method is properly applied. As yet there has been no large collection of convincing statistics, however, to prove the contention. When dealing with an accessible malignant tumor, it is customary first to coagulate the tissue beyond the circumference of the growth by means of electrocoagulation or electrodesiccation, depending upon the size, depth and location of the lesion. The tumor is then thoroughly coagulated or desiccated, and the entire mass is removed with a curet or scissors (if small), or with the cutting current. Finally, the wound is electrodesiccated and dressed. It is usually advisable to remove tissue that has been thoroughly coagulated or desiccated, in order to prevent subsequent infection.

Electrosurgical enthusiasts believe that all biopsies, when there is any possibility of malignancy, should be made with the cutting current. This is not the opinion of such cancer experts as Francis Carter Wood, Douglas Quick, and such pathologists as Walter Highman, J. Frank Fraser, David Satenstein, and others, who are convinced that there is no danger in removing a piece of tissue from a malignant tumor with a sharp scalpel or a sharp biopsy punch as long as the lesion is not massaged, squeezed or roughly handled. Furthermore,

small pieces of tissue removed with a cutting current are likely to be so badly damaged as to be almost worthless for detailed microscopic study. With large pieces of tissue, the center is usually unaffected by the cutting current.

I would reemphasize the fact that biopsies can be obtained by means of electrosurgery which are equal to biopsy material secured by the scalpel. Dr. Howard T. Karsner<sup>18</sup> states that "the thin film of coagulation is so slight that it does not interfere at all with biopsy studies, and, as a rule, there is less distortion of the tissues than is the case with scalpel biopsy." I would likewise refer to the article by Weidman and Guequierre,<sup>19</sup> which also thoroughly supports this view. A word of caution, however, should be offered. If the bits of tissue are small, the injury to them may be such as to prevent satisfactory microscopic examination. Allowance should always be made for the zone of coagulation and destruction.

Continuing, MacKee and Cipollaro say

The advocates of the cutting current aver that the incision may be sutured and that primary union will follow. This is true, but primary union very often fails. It is less likely to fail if the incision is freshened with scissors or a curet before it is sutured.

Major electrosurgery requires the same attention to asepsis as does major scalpel surgery. Minor operations do not necessarily require the same degree of asepsis. Nevertheless, it is advisable to employ the same care in this respect in minor surgical diathermy as in minor scalpel surgery, both during and after the operation. Even in such a simple procedure as the surgical desiccation of a small, superficial skin lesion, it is advisable, at least, to paint the area with iodine. If alcohol is used, the current should not be applied until the alcohol has been removed by evaporation or with a piece of gauze.

Keloids and hypertrophic scars are rather common subsequent to surgical diathermy, especially after electrodesiccation. It is well to inspect the scar weekly for a month or two and to apply radium or x-rays at the first evidence of hypertrophy.

#### CONCLUSIONS

1 Electrosurgery offers a distinct advantage over scalpel surgery in a limited number of surgical conditions.

2 Surgeons must understand the differences between the dehydrating, coagulating and cutting currents and must learn through much experimentation how to control and use these various currents before attempting to do electrosurgery.

3 Knowledge in the use of electrosurgery is of secondary importance to surgical experience and judgment. The possession of an electrosurgery apparatus and a little instruction by a manufacturer's agent does not fit one to attempt surgical operations by this method. No physician not thoroughly trained in scalpel surgery should attempt electrosurgery.

4 Electrosurgery is useful in many operations in the various fields of special surgery. Here again the specialist's knowledge and surgical experience are of paramount importance before attempting to use electrosurgery.

5 Electrosurgery is the best means of attacking malignant lesions of the skin, breast, the various orifices, and even the deeper malignant lesions after they have been exposed by scalpel surgery. It has proved of great value in neurologic, thoracic, genito-urinary, skin and thyroid surgery. It has a limited field of usefulness in many of the other specialties.

122 South Michigan Avenue.

<sup>17</sup> MacKee G. M. and Cipollaro A. C. in *Principles and Practice of Physical Therapy* volume 1 chapter 18.

<sup>18</sup> Karsner H. T. Personal communication to the author.  
<sup>19</sup> Weidman F. D. and Guequierre, J. P. *High Frequency Currents in Performing Biopsies* J. A. M. A. 103:1693 (Dec 1) 1934.

# THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 29, 1935

## POLICIES ADOPTED BY THE HOUSE OF DELEGATES

The annual session of the American Medical Association held in Atlantic City, June 10 to 14, was extraordinary from the point of view of its contributions to the advancement of medical science and as a demonstration of a well-nigh perfectly organized meeting. Letters are pouring into the headquarters office expressing commendation of the Scientific Exhibit and of the lectures presented in the General Scientific Meetings.

The House of Delegates functioned efficiently and completed its business with such celerity that many observers commented on the apparent quiet of the proceedings. This was no doubt due to the fact that the reference committees were so well selected and so assiduous in the performance of their duties that most difficulties were ironed out in the committees. Many listened for hours to those representing various points of view, and the reports which they brought in took cognizance of these expressions and were therefore adopted without opposition from the floor.

In THE JOURNAL, June 22, appeared the reports of the first session of the House of Delegates, wherein resolutions were introduced on radio broadcasting, contraception, medical care and the teaching of medical economics. The House of Delegates encouraged the Board of Trustees to do its utmost to control the broadcasting of fraudulent claims for pharmaceutical preparations and to eliminate the broadcasting of claims for alleged cancer cures from Mexico. By the action of the House of Delegates the Board of Trustees was authorized to appoint a committee to study problems concerned in contraception and to present a preliminary report to the House of Delegates at the 1936 session. The chairman of the Legislative Committee described in his report, which appears in this issue of THE JOURNAL, the manner in which the Association has cooperated with the American Legion and the Veterans' Bureau in relationship to medical problems affecting these groups. He described also the steps that have been taken to bring various medical organiza-

tions into accord with the policies of the American Medical Association relating to economic problems. The Bureau of Medical Economics, pursuant to the action taken at the special session of the House of Delegates held in Chicago in February, presented at this time a report on more than two hundred plans now in operation in various parts of the country in an attempt to provide all the people with adequate medical care. This report of the Bureau, with various modifications, was adopted by the House of Delegates and will appear in an early issue of THE JOURNAL.

The actions of the House of Delegates as reported in last week's issue and in this issue of THE JOURNAL are given in considerable detail. It is desirable that all those who are interested in the policies of the American Medical Association make a thorough study of these reports and familiarize themselves with the problems concerned. Only to the extent to which all the membership of the Association is familiar with these activities and supports them can the Association function efficiently.

## PUBLIC HEALTH UNDER THE ECONOMIC SECURITY BILL

Two sections of the Economic Security Bill<sup>1</sup> are specifically devoted to public health—title V, which deals with maternity and child welfare and the care of crippled children and which is to be administered by the U S Children's Bureau, and title VI, which has to do with public health programs in state and local communities and which is to be administered by the U S Public Health Service. Both sections provide for federal subsidies to states and territories in varying amounts and under varying conditions. In order to set in motion machinery for the administration of the act, a conference was called by the Surgeon General of the U S Public Health Service and another by the Chief of the Children's Bureau, both conferences meeting in Washington, D C, immediately following the meeting of the State and Provincial Health Authorities of North America at Atlantic City. Representatives of the American Medical Association, including two trustees and two members of the headquarters staff, were invited and were in attendance at both conferences.

Title VI of the Economic Security Act provides ten million dollars for preventive medicine to be administered by the U S Public Health Service. Of this, two million dollars is to be used by the service itself for research purposes and eight million dollars for aid to states. It is contemplated that this eight million dollars shall be used for aid to the state and territorial health departments in providing adequate facilities especially for the promotion and administrative guidance of full time city, county and district health services, to strengthen the service divisions of state and territorial

<sup>1</sup> H. R. 7260 (Report No. 628) Calendar No. 661 Seventy Fourth Congress first session



health departments and to aid city, county and district health departments. The administrative plan advanced by the U S Public Health Service, as amended and accepted by the Conference of State and Provincial Health Authorities, provides six basic requirements for a state or territorial health department: namely, a qualified full time health officer, adequate provision for administrative guidance of local health services, acceptable vital statistics service, acceptable state public health laboratory service, special services for study, promotion and guidance of local activities for preventable disease control, and study, promotion and supervision of environmental sanitary control. Similar provisions are made with relation to city, county and district health departments.

The financial allotments are under five major divisions. First is a flat grant, under which \$400,000 will be allocated among the fifty-one divisions (that is, forty-eight states, the District of Columbia, Alaska and Hawaii), amounting to \$7,843 for each jurisdiction. This money is an outright grant, not to be matched by state funds. The sum of four million dollars is to be allotted to the states on a per capita basis and must be matched by state funds in two ways, that is, two million dollars on a per capita basis to be matched dollar for dollar from existing appropriations for state health work and another two million dollars allocated on a per capita basis but to be matched dollar for dollar with new appropriations, except that where a state has already customarily appropriated liberally for public health work the requirement of new appropriations may be waived and the state may receive its allotment by matching dollar for dollar with existing funds. The sum of \$1,200,000 is to be allotted for the purpose of equalizing the burden of public health work in accordance with economic conditions and needs of the states and territories, this having been determined by expressing by states the total income of the population on a per capita basis and determining the need of the individual state by its deviation from the median per capita income of the fifty-one state and territorial jurisdictions. Another \$1,200,000 is to be allotted to the states and territories on the basis of such geographically limited health problems as hookworm, malaria and plague, this is to be matched by state and local funds. An additional \$1,200,000 is set aside for purposes of training and provision of reserve personnel. Payments to states from allotments will be made dollar for dollar only to the extent that these funds are actually called for by plans submitted and approved.

To summarize. The outright gift to the fifty-one health jurisdictions and the equalization fund based on financial requirements need not be matched by state and local funds, other allotments must be matched, but exceptions may be made in the matching requirement with respect to the population-basis allocation of funds. The training fund will be administered by the U S

Public Health Service, allotments will be made to the several states but need not be matched.

The conference recognized that the most pressing need in connection with the administration of programs under the act would be qualified personnel. No adequate reservoir of qualified personnel exists. Therefore a special committee was charged with the duty of drawing up qualifications for personnel. These qualifications were accepted by the conference for four principal classes of personnel, namely, medical, nursing, engineering, and technical and sanitary. It was further recognized that there exists not only a dearth of qualified personnel but a total inadequacy of training centers for the training of those who may be desirous of meeting the qualifications established. Under the act the U S Public Health Service is empowered to strengthen existing training centers and to establish new ones for the training of personnel to carry out the purposes of the act in the state and local health jurisdictions. Sound progress depends on providing trained personnel, and haste in the expenditure of funds merely because they are available will be fatal to the success of the program. A provision in the act which makes unexpended funds available until the end of the second fiscal year seems to favor careful and considered deliberation in the execution of the purposes of the act.

A committee on uniform record forms also was created and presented a report to the conference establishing standards for uniformity in the recording and reporting of public health work. Since the act requires reporting to both the U S Public Health Service and the U S Children's Bureau in order to receive the quarterly allotments from federal funds, the necessity for uniformity of recording and reporting is manifest.

At the conference called by the U S Children's Bureau a plan was presented for carrying into effect title V of the Economic Security Act, which has to do with maternal and child health and care of crippled children and makes available \$3,800,000 for each fiscal year beginning with 1936. This is divided into a matched fund giving \$20,000 to each state, the District of Columbia, Alaska and Hawaii, and dividing among these jurisdictions in proportion to the number of live births the sum of \$1,800,000, as much of these two apportionments as may be used are to be matched dollar for dollar with state funds. There is also provided in this title of the act a free fund of \$980,000 to be allotted according to the financial need of the individual state as determined by the Secretary of Labor, taking into consideration the number of live births. Conditions required to be included in state plans for maternity and child welfare which shall be approved by the Chief of the Children's Bureau include financial participation by the state, administration or supervision by the state health department, such reports as the Secretary of Labor may require, extension and improvement of local maternal and child health services, cooperation with



medical, nursing and welfare organizations, and development of administrative services in needy areas

Services for crippled children are to be carried out through the Children's Bureau by means of a matched fund of \$20,000 to each state, the District of Columbia, Alaska and Hawaii, and no free fund. This program differs from the rest of the programs under the act in that it is not a program of public health and disease prevention but is frankly a program for the medical care of crippled children. It may not always be administered by the state health department as the other activities under the act will be. It contains the same general requirements as outlined for the maternity and child welfare functions, including cooperation with medical, health, nursing and welfare organizations. This is the part of the program that is most directly liable to be in competition with the private practice of curative medicine. This portion of the program is being studied by the Bureau of Medical Economics with respect to its possible relationship to the Bureau's special report adopted by the House of Delegates at Atlantic City.<sup>2</sup>

In the plans that the Children's Bureau has drawn up for administration of the maternal and child health provisions of the act are plans for cooperation with state medical societies and with nursing, welfare and other agencies and organizations through advisory committees and cooperative and educational activities. A similar cooperative relationship with county medical societies is proposed in carrying out the local programs.

The act provides for advisory committees to the Surgeon General of the United States Public Health Service and the Chief of the United States Children's Bureau. The intention has been declared to request official representatives from the American Medical Association to serve on these committees. The State and Provincial Health Authorities of North America adopted a resolution requesting publication in medical and dental journals of a statement outlining the general purposes of public health plans under the act and assuring the medical profession that they do not contemplate competition in the private practice of curative medicine.

The conference with the Public Health Service and that with the Children's Bureau were marked by a frequently expressed desire and determination to cooperate with the medical profession in the making and carrying out of plans. It is therefore important that each state medical society shall be prepared to cooperate with the state health officer, the responsible administrative head in each state or territorial jurisdiction, in the development of plans that accord with the principles of organized medicine. Such cooperation might be through the council of the state medical society or such other body as might be designated for the purpose.

Full information, including copies of the reports as amended and adopted, will be distributed to secretaries of state medical societies as soon as they can be prepared by the Bureau of Health and Public Instruction.

#### SYMPATHECTOMY FOR THROMBO- ANGIITIS OBLITERANS

Thrombo-angitis obliterans (Buerger's disease) affects predominantly young male adults. Anatomically the condition is characterized by a progressive thrombosis of the peripheral arteries and veins. The clinical picture is characteristic. In a more or less regular sequence there appear coldness of the digits, intermittent claudication, postural color changes, diminution or loss of pulsation in the peripheral arteries, localized pain during periods of rest, trophic changes in the digits leading to gangrene, and, sooner or later, involvement of the opposite extremity. The milder forms are amenable to conservative treatment consisting of rest in bed, contrast baths, postural exercises, careful application of heat, and vaccine protein therapy. In a considerable percentage of cases the condition is progressive. For these sympathectomy merits consideration.

Herrick, Essex and Baldes<sup>1</sup> demonstrated in carefully controlled experiments that, following lumbar sympathectomy in a dog, the flow in the femoral artery on the sympathectomized side was about twice as great as that on the intact side. Diez<sup>2</sup> began to perform lumbar sympathectomies for the cure of thrombo-angitis obliterans in 1924. Analysis of the early as well as of the late results in his series of seventy-five cases indicated that 75 per cent were definitely benefited by the operation. This work was soon followed by that of Adson and Brown,<sup>3</sup> who reported 100 sympathectomies. Eighty-nine of these were bilateral lumbar sympathetic ganglionectomies and trunk resections, and fifteen were bilateral cervicothoracic ganglionectomies with resection of the upper portion of the thoracic sympathetic trunk. An "average degree" of improvement occurred in 80 per cent of the cases and a useful extremity in 76 per cent. Filatov<sup>4</sup> collected 273 sympathectomies for thrombo-angitis obliterans performed between 1929 and 1934. With his own thirty-four cases and Hesse's fifty-one cases collected up to 1929 the total number was brought up to 379. Filatov's analysis of these cases indicates that 80 per cent were benefited and that 20 per cent were not. The mortality amounted to 4 per cent.

The proponents of the operation believe that the failure to obtain good results in 20 per cent of the cases

1 Herrick, J. F., Essex, H. E. and Baldes, E. J. The Effect of Lumbar Sympathectomy on the Flow of Blood in the Femoral Artery of the Dog. *Am. J. Physiol.* 101:213 (July) 1932.

2 Diez, Julio. *Rev. argent. de neurol. psiquiat. y méd. leg.* 4:304 (July-Aug.) 1930.

3 Adson, O. W. and Brown, G. E. Thrombo-Angitis Obliterans. *J. A. M. A.* 99:529 (Aug. 13) 1932.

4 Filatov, A. Die unmittelbare Beeinflussung der Spontangangrän durch die lumbale Sympathectomie und deren Dauerwirkung. *Deutsche Ztschr. f. Chir.* 244:491 (Feb.) 1935.

2 Special Report Bureau of Medical Economics. Eighty-Sixth Annual Session American Medical Association Atlantic City 1935.

is to be charged to either a faulty selection of operative cases or to a faulty operative technic. The operation is not indicated for mild cases that respond to the conservative medical treatment. It is likewise contraindicated in cases of extensive thrombosis or massive gangrene. It may be used, however, in slowly progressing cases that do not respond to conservative measures. A good result from sympathectomy can be expected only when the blood vessels of the extremity are still capable of dilatation. Of the several tests, that developed by Brown and consisting of intravenous injection of typhoid vaccine gives the clearest indication as to the vasomotor response. Brown and Adson found that, whereas the mouth temperature of a normal person will increase on an average two degrees following vaccine injection, the temperature of the skin over the digits will increase from four to six. The explanation of the phenomenon, according to the authors, is that the peripheral arteries have been opened by inhibition of the vasomotor center and that more blood has been permitted to flow to the periphery. This test makes it possible to determine in patients with thrombo-angitis obliterans the presence of vasomotor spasm of the collateral vessels and unoccluded arteries. Unless the rise in temperature of the skin over the digits is two or more times greater than the oral temperature, the condition is to be considered inoperable. It was found at the same time that administration of vaccine for the purpose of producing fever and vasodilatation was most effective in relieving symptoms and encouraging the healing of abrasions and ulcers. However, while the vaccine therapy gave only temporary improvement, the increase in the blood flow to the extremity and the temperature increase following a sympathectomy continuously increased. Filatov calls attention to other valuable criteria of the test, namely, the subjective sensations of the patient and the improvement or the return of arterial pulsation.

The technical requirements for a successful sympathectomy imply the most complete desympathetization possible. Leriche's own experience with periarterial sympathectomy demonstrated the inadequacy of partial desympathetization. Brown and Adson insist on bilateral removal of the third, fourth and fifth lumbar sympathetic ganglions and the intervening sympathetic trunks. It should be emphasized that the recognition of the sympathetic fibers and trunks is not always a simple matter. It is not unlikely that some of the failures were due to the removal of the lymphatic trunks, which closely resemble the sympathetic trunks. It must be further emphasized that the operation is not only technically difficult even for the expert neurosurgeon but likewise a formidable procedure for the patient. The most serious complication is suppuration of the wound, which is particularly frequent in cases complicated by gangrene. The mortality even in the hands of the expert is not less than 4 per cent.

## Current Comment

### INTEGRATION OF THE MEDICAL PROFESSION

Recently there was introduced and passed in the legislature of the state of Oklahoma a statute integrating the dental profession. In the legal profession the movement toward integration has been under way for some years. Apparently there are movements afoot both in Oregon and in South Dakota for integration of the medical profession. This term implies the organization by statute of all licensed practitioners of medicine within a state into a public corporation, which corporation is authorized by law to determine the professional fitness of those who seek admittance into the profession in that state. The corporation would also be authorized to supervise and regulate the professional activities of every member of the profession. Thus it would determine who is and who is not eligible for admission, supervise the conduct of members, and reprimand, suspend or remove them when circumstances indicate the desirability of such action. Of course a member expelled from a corporation would thereby cease to be authorized to practice medicine. In such an integrated profession, every licensed practitioner would be entitled to vote for the managers of the corporation and would also be assessed for the cost of its management. An integrated medical profession would therefore take over the activities of medical examining and licensing boards. The movement would not apparently have great popularity among physicians, who are, of course, on a different basis than either dentists or lawyers, because of the cultists of various types who enter into the practice of medicine and because of the strength and usefulness of voluntary medical organizations. Certainly until the situation has been much more extensively studied and all the possibilities worked out, the medical profession will do well to avoid being drawn into any such movement.

### A CHAIN LETTER HITS THE DOCTORS

Among the peculiar phenomena of the chain letter craze is one that has just come to the attention of the headquarters office of the American Medical Association. It is planned apparently to take advantage of the interest of physicians in organized medicine. The chain letter, which is headed with the name of the Association, suggests that the physician who receives it send \$10 in cash or in check to the doctor whose name appears on the top of the list and that he leave the name of that person off and add his own name at the bottom of the list. The list includes presumably ten names of men who are physicians or who are interested in organized medicine, many of them officers of county and state medical societies. An analysis of the list reveals in the center the names of two men who are not physicians and who will thus eventually receive considerable sums of money from the medical profession. It is assumed that few doctors will have minds so unscientific as to participate in a chain letter orgy!

# PROCEEDINGS OF THE ATLANTIC CITY SESSION

## MINUTES OF THE EIGHTY-SIXTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 10 14, 1935

(Continued from page 2271)

### Second Meeting—Tuesday Morning, June 11

The House of Delegates was called to order at 9 30 a m. by the Vice Speaker, Dr Nathan B Van Etten

#### Report of the Reference Committee on Credentials

Dr J D Brook, Chairman, reported that Dr E. A Meyerding, Minnesota, who was alternate delegate for Dr J T Christison, wished to be seated as alternate delegate for Dr H M Johnson, who was not present and whose alternate could not serve. He moved that Dr Meyerding be so seated. The motion was seconded by Dr Isaac A Abt, Section on Pediatrics, and carried

Dr Brook stated that there was a total registration of 162.

#### Roll Call

It was moved by Dr C S Gorsline, Michigan, seconded by Dr Olm H Weaver, Georgia, and carried, that the signed attendance slips constitute the roll call of the House.

#### Presentation of Minutes

On motion of Dr J Allen Jackson, Pennsylvania, seconded by Dr William H Seemann, Louisiana, and carried, the House dispensed with the reading of the minutes

#### Report of the Reference Committee on Sections and Section Work

Dr T B Throckmorton, Chairman, presented the following report

The report of the Council on Scientific Assembly is clear, concise and to the point. It is with genuine pleasure that your committee approves in the highest commendable manner, the efforts of the Council in arranging the joint program in which the two greatest organizations in medicine on the American continent will participate, namely, the American Medical Association and the Canadian Medical Association. Such a program will redound to the glory of scientific medicine as it is known and practiced among the professions of these two nations, and it will do much to reflect to the world at large the good will, the professional feeling and the kindred interests that have ever existed between these two great medical associations

Your committee likewise commends the Council on Scientific Assembly for the arrangements that it has caused to be made for the carrying on of the meetings of the various sections of the Scientific Assembly. That much time and effort have been spent in the preparation for proper meeting places goes without saying, but it should be borne in mind that the Council assumes the very great responsibility not only in supervising the work of the sections but also in seeing that suitable meeting places are provided for those who are in attendance on these meetings. For these efforts your committee wishes to commend the members of the Council on Scientific Assembly in the highest possible manner

Evidently the program initiated last year of holding General Scientific Meetings on Monday and Tuesday of the week of the annual session of the Association met with favorable response for your committee notes that arrangements have been made by the Council to carry on the work so nobly begun. This too meets with the approval of your committee, for it believes that such meetings are a distinct step forward in the progress of scientific medicine.

The Council is to be further commended for the arrangements it has made for those persons who are interested in the

study of anesthesia, of the history of medicine, and of military medicine. These subjects, while of importance, evidently are not considered by the Council to be of such scope as to justify the establishment of a distinct and separate section for each of them, yet, classified under the Section on Miscellaneous Topics, these subjects can be brought to the attention of the profession in such a supervised and well directed manner as to assure the presentation of a well rounded program on topics that well merit a place on the program of the Scientific Assembly

For all the manifold duties that the Council on Scientific Assembly has so ably performed during the past year, your committee wishes to express its heartiest thanks, believing that in so doing it but reflects the sentiment of the House of Delegates

Respectfully submitted.

T B THROCKMORTON, Chairman  
JOHN W AMESSE.  
ISAAC A ABT  
G HENRY MUNDT  
HOLMAN TAYLOR

On motion of Dr Throckmorton, seconded by Dr H B Everett, Tennessee, and carried the report was adopted.

#### Report of Reference Committee on Medical Education

Dr Irvin Abell, Chairman, presented the following report

#### REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

1 The Council is to be commended for its thorough survey of the existing schools of occupational therapy. Its proposed Essentials of an Acceptable School of Occupational Therapy as outlined in Supplement A, pages 123, 124, 125 and 126 of the Handbook is recommended for adoption

2 The activity of the Council with reference to the staffs of hospitals approved for intern training comprising only members in good standing in their local county societies is noted and its completed report at the next annual session will be awaited with interest.

3 Your reference committee records with approbation the progress of the Council in developing comprehensive plans for the identification of qualified physicians specializing in the various fields of medicine.

4 Your reference committee would urge the Council to speed its efforts to meet the urgent need for postgraduate work and would suggest that this could well be done by carrying the instruction directly to the practitioners in their various fields

5 Your reference committee recognizes the present unsatisfactory methods of compensating radiologists for their service in hospitals and recommends that for the remainder of the sentence, line 6, page 120, of the Handbook, 'but that in no case should there accrue to the hospital a substantial profit over and above the reasonable cost of maintaining the department nor should the patient be exploited through excessive fees' the following be substituted "but that in no case shall an economic arrangement be operative which is designed to provide a direct profit to the institution from private patients"

6 In view of the growing tendency to delegate purely medical functions to lay individuals, your reference committee would exhort the Council to continue its interest to the end that a definite position on the subject can be stated

7 Your committee would urge the Council to continue its efforts to restrict the entrance of optometrists into any phase of medical practice.

8 and 9 Your reference committee visualizes the value of the complete report of the Council based on the resurvey of medical schools promised for next year and regards this work as equal in importance to any undertaken by it. The restriction of poorly prepared matriculants provides a genuine service to the student body as well as to the public.

10, 11 and 12 The Council reports commendable activity in the survey of hospitals, of sanatoriums caring for patients with tuberculosis and of schools for the training of physical therapy and laboratory technicians. Your reference committee would direct attention to the net gain in the number of approved hospitals for interns and residents as being of great import to the cause of medical training and service.

13, 14 and 15 Your reference committee desires to direct the special attention of the members of the House of Delegates to the importance of the factual data assembled in the Hospital Number of THE JOURNAL, issued March 30, 1935. These are of value not only to the profession but also to the lay people of every state involved, revealing, as they do, conditions that have a direct bearing on the cost of medical care.

**RESOLUTION MAKING MEMBERSHIP A PREREQUISITE FOR  
QUALIFICATION AS SPECIALIST ON LIST OF COUNCIL  
ON MEDICAL EDUCATION AND HOSPITALS**

The resolution adopted by the Arkansas Medical Society, April 17, 1935, presented by Dr Brooksher, would require pathologists and radiologists to become members of their respective county and state medical societies as a prerequisite for qualification as a specialist on the Council's list. Your reference committee recommends the approval of the resolution in principle, with the application of the requirement to all graduates of and after 1930.

**RESOLUTION ON TRAINING OF INTERNS**

The resolution introduced by the Council on Medical Education and Hospitals, June 10, 1935, urging officers and members of state and county societies to give due consideration to the problems of intern training in the approved hospitals with which they may be connected, is recommended for adoption.

**RESOLUTION ON ESTABLISHMENT OF COURSES IN MEDICAL  
ECONOMICS IN ALL MEDICAL COLLEGES  
IN THIS COUNTRY**

The resolution of the board of trustees of the Medical Society of the State of Pennsylvania June 10, 1935, introduced by Dr Walter F Donaldson, urging the Council on Medical Education and Hospitals and the Bureau of Medical Economics to continue their endeavors until courses in medical economics have been established in all the medical colleges in the country, is recommended for adoption, with the suggestion that the Council in collaboration with the Bureau of Medical Economics outline the principles to be covered in such a course.

Respectfully submitted

IRVIN ABELL, Chairman.  
WALTER F DONALDSON  
GEORGE BLUMER.  
W H SEEMANN

On motions of Dr Abell duly seconded and carried, the report was adopted by sections and as a whole.

**Report of the Reference Committee on Hygiene  
and Public Health**

Dr J N Baker, Chairman, presented the following report

Dr Holman Taylor, Texas, presented a resolution referring to broadcasting, which had been adopted by the State Medical Association of Texas.

The Reference Committee on Hygiene and Public Health gave that resolution careful consideration, both as to its content and as to its implications, and recommends that the House of Delegates of the American Medical Association substitute therefor the following resolutions

WHEREAS The American Medical Association stands for and is willing to approve only the highest standards of broadcasting and

WHEREAS The American Medical Association acting through its House of Delegates has previously affirmed its opposition to any station or

program broadcasting material which is or might be detrimental to the health of the public therefore be it

*Resolved* That it is the sense of the House of Delegates of the American Medical Association that the broadcasting of matter coming from an adjoining country, which is untrue or dangerous or both as it pertains to the public health be brought to the attention of the Federal Communications Commission and be it further

*Resolved* That this commission be requested to take up through proper official channels any practices in radio broadcasting now existing or which may hereafter exist in an adjoining country in conflict with the foregoing declared principles, with the view of having such practices corrected

Respectfully submitted.

J N BAKER, Chairman  
W F BOWEN  
J D HAMER.  
V E STIMPSON  
O S WIGHTMAN

Dr Baker moved that the report of the reference committee be adopted. The motion was seconded by Dr J Newton Hunsberger, Pennsylvania, and carried after discussion by Dr Olin West, Secretary, and by Dr Holman Taylor, Texas, who endorsed the substitute resolutions.

**Report of the Reference Committee on Legislation  
and Public Relations**

Dr Charles E. Mongan, Chairman, presented the following report

A resolution referring to radio broadcasting was submitted by Dr James F Rooney, New York, at the request of the Medical Society of the State of New York, and was referred to your Reference Committee on Legislation and Public Relations.

Your committee is informed that the Director of the Bureau of Investigation and the Director of the Bureau of Health and Public Instruction of the American Medical Association appeared recently before the Federal Communications Commission, submitted evidence of the evils of the present poorly regulated broadcasting system so far as the health of the public is concerned and presented their views with respect to the improvement of the situation. There is every reason to believe that the commission will do whatever may be possible under existing law to improve conditions. Your committee recommends, however, that this matter be referred to the Board of Trustees, with a view to promoting the enactment of such federal legislation and, if necessary, the adoption of such international conventions as may be necessary to cure the existing evil.

Respectfully submitted

CHARLES E. MONGAN, Chairman  
E G WOOD  
EDWARD M PALLETTE.  
JOHN Z BROWN SR.  
S P MENGEL.

On motion of Dr Mongan, seconded by Dr George W Kosmak, New York, and carried, the report of the reference committee was adopted.

**Report of the Reference Committee on  
Miscellaneous Business**

Dr John F Hagerty, Chairman, presented the following report

The Reference Committee on Miscellaneous Business, appreciating the importance of the catgut problem in surgical work, and the necessity for thorough study of all the problems connected with its use, viz., mechanical bacteriologic and allergic reactions of tissues, approves the resolution introduced by the Medical Society of the State of New York and recommends the appointment of a committee, under the supervision of the Council on Pharmacy and Chemistry, to investigate and formulate standards governing the manufacture of catgut for surgical use.

Respectfully submitted.

JOHN F HAGERTY, Chairman  
D F CAMERON  
L J KOSMINSKY

It was moved by Dr Hagerty that the report be adopted and Dr George W Kosmak, New York, seconded the motion. The Secretary suggested that the report be amended so as to

approve the appointment of the committee that is already in existence. Dr Hgerty and Dr Kosmik approved of the suggested amendment, and the report was then adopted as amended

### Resolution on Opposition to Continuation of Dick Scarlet Fever Patent

Dr J M Birnie, Massachusetts, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

*Resolved*, That the Massachusetts Medical Society is opposed to the continuation of the so called Dick scarlet fever patent and the control of this patent by the Scarlet Fever Commission, and further that the delegates to the American Medical Association be instructed to bring this resolution before the House of Delegates

### Resolution on Tests for Licensing All Drivers of Motor Vehicles

Dr Burt R Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations

*WHEREAS* The medical profession has an interest in public safety and in the preservation of life and the prevention of injury and

*WHEREAS* The motor vehicle has been responsible for an ever increasing loss of life and limb and

*WHEREAS* The damage to humanity may be curtailed by careful physical examination of motor vehicle drivers including stringent tests of sight and hearing as well as other physical and mental qualifications therefore be it

*Resolved* That the Section on Laryngology Otology and Rhinology requests the House of Delegates to appoint a special committee to study such legislation as may be required to regulate and prescribe appropriate tests for licensing all drivers of motor vehicles and to recommend such uniform legislation in the several states

### Resolutions on Opposition to the Copeland Pure Food Bill and to Advertising of Drugs and Drug Products by Pharmaceutical Houses to the Laity

Dr John F Hagerty, New Jersey, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations

The delegates of the Medical Society of New Jersey have been requested to present to the House of Delegates of the American Medical Association the following resolutions, which were adopted by the board of trustees of that society, June 10, 1935

*Resolved* That the House of Delegates of the American Medical Association be requested to express its opposition to the passage of Senate Bill No. 5 (Copeland Pure Food Bill) and urge a Congressional investigation of the enforcement of the present Wiley Pure Food and Drugs Act and be it further

*Resolved* That the Medical Society of New Jersey is opposed to the advertising of drugs and drug products by pharmaceutical houses to the laity and requests the American Medical Association to refuse advertisements for any medical journal controlled by the American Medical Association or by its constituent state associations of pharmaceutical houses which resort to this practice.

The House recessed at 10 15 a m and reconvened at 10 45 a m.

The Speaker, Dr F C Warnshuis, took the chair

### Report of Board of Trustees

Dr J H J Upham, Chairman, stated that the Board of Trustees desired to bring the following three subjects to the attention of the House

#### 1 INTEGRATION OF MEDICAL PROFESSION

The Board of Trustees has been advised that at least two states have had under consideration, and that one still has under consideration, the matter of the reorganization of the medical profession along lines similar to those that are being followed in a number of states for the reorganization of the legal profession, namely, by a process of what is known as "integration". Under this process the entire profession of the state is organized by law, or in the case of the legal profession, in some instances, under direction of the courts, into a public corporation or its equivalent. Every licensed practitioner in the state is by reason of his status as a licensed practitioner a member of the corporation and entitled to a vote in its management. He pays such dues as the corporation imposes on him. The corporation through its proper officers, passes on the qualifications of every

person seeking a license to practice in the state, supervises their professional activities while they are licensed, and disciplines them as circumstances require in case of misconduct. Expulsion from the corporation and revocation of license are synonymous, for no one can practice who is not a member of the corporation.

It will be seen that under this system the profession is organized into a guild, as it were, and controls its own affairs, except that it has no right to pick and choose its members if they are morally and professionally qualified. It combines the functions of a medical licensing and examining board and of a state professional society. As has been pointed out, this kind of organization is being rather extensively followed by the legal profession. It has already been adopted by law in Oklahoma for the dental profession. It has been considered in one state and has been and still is being considered in another. It seems probable that other state associations will in due time give consideration to the form of organization described. For this reason, and in view of the revolutionary character of the change described, the Board of Trustees has deemed it best to submit it to the House of Delegates for determination of the policy of the Association with respect to it.

#### 2 IMMIGRANT PHYSICIANS

At the recent Chicago special session the House of Delegates adopted a resolution directing that efforts be made to procure such legislative action as might be necessary to stop entirely the selective injustice to the American physician" resulting from the immigration into the United States of foreign physicians. This resolution was preceded by a preamble reciting that the immigrant physician was exempted from the limitations imposed by law on the immigration of foreigners into the United States, under the 1917 immigration law. The Board of Trustees has been advised that the immigration law of 1917 does not impose quotas on the several nations of the world with respect to the immigration of their nationals into the United States but limits the immigration of persons from foreign countries into the United States under prearranged contracts of employment. Physicians are exempted from the provisions of that act and may enter notwithstanding the fact that they come in under prearranged contracts. How many have done and are doing so, however, it has been impossible to ascertain. The quotas allotted to the several nations of the world for immigration into the United States were allotted by the immigration act of 1924, and under this act physicians are given no preference over other immigrants.

A study of the records of the Bureau of Immigration shows that the proportion of immigrant physicians entering the United States annually from and including 1931 to the number of physicians entering the medical profession by examination each year is lower than at any time since 1919, and the percentages in 1932 and 1933 were the lowest at any time since 1904, when records of this character first became available.

The Board has been advised that it seems practicable to exclude immigrant physicians, not by depriving them of any privileges now granted them by reason of their status as physicians, but by making them a selected group against which restrictive legislation would have to be directed. Such legislation would take the form either of depriving them of their right to enter the United States under contracts of employment prearranged or of imposing on them limitations not imposed on other quota immigrants. How far the number of immigrant physicians would be reduced by depriving them of their privilege of coming in under prearranged contracts of employment is uncertain because no figures are available to show the number entering in that way. Whether the Association desires to sponsor legislation undertaking to exclude physicians as a class even under the quota privileges to which they would otherwise be entitled is a matter involving such serious public policy that it has seemed proper to submit the matter to the House of Delegates for further consideration before entering on that course.

#### 3 COMMERCIAL USE OF THE WORD "DOCTOR"

The attention of the Board of Trustees has been called to the commercial use of the word "Doctor" in connection with advertising, notably in connection with the advertising of shoes, in cases in which no doctor has had anything to do with the origination of the article advertised or with approving it from the

medical standpoint. It has been urged that the Association take steps to prevent the misuse of the word in that manner.

Obviously, the prevention of the misuse of the word "Doctor" must depend to a large extent on state legislation, since federal legislation can apply only to interstate and foreign commerce. Even with respect to state legislation, difficulty arises because of the present misuse of the word "Doctor" in other than commercial ways. Without considering such formerly honored titles as Doctor of Philosophy and Doctor of Laws, we now have Doctors of Osteopathy, of Chiropractic, of Naturopathy, of Podiatry, of Chirology, and of other similar titles in which the doctor is to be debased. Legislation should begin, therefore, not in an effort to prevent the commercial misuse of the word "Doctor" but in an effort to procure the enactment of legislation that will regulate the conferring of the degree of Doctor and prevent its misuse for any purpose whatever. Along with this will go legislation to prevent fraudulent advertising of all kinds, whether by the misuse of the title "Doctor" or otherwise. The matter is respectfully submitted to the House with the recommendation that it approve legislation such as is suggested here and commended for the favorable consideration of the several state associations.

The Speaker referred the first section of the report to the Reference Committee on Reports of Board of Trustees and Secretary. The second and third sections of the report were referred by the Speaker to the Reference Committee on Legislation and Public Relations.

#### Report of the Reference Committee on Reports of Officers

Dr. Arthur J. Bedell, Chairman, presented the following report:

##### ADDRESS OF SPEAKER

Your committee hopes in opening this report, that it may be deemed within its prerogative to offer the sympathies of this House to the Speaker in the great bereavement which he has just suffered, and that his anguish may be somewhat appeased when he is reminded of the high regard in which all those who serve our Association in an official capacity are held.

Your committee notes with pleasure the details included in the Speaker's address and recommends that every member of the House of Delegates be enjoined, on returning to his constituency, to make a prompt, accurate and comprehensive report of the activities of this House of Delegates, since it is apparent that there is urgent need for bringing to every member and Fellow a clear and intimate knowledge of the policies and activities of the Association. Misunderstandings will be mitigated when the Fellows are intelligently informed.

##### ADDRESS OF PRESIDENT

Your committee has considered, with a deep interest, the splendid address of President Bierring. We wish to commend him for the breadth of view expressed and the scholarly grasp of the Association's activities which he has displayed throughout the nation. One of the gratifying impressions gained in his contacts with the members of our Association was their sustained interest and manifest devotion to scientific medicine.

Your committee reviewed the pronouncements made by him in relation to the activities of the various standing and special committees and concurs in his expression of appreciation of the fruitful services rendered by the General Secretary, the chairman and the members of standing and special committees. It particularly approves of his restatement that the development of adequate medical care is necessarily closely and intimately associated with the ethical conduct of all physicians. Such conduct has always been governed by precept and example, and to keep the professional shield untarnished is one of our sacred obligations.

Your committee heartily approves of the President's commendation of the work of the Council on Medical Education and Hospitals, especially as it applies to the inspection and reclassification of medical schools.

Your committee commends and approves his statement relative to Federal Emergency Relief. The organized medical profession is sympathetic with the humanitarian purpose of this movement

but looks with disfavor on the administration of its medical provisions by lay direction or its extension beyond the present emergency period.

With regard to the program contemplated by the national government in the extension of public health activities, your committee feels that the responsibility for carrying out a public health program is the duty of organized medicine, which is the only group qualified by training and experience to administer such a service so as to safeguard fully the public interest. Your committee is constrained to believe that it is not possible to maintain a high quality of medical service unless there are provisions for complete medical control of those who are to deliver the service.

Your committee wishes to place on record its approval of the devotion which Dr. Bierring has displayed during his strenuous year of administration and to thank him for the sustained interest which he has shown in the welfare of the medical profession of this great country.

##### ADDRESS OF PRESIDENT-ELECT

Your committee senses the fine discretion implied in the President-Elect's address in that he confines his remarks largely to commendatory statements with respect to the recent activities of the Association. Your committee notes, however, with pleasure that he points to a potential danger which lies in the continued growth of the Association in the direction of a separate entity, tending to remove its activities and purposes from that close relation with constituent societies necessary to healthy growth. He correctly suggests that the officers and Trustees are doing and should continue to do everything possible to forestall such a development and urges the individual members of this House to resist the further development of this harmful trend by acquainting the membership in their various communities with the nearness of the parent organization and its earnest desire to help them in the solution of their daily problems.

##### REPORT OF JUDICIAL COUNCIL

Your committee notes that as a result of the discussions and pronouncements of the Judicial Council there has been a steady improvement in the methods by which medical service is made available to the public. It regrets, however, that much remains to be accomplished, and it believes that the time has arrived when we should insist on the strict enforcement of the Principles of Medical Ethics by all constituent societies for, as so well stated by the Council, the Principles of Medical Ethics is accepted as a guide in professional relations and intelligently and faithfully followed by a large majority of the profession. There are, however, some isolated instances in which this is not true. The delinquents comprise individuals, certain groups and a few institutions. Solicitation of patients, particularly in industrial practice, unfair competition by clinics and groups, and unethical and unlawful practice of medicine by hospitals, dispensaries, insurances and universities furnish outstanding examples.

The Council further states, "Public confidence in our avowed declarations for medical control over things medical cannot be successfully cultivated or maintained unless we exclude or remove from the ranks of our organized profession those who ignore our ethical code, especially as it applies to the true professional spirit in our relations with each and every patient." It will be recalled, the Council continues, that "last year the House of Delegates amended its Principles of Medical Ethics so clearly that there can be no misunderstanding of the conditions mentioned but the present method of procedure of preferring charges makes the pronouncement ineffective." Your committee, therefore, deems it advisable to extend the origination of charges, in certain situations manifestly too great for county societies to handle, to the state association and possibly in rare instances to the national organization. Your committee agrees with the Judicial Council that, when the House of Delegates sees fit to extend such jurisdiction in matters of discipline, the Council should have the duties and powers then enjoined on it but should not at any time be expected to function in an ex parte capacity.

The Judicial Council again reminds us that medical ethics follow every member of the American Medical Association, whether in hospitals, in universities, in clinics or in private practice.

tice. While the member is at all times subject to the ethics of the profession, the hospital, university or clinic, as an entity, is not. Through the Council on Medical Education and Hospitals, in cooperation with the Judicial Council, sufficient oversight, persuasion and, if needed, pressure can be brought to accomplish that which the physicians in such institutions, as individuals, cannot. With such concerted action between the two Councils and with such enforcing legislation as has been suggested, many harmful and obnoxious practices would cease and others, not now presenting any large problem, would be prevented.

Your committee, therefore, recommends that the Council on Medical Education and Hospitals, together with the Judicial Council, formulate a plan whereby all those associated in the delivery of medical service be included in the investigation of hospitals for classification and that approval be based in the future on the ethical practices of the institution as well as on its scientific work.

Your committee further recommends that, in order to remove the menace which the Judicial Council reveals with respect to overlapping membership in state associations, the Constitution and By-Laws be so amended as to remove any further difficulty in assigning a member to the state in which he practices.

Finally, your committee records its disapproval of any plan of organization of the profession in the United States that permits a member to hold affiliation with the Association in more than one state.

In order to effectuate the suggestions contained in this report, your committee requests the Judicial Council to submit amendments to the Constitution and By-Laws of the Association as are necessary to secure the purposes sought.

Respectfully submitted

ARTHUR J BEDELL, Chairman.  
J GURNEY TAYLOR.  
BEN R MCCLELLAN  
JOHN W BURNS  
C. W ROBERTS

On request of the Vice Speaker, the House by a rising vote extended sympathy to the Speaker, Dr F C. Warnshuis, because of the death of his son.

On motions, duly seconded and carried, the report of the Reference Committee on Reports of Officers was adopted section by section and as a whole.

The Speaker referred to the Reference Committee on Amendments to the Constitution and By-Laws the section of the report requesting an amendment to the Constitution and By-Laws, and referred to the Judicial Council the last recommendation in the report of the Reference Committee on Reports of Officers.

#### Resolution on Organization of a Committee on Medicolegal Blood Grouping Tests

Dr J Richard Kevin, New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations.

*Resolved* That a committee, to be known as the Committee on Medico-legal Blood Grouping Tests, be organized for the purpose of acquainting the suitable authorities in the legal profession with the existence and reliability of the blood grouping tests so that statutes may be enacted authorizing courts to order individuals to submit to blood grouping tests when they are required in those jurisdictions in which blood tests are not obligatory at present.

#### Resolution Requesting the Proper Authorities in the War Department to Distribute Hygeia in the CCC Camps

Dr Ralph A Fenton, Oregon, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business.

*Whereas* The Civilian Conservation Corps in its various camps throughout this country is supplied with books and periodical literature by the War Department and

*Whereas* Such literature should promote the dissemination of approved health information be it

*Resolved* That the Director of the Civilian Conservation Corps and the Surgeon General and other competent authority in the War Department be requested by this House of Delegates to contract for the supply of the magazine *HYGEIA* to each CCC Camp excluding any other so-called health magazine published by private interests for profit.

The House recessed at 11 15 a. m. and was called to order by the Speaker at 11 40 a. m.

#### Report of the Judicial Council

Dr George Edward Follansbee, Chairman, presented the following report of the Judicial Council acting as a reference committee.

A resolution was reported to the Judicial Council as a reference committee without action by the House. It reads as follows:

'Under the standing rules of the House of Delegates, page 53 of the Constitution and By-Laws, a section entitled Solicitation of Votes, adopted by the House of Delegates at Saratoga Springs, N Y, June 13, 1902, reads as follows *Resolved* That it is the sense of the House of Delegates of the American Medical Association that the solicitation of votes for office is not in keeping with the dignity of the medical profession nor in harmony with the spirit of this Association, and that such solicitation shall be considered a disqualification for election to any office in the gift of the Association.'

The reference of this resolution to the Judicial Council without action of approval by the House places the Council either in the position of acting only as a reference committee reporting back to the House approval or disapproval of the resolution, or in the position of assuming that the action of the House would approve the request for opinion asked in the resolution and submitting it forthwith.

The Judicial Council cannot presume to anticipate what the action of the House of Delegates may be on any subject, therefore, acting only as a reference committee, it recommends the adoption of the resolution as written.

However, if the House approves the recommendation of the Judicial Council as a reference committee and adopts its report, the subject matter of the resolution is very important and the occasion for offering the resolution appears to be urgent. Therefore, the Judicial Council is prepared to offer its opinion as requested in the resolution at the pleasure of the House.

Respectfully submitted

GEORGE EDWARD FOLLANSBEE, Chairman

Dr Follansbee moved that the report of the Judicial Council as a reference committee be adopted. The motion was seconded by Dr Arthur J Bedell, New York, and carried, after discussion by Dr Isaac A Abt, Section on Pediatrics.

Dr Follansbee then presented the report of the Judicial Council on the resolution concerning solicitation of votes.

This resolution asks the decision of the Judicial Council on a standing rule adopted by the House of Delegates in 1902, in respect to solicitation of votes, in which it is declared "that it is the sense of the House of Delegates of the American Medical Association that the solicitation of votes for office is not in keeping with the dignity of the medical profession nor in harmony with the spirit of this Association, and that such solicitation shall be considered a disqualification for election to any office in the gift of the Association." Two questions are asked (1) 'whether said section of the Standing Rules is still in force' and (2) "whether any person who is elected or nominated in violation of said rules is legally eligible for nomination or election to an office in the American Medical Association."

To the first question the answer is that this Standing Rule, adopted in 1902, has never been repealed and is in the same force and effect as it has been since its adoption.

In answering the second question, a number of factors must be considered. In amending the Constitution by addition or change, a period of one year must elapse between proposal and adoption. Amendments to the By-Laws must be held over for one day. Both require a two-thirds vote. A Standing Rule requires no delay and only a majority vote. The obvious difference in importance in the three sections of laws governing our organization is indicated by the size of majority required for adoption and the variation between them in the amount of time required to provide thoughtful consideration of the subject matter.

There are qualifications for general officers incorporated in the By-Laws chapter IV, section 2, in which it is stated "The General Officers must have been members of the Association and Fellows of the Scientific Assembly for at least two years next preceding their election." The Standing Rule under consideration imposes another qualification, viz., that "Solicitation shall be considered a disqualification." It would be at least



strange legislation to divide the qualifications for general officers between two such widely diverse sections of our law as the By-Laws and the Standing Rules of the House of Delegates. It is apparent to the Council that the Standing Rule in question was adopted at a time and under the spur of a provocative occasion when emotion superseded reason and when hasty and incomplete legislation was more soothing to the House than effective in carrying out its purpose. That the rule is loosely drawn is evident in the absence of definition of the offense, solicitation constituting disqualification. It simply says "solicitation shall be considered a disqualification." Solicitation by whom, the candidate or by his friends? How, by word of mouth, by letter to personal friends, by general circularization, by a friend of the candidate asking the support of his friend, or by trading of votes between groups? There is solicitation and solicitation some dignified, fair and entirely proper, some reprehensible and beneath the dignity of this national organization of highly educated cultured professional men whose Principles of Medical Ethics is higher than that of any other profession unless it be the ministry. It is a shame on our organization that there is ever an apparent need for such legislation.

The Council is further of the opinion that in practice the rule is unenforceable. It has, however, been a strong and, at times, an effective moral influence. It has been among our laws for thirty-three years and has never been called on to function, although it is well known, at least to the older members of the House, that violations have not been rare. Disqualification under this rule might be punishment for an offense committed not by the candidate but by overenthusiastic friends and even against his wishes and order. It is common law that no one can be punished for an act of which he had no knowledge or to which he was not a party. It is further common law that no one should be punished without an opportunity to defend himself in a fair trial. The element of time would make this procedure impossible in practice.

For the reasons detailed, the Judicial Council considers the Standing Rule on "Solicitation of Votes" to be illegal and of no force and effect. This being so, there can be no violation. There being no violation, the supposed person mentioned in the resolution is legally eligible for nomination or election. The Judicial Council believes that, if the House desires to have our laws disqualify for nomination on a basis of reprehensible solicitation, adequate legislation and phraseology can be found.

Respectfully submitted

GEORGE EDWARD FOLLANSBEE, Chairman

It was moved by Dr Isaac A. Abt, Section on Pediatrics that the report of the Judicial Council on the resolution on solicitation of votes be adopted. The motion was seconded by Dr H. B. Everett, Tennessee, and carried, after discussion by Dr William D. Chapman, Illinois.

#### Resolutions Protesting Federal Economics Harmful to Our National Defense

Dr Arthur J. Bedell, New York, read the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations.

**WHEREAS** It was thoroughly demonstrated during the World War that this country paid highly in blood and money because there was no adequate mechanism for speedy mobilization and training defensive forces of the nation and

**WHEREAS** The Medical Department of the United States Army was in no noteworthy better condition than other departments despite the fact that it must always be mobilized before combat and before other arms are mobilized and

**WHEREAS** Under authority of the National Defense Act since the World War the Medical Department of the Army has been maintaining Reserve Officer Training Corps Units in medical schools which supplied about one half of the new medical reserve personnel and gave valuable training preparatory to any national emergency but which have now been discontinued by act of Congress ostensibly as an economy measure leaving the War Department greatly embarrassed in the procurement of new medical officer personnel which embarrassment will increase to serious proportions after a very few years therefore be it

**Resolved** That the Medical Society of the State of New York protest federal economics harmful to our national defense and be it further

**Resolved** That the Medical Reserve Officers Training Corps Unit should be reestablished as soon as possible and be it further

**Resolved** That a copy of these resolutions be forwarded to the War Department the Surgeon General of the United States Army the Federal Congressmen from the state of New York and the American Medical Association

#### Remarks by Dr C. E. Mongan

Dr C. E. Mongan, Massachusetts, addressed the House as follows:

I think I might be derelict in my duty not only to my local county society but to this great body and its executive officers if I didn't tell you a very pleasant incident that happened during our campaign in Massachusetts with regard to furnishing adequate medical care to the citizens.

I requested the director of the economic division of this organization to send to Massachusetts all the literature relating to social insurance and medical economics. I asked for 300 sets. Inside of one week this organization placed at our headquarters 300 sets on social insurance. Those pamphlets—I think there are ten in all—you are all familiar with. I think such cooperation and such efficiency should not go unnoticed by our organization. I have no resolution to offer. I simply want to call your attention to the efficiency and the cooperation of your parent organization. More than that, it had a wonderful effect on every man who received one of those packages. One man came to me and said, "I have criticized the American Medical Association for not doing this. I wish to withdraw it."

I know that the American Medical Association executives are perfectly willing to do that for every man here. I hope that you will take advantage of this cooperation. It has a psychological effect that is inestimable on the rank and file of your organization.

#### Address of Dr George H. Simmons

The Speaker introduced Dr George H. Simmons, who addressed the House as follows:

Mr. Speaker and Gentlemen, Members of the House of Delegates: I came here not to talk but to listen. I must say that I thank you very much for your reception of me. I wish I realized that I deserve it. I couldn't help thinking of the interim between the time I was active in the deliberations of this body and now. That was thirty-five years ago, the first time the Association ever met at Atlantic City. We had so many receptions, we were so well taken care of, that we came back in two years and again in two more years. It looked as though we were going to make a biennial visit.

Those occasions are remembered by me very well because of two incidents or conditions. One was that the year before in February I had been elected Editor and Manager of THE JOURNAL and that at the previous meeting they made me Secretary, so I came to Atlantic City at the first meeting here with a good deal of trepidation and doubt as to what I was going to do and how I was going to do it. I know I worried a good deal, but everything went off all right, as it always does and your worry is temporary anyway.

The other incident was the fact that at that meeting a resolution was adopted creating a committee on reorganization. As the result of the appointment of that committee, the House of Delegates was created at the next meeting.

It has been a delight to go from then to now and see what the Association is doing, continually spreading out its good work. Could that have happened if that reorganization had not made this American Medical Association an organization representing the profession of the whole country and by the creation of this House of Delegates? I don't know.

It is well to look back over these things of the past, and it is a pleasure to see how the Association has gone through the depression. I want to congratulate the Board of Trustees and the officers of the Association in having weathered the storm and having made the best financial report ever made in the history of the Association.

#### Introduction and Addresses of Officers of Canadian Medical Association

The representatives of the Canadian Medical Association were escorted to the rostrum by the sergeant-at-arms.

The Speaker presented Dr J. C. Meakins, president of the Canadian Medical Association, who addressed the House.

Mr. Speaker, Members of the House of Delegates of the American Medical Association: It is hardly a year since we received in Calgary at our own annual meeting an invitation from you to hold a combined meeting in Atlantic City this week. I cannot tell you with what pride and honor and pleasure that

invitation was received with whole-hearted enthusiasm by our association.

Just the other day I think I was telling your President-Elect, Dr McLester, how in going over the ancient records of the early medical societies of Canada I found in a musty, yellow, old minute book certain resolutions and extracts from correspondence which had taken place between the Medical Society of Upper Canada and the Medical Society of Lower Canada, and the embryonic organization of the American Medical Association. That, I believe, if my memory serves me correctly, was in 1848. I think it might have been two years before your association was sufficiently founded. In the extracts of those minutes there was proposed and being explored the possibility of forming an American Medical Association which would include not only the state associations. I presume they were then, but the provincial associations of Canada. For certain reasons this could not be brought about, and the proposed combined meeting was to take place in 1848 and was postponed for eighty seven years.

Now today on behalf of myself and our association, we have great pride and we appreciate the honor that you do us in permitting us to appear before you on the rostrum of your House of Delegates, and I bring from our council a resolution, which unanimously passed yesterday by standing vote, to invite you to be our guests in a combined meeting to be held in Canada in the near future. The resolution says before 1940. We would like to leave the date open so there would be no *anno Domini* interfering in any way with your accepting our invitation.

I take great pleasure in laying this invitation before you today. I thank you.

The Speaker then presented the chairman of the Council of the Canadian Medical Association, Dr George S Young, who addressed the House as follows:

Mr Speaker, Members of the House of Delegates. I take it that in front of me is the workshop of the American Medical Association and that you are the workmen, and that for the time being you have stepped down from the heights of scientific activity and are doing the drudgery work for the American Medical Association.

As a member of a similar organization which has a workshop on a smaller scale, I can keenly appreciate your difficulties and the magnitude of your work and I want to express my very keen appreciation of the invitation that was extended to me to come here today and to see you in your workshop. I am delighted indeed that that opportunity has been afforded me, and once more I want to express my appreciation for the invitation.

The Speaker presented the past president of the Canadian Medical Association, Dr J S McEachern, who addressed the House as follows:

Mr Speaker and Members of the House of Delegates. It seems rather an anomaly that immediately after I considered myself defunct I should be resurrected and exhibited as past president. I will not delay you except to extend to you our hearty good wishes for a successful meeting and to thank you for your great kindness in honoring me with an invitation to be present here.

The Speaker presented Dr Alexander Primrose, chairman of the Program Committee of the Canadian Medical Association, who addressed the House as follows:

Mr Speaker and Members of the House of Delegates. It is a very great pleasure for me to appear here today. I may say that a few years ago you did me the honor of electing me an Honorary Fellow of the American Medical Association. Therefore I can speak from that standpoint as well as past president of the Canadian Medical Association. I share the honors of Dr McEachern in that respect.

As a fact, we Canadians have appreciated for many years the relationship which has existed in medicine between Canada and the United States. Many of us in Canada are fellows of special societies in the United States and in that way we cooperate. Occasionally we have had these special societies meeting in Canada. As an instance, last summer we had the privilege of entertaining the American Surgical Association in Toronto. Now we hope that that has extended to the general profession in that the Canadian Medical Association and the

American Medical Association may repeat what is occurring at the present moment, and it is a great pleasure and privilege to be here at this initiation of combined meeting. I hope it is only one of many in the future, because I feel that the more we cooperate in the profession of medicine on this continent the better it is for the profession generally and also for the public, because in so doing we have an influence and a power over the community which we could not otherwise exert. I therefore in these few words express my great personal pleasure in being present here today.

The Speaker presented Dr T C Routley, the secretary of the Canadian Medical Association, who addressed the House:

Mr Speaker, the Members of the House of Delegates of the American Medical Association. I indeed count it a great privilege to associate myself with my colleagues in saying how deeply we appreciate the honor you have done us in asking us to meet with you in your country and in asking us to appear before you this morning in order that we might say to you face to face what is in our hearts, as has been said by the four previous speakers, namely, we are grateful that you in your wisdom saw fit to allow these nations, one so large the other so small, and yet with ideals which are always in harmony, to meet together.

I well recall some twelve years ago when it was my privilege to be the official fraternal delegate from Canada to your meeting in San Francisco, throwing out the suggestion that some day we might meet together. Twelve years—quite a long piece to look forward not so long to look back—and we are together.

Perhaps you will be interested in knowing that we moved our organization down here lock, stock and barrel. We have an attendance in our council of seventy-six out of one hundred and twenty-odd, which we consider an exceptionally splendid turnout.

Then perhaps, Mr Speaker, one of the most interesting observations I might make is this, that while meeting for the first time outside of our own country in a foreign land we completely revised our constitution and by-laws. I do not desire to appear to be boastful, but if you can find a better demonstration of international good will than that I would like to have it displayed.

I do trust, sir, that the invitation extended to you by our president, coming as it does, from the hearts of the Canadian people as well as the Canadian physicians, will cause you to find it possible in the not far distant future to accept that invitation and give us the pleasure of endeavoring to show you the best we can our appreciation of your hospitality extended to us on this occasion.

#### Response of Officers of American Medical Association

The Speaker called on Dr Walter L Bierring, President of the American Medical Association, who responded as follows:

Mr President, Mr Chairman of the Council, Officers of the Canadian Medical Association, and Fellow Delegates. I know that I speak for you when I express the appreciation of this body for this courteous visit, for this cordial invitation, and for this further manifestation of the unity of interest, symbolized as it is, by our many efforts together in the extension of English medicine throughout the new world. We feel that we have always been a family scientifically and fraternally and that from now on there shall be a still closer bond between these two nations, divided as they are by an invisible boundary line, common in their interests for the furtherance of scientific medicine and human welfare and we trust, too, that we may again join hands across the border in their Canadian city. We feel assured that warmth of hospitality which has ever been characteristic of our Canadian colleagues, will come to us then in fullest measure.

The Speaker called on Dr J S McLester, President-Elect of the American Medical Association, who spoke as follows: I want to read a telegram that I know will give you the same pleasure that it gave me.

The British Medical Association sends cordial greetings to the American and Canadian Medical Associations on occasion of first joint congress and best wishes for successful meeting.

ANDERSON

The House recessed at 12 30 p m, to reconvene at 2 30

**Tuesday Afternoon, June 11**

The House of Delegates was called to order at 2 30 p m by the Speaker, Dr F C Warnshuis

**Report of the Reference Committee on Reports of Board of Trustees and Secretary**

Dr H H Shoulders, Chairman, presented the following report

**REPORT OF THE BOARD OF TRUSTEES**

Your committee proceeded as follows in its consideration of the matters referred. Those who desired to offer criticism were given an opportunity to do so. No delegate appeared to offer criticism. Secondly, your committee requested officers and bureau heads to appear before the committee in order that they might increase our understanding of the various activities touched on in the report. Your committee found that the Board of Trustees had been unusually active during the past year. It held five meetings, which lasted from two to three days each, and the Executive Committee of the Board met at least once each month, except when there was a regular meeting of the Board. This fact was brought out in the hearings and your committee desired to transmit this finding to you as an indication of the thoughtfulness with which the membership of the Board has approached its responsibilities.

Your committee notes with satisfaction the financial position of the Association as portrayed by the report. This is an exceptional showing for an organization such as ours after some five years of depression.

The publications of the Association are in such form that each is made to serve a definite purpose. The slight financial loss experienced in the publication of some is warranted, in the opinion of your committee, by the benefits derived.

These publications have grown in popularity and usefulness. This progress is due to the sound policies followed, the energies exerted and the intelligence applied to them. The services they render cannot be appraised adequately. Your committee expresses a confidence in the cautious wisdom of the Board in the matter of taking on additional publications that might involve a financial loss without an increasing general benefit to the profession.

Your committee notes with satisfaction the increasing use of the Package Library Department maintained for the benefit of the membership. It is suggested that the delegates present take occasion to inform their constituents of the advantages offered by this service particularly to those members who do not reside in the neighborhood of an extensive medical library.

Your committee requested various executives to come before it for the purpose of increasing understanding of the matters touched on in the report. The following persons appeared: Dr J H J Upham, Chairman of the Board of Trustees, Dr Rock Sleyster, Dr Olin West, Dr Morris Fishbein, Editor of THE JOURNAL, Dr Paul Nicholas Leech, Secretary of the Council on Pharmacy and Chemistry, Dr R G Leland, Director of the Bureau of Medical Economics, Dr W W Bauer, Director of the Bureau of Health and Public Instruction, and Dr W C Woodward, Director of the Bureau of Legal Medicine and Legislation. Much was brought out in the discussions that took place by the members of the committee and heads of the departments. Dr Arthur J Cramp, Director of the Bureau of Investigation, was ill and could not appear.

Each of these officers seemed anxious and cooperative in his efforts to portray to the House the particular services being rendered the Association. The membership of your committee was impressed by the ability and sincerity of these men. Your committee found much evidence of the genius that has molded all these different activities into one coordinated, harmonious activity. For example, your committee found the Bureau of Health and Public Instruction giving aid to the Bureau of Legal Medicine and Legislation and vice versa.

Your committee wishes to commend the Board of Trustees on the care with which it has selected the personnel that heads the bureaus. Your committee would like to discuss many of the facts developed in the hearing, but time will not permit.

**Council on Pharmacy and Chemistry** Your committee will mention particularly the activities of the Council on Pharmacy

and Chemistry. The secretary of this council reports to us that the membership of the Council, which serves without compensation, devotes many hours each week to the work of the council. Your committee is impressed with the thoroughness with which this department carries on its activities. This is evidenced also by the fact that commercial concerns and quacks have not challenged the accuracy and thoroughness of the work of this council with success before any court of the land. This is a remarkable record when the activities of this council are challenged on every side. This council has been in existence for about thirty years, its prestige with the public, we believe, is growing, the good it has accomplished for the profession and the public cannot be appraised. Your committee wishes to commend the members of the council on the self-sacrificing spirit and thoroughness that characterized their activities.

**Bureau of Medical Economics** This portion of the report of the Board of Trustees was referred to the Reference Committee on Medical Economics for consideration.

**Bureau of Legal Medicine and Legislation** It is obvious to every delegate that the activities of this bureau could not be covered in any brief report, nor would your committee adopt such a task. Your committee would rather commend the activities of the bureau and the tireless energies with which it has served and is serving the profession in the trying legislative period through which we are passing.

**Bureau of Health and Public Instruction** Dr W W Bauer appeared before the committee to elaborate on the report of the Board of Trustees dealing with this bureau. Your committee finds that this bureau has exerted a most wholesome influence in the formation of the policies followed by various lay organizations, such as women's clubs and parent-teacher organizations. Officers of state organizations are to a degree familiar with the fact that socialistic groups have sought the political influence of various women's organizations in the promotion of their ends and purposes. Some of these women's organizations are particularly vulnerable to the approach of the socialistic groups and are unable to make a critical analysis of the matter they are requested to endorse or sponsor. Your committee finds that this bureau has been most helpful in the matter of influencing the course taken by many of the lay groups, with the result that they have become more cautious. Members of this bureau have been placed on important policy forming committees of the National Federation of Women's Clubs. It is suggested that delegates recommend to their state committees on public policy and legislation that they seek the advice of this bureau on all matters touching on the public health policies of state associations and in the matter of dealing with lay groups, and that the component units of state associations use this source of guidance and information in their dealing with local lay organizations in matters affecting the public health.

Your committee would like to emphasize the fact that through out the hearings it was impressed with the cooperative spirit that is displayed between the various bureaus of the Association. This serves to emphasize the wisdom of conducting all these activities directly under the supervision of the Board of Trustees, which enables the Board of Trustees to coordinate policies and activities in such a way as to accomplish the most beneficial results for the profession as a whole. It gives the Board freedom in the selection of a personnel whose congeniality permits of such cooperative endeavor.

It becomes apparent that time is required for a person, however capable, to acquire a familiarity with the duties to be performed in one of these bureaus or councils. It was made to appear that the Board has given consideration to the matter of selecting understudies who at the proper time will be adequately fitted to take over the duties and responsibilities of these various officers. Your committee commends this action on the part of the Board.

Concerning the action of the Board on the question of liability insurance for members. It approves this decision and action on the part of the Board.

In conclusion, your committee would venture to suggest that reference committees in the future call before them the various bureau heads as well as representatives of the Board of Trustees. It believes that such action would reveal much that would stimulate a higher appreciation and respect for the many duties that are carried on at the headquarters office.

REPORT OF SECRETARY

Your committee found much in the report of the Secretary that merits commendation. It is noted that the membership of the association has increased by more than 1,500 and that the Fellowship has increased.

It is also noted that the activities of the headquarters office in contacting component societies throughout the country has increased materially. Your committee feels that this is an important activity and that it might be further increased with beneficial results in the promotion of the uniformity of our activities throughout the various component units and the promotion of a more cordial understanding and sympathy.

The Annual Conference of Secretaries, however beneficial and helpful does not suffice to bring the heads of various departments of our national organization before the membership at large in the various states. It is recommended that the delegates present recommend to their constituents that they increasingly use members of the headquarters office on their state programs and in their various committee activities.

Your committee notes with satisfaction a statement by the Secretary to the effect that marked progress has been made during the past year in increasing the efficiency of medical organization throughout the land.

There is embodied in the report of the Secretary a brief statement of the proceedings of the extraordinary session of the House of Delegates. Your committee desires to give added emphasis, if possible, to the importance of this particular report. It should serve to emphasize that organized medicine presents a united front and that critics within our membership constitute an almost infinitesimal proportion of the whole.

Respectfully submitted H H SHOULDERS, Chairman

HENRY C MACATEE.

E F CODY

B T KING

FRED MOORE.

On motion of Dr Shoulders, seconded by Dr H B Everett, Tennessee, and carried, the portion of the report dealing with the report of the Board of Trustees was adopted.

Dr Shoulders moved that the section of the report referring to the report of the Secretary be adopted. The motion was seconded by Dr Ralph A Fenton, Oregon, and carried.

It was moved by Dr Shoulders, seconded by Dr Arthur J Bedell, New York, and carried, that the report be adopted as a whole.

## Executive Session—Tuesday Afternoon, June 11

The Speaker ruled that officers of state organizations and members of county societies and of committees of state organizations, vouched for by their state delegates, would be permitted to remain for the Executive Session of the House.

The Sergeant-at-Arms polled the House, and on motion of Dr H B Everett, Tennessee, seconded by Dr C S Gorsline, Michigan, and carried, the House went into executive session at 1 45 p m, with the Speaker, Dr F C Warnshuis, in the Chair.

### Report of the Special Reference Committee

Dr Edward R Cuniffe, Chairman, presented the following report:

The Special Committee appointed to consider all resolutions concerning the control of reproduction begs leave to report that, after a careful study of these resolutions, it recommends that not any of them be approved as introduced. The committee desires to present as a substitute resolution the following, with this preamble: That the House of Delegates declares that nothing in the following resolutions be interpreted as a declaration or action either for or against birth control.

**WHEREAS**, Under the stimulus of large nonmedical groups the general use of contraceptives is being advocated and encouraged despite the existing law not only by the above mentioned groups but by commercial interests as well and

**WHEREAS** The ultimate effect of these measures on the health and general welfare of the population of the United States is unknown if not questionable and should accurately and extensively be studied by the medical profession in whose care the health of the people rests and

**WHEREAS** The laws both federal and local governing the physicians in their advice to individual patients where such advice is given as a thera-

peutic measure seem to be complicated not well understood, and generally unsatisfactory and their interpretation difficult, therefore be it

**Resolved** That a special committee be appointed after due consideration by the Board of Trustees to study these related problems and to present at least a preliminary report to the House of Delegates of the American Medical Association at the 1936 annual session and be it further

**Resolved** That the trustees be requested to appropriate the funds necessary in order to carry out the purposes of these resolutions

Respectfully submitted

E R CUNIFFE, Chairman

T HENSHAW KELLY

J ALLEN JACKSON

E. H CARY

ALFRED A WALKER

The report of the Special Reference Committee was adopted on motion of Dr Cuniffe, seconded by Dr George W Kosmak, New York, and carried, after discussion by Dr G Henry Mundt, Illinois.

### Report of Reference Committee on Medical Economics

Dr W F Braasch, Chairman, presented the following report:

1 Relative to the resolutions introduced by the Medical Society of the District of Columbia

(a) Resolution on Medical Service Organizations. Your committee feels that no plan for the solution of the problems involved in this resolution has been perfected to such a degree that the American Medical Association would be justified in sponsoring it. Further, your committee recognizes the impracticability of sponsoring any specific plan but approves the establishment of principles governing such plans. The Bureau of Medical Economics has at its disposal most of the plans proposed by the various organizations and stands ready and willing to furnish these on request to any component county or state unit or any individual member thereof. In view of this fact, your committee deems it inadvisable for the American Medical Association to attempt to dictate any form or set-up for medical service but assures the members that the parent organization is always willing to advise and cooperate with any unit desiring assistance. Likewise, your committee would hesitate to recommend to the Board of Trustees an expenditure of a definite sum of money for such purposes as suggested in the resolution because of obvious reasons, among them being the impossibility of estimating the cost. Your committee recommends that this resolution be not passed.

(b) Resolution on Preparation of a Statement Regarding Medical Service Experiments. Your committee also realizes the inadvisability of the publication of incomplete experiments in medical service which might be presented to the President of the United States as recommended in this resolution. Your committee recommends that this resolution be not passed.

(c) Resolution on Care of the Indigent. In this resolution problems are raised which are similar to those involved in the other resolutions and the impracticability of their execution is quite evident. Your committee would recommend that this resolution be not passed.

2 Your committee believes that the survey made of the work done by the Bureau of Medical Economics during the past year is worthy of the highest commendation. It shows the wide scope of the bureau's activities and the immense amount of excellent work that it is doing. It endorses in detail the various suggestions and recommendations that the survey contains.

Your committee notes with approval that the demand for accurate information on sickness insurance and allied problems is being met by publication of articles in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and in pamphlets. It would also commend the articles on sickness insurance and allied subjects that are published in HYGEIA for the benefit of the laity and would suggest that they appear more frequently. It would also be desirable that messages of a similar nature be more frequently transmitted over the radio. Your committee would recommend that articles on health insurance be sent to newspapers which would publish them. It would also be desirable that material accumulated by the bureau be furnished to editors of state medical journals in order that they may make this material more available to the readers of these publications.

Your committee would encourage every member of the profession to become more interested in the various problems of medical economics and to take advantage of the unlimited

sources of information at the disposal of the Bureau of Medical Economics

Your committee notes with approval the efforts made by the bureau in making available unbiased data published in the "Handbook on Sickness Insurance" which serve as a guide to debates, theses and addresses such as are carried on by high school and college students on the subject of state medicine, sickness insurance and allied subjects. In view of evident propaganda of a radical nature which is carried on in some schools, increased efforts should be made to disseminate accurate information.

Your committee commends with special emphasis the stand taken by the bureau with regard to group hospitalization. It is convinced that the natural development of such schemes would lead sooner or later to an inclusion of medical service in one form or another with inevitable deterioration in the quality of service. It is quite in agreement with the statement that there is grave doubt that any plan of group hospitalization is using an actuarially sound base for premium rates.

Your committee commends many of the efforts made by local county units to solve problems involved in the care of individuals in the low income group. It would voice its approval of the sentiments expressed at the special session of the House of Delegates in February 1935 in commending these efforts. It also notes with approval the careful survey made by the bureau of the various medical service experiments carried on by the different communities. It would recommend that even greater use be made of the parent organization's presentation of available material on which to base future plans.

Your committee would commend the Bureau of Medical Economics for the interest it has shown in the various problems concerning life, health, accident, casualty and malpractice insurance. It trusts that the bureau will continue its investigations.

Your committee approves the careful study made by the bureau of all available information in regard to relief measures for the indigent sick which is assembled in the report entitled "Care of the Indigent Sick," published last December, and it recommends its use for reference.

In reviewing the ten principles governing the practice of medicine that were adopted by the House of Delegates at the session in Cleveland in 1934, your committee finds that some confusion has arisen in regard to principle 6, which reads as follows:

However the cost of medical service may be distributed the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

Your committee recommends that principle 6 be changed so as to read as follows:

In whatever way the cost of medical service may be distributed it should be paid for by the patient in accordance with his income status and in a manner that is mutually satisfactory.

Your committee recommends the excellent study of the distribution of physicians made by the bureau, which excels in every respect any survey previously made and should be endorsed as a reference for investigation of this subject.

Your committee recommends the thorough survey that has been made of the fee schedules of several hundred county medical societies. The material accumulated should be of great value to any one interested in this subject. In view of the impossibility of standardization of fee schedules, which are necessarily variable and of a temporary nature, it is evident that no standard schedule of fees can be established and maintained by any medical organization.

Your committee approves the timely study that is being made by the Bureau of Medical Economics on the subject of health services in colleges and universities. When completed this promises to be of great interest and practical value, and your committee would commend its speedy completion.

Although your committee appreciates the value of the publication of the work of the bureau in the monthly bulletins and in pamphlets, it nevertheless believes that much of this valuable material is lost to the average practitioner because of its volume. It seems to your committee that it would be highly desirable if the essence of the articles were transcribed in some form so that they could be easily assimilated by the average medical reader. Material accumulated by the bureau

should be published in such a manner that it will attract the attention of the casual reader and be easily appreciated.

3 In reviewing that portion of the report of the Bureau of Legal Medicine and Legislation, as printed in the Handbook, dealing with subjects of economic interest, your committee notes with interest the development of the federal health insurance bill. Of particular interest is the fact that the name of the proposed "Social Insurance Board" has been changed to "Social Security Board" and that no duty is now devolved on the board to study or make recommendations with respect to health insurance. The board, however, is at liberty to make such an investigation regarding social insurance under its general commissions.

Under the subject of state health insurance, your committee notes that of the various bills proposed in the various state legislatures for health insurance, including the Epstein bill and bills of similar nature, there is no state in which such health insurance bills have been enacted.

Your committee has read with interest the resumé of the various provisions made by the Federal Emergency Relief Administration and it notes with alarm the unlimited number of persons who are entitled by law to relief under the United States Employees' Compensation Commission. The situation, however, is somewhat mitigated by the fact that persons employed under this act will not be entitled to all the benefits available to regular employees of the federal government but will receive benefits including medical services only for traumatic injuries arising out of and in the course of their employment.

In closing your committee would again commend the great work done by the Bureau of Medical Economics but we would urge the desirability of developing methods by which that storehouse of data accumulated by the bureau be made more readily available and the approach more practical to every member of the medical profession and to each county unit as well as to the various state medical societies.

Respectfully submitted

W F BRAASCH, Chairman

GUY W WELLS  
FRED B CLARKE

HENRY A LUCE  
CHARLES J WHALEN

On motions, duly seconded and carried, the report of the Reference Committee on Medical Economics was adopted section by section and as a whole.

On request of Dr C E Mongan, Massachusetts, for information concerning the situation in California with respect to health insurance, Dr William R. Molony Sr., California, called on Dr T Henshaw Kelly, California, who addressed the House.

#### Report of Committee on Legislative Activities

Dr E H Cary, Chairman, presented the following report which on motions of Dr Cary, duly seconded and carried, was adopted by sections and as a whole.

#### Mr Speaker, Members of the House of Delegates

Your Committee on Legislative Activities begs, first, to commend the wisdom of the Board of Trustees and this honorable body in adding to the original committee Dr R L Sensenich. His appointment followed the adoption of the resolution that it would be wise to make more definite contact with certain groups. Just how far the committee could go in this direction was not known, but it had always been the policy of the Committee on Legislative Activities, as constructed, to make important contacts with leaders of other groups, particularly those concerned with legislative affairs. It was decided within the committee that the new member should contact leaders of various organized groups in industry, education and labor and at frequent intervals communicate with the various state secretaries to assist in organizing a broad and direct approach to the lay public in opposition to harmful legislation. It was hoped in this manner to stimulate on the part of the leaders of the different state organizations a real sense of responsibility and the desire to cooperate in all legislative undertakings. A vast amount of this work has been done and undoubtedly much good has been accomplished.

At the Cleveland session your committee reported that a spirit of friendliness and cooperation had been developed between the

leaders of the American Legion and the American Medical Association. Reference was made to the significance of the Reed bill, which continued the four point program of the American Legion. The point of special interest to the medical profession was section two which opened the way for hospitalization benefits to World War Veterans without service connected disabilities. Your attention was directed to an oath prescribed within the law, which related to the veteran's financial ability to take care of his own hospital needs, particular emphasis was laid on the great import of this one point. Your committee is happy to state that leaders of the American Legion and the administrator in charge of veterans' affairs have recognized the importance of this oath.

Section 29 of Public Law Numbered 141, Seventy-Third Congress, which amended section 6 of Public Law Numbered 2 as amended by Public Law Numbered 78, Seventy-Third Congress added the following proviso to the retained provision of section 6:

Provided That any veteran of any war who was not dishonorably discharged, suffering from disability disease or defect who is in need of hospitalization or domiciliary care and is unable to defray the necessary expenses therefor (including transportation to and from Veterans Administration facility) shall be furnished necessary hospitalization or domiciliary care (including transportation) in any Veterans Administration facility within the limitations existing in such facilities irrespective of whether the disability, disease or defect was due to service. The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans Affairs shall be accepted as sufficient evidence of inability to defray necessary expense.

You will observe that there is no requirement as to which war or the length of service in connection with these applicants. This is a substantial liberalization of the benefits of domiciliary or hospital care. Section 29 makes it obligatory on the Veterans' Administration to accept the statement under oath of the applicant that he is unable to pay the necessary expenses, however, the provision has been duly supervised. Section 12 of Public Law Numbered 2, Seventy-Third Congress, provides a penalty (a fine of not more than \$5,000.00 or imprisonment for not more than two years, or both) for false statements made under oath.

One would think, because of the depression, that the demands of the veterans would have increased during the past year or two. Your committee found, however, while in Washington recently, that there were some 3,000 beds unused in the institutions for patients with tuberculosis, and some 6,000 beds in the hospitals devoted to general medical and surgical cases were not being used. It would seem that the oath, the regulations of the Veterans' Bureau, and the cooperation of the Legion itself, has definitely curtailed the demands for free hospital and medical care by those who are able to pay.

In the last annual report your committee made reference to a plan then effective in Illinois. There had been organized a medical commission, composed of district, county and post surgeons of the Illinois Department of the American Legion. This commission, as now constituted, acts as an advisory committee to the Rehabilitation Committee in the interests of ex-service men. It has been successful in improving this service and at the same time, has preserved the worth while ideals of the medical profession.

Drs. C. B. Wright and F. S. Crockett of the committee were invited to be present at a conference of the Area D Rehabilitation Committee in Chicago last June. On this occasion Dr. Crockett attended and initiated a conference between the American Medical Association and the American Legion. Later National Commander Hayes and certain of our leaders arranged for such a meeting, which was held in Chicago on Sept. 7, 1934. Drs. Wright, Crockett, Woodward, Fishbein, Sensenich, West, Hayden and Cary were present on behalf of the American Medical Association. Commander Hayes, Messrs. Cliff, Taylor, Miller, and Drs. Williamson and Fredrickson represented the Legion. The various possible beneficial channels of cooperation between the two organizations at interest were discussed at length. Your committee brings to you the major conclusions. For instance:

The contacts between the American Medical Association and the American Legion during the past two years were unanimously considered to have been of value, it was likewise thought that a feeling of confidence and understanding between the two groups had been developed.

Combined interest on medical and hospital matters should be maintained between the authorities of the two organizations.

The members of the Legion committee expressed pleasure that the American Medical Association had, at its Cleveland session, supported the idea of cooperation between the two groups.

It was agreed subject to the approval of the Legion National Convention, that each department rehabilitation committee or group should invite to its advisory membership two members of the state society pertinent to the American Medical Association.

When consideration leading toward possible requests for new hospital construction should arise, the matter was to be submitted to a committee of the Legion Rehabilitation group, which would include the medical advisory members, for recommendation before being acted on by a department convention. Under such circumstances it was also agreed to add temporarily to the canvassing committee one representative each from the American Hospital Association and the Veterans' Administration.

Another fundamental conclusion contemplated the continuance of the depression and a greater number of indigents. In this event, if waiting lists were increased and hospital facilities exhausted, the American Medical Association was to participate in seeking a solution satisfactory to the medical profession and to the American Legion.

The conferees reaffirmed a previously agreed on point that veterans suffering with tuberculosis or nervous and mental diseases, requiring hospital care, should be the responsibility of the national government in a federal institution.

Acute cases widely separated, in no instance were to constitute a legitimate demand for new hospitals. A far more economical and medically effective procedure could be adopted. For any emergency of a service connected character the disabled veteran would be taken care of irrespective of his location by merely gaining telephonic consent from the proper authorities in that particular district.

Several items, which required additional study because of some rather widespread misunderstandings, are enumerated here:

1. Acute service and non service connected cases in which added disablement or death is said to have occurred as a result of having to be transported from the places where the onset occurred, to governmental hospitals.

2. Number of cases in which veterans were ordered to governmental hospitals on recommendation of community physicians or other persons, and on examination found not to require treatment or operative procedure.

3. All procurable records and histories of instances in which acute cases did not receive treatment because of lack of appropriate local hospital facilities or because of inadequate funds or lack of tendency of community hospitals or physicians to extend care.

Your committee has stated only the important conclusions reached in the September conference.

Commander Hayes extended an invitation for representatives of the American Medical Association to be present at the Legion's annual meeting. Dr. F. S. Crockett, member, and Dr. E. H. Cary, Chairman, of the Committee on Legislative Activities, were directed by the Board of Trustees to attend this convention of the American Legion, which was held in Miami, Fla., Oct. 22-25, 1934.

On Nov. 12, 1934 the Chairman of the Committee on Legislative Activities made an extensive report to the Board of Trustees regarding the reception given its representatives and the general attitude of the leaders of the Legion. The recommendations that resulted from the joint conference held Sept. 7, 1934, and referred to herein, were presented to the Rehabilitation Committee of the Legion and endorsed later being unanimously accepted by the general convention. There is presented for your consideration a summary of what has been done with the hope that you will express similar approval.

In the November report to the Board of Trustees, the members of your committee attempted to record their own reactions to the many personal contacts made while in Miami, many of which seemed extremely valuable, and when assured of the Legion's acceptance of the recommendations agreed on at the joint conference, they developed the thought that the work accomplished by the Rehabilitation Committee of the American Legion was a part of the present philosophy of the medical profession toward caring for the sick. It was suggested that



any form of sickness insurance, governmentally controlled, would tend to break down hospital and medical benefits already gained. Those leaders who had the interest of the veterans at heart could easily foresee the implications of this new menace to the practice of medicine as it had been developed in this country. The widespread adoption of any one of the several forms of sickness insurance, which had been advocated from many sources, would change the whole philosophy of medical practice, and undoubtedly the special benefits enjoyed by the veterans would be disturbed. At the conclusion of the visit to this convention of the Legion, it was felt that powerful allies had been gained.

The members of the Committee on Legislative Activities, fortunately also members of the House of Delegates, were present at the Special Called Session held in Chicago on February 15-16 this year. When the House finally concluded its work by unanimously accepting the Reference Committee's report, the Committee on Legislative Activities felt that the time was at hand when leaders of other interrelated medical organizations should accept as final the action taken by the House of Delegates—the value of unity within our profession not being underestimated.

The members of special societies are primarily members of the American Medical Association and, as far as we knew, had not been given an opportunity to express an opinion on legislative matters except through their county societies, which are the governing units of our national organization. Your committee recognized that the impression had been created in Washington that medical opinion was greatly divided on the subject of compulsory health insurance. In view of the action of the House of Delegates, it seemed that the responsible leaders of any group of medical men could acknowledge the action of the House and correct the impression that was being used as propaganda for new legislation affecting the medical profession. We who practice medicine realized that any endorsement of the idea of compulsory health insurance on the part of certain medical men represented personal views, for, as previously stated, the members of these special societies had not been given an opportunity therein to indicate their attitude. In this connection, your committee acknowledges with appreciation the high service rendered by the distinguished secretary of the American Academy of Ophthalmology and Otolaryngology, Dr. W. P. Wherry. He was able to arouse the interest of a very large group of our medical men who were also members of special societies, all of whom gave expression of their support of the stand taken by the honorable House of Delegates of the American Medical Association.

On April 26, 1935, Drs. Crockett, Sensenich and Cary of the Committee on Legislative Activities, joined by Dr. Woodward, spent several days in Washington, meeting many old friends and developing new ones.

Methodically different phases of legislation were taken up with the leaders of various groups, and information was received that the highest authorities attached a great deal of importance to the alleged endorsement of compulsory health insurance by the American College of Surgeons. As the matter of the "impression" was considered to be very important, the members of the committee attempted to explain to those in high places the situation as they saw it. A man in high position indicated that he would convey, at an opportune time, to the President of the United States the information that the majority of the membership of the American College of Surgeons supported the action of the American Medical Association against compulsory sickness insurance.

Your committee calls attention to only a few of the many interviews had while on this recent trip.

From several sources in Washington, it was gratifying to learn that officials of the American Legion were sustaining the agreements made between the two groups in earlier meetings. In view of the large number of bills calling for construction of new hospitals, which had flooded Congress, an opportunity was had to verify the question of cooperation between the Legion forces and the American Medical Association.

From three different sources, information was received that no demand would be made for an appropriation for new hospital construction but that additions to hospitals, if such were needed, would be financed through the allotment of funds under control

of the President, with the exception of one new hospital for Negroes and the replacement of a small institution located at Bath, N. Y.

Your committee made contact with the Legislative Committee of the American Federation of Labor as well as other important groups representing capital and industry. Many important members of Congress were visited, giving an opportunity of conveying the point of view of the medical profession. From these various contacts it was gained that members of local societies had been active in supporting the decision of this House.

Having in mind that the care of the low income group is a local problem, differing with the locality—the members of the Committee on Legislative Activities in all conferences and public contacts have pointed out that gratifying results are being developed by county societies throughout the country without the need of new legislation.

It was found that it had not been determined whether the United States Public Health Service would be given the care of the sick or differentiation between the employable and non-employable or whether those under relief would be assigned to that or some other agency. An impression was gained at that time that it would be assigned to that agency. The committee desires to bring to your attention that this would mean the enlargement of the activities of the United States Public Health Service to include the supervision and actual medical treatment of the sick. A very elaborate plan had been worked out, the details of which were given to your committee. In a few words, it was a plan which would be at this time in hands of medical men whose views are in harmony with the position of the Association. It was agreed by all that any workable plan, however sympathetically administered, would tend to promote and establish a health insurance system.

The matter of the differentiation of the employable and non-employable was then discussed with an official of the Federal Emergency Relief Administration, although it was stated that the Federal Emergency Relief Administration had not been instructed to assume this responsibility, who had recommended that men would be offered employment on the basis of their ability and experience, based on their history of normal employment prior to the depression. If they decline to accept employment, it will be up to some local agency to determine whether or not the individual is employable or in what manner his individual problem should be handled. Your committee points out that this method of handling the emergency is less disturbing, in that it does not contemplate an enlargement of the present method of handling medical relief, which is tolerable only on the basis that it is necessary to meet an emergency and must soon be discontinued. This official also stated that he did not know of any contemplated change in the medical care of the indigent and that the medical care of emergencies arising as a result of employment on the work program would be taken care of by the United States Employees Compensation Commission by physicians appointed under its jurisdiction, as it was at present being handled.

Your committee had the pleasure of discussing with a responsible representative of the President's Economic Committee the many questions which had arisen in that committee. Three of the many statements made were of particular interest.

One was that a definite impression prevailed in the minds of the President and others that the body of the profession as represented in the membership of the American College of Surgeons was committed to sickness insurance. It was considered exceedingly important that this impression be corrected if the facts were otherwise.

Second, and of extreme importance, the impression was gained that compulsory sickness insurance would not be pressed at this, nor very likely at the next session of Congress but that in all probability a bill would be presented as a sort of "trial horse" in order to obtain the public reaction.

The third important point was that a final report of the Economic Committee had not been written and that that committee was waiting for the chief statistician to report his conclusions for its information.

Knowing the personalities involved and much of the history of these matters, your committee became convinced that it would be wise for its members to go to New York for a conference



with gentlemen who were interested in social legislation, and hoped among other things to learn whether there was any influence being exerted from sources in New York to introduce at this session of Congress a bill of compulsory sickness insurance.

After considering all the factors involved, your committee felt that its duty was to explore all avenues leading to further agitation of this question and believed through past experience that personal contact and a presentation of the medical point of view would lead to a mutual understanding of the unwisdom of propaganda of this type.

As a committee we are hopeful of the future but do not deny that the next two years will require of you your active support in defending the principles you have outlined and the ideals which you cherish.

Respectfully submitted

F S CROCKETT  
R. L. SENSENICH

E. H. CARL, Chairman

C. B. WRIGHT

#### Special Report of the Bureau of Medical Economics

Dr. R. G. Leland, Director of the Bureau of Medical Economics presented a Special Report, which was referred, without reading, to the Reference Committee on Medical Economics. On motion of Dr. Arthur J. Bedell, New York, seconded by Dr. G. Henry Mundt, Illinois, and carried.

It was moved by Dr. James F. Rooney, New York, seconded by Dr. J. D. Brook, Michigan, and carried, that the House arise from executive session into regular session.

#### Report of Reference Committee on Miscellaneous Business

Dr. John F. Hagerty, Chairman, presented the following report, stating that with the consent of the introducer of the resolution the committee has left out the words 'excluding all other magazines except HYGIEA'.

The Reference Committee on Miscellaneous Business has considered the resolution introduced by Dr. Ralph A. Fenton of Oregon, requesting the Director of Civilian Conservation Corps and the Surgeon General and other competent authorities in the war department to supply the magazine HYGIEA to each CCC Camp and other educational departments under their supervision, and approves of the same.

Respectfully submitted

E. N. ROBERTS  
D. F. CAMERON

JOHN F. HAGERTY, Chairman

L. J. KOSMINSKI

On motion of Dr. Hagerty, seconded by Dr. William H. Mayer, Pennsylvania, and carried, the report of the reference committee was adopted.

#### Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. J. Richard Kevin, Chairman, submitted the following report:

The following portion of a resolution referred to our committee for consideration reads as follows: "Your committee further recommends that, in order to remove the menace which the Judicial Council reveals with respect to overlapping membership in state associations, the Constitution and By-Laws be so amended as to remove any further difficulty in assigning a member to the state in which he practices."

After studying the Constitution and By-Laws, your committee recommends the following modification in the By-Laws of chapter XI, section 1:

In line 19 after the word moved insert 'provided no member may hold membership in more than one constituent association at the same time' also after the word 'Provided' in line 19 insert the word 'further'.

Since the provisions of the By-Laws provide that no changes in said By-Laws can be made without lying on the table twenty-four hours, your committee moves the adoption of the recommendations of the committee and a vote can be taken on Thursday which would allow the amendment to become a law at this session of the House of Delegates.

The House recessed at 4:40 p. m., to meet at 1 p. m., Thursday, June 13.

### Third Meeting—Thursday Afternoon, June 13

The House of Delegates was called to order at 1 p. m. by the Speaker, Dr. F. C. Warnshuis.

#### Report of the Reference Committee on Credentials

Dr. J. D. Brook, Chairman, reported that Dr. E. H. Skinner, Missouri, alternate delegate for Dr. W. H. Breuer, who could not attend the session, did not have his credentials, which were being sent by air mail, but was vouched for by officers of the Missouri State Medical Association. Dr. Brook moved that Dr. E. H. Skinner be seated as a delegate from Missouri, and the motion was seconded by Dr. William H. Seemann, Louisiana and carried. He stated that 164 delegates had now been seated, and on behalf of the reference committee he thanked the delegates for the promptness with which they registered.

#### Roll Call

Dr. Olin West, Secretary, called the roll and announced that more than a quorum of the House had responded.

#### Presentation of Minutes

It was moved by Dr. J. H. Cannon, South Carolina, seconded by Dr. John Z. Brown Sr., Utah, and carried, that the Secretary be authorized to edit the minutes and publish them in THE JOURNAL.

#### Report of Reference Committee on Legislation and Public Relations

Dr. C. E. Mongan, Chairman, presented the following report:

1 With reference to the resolution offered by Dr. John F. Hagerty, on behalf of the Medical Society of the State of New Jersey, relative to S. 5, the Federal Food, Drug and Cosmetic Bill now pending in Congress, and to the enforcement of the present Federal Food and Drug Act, your committee is informed that the subject matter of this resolution has been and is under consideration by the Board of Trustees.

Your committee recommends, therefore, that this resolution be referred to the Board of Trustees.

2 With reference to the resolution offered by Dr. John F. Hagerty on behalf of the Medical Society of the state of New Jersey, relative to advertising, your committee recognizes the danger inherent in the advertising of drugs and drug products to the laity. It sees difficulty, however, in the way of compliance with the request for the refusal by the American Medical Association and its constituent state associations of all advertising whatsoever offered for publication in the journals controlled by them by pharmaceutical houses that offend against this principle.

The committee recommends that this matter be referred to the Board of Trustees for appropriate action.

3 In reference to the resolution presented by the Section on Laryngology, Otology and Rhinology, through Dr. Burt R. Shurly, your committee calls attention to the fact that the House of Delegates in 1925 and in 1930 approved certain standards of physical fitness for operators of motor vehicles, including visual, auditory and mental standards, and authorized the appointment of a committee to study the subject. It authorized also efforts to educate the public with respect to the dangers of the situation and the promotion of legislation to mitigate such dangers.

Your committee recommends that the House of Delegates reaffirm the action taken by it on this subject in 1925 and in 1930.

4 In reference to the resolution offered by Dr. J. M. Birnie on behalf of the Massachusetts Medical Society, relative to the continuation of the so called Dick scarlet fever patent and the control of this patent by the Scarlet Fever Commission, your committee reports that within the time at its disposal the assembling of evidence necessary to render judgment with respect to this matter has been impossible.

The committee recommends that the resolution be referred to the Board of Trustees.

5 In regard to the resolution of Dr. J. Richard Kevin, New York, relative to blood grouping tests, your committee finds that two practical problems are involved. First, the amending

of statutes so as to authorize courts to order individuals to submit to blood grouping tests when they are required, second, the taking of such action as may be necessary to acquaint the proper authorities in the legal profession with the existence and reliability of blood grouping tests. Your committee is of the opinion that the question of the advisability of the enactment of statutes authorizing courts to compel individuals to submit to blood grouping tests is one of law rather than of medicine, and that the House of Delegates should take no action with respect to it. With respect to the advisability of action for the purpose of acquainting proper authorities in the legal profession with the existence and reliability of blood grouping tests, your committee recommends reference to the Council on Scientific Assembly for study and report. The matter of blood grouping tests is highly technical and is one on which the membership of the House, unadvised by the Council on Scientific Assembly, should hardly be asked to express an opinion at the present time.

6 In reference to the Supplementary Report of the Board of Trustees in regard to the commercial use of the word "doctor" your committee, while condemning the use of the term "doctor" for commercial purposes, and particularly its fraudulent use for such purposes, recommends that the correction of the evil be left to action under the several state laws concerning advertising and to action before the Federal Trade Commission.

7 Your committee heartily endorses the spirit of the resolutions offered by the Medical Society of the State of New York in regard to restoring and maintaining Reserve Officers Training Camp Units in medical schools, and urges the reestablishment and maintenance of facilities for preliminary military training of medical officers in anticipation of need.

It recommends that a copy of these resolutions be sent to the President, to the Secretary of War, to the Surgeon General of the Army, and to the chairmen of the committees of the Senate and House of Representatives on Military Affairs and Appropriations.

8 In reference to the Supplementary Report of the Board of Trustees, concerning immigrant physicians a careful study of the records of the United States Bureau of Immigration fails to disclose any tendency toward an increase in the number of such physicians entering the United States, in fact, there seems to be rather a tendency toward a decrease. Moreover, immigrant physicians are not exempted from the provisions of the law allotting quotas of immigrants from the several nations of the world as was stated in the resolution adopted at the February session of the House of Delegates. They are exempted from the requirements of the Contract Labor Law prohibiting the entrance of immigrants generally who enter the United States under prearranged contracts. But no evidence has been found to show that any considerable number of immigrant physicians enter by reason of that exception. For these reasons, your committee recommends that action with respect to the resolution adopted at the Special Session in Chicago in February be held in abeyance until such time as the Board of Trustees finds evidence that will justify the enactment of legislation looking toward the exclusion of such physicians. No immigrant physician should be licensed in the United States under conditions less rigorous than those imposed on citizens of our own country.

Respectfully submitted

CHARLES E. MONGAN, Chairman  
EDWARD M. PALLETTE.  
E. G. WOOD  
JOHN Z. BROWN SR.  
SAMUEL P. MENGEL

On motion of Dr. Mongan, duly seconded and carried, the report of the Reference Committee on Legislation and Public Relations was adopted section by section and as a whole.

#### Report of Judicial Council

Dr. George Edward Follansbee, Chairman, stated that the Judicial Council felt that the recommendation presented by the Chairman of the Reference Committee on Amendments to the Constitution and By-Laws did not fully cover the situation which that committee was trying to correct. He suggested that he be permitted to present a substitute resolution for the recom-

mendation of the reference committee. On motion, duly seconded by Dr. Arthur T. McCormack, Kentucky, and carried, his suggestion was adopted.

Dr. Follansbee then stated that the report of the Reference Committee on Amendments to the Constitution and By-Laws did not cover the situation so as to make it necessary that each member of a constituent association be a member of a component society in that constituent association, and for that reason it did not fully correct the abuses which the Judicial Council brought up in its report. He added that the Judicial Council has therefore prepared the following resolution, which it hopes that the House will adopt in place of the recommendation offered by the Reference Committee on Amendments to the Constitution and By-Laws.

WHEREAS It is the intention that membership in this Association shall be based on membership in the component societies of constituent associations and

WHEREAS Some constituent associations admit to membership others than members of their component societies thus favoring a small number be it

Resolved That in order to equalize the privileges and duties of all members of the American Medical Association and in order to attain a fair distribution of delegates in this House based on the number of members of component societies forming each constituent association the first sentence of section 1 of chapter XI of the By-Laws be amended to read Membership in this Association shall continue only so long as the individual is a member of a component society of the constituent association through which he holds membership.

It was moved that the report of the Judicial Council be adopted. The motion was seconded by Dr. R. W. Fouts, Nebraska, and carried, after discussion by Dr. Arthur J. Bedell, New York, Dr. William D. Chapman, Illinois, Dr. Olin West, Secretary, and Dr. Follansbee.

It was moved that the first sentence of section 1, chapter XI, of the By-Laws be amended to read "Membership in this Association shall continue only so long as the individual is a member of a component society of the constituent association through which he holds membership." The motion was seconded by Dr. Arthur T. McCormack, Kentucky, and carried.

#### Report of the Reference Committee on Reports of Board of Trustees and Secretary

Dr. H. H. Shoulders, Chairman, presented the following report:

Your committee has considered the statement on integration of the medical profession. At its request, Dr. W. C. Woodward appeared before the committee to furnish such information as he has compiled on the subject.

Your committee developed the following facts. The "integration" of the medical profession implies the organization by statute of all licensed practitioners of medicine within a state into a public corporation, authorized by law to determine the professional fitness of persons seeking admission into the profession in that state and to supervise and regulate the professional activities of every member of it. The corporation would determine who is and who is not eligible for admission into the profession. It would supervise the conduct of every member after he has been admitted, reprimanding, suspending and removing members as circumstances dictate. A member expelled from the corporation would thereby cease to be authorized to practice medicine in the state. The corporation would take over the function of medical examining, licensing and supervising boards, the board of directors elected by the profession functioning as a board of examination and licensure.

If there were an integrated medical profession, every licensed practitioner of medicine in the state would be authorized after its initial organization under the statute creating it to vote for the directors of the corporation. Voting would probably be by districts, so that every part of the state would be represented in the management. The expenses of the corporation would be paid by assessments levied on its members by the directors.

An integrated profession is supposed by some to be better able, by reason of the democratic nature of its organization, to exercise control over the ethical and professional qualifications and conduct of the members of that profession. If the medical profession should be integrated, however, independently of the joint integration with it of osteopaths, chiropractors, naturopaths, and other cultists, the public would lose a good deal of

the benefit of integration for it is those cult groups that particularly need such supervision and control as integration implies. On the other hand, if all practitioners of the healing art were integrated into a single corporation, the votes of the osteopathic, chiropractic, naturopathic and similar groups would endanger the standards of the medical profession, and conceivably, by a combination of members of those cults, control might pass from the medical profession.

The disadvantage of integration lies in the fact that the average member of the corporation would be less likely to have a professional interest in its ethical, social and scientific activities than does the average member of such voluntary organizations as exist today. Being forced into the organization without any desire on his part and without his consent he would lack *esprit de corps*, and the poorly qualified, uninterested and unambitious member might well tend to degrade the standards of the whole group. There is no reason, however, why a medical profession integrated along the lines outlined, for purposes of ethical and professional control, should not be supplemented by private organizations devoting themselves to the protection and advancement of the science and art of healing in all its aspects.

Your committee is impressed with the possibilities for good in such a form of organization. It feels, however, that its information on the subject is not sufficient to warrant the formation of a definite policy on the subject by the House of Delegates at this time.

Your committee therefore recommends that the matter be referred to the Board of Trustees with the recommendation that the Board give careful study to the subject through the proper officers and bureaus of the Association, and that information thus gained be furnished to the various state associations by means of bulletins and communications from time to time. Your committee recommends further that the Board of Trustees make recommendations to the House at its next regular session concerning a policy on the subject.

Respectfully submitted

H. H. SHOULDERS, Chairman  
BRIEN T. KING  
HENRY C. MACATEE  
E. F. CODY  
FRED MOORE.

On motion of Dr. Shoulders, seconded by Dr. Leonce J. Kosminsky, Arkansas, and carried, the report of the reference committee was adopted.

#### Resolutions Opposing Acceptance of Commissions and Limiting Use of Audiometers, from Section on Laryngology, Otology and Rhinology

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolutions unanimously adopted by that section:

WHEREAS Certain agents and distributors of electric hearing devices have offered to physicians a commission or bonus for referring to them hard of hearing persons to whom they effect a sale, therefore be it

Resolved By the Section on Laryngology, Otology and Rhinology of the American Medical Association that it condemns as unethical and unfair to the purchaser the practice on the part of any agent or distributor of a hearing device who offers to pay to a physician or any one not an authorized agent any commission or bonus for referring a person to whom he makes a successful sale. The acceptance of such commission by a physician is interpreted as a violation of the principles of ethical practice and be it further

Resolved That it is the sense of this section that the use of audiometers in the hands of persons other than regularly qualified physicians be restricted to the measuring of hearing acuity for the purpose of detecting hearing loss and for selecting or constructing hearing aids best suited to the special needs of the individual hard of hearing person.

Dr. Shurly moved the adoption of the resolutions, and the motion was seconded by Dr. Ralph A. Fenton, Oregon, and discussed by Drs. G. Henry Mundt, Illinois, Dr. Austin A. Hayden, Trustee, and Dr. Shurly.

On motion of Dr. Arthur T. McCormack, Kentucky, seconded by Dr. Henry W. Meyerding, Section on Orthopedic Surgery, and carried, the resolutions were referred to the Judicial Council, with the request that that Council prepare and present to the profession an interpretation in consonance with the Principles of Medical Ethics.

#### Resolutions on Teaching and Consultation, from the Section on Ophthalmology

Dr. Emory Hill, Section on Ophthalmology, presented the following resolutions which were adopted on motion of Dr. Hill, seconded by Dr. Arthur J. Bedell, New York, and carried.

WHEREAS There have been many complaints regarding the action of some ophthalmologists in giving lectures to and consulting with opticians and optometrists and

WHEREAS It is universally conceded that to care for the diseases and conditions of the human eye demands the unusual knowledge of a graduate physician who has been especially prepared and

WHEREAS The eye is an integral part of the body, and

WHEREAS No one but a physician so trained should be permitted to diagnose, treat or prescribe for eye conditions and

WHEREAS Lecture address or any other form of instruction to opticians and optometrists by ophthalmologists is not only a breach of the Principles of Medical Ethics which control our professional relationships, but is also to the detriment of the ocular health of the public by giving it a false sense of security and

WHEREAS General health and ocular comfort depend on the best medical care, therefore be it

Resolved That the Section on Ophthalmology of the American Medical Association declares that it is unethical for any member of the American Medical Association to give lectures or courses of instruction to or consult with any one not associated with the actual medical service and be it further

Resolved That the House of Delegates of the American Medical Association be asked to make a ruling to this effect.

Respectfully submitted

SECTION ON OPHTHALMOLOGY,  
ARTHUR J. BEDELL, Chairman.  
PARKER HEATH, Secretary.

#### Nomination for Honorary Fellowship

Dr. Emory Hill, Section on Ophthalmology, presented the following nomination of Mr. Leslie Paton, London, England, for Honorary Fellowship, which was referred to the Council on Scientific Assembly.

Mr. Speaker and Members of the House of Delegates:

The Section on Ophthalmology respectfully requests that Mr. Leslie Paton, M.A., B.Ch., M.B., F.R.C.S., of London, England, be made an Honorary Fellow of the American Medical Association.

Mr. Paton is a member of the Royal Academy, fellow and vice president of the Royal Society of Medicine, past president of the Section on Neurology, Royal Society of Medicine, past president of the Ophthalmological Society of the United Kingdom, member of the Ophthalmologische Gesellschaft, Heidelberg, honorary member of the Société française d'ophtalmologie, Sociedad oftalmológica hispano-americana, International Ophthalmic Council and the Japanese and Hungarian ophthalmologic societies. He is the author of many articles and an authority in ophthalmology and neurology.

This request is endorsed by the Section on Ophthalmology.

ARTHUR J. BEDELL, Chairman  
PARKER HEATH, Secretary

#### Executive Session, Thursday Afternoon, June 13

On motion of Dr. Arthur J. Bedell, New York, seconded by Dr. H. B. Everett, Tennessee, and carried, the House went into executive session at 2 10 p.m.

#### Report of Reference Committee on Medical Economics

Dr. W. F. Braasch, Chairman, presented the following report.

On reviewing the special report issued by the Bureau of Medical Economics presented at the Executive Session of the House of Delegates on Tuesday afternoon, your committee is first impressed with its excellence and completeness. In consideration of the details of this report, your committee desires to call your attention to that part of the report on pages 20 to 23 inclusive which deals with the dangers inherent in any plan for distribution of medical care other than the present plan. Specifically, these dangers are listed under violations of medical ethics, methods of collection of payment for medical care, inflexibility of plans, and violations of ethics by groups. Your careful perusal of these pages is recommended.

Your further attention is directed to any conflict that might arise as a result of nonobservation of the ten principles laid down at the Cleveland session in 1934 and reaffirmed at the Special Session of the House of Delegates in February 1935 in Chicago, which are principles of a positive nature. These warnings may seem superfluous but we must remember that we are embarking on uncharted seas and it behooves us to proceed cautiously. Your committee suggests the insertion of the following statement just prior to the subheading 'Good Plans Subject to Imitations' on page 24:

In designing and operating plans to provide medical care for the indigent and low income groups, county medical societies may well consider the dangerous destructive and unethical tendencies which even the most carefully conceived and constructed plan may assume. Some of these may follow an incomplete or inaccurate preliminary estimate of the medical situation; some may result from the unpredictable factor of human nature; others may follow as the natural outcome of changes in the general economic conditions entirely beyond the control of the medical profession. Regardless of the causative factors which may vary in different communities, county medical societies must be prepared to recognize and deal with complications affecting the organization of medical care under the specifications of a county plan just as their members are trained to deal with complications which often occur to change the course of the diseases which they treat. Some of these dangers and complications are:

- 1 The adoption and operation of a medical plan where it is unnecessary
- 2 The stimulus aroused by good plans among irresponsible organizers to develop and operate imitations and counterfeits
- 3 The establishment in medical practice of dangerous patterns following the adoption of undesirable types of plans
- 4 The compromise of medical societies in the corporate practice of medicine or in the operation of insurance companies as a result of an insufficient study of state statutes and case law
- 5 Failure in the operation of a plan to conform to the Principles of Medical Ethics
- 6 The almost inevitable transition of voluntary insurance plans into compulsory contributory sickness insurance systems operated by the state
- 7 The difficulties involved in or the failure adequately to provide for complete control of medical affairs by the medical profession
- 8 The freezing of medical fees at a point below that which is consistent with good medical service
- 9 Failure to bear constantly in mind that a medical society plan is an experiment in the methods of distributing medical service and that it may have only a temporary usefulness; may need frequent or drastic modifications or may need to be discarded entirely
- 10 Medical society plans must not be considered or accepted as a substitute for the regular practice of medicine as applied to the majority of people. If it is believed such plans may be useful they should be considered merely as supplementary facilities in the distribution of medical service. They should be used only so long and in such a manner as they serve efficiently to make more easily available to low income groups a high quality of medical care.

On page 16 of the report, your committee recommends that the sentence "Except for the indigent, the provision for medical service in minor illnesses is seldom an important problem" be changed to read "Except for the indigent, the provision for medical service in minor illnesses is seldom an important economic problem."

Your committee recommends a modification of the statement on the bottom of page 16: "Economic complexities make it impossible for the modern physician to have such detailed individual knowledge. Accurate appraisal now requires expert specialized work too extensive to be undertaken by the physician himself." Your committee believes that the family doctor often knows as much about the economic status of his patient as do social service workers. Although the periodic investigation by the trained social worker has a definite place, such social investigation should not supplant the knowledge acquired by the family physician in his intimate contacts.

Your committee believes that the first paragraph of the quoted section on page 17 referring to experiments conducted in Oakland County, Mich., be deleted and that the quotation be followed by the following paragraph: "Social service work as applied to medical service should always be guided by medical opinion."

A paragraph on page 26 of the special report reads: "Regardless of whether or not a plan to make medical services more easily available in a community is thought advisable it is to be hoped that the medical profession will never surrender or renounce that age-old privilege of relieving the suffering of those who are unable to pay." Your committee suggests that this paragraph be changed to read: "Regardless of whether

or not a plan to make medical service more easily available in a community is thought advisable, it is believed that the medical profession will never surrender or renounce that age-old privilege of relieving the suffering of those who are unable to pay."

Your committee suggests that the contemplation of medical society plans should be a joint responsibility of state and county medical societies, and that county medical societies should confer with the officers of their respective state associations relative to principles and procedures in order that the necessity for and nature of medical service plans be properly safeguarded.

Your committee would recommend that adequate provision be made for the continuance and expansion of the most important work of the Bureau of Medical Economics.

Your committee would recommend that this report be made available to the state organizations for distribution by their officers to every component member with the feeling that it is highly desirable that the information in this report be read by every physician.

Your committee wishes again to commend the Bureau of Medical Economics for the excellent special report which it has made and also wishes to commend the Board of Trustees on the complete cooperation that that Board has at all times given to the Director of the Bureau of Medical Economics.

Respectfully submitted

W F BRAASCH, Chairman  
CHARLES J WHALEN  
FRED B CLARKE  
GUY W WELLS  
H A. LUCE.

On motion of Dr. Braasch, duly seconded and carried, the report was adopted by sections and as a whole.

It was moved by Dr. Arthur J. Bedell, New York, seconded by Dr. William H. Mayer, Pennsylvania, and carried, that a few paragraphs indicating the general trend of the action of the House be prepared for release to the press and that the complete report be not released until it has been modified according to the recommendations of the Reference Committee on Medical Economics.

#### Conference with Leaders of American College of Surgeons

Dr. E. H. Cary, Texas, and Dr. James S. McLester, President, addressed the House on their impressions gained from a conference with leaders of the American College of Surgeons who agreed with the action of the House of Delegates of the American Medical Association taken at its session held in Chicago in February 1935.

The House arose from Executive Session on motion of Dr. James F. Rooney, New York, seconded by Dr. J. H. Cannon, South Carolina, and carried.

Dr. Olin West, Secretary, on request of the Speaker, read section 1, chapter IV, of the By-Laws referring to nominations.

#### ELECTION OF OFFICERS

##### Election of President-Elect

Dr. J. C. Whalen, Illinois, nominated for President-Elect Dr. Charles E. Humiston, Chicago.

Dr. Brien T. King, Washington, nominated Dr. J. Tate Mason, Seattle.

Dr. William H. Mayer, Pennsylvania, nominated Dr. J. Norman Henry, Philadelphia.

Dr. Emory Hill, Section on Ophthalmology, nominated Dr. Harvey Cushing, New Haven, Conn.

The speaker declared the nominations closed and appointed as tellers Drs. G. Henry Mundt, Illinois, J. R. McVay, Missouri, James Q. Graves, Louisiana, Vernon L. Treynor, Iowa, and C. W. Roberts, Georgia.

The Secretary announced that 158 delegates had been recorded as present and that 155 votes had been cast, of which Dr. Charles E. Humiston received 40, Dr. J. Tate Mason, 64, Dr. J. Norman Henry, 22, and Dr. Harvey Cushing, 29.

The Speaker announced that as no candidate had received a majority vote, a second ballot would be taken, eliminating the name of the one having received the least number of votes.

The Secretary announced that 158 delegates had recorded their presence and that 152 votes had been cast, of which Dr Charles E Humiston received 34, Dr J Tate Mason, 87, and Dr Harvey Cushing, 31

The Speaker declared Dr J Tate Mason, having received the majority of the votes cast, elected President-Elect of the American Medical Association

#### Election of Vice President

Dr J H Cannon, South Carolina, nominated for Vice President Dr Kenneth M Lynch, Charleston, S C, and the nomination was seconded by Dr Walter E. Vest, West Virginia

Dr William H Mayer, Pennsylvania, moved that the nominations be closed, and the motion was seconded by Dr Arthur J Bedell, New York, and carried

On motion of Dr Arthur C Morgan, Pennsylvania, seconded by Dr William H Myers, Georgia, and carried, the Secretary cast the ballot of the House for Dr Kenneth M Lynch as Vice President for the ensuing year, and the Speaker declared Dr Lynch elected Vice President

#### Election of Secretary

Dr Orrin S Wightman, New York, nominated Dr Olin West, Chicago, to succeed himself as Secretary of the American Medical Association On motion of Dr A A Walker, Alabama, seconded by several and carried unanimously, the nominations were closed

On motion of Dr A A Walker, Alabama, seconded by Dr Horace Reed, Oklahoma, and carried, the Speaker cast the ballot of the House for Dr Olin West as Secretary of the American Medical Association and declared Dr West elected Secretary for the ensuing year

#### Election of Treasurer

Dr J H J Upham, Chairman of the Board of Trustees, nominated for the office of Treasurer Dr Herman L Kretschmer, Chicago The nomination was seconded by Dr W F Braasch, Minnesota Dr Arthur T McCormack, Kentucky, moved that the nominations be closed, and the motion was seconded by Dr Joseph F Smith, Wisconsin, and carried

Dr B F Bailey, Nebraska, moved that the Secretary be instructed to cast the ballot of the House of Delegates for Dr Herman L Kretschmer, Chicago, as Treasurer The motion was seconded by Dr J H Cannon, South Carolina, and carried, and the Secretary cast the vote of the House for Dr Herman L Kretschmer, Chicago, as Treasurer of the Association for the ensuing year and the Speaker declared Dr Kretschmer so elected.

#### Election of Speaker of the House of Delegates

Dr James S McLester, President, took the chair and announced that the next order of business was the election of a Speaker of the House of Delegates

Dr James F Rooney, New York, nominated for Speaker of the House of Delegates Dr Nathan B Van Etten, New York.

Dr T Henshaw Kelly, California, nominated Dr F C Warnshuis, San Francisco, and the nomination was seconded by Dr B F Bailey, Nebraska

On motion of Dr J D Brook, Michigan, seconded by Dr Walter F Donaldson, Pennsylvania, and carried, the nominations were closed and the tellers spread the ballot

The Secretary announced that 159 delegates had been recorded as present and that 151 votes had been cast, of which Dr Nathan B Van Etten received 80 and Dr F C. Warnshuis 71

The President declared Dr Nathan B Van Etten, New York, elected Speaker of the House of Delegates for the ensuing year

#### Election of Vice Speaker of the House of Delegates

The Speaker, Dr F C Warnshuis, resumed the chair and after presenting Dr Nathan B Van Etten, the newly elected Speaker, declared that nominations were in order for Vice Speaker of the House.

Dr B F Bailey, Nebraska nominated for Vice Speaker Dr R. W Fouts, Omaha

Dr H B Everett, Tennessee, nominated Dr H H Shoulders, Nashville, Tenn

The Speaker declared the nominations closed and requested the tellers to spread the ballot

The Secretary announced that 159 delegates had recorded their presence and that 143 votes had been cast, of which Dr R W Fouts had received 54 and Dr H H Shoulders 89

The Speaker declared Dr H H Shoulders, Nashville, Tenn, elected Vice Speaker of the House of Delegates of the American Medical Association, as he had received the majority of the votes cast

#### Address of President-Elect J Tate Mason

Gentlemen of the House, I want to thank you from the bottom of my heart for the honor that you have bestowed on me, and I hope that I shall be worthy, I shall try to be worthy throughout my régime

As I came up the steps with the men from my state I could not help remembering that forty-two years ago this month my father an old country practitioner of Virginia, brought me to Atlantic City, and on the sands here close to this hotel told me something of the ethics and the principles of ethics of medicine I want you gentlemen to know that I think that those principles have changed none up to date I know that in these changing times when some of our men have been somewhat apprehensive and some have been restless, if those men will just look over the last fifty years of the service that the physicians of America have given to this country they cannot be but satisfied I feel that probably the only thing that we need to push forward at the present time is to know how to teach these men what has gone on before and to have more cooperation probably among ourselves than we have had in the past

#### Election of Trustees

The Speaker declared the next order of business to be the election of a trustee for a term of five years to succeed Dr Joseph A Pettit, Portland, Ore, whose term expired this year and who, according to the By-Laws, was not eligible for reelection

Dr William R. Molony Sr, California, nominated Dr George H Kress, Los Angeles

Dr Burt R. Shurly, Section on Laryngology Otology and Rhinology, nominated Dr Ralph A Fenton, Portland Ore

Dr Bundy Allen, Florida, nominated Dr Albert Soiland, Los Angeles

As there were no other nominations, the Speaker declared the nominations closed and asked the tellers to spread the ballot.

The Secretary announced that 159 delegates had been recorded as present and that 141 votes had been cast, of which Dr George H Kress received 40, Dr Ralph A. Fenton 79 and Dr Albert Soiland 22

The Speaker declared Dr Ralph A Fenton, Portland, Ore., elected for a term of five years to succeed Dr Joseph A Pettit, since Dr Fenton had received the majority of the votes cast

The Speaker called for nominations for the office of trustee to be elected for a term of five years to succeed Dr J H J Upham, Columbus, Ohio, whose term expired this year and who, according to the By-Laws, was not eligible for reelection

Dr R L Sensenich, Indiana, nominated Dr F S Crockett, La Fayette, Ind

Dr Walter E Vest, West Virginia, nominated Dr James R Bloss, Huntington, W Va

Dr L J Hirschman, Michigan, nominated Dr Carl F Moll, Flint, Mich

The Speaker, hearing no other nominations, declared the nominations closed and asked that the ballots be prepared

The Secretary stated that 159 delegates had been recorded as present and that 142 votes had been cast, of which Dr F S Crockett received 33, Dr James R Bloss 64 and Dr C. F Moll 45

Since no one had received a majority of the votes cast, a second ballot was spread for the two candidates having received the greatest number of votes

The Secretary announced that 159 delegates had recorded their attendance and that 133 votes had been cast, of which Dr James R Bloss received 89, and Dr Carl F Moll 44

The Speaker declared Dr James R Bloss, Huntington, W Va, elected for a term of five years to succeed Dr J H J Upham, since Dr Bloss had received the majority of the votes cast

#### Nominations for Standing Committees

Dr James S McLester, President, presented the following nominations for standing committees

Judicial Council Dr George Edward Follansbee, Cleveland, to succeed himself for a term ending in 1940

Council on Medical Education and Hospitals Dr Reginald Fitz Boston, to succeed himself for a term ending in 1942

Council on Scientific Assembly Dr A A Walker, Birmingham, Ala, to succeed Dr Frank Smithies, for a term ending in 1940

On motion of Dr Arthur T McCormack, Kentucky seconded by Dr Burt R Shurly, Section on Laryngology, Otology and Rhinology, and carried, the House confirmed the nominations

#### Election of Honorary, Affiliate and Associate Fellows

##### APPLICANT FOR HONORARY FELLOWSHIP

On motion of Dr Arthur J Bedell, New York, seconded by Dr Burt R Shurly, Section on Laryngology Otology and Rhinology and carried, Mr Leslie Paton London, England whose nomination by the Section on Ophthalmology had been approved by the Council on Scientific Assembly, was elected to Honorary Fellowship

##### APPLICANTS FOR AFFILIATE FELLOWSHIP APPROVED BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

Barton A A Plains Pa  
Brainard B F Martin City Mo  
Fischer Louis New York  
Gamble William E Los Angeles  
Harrington Arthur H Providence R I  
Hawley C W Chicago  
Herz Karl Chicago  
Jepson William Sioux City Iowa  
Marvel Philip Atlantic City, N J  
Raymond Charles N Providence R I  
Roskoten O J Peoria Ill  
Shoemaker William A St Louis Mo  
Sturtevant James S Dixfield Maine  
Worthington George B San Diego Calif

##### APPLICANT FOR ASSOCIATE FELLOWSHIP FROM AMERICAN MEDICAL MISSIONARY APPROVED BY THE JUDICIAL COUNCIL

Gentry W Max Chungking West China

##### APPLICANTS FOR ASSOCIATE FELLOWSHIP NOMINATED BY THE SECTIONS INDICATED

##### PRACTICE OF MEDICINE

Schwittalla, Alphonse M, St Louis

##### LARYNGOLOGY OTOTOLOGY AND RHINOLOGY

Goodfriend David J Philadelphia  
Koenig Oscar Newark N J

##### PHARMACOLOGY AND THERAPEUTICS

MacTavish William C New York.  
Muehlberger Clarence W Chicago  
Severac Marie Philadelphia

##### PATHOLOGY AND PHYSIOLOGY

Cannon Paul R Chicago  
Day Paul L Little Rock Ark  
Hartman Frank A Columbus Ohio  
Woglom William H New York.

##### NERVOUS AND MENTAL DISEASES

Hincks C M New York  
Spiegel Ernest A Philadelphia

##### PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Heiser Victor G New York.  
Kitchen, Stuart F Tallahassee Fla

On motion of Dr James F Rooney, New York, seconded by Dr C W Roberts, Georgia, and carried, the applicants for Affiliate and Associate Fellowship were elected as Affiliate or Associate Fellows as indicated

#### Place of 1936 Annual Session

The Speaker announced that the next order of business was the selection of the place of the 1936 annual session and called on the Board of Trustees for nominations

Dr J H J Upham, chairman of the Board of Trustees, presented the following report

Mr Speaker and Members of the House The Board of Trustees reports that invitations have been received from

Indianapolis, Miami, Fla, Chicago, and Kansas City, Mo Representatives of the Board of Trustees have investigated the facilities of the cities from which invitations have been received, and the Board reports that Kansas City, Mo., and Chicago have adequate facilities for taking care of the annual session

Dr J R McVay, Missouri, extended an invitation from the medical profession of Missouri and Kansas to have the American Medical Association meet in Kansas City, Mo, in 1936 The nomination of Kansas City was seconded by several

Dr Isaac A Abt, Section on Pediatrics, extended an invitation from the medical profession of Chicago to have the Association meet in that city in 1936

The Speaker requested that the ballot be spread, and the Secretary announced that 159 delegates had been recorded as present and that 126 votes had been cast, of which Chicago received 13 and Kansas City, Mo, 113

The Speaker declared that the House of Delegates had selected Kansas City, Mo, for its 1936 session

#### Vote of Appreciation

Dr J Newton Hunsberger, Pennsylvania, moved that the House of Delegates extend a vote of appreciation to all those who had been concerned with the Atlantic City session and who had made the stay so pleasant and profitable The motion was seconded by Dr E G Wood, Tennessee, and carried unanimously

The House of Delegates adjourned sine die at 4 45 p m

(To be continued)

#### REGISTRATION AT ATLANTIC CITY

The total registration at the Atlantic City session was 8,469 Below are given two summaries—one by sections and one by states

##### Registration by Sections

Practice of Medicine	2 592
Surgery General and Abdominal	1 144
Obstetrics Gynecology and Abdominal Surgery	600
Ophthalmology	445
Laryngology Otology and Rhinology	355
Pediatrics	523
Pharmacology and Therapeutics	50
Pathology and Physiology	246
Nervous and Mental Diseases	232
Dermatology and Syphilology	245
Preventive and Industrial Medicine and Public Health	256
Urology	285
Orthopedic Surgery	241
Gastro-Enterology and Proctology	297
Radiology	369
Miscellaneous Topics	
Session on Anesthesia	95
Session on History of Medicine	4
Session on Military Medicine	24
Two or more sections or no section marked	466
Total	8 469

##### Registration by States

Alabama	63	New Hampshire	8
Arizona	12	New Jersey	1 005
Arkansas	14	New Mexico	5
California	111	New York	1 462
Colorado	38	North Carolina	103
Connecticut	168	North Dakota	11
Delaware	64	Ohio	366
District of Columbia	196	Oklahoma	32
Florida	67	Oregon	13
Georgia	70	Pennsylvania	2 069
Idaho	2	Rhode Island	39
Illinois	324	South Carolina	53
Indiana	122	South Dakota	8
Iowa	58	Tennessee	74
Kansas	22	Texas	79
Kentucky	57	Utah	11
Louisiana	34	Vermont	13
Maine	9	Virginia	177
Maryland	246	Washington	12
Massachusetts	269	West Virginia	85
Michigan	223	Wisconsin	84
Minnesota	78	Wyoming	5
Mississippi	10		303
Missouri	96	Miscellaneous	60
Montana	9		
Nebraska	30	Total	8 469

## Association News

### THE ATLANTIC CITY SESSION

#### Report of the Golf Tournament

One hundred and thirty-two medical golfers from the United States and Canada played the interesting and baffling Northfield Country Club course in Atlantic City on the occasion of the twenty-first annual tournament of the American Medical Golfing Association. Rain postponed play in the tournament from Monday to Tuesday, June 11, when the contestants teed off from 7:30 a. m. to 3 p. m. Thirty-six holes were played by most of the entrants, but about twenty were satisfied with eighteen holes and entered the events limited to that play. Sixty trophies and prizes were awarded after the dinner, which was presided over by Dr. Charles Lukens of Toledo, Ohio. Dr. Walt P. Conaway, chairman of the Atlantic City Golf Committee, made the presentations.

#### CHAMPIONSHIP WON BY DR. L. C. FOSTER OF NEW HAVEN

The championship was won by Dr. L. C. Foster of New Haven, Conn., who turned in a score of 80-79—159 for thirty-six holes. He received the famous Will Walter Trophy. The Handicap Championship was won by Dr. W. H. Taylor of Greensburg, Pa., who bagged the Detroit Trophy. The Eighteen Hole Championship went to Dr. L. W. Pumphrey of Pittsburgh, who took home the Golden State Trophy. Second prize in this event went to Dr. E. G. Brittain of Bound Brook, N. J. Third prize to Dr. W. T. Lemmon of Philadelphia and fourth prize to Dr. D. M. Houston of Seattle. The Eighteen Hole Handicap Championship was awarded to Dr. D. Ray Murdock of Greensburg, Pa., who won the Ben Thomas Trophy. Second prize went to Dr. Jacob Manting of Detroit.

#### DRS. CULLOM AND CROSKY ARE WINNERS

The Maturity Event, limited to Fellows over 60 years of age, for the best eighteen holes net, was won by Dr. M. M. Cullom of Nashville, Tenn. He received the Minneapolis Trophy. Second prize went to Dr. George Hall, Chicago, and third prize to Dr. H. V. Hubbard of Philadelphia. Dr. John Welsh Croskey of Philadelphia won the Old Guard Championship, awarded to past presidents of the A. M. G. A. Dr. Croskey carded a sterling 71 net for eighteen holes and received the Wendell Phillips Trophy. Second prize was won by Dr. Will Walter of Charlottesville, Va., who organized the A. M. G. A. in 1915, and third prize by Dr. E. G. Zabriskie of New York.

#### FIVE FLIGHTS

The Championship Flight low gross was won by Dr. R. M. Harris of Miami, Fla., who gained the St. Louis Trophy. Other winners were Dr. J. J. Marek of Cleveland, Dr. R. C. Glenn of State College, Pa., and Dr. J. M. Dorsey of Rochester, Minn. The net prizes in this flight went to Dr. A. H. Weiland of Miami, who won the President's Trophy, presented by Dr. Charles Lukens. Dr. S. G. Pontius of Lancaster, Pa., won the second low net prize.

The First Flight gross winners were Dr. Roy E. Emanuel of Chickasha, Okla., Dr. W. C. Jones of Miami, Fla., and Dr. D. C. Brennan of Akron, Ohio. First prize among the nets was the Chairman's Trophy, presented by Dr. Walt P. Conaway and won by Dr. A. C. Smith of Wooster, Ohio. Second prize went to Dr. H. R. Mather of Latrobe, Pa., and third prize to Dr. W. B. Swartley of Philadelphia.

The Second Flight gross winners were Dr. C. P. Rutledge of Shreveport, La., Dr. O. E. Satter of Prairie du Chien, Wis., and Dr. Harry Mock of Chicago. Net prizes went to Dr. F. A. Carroll of Scranton, Pa., and Dr. J. E. Runnells of Scotch Plains, N. J.

The Third Flight gross winners were Dr. H. M. Schuffell of Canton, Ohio, Dr. S. B. Muncaster of Washington, D. C., and Dr. B. R. Almqvist of Pittsburgh. Net winners were Dr. W. Earl Clark of Washington, D. C., Dr. Anthony Bassler of New York, and Dr. John B. Morgan of Cleveland.

The Fourth Flight winners (net only) were Dr. J. S. Anderson of Greensburg, Pa., Dr. O. B. Snyder of Greensburg, Pa., Dr. O. A. Brines of Detroit, Dr. H. R. Miner of Falls City, Neb., Dr. H. N. Dorman of Washington, D. C., Dr. Joseph F. Hawkins of Providence, R. I., Dr. H. O. Barnes of Los Angeles and Dr. J. J. Waygood of Philadelphia.

The Kickers' Handicap was won by President Lukens of Toledo, Dr. G. G. Johnson of San Francisco, Dr. C. E. Moore of Harrisburg, Pa., Dr. J. W. Rae of Toledo, Ohio, Dr. W. H. McCombs of Pittsburgh, Dr. L. P. Sheedy of Pittsburgh, Dr. W. A. Cook of Tulsa, Okla., and Dr. W. L. Crawford of Rockford, Ill.

#### DR. W. E. GRAY WINS INTERNATIONAL EVENT

Dr. W. E. Gray of Milltown, New Brunswick, won the International Event and took home the beautiful trophy presented by Dr. Lukens, president of the A. M. G. A. The Ontario Event, symbolic of the Canadian Medical Association golf championship, was won by Dr. L. J. Austin of Kingston, Ont. Dr. F. E. Sinclair of Westminster, B. C., was second in this event.

Three special prizes were awarded. For the Fellow with twelve children, Dr. A. C. Smith was presented with an appropriate prize, the best dressed man, Dr. D. J. Leithauser of Detroit was well rewarded for his meticulousness, the most handsome man, Dr. John Pennington of Atlantic City, won the beauty award of the day.

#### ELECTION OF OFFICERS

Dr. M. M. Cullom of Nashville, Tenn., was chosen president of the A. M. G. A. for the ensuing year. Dr. W. Albert Cook of Tulsa, Okla. was elected first vice president, Dr. Walt P. Conaway of Atlantic City, N. J., second vice president. Dr. Lukens was made a member of the board of directors, composed of past presidents. The next tournament will be held in Kansas City at the time of the annual meeting.

### MEDICAL BROADCASTS

Network programs broadcast weekly over the National Broadcasting Company and the Columbia Broadcasting System have been discontinued for the summer. Notice of resumption will be published several weeks prior to the first of the new series of programs. It is probable that the radio broadcasts will be resumed about October 1.

## Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

### ALABAMA

**Bill Introduced**—H. 655 proposes to repeal the laws regulating the possession, sale or distribution of narcotic drugs and to enact what apparently is the uniform narcotic drug act.

### CALIFORNIA

**Assign Additional Inspectors to Spider Problem**—Fourteen new health inspectors were assigned to the Belvedere Gardens district of Los Angeles, June 19, to clean out the venomous black widow spider, which has infested the area. According to the *Chicago Tribune*, prevalence of the insect has been reported in other local areas.

### DISTRICT OF COLUMBIA

**Medical Bills in Congress**—*Bill Introduced* S. 3084, introduced by Senator Copeland, proposes to make it unlawful in the District of Columbia for any physician, dentist or veterinarian to compound, manufacture or dispense any chemical, drug or medicine, for use as a medicine, even for his own patient, unless he has been licensed by the board of pharmacy as a medical "dispenser," dental "dispenser" or veterinary "dispenser." Physicians, dentists and veterinarians who are eligible to practice their respective professions in the District of Columbia when the bill becomes effective and who have been accustomed to compound, manufacture and dispense drugs and medicines for use by their own patients may be licensed by the board of pharmacy without examination. The qualifications of all other physicians, dentists and veterinarians are to be determined by the board of pharmacy, consisting of five pharmacists. A physician, dentist or veterinarian must pay to the board of pharmacy at the time of



examination a fee of \$10. Every physician, dentist and veterinarian who is licensed, whether with or without examination, must pay the board a fee of \$3 when he is licensed and a like fee every three years thereafter. The board of pharmacy is to be authorized to suspend or revoke the license of any medical, dental or veterinary "dispenser" for causes stated in the act.

The bill contains provisions intended to regulate the sale of poisons, including barbitol and derivatives of barbituric acid. It proposes that no medicine of any kind shall be compounded, manufactured or dispensed, or sold or distributed at retail, by any person other than a registered pharmacist, except that medical, dental and veterinary "dispensers" licensed by the board of pharmacy are to be permitted to compound, manufacture and dispense drugs for the sole use of their respective patients.

The board of pharmacy, if this bill be enacted, is to take over the duties of the health department and the police department in the enforcement of laws enacted for the District of Columbia and pertaining to the practice of pharmacy, the manufacture, production, sale, distribution and standard of strength and purity of drugs, chemicals and poisons. Since this bill proposes to reenact provisions of the present law relating to the treatment of persons addicted to the use of cocaine, morphine, opium and chloral hydrate, the bill proposes in effect that the board of pharmacy shall have supervision and control of the treatment of such addicts.

### GEORGIA

**New Headquarters for State Association**—The Medical Association of Georgia moved, June 5, to new headquarters in the Atlanta Academy of Medicine and Dentistry. Until that time the association had held council meetings in the academy building.

**Dr Bunce Honored**—Dr Allen H Bunce, Atlanta, who has been secretary of his state association since 1920, was presented with a gold watch by the Medical Association of Georgia in recognition of his many years of service. Dr William R Dancy, Savannah, made the presentation on behalf of members of the association at a banquet of the Fulton County Medical Society. Dr Bunce has also been a member of the Board of Trustees of the American Medical Association for six years.

**Society News**—Speakers before the Eighth District Medical Society, April 9, included Drs Millard E Winchester, Brunswick, on "Use of Atabrine in Control of Malaria," and Marvin F Haygood, Atlanta, "Place of Surgery in the Treatment of Pulmonary Disease."—Dr Quinney A Mulkey, Millen, read a paper on "Relationship of the Doctors and Druggists" before the Burke-Jenkins-Screven Counties Medical Society at Millen, April 4.—Dr Cleveland Thompson, Millen, among others, addressed the Tattall County Medical Society in Reidsville, April 12, on "Peritonitis."—At a meeting of the Muscogee County Medical Society, April 11, Dr James H McDuffie Jr, Columbus, discussed fibroids complicating pregnancy.—Dr Cyrus W Strickler presented a paper before the Fulton County Medical Society in Atlanta, April 4, entitled "Forced Spinal Drainage in Epidemic Encephalitis."—At a meeting of the Atlanta Academy of Medicine, June 20, Dr Edgar Boling presented a paper on "Treatment of Septic Peritonitis."

### ILLINOIS

**Bill Introduced**—S 659, to amend the workmen's compensation act, proposes to make compensable occupational diseases arising out of any employment covered by the act.

**Bill Passed**—H 814 has passed the house, proposing to authorize the formation of corporations to operate nonprofit hospital service plans "whereby hospital service may be provided by the said corporation or hospital with which it has a contract for such care to those persons who become subscribers to said plan under a contract which entitles each subscriber to certain hospital care."

**Society News**—Dr Philip Lewin, Chicago, discussed arthritis before the Fulton County Medical Society, June 20.—At a meeting of the McHenry County Medical Society, June 20, Dr George de Tarnowsky, Chicago, spoke on the treatment of fractures.—Dr Leon Unger, Chicago, spoke on "Allergy, with Special Reference to Recent Advances in Hay Fever," before the Du Page County Medical Society, May 15.

### Chicago

**Hospital News**—The tenth anniversary of the Illinois Educational and Research Hospital, operated jointly by the state department of public welfare and the University of Illinois College of Medicine, was observed, June 6, the program included the unveiling of a fountain statue symbolizing the fight by science and medicine to protect humanity from disease. A. L. Bowen, Springfield, director, state department of public welfare made the principal address.

**Society News**—Dr Irving F Stein's presidential address before the Chicago Gynecological Society, June 7, was entitled "A Consideration of the Phenomenon of Ovulation and Its Relation to the Sex Cycle", Luther S H Gable, Ph D, discussed "Adventure with Radium"—Dr Thomas P Foley was chosen president-elect of the Chicago Medical Society at its annual meeting, June 19, and Dr Julius H Hess was installed as president. Dr Robert H Hayes was named secretary.

### INDIANA

**Society News**—The Third District Medical Society held its semiannual meeting in Corydon, May 10, to observe the founding of the Indiana State Medical Association one hundred and fifteen years ago. Speakers included Drs Charles Emery, Bedford, on burns, Donald L Colglazier, Salem, hematology in general practice, James O Ritchey, Indianapolis, pulmonary complications of influenza.—The Daviess Martin Counties Medical Society was addressed, May 28, by Dr Homer H Wheeler, Indianapolis, on "Carcinoma of the Rectum."—At a meeting of the St. Joseph County Medical Society in South Bend, May 8, Dr James H Stygall, Indianapolis, discussed "Differential Diagnosis of Chest Conditions." The society held its annual "doctors' party," May 22.—Dr Edward B Ruschli, Lafayette, spoke on fracture of the hip joint before the Fountain-Warren Counties Medical Society in Covington, June 6.—The Jefferson County Medical Society was addressed in Madison, May 27, by Dr John M Townsend, Louisville, Ky, on the "Irritable Female Bladder and Urethra." Dr Adolph B Loveman, Louisville, discussed diagnosis and treatment of the commoner skin conditions.—Dr Paul D Crimm, Evansville, was elected president of the Indiana Tuberculosis Association at its annual meeting in Indianapolis, April 16-17.

### IOWA

**A Death from Smallpox**—The state health department reports the death of a middle aged man from smallpox during the week ended June 15. The man lived in a rural area in Warren County and had never been successfully vaccinated against smallpox.

**Typhoid During 1934**—There were 285 cases of typhoid reported to the state department of health in 1934, with fifty-four deaths. Six typhoid carriers were discovered in the investigations. Excluding cases associated with milk-borne outbreaks, which occurred at Waterloo, Boone and Fontanelle during the year, there were 141 cases representing what is often designated "residual" or endemic typhoid, the state journal reports.

**Society News**—Dr Tobias L Burnberg, St Paul, discussed "Eczema in Children" before the Cerro Gordo County Medical Society in Mason City, April 9.—At a meeting of the Cherokee County Medical Society, April 16, Dr Lester J Spinharney, Cherokee, spoke on hydramnios.—A symposium on obstetrics was presented before the Harrison County Medical Society in Missouri Valley, April 3, by Drs Roy H Cutler, Little Sioux, and Charles S Kennedy, Logan.

### KANSAS

**Society News**—Dr Francis S Carey, Kansas City, presented a paper on "Common Complications Following Abdominal Operations and Their Treatment," at a recent meeting of the Wyandotte County Medical Society.

**State Practically Free from Bovine Tuberculosis**—The U S Department of Agriculture officially recognized Kansas as the nineteenth state practically free from bovine tuberculosis, May 1, thus establishing it as a modified accredited area, where tuberculosis among cattle has been reduced to less than 0.5 per cent. Other states are North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky, West Virginia, Washington, Illinois, Oregon, Virginia and Minnesota. The campaign to eradicate bovine tuberculosis is progressing rapidly in other states. During March, 2,690,074 cattle in about 250,000 herds were tested, more than in any previous month in the history of the work.

### MAINE

**Society News**—At a meeting of the Kennebec County Medical Association in Togus May 16, speakers included Drs Edward G Ahrens, "Recent Advances in the Treatment of Asthma", Hanson T Perkins, "Role of Electrocardiography in Modern Medicine", James K. Nealon, "Treatment of Pyelonephritis", Joseph E. Wheeler, "Treatment of Ununited Fractures of Long Bones," and Harry A Goalwin "Reconstructive

Surgery of the Eyelids and Lacrimal Passages"—Dr Seth M. Milliken, New York discussed "Triction in the Treatment of Fractures" before the Cumberland County Medical Society, April 25

## MARYLAND

**Resolution on Certified Milk.**—The following resolution was adopted, May 17, by the Medical Milk Commission of the Medical and Chirurgical Faculty of Maryland

That the requirements for the production of certified milk under the Medical Milk Commission of Maryland shall include the regulations governing the production and handling of selected raw milk required by the Baltimore City Health Department in addition to such regulations as are found in the methods and standards for the production of certified milk adopted by the American Association of Medical Milk Commissions or as established by the Maryland Medical Milk Commission

This action refers to the regulations governing the production and handling of selected raw milk adopted by the commissioner of health of Baltimore recently and assures a single standard of sanitary requirement for the certified milk on sale in Baltimore

**Appeal for Funds Successful.**—Two years of charity work at Johns Hopkins Hospital, Baltimore, have been assured as a result of its recent appeal for funds, the first in many years. The campaign opened at a banquet, April 23. Recent reports state that the goal of \$200,000 has been exceeded by \$26,241. The institution provides 36 per cent of all local charity hospitalization, it was stated. Funds obtained in the recent campaign will enable the hospital to continue this work for two years and to open beds now closed in the children's surgical ward and the women's clinic. The success of the campaign and the forty-sixth anniversary of the opening of the hospital were observed at a luncheon, May 9, at which Dr. Simon Flexner, New York, director of laboratories of the Rockefeller Institute for Medical Research, was the principal speaker

## MICHIGAN

**Dr. MacCraken Resigns as Dean.**—The resignation of Dr. Walter H. MacCraken as dean of Wayne University College of Medicine on account of ill health has been announced. He has held the position concurrently with his appointment as professor and head of the department of pharmacology and therapeutics since 1919. He will continue with the latter position. Aged 65, Dr. MacCraken is a graduate of the University of Louisville School of Medicine, class of 1903. Dr. William J. Stapleton Jr., Detroit, has been named assistant dean, it was stated. Wayne University College of Medicine was formerly known as Detroit College of Medicine

**A Medical Symphony Orchestra.**—The Wayne County Medical Society Symphony Orchestra will present its concerts next season at the Scottish Rite Cathedral of the Masonic Hall and the Art Institute. The orchestra has been rehearsing weekly, under the direction of Mr. Georges Miquelle. The personnel of the orchestra is

Violins: Drs. Raphael Altman, concert master; Jacob Agins, John D. Bryce, Charles R. Davis, Henry C. Galantowicz, Samuel D. Jacobson, Ezra Lipkin, D. Annessa Marcelli, Leon Rottenberg and Stephen S. Skrych.

Viola: Max Beitman  
Cello: Drs. Eugene A. Osius and William P. Woodworth  
Piano: Dr. Frank M. MacKenzie  
Saxophone: Dr. Edward W. Krass and Gerald Wilson Jr.  
Clarinet: Drs. George C. Burr and Roy D. Tupper  
Trumpet: Drs. Arthur E. Hammond and Gerald A. Wilson  
Paul Walker and Miss Phyllis Hyde  
Flute: Dr. George H. Palmerlee  
Trombone: Dr. Fred W. Hyde and Fred Hyde Jr.  
Percussionist: Harold C. Kahn, DDS

The society's glee club is made up of Mr. Arthur H. J. Searle, director, first tenors, Drs. Lloyd E. Crick, Edwin J. Hammer and Rudolph W. Lignell, second tenors, Drs. Agins, Laslo Galdonyi and Douglas A. Jackson, baritone, Drs. John N. Salowich, Leo P. Rennell and Harry A. Pearse, basses, Carleton Fox, DDS, and Drs. Paul G. Brownell, Francis T. McCormick and Frank M. MacKenzie. Dr. MacKenzie is president of the orchestra, Dr. Woodworth, vice president, Dr. Agins, secretary, and Dr. Arthur E. Hammond, treasurer

## MINNESOTA

**Fifty Years of Practice.**—The Hennepin County Medical Society sponsored a dinner in honor of several of its members who have completed fifty years in the practice of medicine. The guests of honor were Drs. Thomas S. Roberts, Edward Josiah Brown, Thomas F. Quinby, Jesse E. Long, Richard Olding Beard, Horatio B. Sweetser Sr., Ethelbert O. Cosman, Henry L. Staples, John Phineas Barber, Henry Hooker Leavitt and Ralph St. John Perry. Dr. William B. Linton and Dr. Brown, a past president of the society, were unable to attend.

**Seventy-Fifth Anniversary Celebrated.**—The seventy-fifth anniversary of the first medical organization in Ramsey County was observed with a stag dinner at the Minnesota Club, St. Paul, May 18. According to *Minnesota Medicine*, the establishment of the St. Paul Academy of Medicine and Surgery, March 1, 1860, was the first attempt of the local profession to organize. Dues of \$25 were paid and the salary of the city physician, whose duties were performed one month each year by every member of the academy, was turned over to the society. A lot was purchased, a library started and a microscope procured. During the Civil War, however, with many of its members in service, the academy languished until in 1866 it was disbanded. With its reorganization, Feb. 14, 1870, as the Ramsey County Medical Society, it became a component of the Minnesota State Medical Association

## MISSISSIPPI

**Dr. Mull Resigns as Dean.**—Dr. Philip L. Mull, since 1930 dean of the University of Mississippi School of Medicine, University has resigned effective June 1. Dr. Billy S. Guyton, adjunct professor of minor surgery, has been named acting dean, and Dr. James R. Simms Jr., assistant professor of bacteriology, pathology and clinical diagnosis, assistant to the dean. Dr. Mull will continue as professor and head of the department of anatomy, a position he has held for many years

## NEBRASKA

**State Medical Election.**—Dr. George W. Covey, Lincoln, was chosen president-elect of the Nebraska State Medical Association at the annual meeting in Omaha, May 14-16. Drs. William P. Wherry, Omaha, and John D. Reid, Pilger, were elected vice presidents and Dr. Claude A. Selby, North Platte, was installed as president.

## NEW JERSEY

**Honorary Membership in State Society.**—Three physicians were made honorary members of the Medical Society of New Jersey at the annual meeting in Atlantic City, May 2. They were Drs. Wells P. Eagleton, Newark; Vanderhoef M. Disbrow, Lakewood, and Philip Marvel, Atlantic City, all of whom were cited for long and distinguished service.

**Health at Camden.**—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended June 15, indicate that the highest mortality rate (183) appears for Camden and the rate for the group of cities as a whole, 106. The mortality rate was 127 for Camden for the corresponding week last year and was 103 for the group of cities. The annual rate for eighty-six cities for the twenty-four weeks of 1935 was 123, as against a rate of 122 for the corresponding period of 1934. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may increase the death rate

## NEW YORK

**Personal.**—The University of California conferred the honorary degree of doctor of laws on Dr. George H. Whipple, dean and professor of pathology, University of Rochester School of Medicine, at its commencement exercises, May 18

## New York City

**Lectures on Compensation Laws.**—The workmen's compensation board of the Medical Society of the County of New York sponsored a group of lectures, the second in a series, at the New York Academy of Medicine, June 19. Speakers were Dr. Raphael Lewy, chief medical examiner, state department of labor, on "Aggravation, Activation and Acceleration of Pre-existing Disease in Its Relation to Trauma"; Dr. George N. Edson, Flushing, "Medicolegal Aspects of the Workmen's Compensation Law," and Michael Murphy, acting director of the workmen's compensation division of the state department of labor, "Administration of the New Law and the Department of Labor"

**Survey of Hospital Needs.**—The United Hospital Fund is sponsoring a survey to determine the hospital needs of the New York metropolitan area until 1965. The Carnegie Corporation of New York has made a grant of \$40,000 to finance the study, which is to be completed in the fall of 1936. Five hundred and seventy institutions giving organized care for the sick, including 357 hospitals, will be studied with relation to the needs and facilities for care of the sick through institutions and agencies

The area to be included in the study consists of the counties of Hudson, Union and Essex and parts of Bergen and Passaic in New Jersey, the counties of Westchester and Nassau, New York, the towns of Stamford and Greenwich, Conn., as well as the five boroughs of the city of New York. The population in this area is now about 10,250,000 and is expected to amount to 18,000,000 in 1965. The study committee in direct charge of the survey includes Drs Sigismund S Goldwater, Charles Gordon Heyd, John E Jennings, Eugene H Pool, Willard C Rappleye and Nathan B Van Etten. George E Vincent Ph D, Greenwich, Conn., former president of the Rockefeller Foundation, is chairman of the survey, David H McAlpin Pyle president of the United Hospital Fund, vice chairman and Dr Haven Emerson, director of study.

### NORTH CAROLINA

**Outbreak of Infantile Paralysis**—State and local authorities have canceled numerous gatherings scheduled for July in an effort to prevent the spread of infantile paralysis, which has attacked 127 persons in the state since June 1, according to the *New York Times* June 23.

**Society News**—Dr Burton W Fassett, Durham, was elected president of the North Carolina Eye, Ear, Nose and Throat Society, which was organized at a meeting in Pinehurst in May. Dr James M Lilly, Fayetteville, is vice president, and Dr Casper W Jennings, Greensboro, secretary. The first annual meeting will be held in Greensboro in October.

### PENNSYLVANIA

**Hospital News**—The Bryn Mawr Hospital, Bryn Mawr has opened a department for the treatment of selected cases of nervous disorders.

**Society News**—Speakers before the Cambria County Medical Society in Johnstown, June 6, were Drs Oliver H P Pepper and Isidor S Ravdin, Philadelphia, they discussed "Growing Appreciation of the Importance of Hypotension" and "Recent Advances in Postoperative Treatment," respectively, and held clinics in the afternoon.

**Bill Introduced**—S 1627 proposes to authorize the governor to appoint a commission, to be composed of five chiropractors, a member of the senate and a member of the house, to examine and license persons to practice chiropractic. The commission is to report to the general assembly in 1937 a draft of legislation for the regulation of the practice of chiropractic.

### Philadelphia

**Commencement at Jefferson**—Homer P Rainey, Ph D, president of Bucknell University, Lewisburg, delivered the valedictory address at Jefferson Medical College, June 7, to a graduating class of 142. His subject was "Relations of General and Medical Training." Clinics for Alumni Day and Ex-Interns' Day were held in Jefferson Hospital, June 5-6, and the annual alumni banquet was held at the Bellevue-Stratford, June 6, with Dr John B Lowman, Johnstown, Pa., president of the alumni association, presiding. The graduating class of 1935 presented to the college a portrait of the late Dr Thomas Cook Stellwagen.

**Personal**—Dr Edward Martin, Media, emeritus professor of surgical physiology, University of Pennsylvania School of Medicine, received the honorary degree of doctor of laws at the annual commencement at Temple University, June 13.—The honorary degree of doctor of laws was conferred on Dr Ross V Patterson, dean, and Sutherland M Prevost, professor of therapeutics, Jefferson Medical College, at the annual commencement of Ursinus College, Collegeville.—Dr Solomon Solis Cohen, emeritus professor of clinical medicine, Jefferson Medical College, received the fifth annual Keneseth Israel Alumni Award May 27.—Dr Charles R. Turner, dean of the University of Pennsylvania School of Dentistry, received the honorary degree of doctor of science at the annual commencement of the Medical College of Virginia, May 26. Dr Turner is an alumnus of the school.

### Pittsburgh

**Prizes for Interns' Case Reports**—Dr John Leo Gedgoud, intern at St. Margaret Memorial Hospital, won first prize in the annual case report contest conducted by the Allegheny County Medical Society with a paper on "Scorbutus in Pittsburgh, An Accident." Dr Harry Fisher, Allegheny General Hospital won second prize with a report on "Paralytic Tetanus Involving Both Lower Extremities." The papers were presented at a meeting of the society, May 21, at which Dr Francis F Borzell, Philadelphia, gave an address entitled "What Does the Future Hold for the Medical Graduate?" and Dr Bertram J Miles, "A Study of Equilibrium of the Deaf."

### TEXAS

**Dr Carter Again Dean of Medical School**—Dr William Spencer Carter, New York, who was dean of the University of Texas School of Medicine, Galveston, from 1903 to 1923, has again been appointed dean to succeed the late Dr George E Bethel. Dr Carter, born in New Jersey in 1869, was graduated from the University of Pennsylvania School of Medicine in 1890. He went to Texas in 1897 as professor of physiology, in 1903 he was made dean, retaining his professorship until his resignation in 1923, when he became associate director of the division of medical sciences of the Rockefeller Foundation.

### WASHINGTON

**Personal**—Dr Wallace D Hunt, Seattle, has been appointed health officer of King County, succeeding Dr Charles L Dixon, Renton, June 1.

**Society News**—Drs Frederick A Slyfield, Seattle, and Ross E. McPhail, Lakeview, addressed the Grays Harbor Medical Society, Elma, May 15, on the diagnosis and treatment, respectively, of tuberculosis.

**In Memory of a Pioneer Physician**—Whitman College, Walla Walla, is sponsoring a plan to celebrate in 1936 the one hundredth anniversary of the arrival of Dr Marcus Whitman in the Northwest and the founding of the first American home in old Oregon Territory by him and his wife, Narcissa Prentiss Whitman. A four-day program is contemplated, with one day devoted to the medical profession and to consideration of Dr Whitman's work as physician and surgeon.

### WISCONSIN

**Dr Middleton Succeeds Dr Bardeen as Dean**—Dr William S Middleton, professor of medicine, University of Wisconsin School of Medicine, was named dean of the school by the board of regents, June 21, to succeed Dr Charles R. Bardeen, who died June 12. A native of Pennsylvania, Dr Middleton was graduated from the University of Pennsylvania School of Medicine in 1911. He came to the University of Wisconsin in 1912 as a member of the department of student health and has been a member of the faculty since that time except for service during the World War. In 1933 Dr Middleton was president of the Central Society for Clinical Research and this year became president of the American Association of the History of Medicine at its annual meeting, May 6.

### GENERAL

**Officers of the Woman's Auxiliary**—Mrs Robert Fitzgerald, Milwaukee, was named president-elect of the Woman's Auxiliary to the American Medical Association at the annual session in Atlantic City, and Mrs Rogers N Herbert, Nashville, was installed as president. Vice presidents elected are Mrs. John Bonar White, Atlanta, Mrs Otis Floyd Lamson, Seattle, Mrs Elmer L Whitney, Detroit, and Mrs Prentiss Willson, Washington, D C. Mrs Charles C Tomlinson, Omaha, is recording secretary, Mrs Lawrence J Jones, Wilmington, Del., corresponding secretary, and Mrs Eben J Carey, Milwaukee, treasurer.

**Medical Bills in Congress**—*Bill Introduced* H R. 8528, introduced by Representative Rankin, Mississippi, proposes to provide domiciliary care and medical and hospital treatment to veterans of the World War and the Spanish-American War and to former members of the Army, Navy Marine Corps or Coast Guard, who receive compensation or pensions for service connected disabilities. *Changes in Status* H R. 6995, proposing that all laws in effect on March 19, 1933, granting pensions to veterans of the Spanish-American War, including the Boxer Rebellion and the Philippine Insurrection, their widows and dependents, be reenacted into law, has been favorably reported to the House. H R. 7260, the so called social security bill has passed the Senate in amended form.

**Society News**—The fifth annual convention of the Biological Photographic Association will be held at the Stevens Hotel, Chicago, September 12-14. Information may be had from Ralph P Creer, chairman of the program committee, Box 266, Hines Ill.—Dr Eugene H Pool, New York, was elected president of the American Surgical Association at the annual meeting in Boston, June 8. The association will meet in Chicago in 1936.—Dr Albert M Barrett, Ann Arbor, Mich., was elected president of the American Neurological Association at its annual meeting in Montreal, Canada, June 4. Drs Howard C Naffziger, San Francisco, and John Favill, Chicago, were made vice presidents.—Dr Milton J Rosenau, Boston, was elected president of the American Association of Medical Milk Commissions at the annual meeting in Atlantic City, June 10 11.

—Dr Catharine MacFarlane, Philadelphia, was chosen president-elect of the Medical Women's National Association at the annual session in Atlantic City, June 10, and Dr Sara Josephine Baker, Stamford, Conn., was installed as president.

**Health Projects Aided by Relief Labor**—Health and sanitation projects were cited as one of the major contributions of relief labor in a recent summary by Harry L. Hopkins, federal emergency relief administrator. Reviewing the work in forty six states, he pointed out that 553 hospitals have been built and 218 improved or extended. In addition, the following projects were listed: miles of sewers constructed, 2,259; improved 46, miles of water mains constructed, 1,594; improved 70, reservoirs built, 529, improved and cleaned, 218, mosquito-breeding swamps drained, 3,277 150 acres, requiring 28,363 miles of drainage ditches and affecting more than 34,000,000 persons, sewage-disposal plants built, 448, improved, 167, garbage disposal plants built, 45 improved, eight, sanitary privies built, 245,121, improved, 24,087, filter plants built, 15, septic tanks installed, 2,466. These figures are exclusive of work done under the civil works program and do not include the extensive sanitation projects carried on in Puerto Rico and many projects in progress in the United States and not yet reported which would appreciably increase the totals.

## Government Services

### Positions Open in Civilian Conservation Corps

Eight hundred physicians will be added to the Civilian Conservation Corps under an expansion program, which will increase the corps to 600,000 members, it is announced. At present there are 1,600 physicians in 1,625 camps and military hospitals throughout the country. It is planned to increase the number of camps to 2,917 by August 1. The operation of the camps and the enrolment of physicians are in charge of the various corps area commanders. General medical supervision is under the direction of Major Gen. Charles R. Reynolds, surgeon general of the army. It is the policy of the war department to select physicians for service with the Civilian Conservation Corps who are members of the medical reserve corps, but in some communities part time contract physicians will be employed who may not be members of the reserve corps. Medical department reserve officers training corps units at medical schools throughout the country are being discontinued this month by an act of Congress, which prohibits further expenditure of appropriated funds for their support. Heretofore these units have been the principal agencies through which young physicians have sought commissions in the medical reserve corps of the army. Because of the considerable number of physicians required to provide the medical service for the increased Civilian Conservation Corps, the war department through recent instructions has authorized corps area commanders to accept graduates of class A medical colleges of the 1935 class for enrolment in the medical reserve corps. It is planned to order to active duty several hundred members of the medical reserve corps who desire service with the Civilian Conservation Corps. Recent graduates of class A schools are authorized, under certain conditions, to participate in this active duty. Care will be taken not to employ interns before completion of their hospital service. Qualified physicians who desire to enter the medical service of the Civilian Conservation Corps should make application in writing to the commanding general of the corps area in which they reside.

The following is a list of the corps areas, the states included therein and the postoffice address of the headquarters:

First Corps Area Maine New Hampshire Vermont, Massachusetts Rhode Island and Connecticut Headquarters Army Base Boston 9 Mass.  
Second Corps Area New Jersey, Delaware and New York Headquarters, Governor's Island N. Y.  
Third Corps Area Pennsylvania Maryland Virginia and the District of Columbia Headquarters 311 St. Paul Place Baltimore Md.  
Fourth Corps Area North Carolina South Carolina Georgia Florida Alabama Tennessee Mississippi and Louisiana Headquarters Fort McPherson Ga. Mail address Oakland City Station Atlanta Ga.  
Fifth Corps Area Ohio West Virginia Indiana and Kentucky Headquarters Fort Hayes Columbus Ohio  
Sixth Corps Area Illinois Michigan and Wisconsin Headquarters 1819 West Pershing Road Chicago Ill.  
Seventh Corps Area Missouri Kansas South Dakota, Arkansas Iowa Nebraska Minnesota and North Dakota Headquarters Baird Building Omaha Neb.  
Eighth Corps Area Texas Oklahoma, Colorado and New Mexico Headquarters Fort Sam Houston San Antonio Texas  
Ninth Corps Area Washington, Oregon Idaho Montana Wyoming Utah, Nevada California and Alaska Headquarters Presidio of San Francisco Calif.

## Foreign Letters

### LONDON LETTER

(From Our Regular Correspondent)

June 1, 1935

#### The British Graduate Medical School

The opening of the new British Postgraduate Medical School by the king was described in a previous letter. For the first time graduate teaching is centralized in this country in a suitable hospital, staffed in every way necessary for the purpose. The hope has been expressed that London may become the world's principal center for graduate teaching. The position of certain continental countries that enjoyed a world reputation both as centers of research and of teaching has been damaged by the World War and still more by the destruction of liberty and the persecution of scientists which followed that catastrophe. Instruction in clinical medicine is provided by appointments to the wards of graduate students as clinical clerks for periods of three or more months. Intensive courses for physicians, lasting two weeks, will be given frequently. In these a disease or group of diseases will be demonstrated in their various aspects—clinical, pathologic, radiologic. It is also proposed to arrange a series of lectures and demonstrations one day in the week for London physicians. Graduates engaged in investigation who require clinical material can be accommodated in small numbers. Visitors for short periods will be welcomed and arrangements made for them to see whatever work they desire. Visitors from abroad who wish to follow intensive studies or to learn English methods will find their needs supplied.

The teaching is organized in four departments—medicine, surgery, obstetrics and gynecology, and pathology. These are each directed by fulltime professors who are well known teachers and they are assisted by a staff, many of whom specialize in subordinate subjects. Eminent teachers in other medical schools will also visit the hospital at regular intervals as consultants and at other times when required. It is also hoped that the services of distinguished visitors to London from the country or from abroad may be obtained and that they will take charge of wards for a time and engage in the routine work of the school. The organization is in some ways comparable to the teaching "units" recently formed in the medical schools, but for graduate teaching nothing comparable to it has existed before in this country.

#### The Chatter of Food Faddists

Addressing the annual conference of the Scottish National Health Visitors Association, Prof. E. P. Cathcart, F.R.S., the well known dietitian, said that all the chatter about food which they hear today had a bad effect in making sensitive people become food conscious and then food faddists, food fanatics and finally missionaries. Much nonsense was talked about calories, calories were only a unit of heat. There was no hidden value in them. Emphasizing the importance of an adequate amount of proteins, carbohydrates and fats in the diet, Professor Cathcart said that as regards fat they would find a direct relation between its consumption and economic status. The more money available, the greater the amount of fat consumed, and at no time in the history of the human race was so much fat consumed as now. The increase had taken place largely in the last thirty years. Tuberculosis was one of the few diseases that responded to improved nutrition. He was certain that there was much malnutrition among widows and unmarried daughters and men who had once been in comfortable circumstances and were now eking out a meager existence on a minute income without saying a word. As shown in previous

letters, misleading political propaganda has been used to suggest that there is prevalent malnutrition due to insufficiency of the dole for unemployment. It is noteworthy that Professor Cathcart's example of malnutrition is, on the contrary, in the class that is taxed highly to finance the dole and other social services.

### Psychoneurosis as a Cause of Incapacity Among Insured Persons

A regional medical officer of the department of health for Scotland, Dr J. L. Halliday, has published in the *British Medical Journal* the results of an inquiry into 1,000 consecutive records of insured persons (excluding pregnant and puerperal women) certified as unfit for work, with a view to determining the proportion incapacitated by psychoneurotic disorders. He found that this amounted roughly to a third (36 per cent in the case of women and 31.7 in men). There was a slightly higher incidence of psychoneurosis among the unemployed than the employed, which increased with the duration of the unemployment. Thus the percentage incidence among those who had been unemployed for less than three months was 25.7, less than the incidence (32) among those who became incapacitated during employment. But with lengthening of unemployment the incidence increased to reach a maximum of 41.5 per cent in the period six to twelve months. There appears to be a short period of a sense of release and holiday freedom, then gradually increasing anxiety with loss of mental equilibrium and finally, after several years, adaptation takes place to a new and debased level of life.

In an exhaustive survey of the effects of unemployment Sir George Newman, chief medical officer of the ministry of health, stated that there is no medical evidence of any general increase in physical impairment, in sickness, or in mortality as a result of economic depression or unemployment. It would thus seem that unemployment influences the mind rather than the body.

### The Manufacture of Synthetic Drugs

Before the war practically all the synthetic drugs used in Great Britain came from Germany. Since that catastrophe we no longer depend on that country to the same extent for the manufacture of drugs or dyes. In the report of the Chemistry Research Board, just issued by the department of industrial and scientific research, the first complete survey of the work carried out in the chemical research laboratory during the ten years of its existence is described. Several firms have made arrangements for members of their staffs to be attached to the laboratory in order to learn the new methods of technique developed there. The board has arranged for the preparation of synthetic chemicals of the types likely to be useful in the treatment of disease, and, by cooperation with the Medical Research Council, to have them tested for chemotherapeutic effects. This arrangement covers not only chemicals that are produced in the chemical research laboratory but also those produced by workers in universities who are assisting in this branch of the work. Although this work has a medical objective, it is a joint field in which the chemist can render valuable aid, as, apart from the alleviation of suffering, the production in this country of synthetic drugs has an important industrial and imperial significance.

### Graduate Courses for Ship Surgeons

The Seamen's Hospital Society of Greenwich has, at the instigation of the British Medical Association, placed its resources connected with the London School of Clinical Medicine and the London School of Hygiene and Tropical Medicine at the disposal of ship surgeons for graduate work. The society controls the Seamen's Hospital of Greenwich, where courses for ship surgeons are held as follows: Part 1 Ships' hygiene. Part 2 Tropical medicine and hygiene. Part 3 Refresher courses in clinical subjects. Thus ship surgeons are able to

study cases drawn from the very class with which their daily work is concerned. They are specially trained in the treatment of surgical emergencies, the treatment of fractures and the prevention of protracted disability, the expediting of movement in quarantine, the differential diagnosis of tropical disorders, the discrimination of spurious from genuine claims in respect to injury and dealing with the special problems of hygiene arising on board ship. Unfortunately, though ship surgeons are ready enough to take advantage of the facilities provided, the great shipping companies have not seen their way to support the scheme—doubtless owing to the financial stress of this industry. The pay of ship surgeons is not sufficient to allow them to undertake these courses entirely at their own expense.

### PARIS

(From Our Regular Correspondent)

May 17, 1935

### Preoperative Radiography of Acute Intestinal Obstruction

This has been the subject of a general discussion at the Dec. 19, 1934 and Feb. 20, 1935, meetings of the Société de chirurgie of Paris. Moulouquet and Rousset first reported their experiences in seventeen cases in which plain roentgenography alone was employed to confirm the diagnosis and to localize the seat of the acute obstruction. The ingestion of an opaque medium is strongly contraindicated in these cases. The best films were obtained in the upright position. A marked collection of gas in the colon indicated obstruction in this portion of the alimentary tract. Normally there is no gas to be seen in plain films of the small intestine, so its presence is pathognomonic of obstruction there. Such manifestations are not seen in reflex ileus accompanying biliary or renal colics. Often the roentgenographic evidence is to be elicited at an earlier period of the obstruction than are the clinical signs. One cannot distinguish between a septic ileus due to peritonitis and one due to mechanical causes. In the latter form, localization of the exact level at which the obstruction has occurred is difficult on plain films. Generally, the point at which the gas is absent corresponds to the level of the obstruction. As to the nature of the obstruction in acute ileus, the only form that can be diagnosed is that due to an impacted gallstone. Roentgenography before operations for acute ileus of the large intestine is of much use in determining the level at which a colostomy should be made.

Mondor and Duval did not share the enthusiasm of Moulouquet. Mondor emphasized that the short time required to make a preoperative roentgen examination was amply rewarded by the rapidity with which one could operate, if the level of the obstruction was known. He prefers the opaque enema to dependence on plain films. If barium is used, only small amounts should be employed and much pressure must be avoided. The opaque enema enables a differential diagnosis to be made between a volvulus of the sigmoid and an obstruction due to a neoplasm of the colon. The interpretation of plain films is so difficult that Mondor has abandoned the method as a diagnostic aid in acute ileus.

Duval, Béclère and Porcher agreed with Mondor's criticism of plain roentgenography because gas may be present in variable amounts in the small intestine under normal conditions. They believe that roentgenography with an opaque enema is almost indispensable in acute ileus. One cannot distinguish a reflex ileus complicating biliary or renal colic from a mechanical obstruction on the plain film. In the absence of an opaque enema, one cannot tell whether the obstruction is in the large or the small intestine. Aside from ileus due to a gallstone or to stenosis of the colon, it is impossible to determine in adults, even with an opaque enema, the cause of an obstruction. One

ought to employ roentgenography (with opaque enema) as a routine measure in all cases of acute intestinal obstruction.

At the February 22 meeting, Professors Gosset and Ledoux-Lebard added their experiences to those of others reported at previous meetings of the society.

No contraindication to the use of the method exists, and the slight delay is well repaid by the abbreviation of the operative procedure. A plain film is taken as a preliminary measure to exclude obstruction by a gallstone. This is followed by a barium enema under fluoroscopic control.

Slides were shown of three cases in which the barium column attained only the level of the descending colon, thus greatly facilitating the determination of the level at which colostomy should be done. In a fourth case, the opaque enema stopped at the cecum, thus revealing the location of the obstruction before operation. In two other cases, the ileus followed appendectomy and the obstruction could be accurately located as being in the small intestine. In one of the last two cases, a child, aged 6 years, an intussusception could be readily excluded by the opaque preoperative enema.

Another interesting case of how preoperative roentgenography can aid the surgeon in the diagnosis of the seat of an acute obstruction was reported by Paris at the March 12 meeting. A man, aged 48, had an attack of diffuse acute abdominal pain followed by vomiting, four days before admission to the hospital. He had been in good health up to the onset of the present illness. A barium enema was given under fluoroscopic control and under low pressure. The entire colon was seen to be filled by the opaque enema so that a diagnosis of obstruction of the small intestine could be made.

The laparotomy, immediately after the roentgen examination, revealed a volvulus of a loop, about 50 cm in length of the small intestine. The volvulus accompanied a torsion of the omentum. The latter was resected and the volvulus reduced. Recovery followed.

Three final papers, one by Michel-Bechet, one by Fournier and Depreuil, and another by Moulouguet, who was the first to reawaken interest in the subject, seem to be the final ones in the discussion. Michel-Bechet has employed the method in twelve cases, two of which were of particular interest. In one case, plain films (without barium enema) revealed the presence of a sigmoid-shaped coil of small intestine near the stomach.

A diagnosis was made of obstruction and at the operation a coil of small intestine was found strangulated in the foramen of Winslow.

#### Fee-Splitting and the Income Tax Office

According to a law passed July 20, 1934, every physician is required to state, in his annual declaration of income from professional work, the amount paid to colleagues, if said sum is in excess of 1,000 francs (about \$65). An interesting discussion of the new law by R. Massart appears in the March 17 *Concours médical*. Surgeons will be obliged to state how much was received for an operation and how this sum was distributed. The medical man who referred the patient to the surgeon will be obliged to state in his income tax schedule the sums received from the surgeon. Massart states that, as the result of this new law, the clandestine division of fees will disappear. Efforts have been made by various medical organizations to suppress the evil, but none will be as effective as the new law. According to the latter, whenever a physician or surgeon sends separate bills for services, or a joint bill in which the amount to be received by each one is stated, no special declaration of such amounts is necessary in the income tax schedule. On the other hand, if the surgeon receives the entire fee, the law requires that the names and amounts paid to each medical man who referred the respective patient must be stated. Otherwise the surgeon will be obliged to pay the

income tax on the total amount received. A case is cited in which the tax office had knowledge of a relatively large sum paid as fees to a surgeon. In the latter's income tax schedule only half of the amount was declared as having been received. The internal revenue department immediately demanded payment on the entire amount paid to the surgeon, who in turn would be obliged to state to whom he had paid the other half so that the collector could proceed to collect taxes on these fees. Rather than disclose the names of the physicians who referred the patients and the amounts paid, the surgeon paid the tax on the original amount himself.

Such settlements will not be considered legal in the future, hence the new law will compel all members of the medical profession to state, in a special book open to inspection by the internal revenue collector, a detailed account of their receipts and expenditures.

Massart states that the medical profession is being subjected to what may appear to be an unjust persecution by the authorities, because the filing of income tax schedules was not regarded as seriously as it demanded by physicians in the past. The young practitioner is taxed relatively too high in comparison with the tax paid by older men. The latter are especially asked by Massart to be more exact in stating their incomes and expenditures. The law is in force and must be respected, lest still more objectionable requirements than keeping a daily account will be required. The new law will have more effect in checking the obnoxious and widespread evil of fee-splitting than all the threats of expulsion made by organized medicine.

#### BERLIN

(From Our Regular Correspondent)

April 22, 1935

#### Psychopathic Patients and Race Hygiene

Prof H. F. Hoffmann, psychiatrist of Giessen, recently pointed out that the peculiarities of psychopathic patients are in the main of hereditary origin. Of that fact research on twins has furnished unequivocal examples. There are cases known in which enzygotic twins reacted to external difficulties, independently of each other, with the same neurotic symptoms. There are also many instances in which the attitudes of psychopathic enzygotic twins toward life as a whole are identical or at least surprisingly similar. As a rule, psychopathic patients are the offspring of psychopathic parents—at least on one side, if not on both sides. In the event of psychoses in the ancestors, the inherited defects appear in certain cases to be more dominant than in the average person. Thus, schizoid psychopathic patients reveal striking evidence of hereditary influence, while cycloid and epileptoid psychopathic patients frequently show hereditary tendencies traceable to circular insanity or epilepsy. Of late, it has been asserted also that heredobiologic relations exist between psychopathy and neurologic disorders. If one divides the psychopathic patients into two groups according to their asocial and antisocial behavior, it will be observed that those who are abnormal socially show to no inconsiderable degree the hereditary influence of socially abnormal psychopathic persons and persons with criminal tendencies. There are as yet no comprehensive studies on the posterity of these two groups. But from the general impressions one gets it may be said that the abnormal psychopathic patients have, as a whole, an unsavory posterity. Importance is ascribed also to the fact that socially abnormal psychopathic persons usually mate with persons who are of an inferior type mentally, whereby the frequency and the degree of social degeneration in the offspring are, in many instances, greatly increased. Hoffmann has carried out extensive heredobiologic researches on these groups. Particularly dangerous for posterity is the type of unstable, undisciplined, irascible and brutal



psychopathic patient Among their children one observes, in addition to psychopathy and criminality, grave types of imbecility, schizophrenia and epilepsy According to these researches, race hygiene, from the social point of view, should emphasize more particularly in psychopathic patients the absence of social worth and antisocial influence

### Immunization Against Diphtheria

The increased incidence of diphtheria in certain regions of Germany is causing anxiety Recently the federal bureau of health expressed its views on the question of diphtheria immunization. According to its conception, diphtheria immunization is still in the experimental stage, so that a final decision in regard to its value cannot be rendered as yet However, the report states, the results secured in foreign countries and also in Germany are very encouraging and justify a continuation of the inoculations A general introduction of diphtheria immunization is, on the other hand, unacceptable For the present, its use should be confined to regions in which the morbidity and the mortality from diphtheria are particularly high In regions in which general immunization is thus indicated, an endeavor should be made to include as many children as possible but without making protective inoculation compulsory As far as can be ascertained, the inoculation is harmless, and the reactions are, for the most part, slight In order to avoid any possible chance of untoward effects resulting from inoculations against diphtheria, children with acute or chronic diseases, particularly tuberculosis, should be exempted, for the time being The duration of the immunization, which is considerable after from eight to ten weeks, and fully developed after about three months, is not yet known with certainty The inoculation of children aged from 1 to 8 years may properly be accomplished with diphtheria anatoxin (toxoid), older children may better be given toxin-antitoxin vaccines, as they are more easily borne The vaccine materials used in Germany are controlled by the central government In collaboration with certain eminent pediatricians, the federal bureau of health has published a leaflet and also a pamphlet, containing detailed information on the subject of diphtheria immunization

### Fatigue, Sleep and Restoration

Prof. L. R. Müller, clinician of Erlangen, who, for many years, has made a special study of the biology and the clinical aspects of the central nervous system, recently called attention to the connections between fatigue, sleep and the restoration process in general One must distinguish between sense of fatigue and the local sensations that, following severe bodily exertion, are noted in the joints, the tendon sheaths and the muscles, being due to the overwork demanded of these tissues The sense of fatigue that induces one to quit work and seek sleep is not associated with local sensations but is due rather to the mental observation that the work is no longer progressing satisfactorily In considering the general sense of fatigue, one must pass, therefore, from the neurologic to the psychologic aspect Recent researches of the Zurich pharmacologist Cloetta and his co-workers have revealed that, with the stimulation of the neuromuscular apparatus, cations (chiefly calcium and potassium) pass from the nerves and from the muscles into the blood serum and that, as a result of sleep, a remigration of these cations into the neuromuscular substance occurs Thus, for the first time, an attempt has been made to clarify the physical and chemical processes that lie at the basis of sleep and of stimulation of the muscles There is no doubt that bodily fatigue cannot be completely overcome by rest or by the ingestion of food but only by sleep sleep alone leads to a complete recovery or restoration

Nearly all infectious diseases are associated at first with a marked feeling of weariness that makes rest in bed imperative, likewise many disturbances of the internal secretions (Addi-

son's disease, hyperthyreosis) and diseases of the blood Fatigue in asthenic persons who are constantly worried about their health may be of mental origin An attempt to control fatigue with caffeine involves a delay only in the onset of the fatigue, the fatigue is not actually overcome.

### Mortality Among the New-Born

Prof. P. W. Siegel has published a statistical compilation on early mortality of the new-born in the East Prussian Landesfrauenklinik Insterburg For purposes of comparison there were available the official statistics on the living births of East Prussia in 1931, the 4,458 living births of midwife practice, and finally the 4,446 living births in the aforementioned clinic. The statistics on early mortality for East Prussia (figured for the first fifteen days of life) revealed a mortality of 3.3 per cent, in midwife practice (including the operative obstetric interventions of the practitioners) of 3.4 per cent, and in clinical practice of 1.3 per cent. According to Siegel, it may be assumed that the other obstetric clinics secure the same results It is evident, therefore, that the success of clinical obstetrics, as compared with domiciliary practice, is not inconsiderable. For purposes of comparison, the results of various forms of obstetric practice are given in detail early mortality following the use of the forceps was, in general practice, 6.9 per cent (in the hospital, 1.6 per cent), after version, in general practice, 10.7 per cent (in the hospital, 0 per cent), after manual aid, in general practice, 11.4 per cent (in the hospital, 7.5 per cent), after cesarean section, in general practice, no operations (in the hospital, 3.5 per cent) It is evident, therefore, that the conditions for operative births in the hospital are much more favorable than in general practice, although the hospital has more cases of contamination than are found in general practice These observations are particularly interesting in connection with the recent recommendation of the minister of the interior that confinements be carried out more frequently in the home than has been done in the past

### MADRID

(From Our Regular Correspondent)

May 17, 1935

### Political Control of Public Health Work

Dr. Victor Cortezo, head of the department of public health, in a lecture recently delivered before the Academia Nacional de Medicina, said that public health work in Spain before 1899 was practiced only by physicians of the ports having as a director an administrator with an office in the ministry of interior Drs. Cortezo, Pulido and Gimeno's efforts to extend the public health work at that time failed The development of public health work in Spain since 1899 may be divided into three periods The first period began with an outbreak of plague in Portugal in 1899, which forced the Spanish government to cooperate with the group of public health workers, who at that time had a very small organization The advances made during the period up to 1910 included the organization of the central department of public health, the adoption of regulations on national and international sanitation, and the establishment of the Instituto Nacional de Higiene by Drs. Cajal and Cortezo The second period, from 1910 to 1923, began with the outbreak of cholera in Russia and its spreading to the northern regions of Italy and to Germany, Austria, Hungary, Turkey, Rumania and France. In this period the sanitarians were very active and their efforts and those of the government restricted the epidemic of cholera to a few cases that occurred in the towns of Vendrell and La Riera Then the personnel that had been trained to fight the cholera epidemic were used to fight typhus in Gijón, plague in the Canary Islands, Malaga and Barcelona and other local epidemics in several provinces The third period, from 1923 to 1935 was characterized by the organization of several health centers for the care of the sick and the isolation of persons



suffering with plague. These centers were either aided or supported by the state, the county or the provinces. They functioned successfully during the first few years while support was given to them, but the discontinuation of governmental support resulted in either their closure or the transfer of the center to the state, to be used for other purposes of public welfare. A case can be cited. The regional leprosarium of Andalusia, which was given at the beginning to the provincial committee of deputies of Granada, is now used as an asylum for children and the problem of isolating the lepers of Andalusia is still unsolved. At present the national budget allows three times as much money for public health as it did during the time of the kingdom. Departments and branches of the public health administration have been established even in distant small towns. Owing, however, to the fact that many of the persons appointed to health positions are not trained sanitarians, the work in the field is not as satisfactory as it should be. The fact that the field sanitary work is controlled by the state has resulted in the disappearance of some health centers, such as the Liga contra la tuberculosis and the Liga contra el cancer. The latter used to provide Madrid with about 200 beds for patients with cancer. The public health work at present is greatly affected by political and economic conditions. Formerly the public health department had a general director. Later he was called sub-secretary of public health and still later he was called head of the public health in the ministry of labor and public health which departments now are merged. No more are sanitarians consulted on the preparation of public health regulations, they first know of them only after their publication in *La Gaceta*, the official journal.

#### New Hospital Opened in Madrid

For a long time most of the hospitals in Spain were Catholic, having a chapel for religious services, a chaplain paid by the government, and sisters for the care of the patients. During the last few years, most of the hospitals have functioned under a different system. In many of them, nurses have been substituted for the sisters. A new hospital, in which the standards of the Catholic hospitals of the United States were followed was recently opened. Dr. Baldomero Castresana and the bishop of Madrid collaborated in the organization of this hospital. There are now sixty beds ready for patients. Dr. Enrique de Salamanca, the director of the laboratory, is now in the United States visiting laboratories and research centers to study the latest improvements. The expenses of the hospital are supported by donations from Catholics in any country as well as by a percentage of the income of the Catholic churches in Madrid. Priests who help support the hospital are given in turn the privilege of providing free medical care to a certain number of poor patients in the hospital. The hospital is well equipped and meets all the modern requirements of a good hospital.

#### Eighth Centennial of Birth of Maimonides

Ceremonies were recently held in Córdoba and in Madrid to celebrate the eighth centennial of the birth of Maimonides, the Spanish rabbi and philosopher. Drs. Govanes and Garcia del Real in addresses, reviewed his history in connection with the development of medicine. During the twelfth century, Arabic Spain had seventy public libraries and seventeen centers for higher education. Great devotion to studies was necessary then to secure an education. Maimonides drank deeply at the fountains of knowledge, but religious persecutions arose and Maimonides left Spain for Africa. His contact with the Greek and Roman literature influenced his medical writings in which he followed the galenic and hippocratic traditions. Maimonides was highly accomplished. His interpretation of the Bible and of the Talmud led his people to consider him a saint. When he died in 1204, he was physician to the sultan of Egypt and the

head of the Jewish people at Cairo. Some of his books in the libraries of Spain are *Alimentos prohibidos*, *Venenos y sus remedios*, *Aforismos de medicina*, *Canones de medicina practica*, *Tratado de higiene*, *El coito*, *Causas de las enfermedades*, *La curacion del asma*, *Dieta*, *Schmorich Paraquim*, *Libro del conocimiento* and *The Guide for the Perplexed*. The last mentioned book was translated from the Arabic into the English language by Friedlander and published by E. P. Dutton & Co of New York.

#### Personals

Dr. Enrique Suñer, professor of diseases of children to the Faculty of Medicine of Madrid and organizer of the Escuela Nacional de Puericultura, who some time ago was removed as director of the school, a position which he had had for a long time has been reappointed to the same position by a decision of the supreme court, to which he appealed. His appointment received general approval.

#### JAPAN

(From Our Regular Correspondent)

April 26, 1935

#### Priority of Discovery of Cause of Tsutsugamushi Disease

Tsutsugamushi is a serious disease, which has been widely known more than half a century, and thirty years or more has been given by many investigators to discover its cause. Not a few of these workers have fallen victims to the disease. The question of priority in the discovery of the cause was once more an issue in the annual meeting of the Japanese Pathologic Society held in April in the Nigata Medical College. Prof. Dr. Ogata of the Chiba University, a bacteriologist, read a paper on the question. He insisted that he discovered its cause in 1927 to be *Rickettsia tsutsugamushi*. His work has since then been confirmed by others. In 1930 Dr. Nagayo, now president of the Tokyo Imperial University, and then the chief of the Infectious Disease Research Institute, with his colleagues, borrowed the germ from Dr. Ogata and succeeded in detecting the organism, but by methods different from the method of Ogata. They for the first time named it *Rickettsia orientalis*. In 1931 Prof. Dr. Kawamura of the Nigata Medical College succeeded by a new method in detecting the same cause, in the next year Prof. Dr. Saibe of the same institute also was successful but he unhappily fell a victim to the disease. In recognition of their work those four researchers were awarded prizes. When Ogata discovered the cause in 1927, he did not give it a name. He considered this research so important that he assumed a cautious attitude. But suddenly Dr. Nagayo named it without referring to Ogata's discovery. Discovery and naming a discovery are quite different. In 1923 Sellards obtained a micro-organism from a case of this disease and named it *Rickettsia nipponica* mistaking that micro-organism for its true cause. So in Otto's writings in 1934 it is said that the cause of tsutsugamushi is Sellard's *Rickettsia nipponica*, which is of course a mistake. In 1931 Professor Kawamura found an *akamushi*, which means almost the same thing as "*Rickettsia*," and so gave the name of *Rickettsia akamushi*, but in 1934 this name was again changed to *Rickettsia tsutsugamushi-orientalis* (Nagayo et al). This long name cannot be said to be proper and satisfactory.

Dr. Ogata declares that he would not compromise so far as the discoverer is concerned insisting that he is entitled to priority. At the same time he hopes that the name of the causative agent will soon be decided, so that mistakes may be avoided at home and abroad. He proposed the name *Rickettsia tsutsugamushi*, but if any one objects to that it might be called *Rickettsia tsutsugamushi s. kedani*, as the word "*kedani*" has long been associated with this disease. On the other

hand, the members of the Infectious Disease Research Institute, of which Dr Nagayo was long the chief, believe that the true cause was first detected by them, and to prove it, Ogata in 1931 was awarded the "Wihew" prize of the pathologic society. The paper made public by the members of the institute in 1924 is said by them to be the first valuable literature on its cause, and that paper decidedly settles the question of priority. Dr Ogata says it has no connection with the discovery of the cause and is a mere report of the progress of their research.

#### Memorial to Dr von Siebold

The first physician who introduced European medicine into Japan by teaching medical science and treating patients was Dr von Siebold, a German. He was the first who taught Japanese doctors clinically. To celebrate this valuable assistance an exposition is being held in Tokyo at the science museum. Von Siebold's efforts covered so many branches of science that medicine was only a small part of them. In 1820, at the age of 28, after graduating from a German university, he came to Japan as a ship doctor of the Dutch East India Company. He was keenly interested in teaching earnest students about European civilization. The methods taught by him opened the eyes of old-fashioned students. In the present memorial exposition there are exhibited more than 300 publications, which were borrowed from his native country, and more than 400 collected for the purpose in this country. Among others, are shown his valuable works "Flora Japonica" and "Fauna Japonica." As for his medical papers, only a few are kept, to the great regret of Japanese physicians. From those few papers it is known that he gave his followers many questions to solve in a scientific way, on the other hand, he was much interested in Japanese acupuncture, and he translated a work on this subject into German.

#### Native Population Decreasing in the Yap Islands

The Kanakas, the inhabitants of the Yap Islands, which are now under the mandatory administration of Japan, will become extinct in thirty years, says Ihara of the sanitary bureau of the Home Office, after an inspection tour of those islands. He gave the following report concerning the cause of the rapid decrease of the Kanakas. Widespread gonorrheal infections, tuberculosis, dysentery and typhoid, brought by immigrants from more civilized nations, are the chief causes of the rapid decrease of births and the increase of deaths. The islanders are much averse to any new medical treatment or even examination. They seem to have no idea of birth control. There are many who attribute pregnancy to the gods. Intemperance and overwork during pregnancy seem to cause much abortion. Poor sanitation, with almost no idea of cleanliness or ventilation, is also an important cause. The prohibition of drinking resulted in idleness, for they formerly worked so as to be able to buy liquor, whereas now they do nothing to develop their bodies. They are also ill nourished. There is need for the authorities to inculcate some idea of sanitation and prevention of disease.

#### The Period of Pregnancy

Dr Obata, director of the Hamada Hospital in Tokyo, read a paper on the period of pregnancy at the spring meeting of the gynecologic society. The old theory that pregnancy continues for 280 days is incorrect. According to his report, only 38 per cent of pregnant women are delivered in 280 days. Of 10,000 pregnant women who came to his hospital, the pregnant period was from twenty-nine to fifty weeks. He found that the period usually was from 263.9 days to 297.3 days. The weight of the baby usually was between 2,475.9 and 3,344.7 Gm. About thirty women who happened to know exactly the day of conception stated that the period was between 288 and 233 days. Obata concluded that the period of pregnancy is indefinite and depends chiefly on the individual.

## Marriages

FRANK LESLIE MILLIGAN, Jefferson City, Tenn., to Miss Mildred Osborne of Leechville, Ark., in Manila, Ark., June 4.

WYCLIFFE CHARLES JACKSON, Jenkin Jones, W. Va., to Miss Mary Stuart McCallum of Rowland, N. C., June 1.

GEORGE MIDDLETON IRWIN, Lewistown, Pa., to Miss Mary Elizabeth Dunbar of Washington, N. J., May 11.

DELMAR O. RHAME JR., Clinton, S. C., to Miss Henrietta Toole of Johnston, June 5.

FRANK E. ADAIR to Mrs. Marion Hopkinson Brooks, both of New York, May 29.

## Deaths

Clarence St. Clair Drake ☉ Jacksonville, Ill., Chicago Homeopathic Medical College, 1891, Chairman of the Section on Preventive Medicine and Public Health of the American Medical Association, 1918-1919, and Member of the House of Delegates in 1920, member of the American Psychiatric Association, statistician for vital statistics, Chicago Health Department, 1895-1909, member, secretary and executive officer of the Illinois State Board of Health, 1914-1917, director of public health for Illinois, 1917-1921, educational field director of the American Public Health Association, 1925-1929, since 1929 managing officer of the Jacksonville State Hospital, aged 65, died, June 2, of heart disease.

William Jackson Merrill ☉ Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1902, associate professor of orthopedics, University of Pennsylvania Graduate School of Medicine, member of the American Orthopedic Association, fellow of the American College of Surgeons, served during the World War, orthopedic surgeon to the Children's, Misericordia and Jewish hospitals, Philadelphia, Children's Seashore House, Atlantic City, N. J., the Williamsport (Pa.) Hospital, the George F. Geisinger Memorial Hospital, Danville, and the Lock Haven (Pa.) Hospital, aged 66, died, May 10, of pneumonia.

Henry Edward Oesterling ☉ Winter Park, Fla., University of Pennsylvania Department of Medicine, Philadelphia, 1897, member of the West Virginia State Medical Association and the American Academy of Ophthalmology and Otolaryngology, fellow of the American College of Surgeons, formerly on the staff of the Ohio Valley General Hospital, Wheeling, W. Va., aged 62, died, May 22, in the Graduate Hospital of the University of Pennsylvania, Philadelphia.

Joshua George Ross Manwaring ☉ Flint, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901, member of the House of Delegates of the American Medical Association in 1930, past president of the Genesee County Medical Society, one of the founders and fellow of the American College of Surgeons, formerly on the staff of the Hurley Hospital, aged 57, died, April 17, of angina pectoris.

George Bronson Philhower, Nutley, N. J., University of the City of New York Medical Department, 1886, member of the Medical Society of New Jersey, past president of the Essex County Medical Society, for many years president of the board of health of Nutley, member of the board of education, on the staff of the Presbyterian Hospital, Newark, aged 72, died, May 23, in St. Barnabas Hospital, Newark.

Brace Whitman Paddock ☉ Pittsfield, Mass., Columbia University College of Physicians and Surgeons, New York, 1904, fellow of the American College of Surgeons, past president of the Berkshire District Medical Society, on the staff of the House of Mercy Hospital, aged 56, died, May 22, of arteriosclerosis.

Edward W. Boyer, Waterville, Me., University of Vermont College of Medicine, Burlington, 1887, member of the Maine Medical Association, past president of the Kennebec County Medical Society, formerly member of the board of education, on the staff of the Sisters Hospital, aged 70, died, May 6.

Clinton LeRoy Pugmire, Ogden, Utah, Northwestern University Medical School, Chicago, 1932, aged 30, died, April 21, in the Dee Memorial Hospital, of streptococcal septicemia following a small wound on his finger received while attending a patient.

Thomas Elmer Roberts @ Oak Park, Ill., Chicago Homeopathic Medical College, 1888, Rush Medical College, Chicago, 1897, veteran of the Spanish-American War, aged 70, died suddenly, June 9, of heart disease while playing golf at El Paso, Texas

Hubert De Laserre Spence, Painesville Ohio, Homeopathic Hospital College, Cleveland, 1885, Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1897, aged 76, died, May 5, of coronary thrombosis

Zach Godfrey Smith, Marion, S. C., Vanderbilt University School of Medicine, Nashville, Tenn., 1889, member of the South Carolina Medical Association, aged 65, died, April 20, in the McLeod Infirmary, Florence, of bronchopneumonia

Edward Maurice De Castro Jr @ Brooklyn Long Island College Hospital, Brooklyn, 1898, on the staffs of the Calcedonian and Harbor hospitals and the Brooklyn Home for Consumptives, aged 55, died, June 2, of heart disease

Mary Elizabeth Bradford, Newburgh, Ind., Woman's Medical College, Chicago, 1887, formerly a medical missionary in Persia, aged 77, died, June 10, in the Deaconess Hospital, Evansville, following an operation for appendicitis

Louis Philip Rich @ Fredericksburg, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1903, served during the World War, aged 59, died, May 5, of angina pectoris and arthritis

Benjamin Earle Bostwick @ New Milford, Conn. Long Island College Hospital, Brooklyn, 1890 past president of the Litchfield County Medical Society, aged 68, died, May 26, of coronary thrombosis

Arthur Lloyd Chapman, Rahway, N. J., Meharry Medical College, Nashville, Tenn., 1931, aged 31, died, April 12, in the Bonnie Burn Sanatorium, Scotch Plains, of pulmonary tuberculosis

John Joseph Gaines, Excelsior Springs, Mo., University Medical College of Kansas City, Mo., 1893, member of the Missouri State Medical Association, aged 73, died, April 5

Elizabeth Garlick Smith, Bridgeport Conn., United States Medical College, New York, 1883, aged 86, died, March 18, of diabetes mellitus and gangrene of the left foot and leg

Hugh Nutting, Washington, D. C., George Washington University School of Medicine Washington, 1906, aged 57 died, March 12, of coronary occlusion and arteriosclerosis

Judson J. Shultz, Delphi, Ind., Eclectic Medical Institute, Cincinnati, 1879, member of the Indiana State Medical Association, aged 79, died, May 21, of heart disease.

Clarence Alfred Trainor, Los Angeles, Northwestern University Medical School, Chicago, 1910, aged 51, died, suddenly, May 17, of coronary occlusion

Llewellyn Henry Johnston, Milwaukee, University of Toronto (Ont.) Faculty of Medicine, 1907, aged 62, died, May 3, of cerebral hemorrhage.

Fred Sumner Smith, Chester, Conn., Yale College Medical Department, New Haven 1882, aged 79, died, April 24, of carcinoma of the rectum

Thomas E. Stucky, Milroy, Ind., University of Louisville (Ky.) School of Medicine, 1874, aged 82, died, April 30, of cerebral thrombosis

William Converse Phillips, Zephyrhills, Fla., Boston University School of Medicine, 1896, aged 79, died, May 7, of angina pectoris

Andrew William Imrie, Los Angeles, McGill University Faculty of Medicine, Montreal, Que., Canada, 1879, aged 78, died April 13

Max J. Stern, Atlantic City, N. J., Jefferson Medical College of Philadelphia, 1885, aged 73, died, April 25, of bronchopneumonia

Marcus Spiro @ Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1893, aged 70, died, April 21, of myocarditis

Ella Mansfield Caryl, Los Angeles California Eclectic Medical College, Los Angeles, 1914, aged 74, died, April 3

Alice Morrison Swayze, Los Angeles, California Medical College, San Francisco, 1895, aged 77, died April 25

Carrie A. Goss Haskell, San Francisco, Chicago Homeopathic Medical College, 1878, aged 77, died, April 7

Willis Grant Hatch @ Santa Cruz, Calif. Rush Medical College, Chicago 1897, aged 65 died, April 16

Harry Ford Scudder, Los Angeles Eclectic Medical Institute, Cincinnati, 1893, aged 63, died, April 9

George W. Sumcoe, Fulton, Mo., Missouri Medical College St. Louis, 1881 aged 86 died April 22

## Bureau of Investigation

### ULTRASOL

#### Another Fantastic Cosmetic

An alleged hair grower "Ultrasol" is put out by a concern known as the Post Institute, New York City. It is said to contain "soothing oil, lemon juice, eggs, pituitary gland extract, sulphur." Elsewhere Ultrasol is described as a compound involving the presence of vitellin, nuclein, cerebrin, lecithin and cholesterol.

In its advertising the company has claimed that men and women after using Ultrasol, have reported enthusiastically that "fuzz at the temples grows to long, mature hair," that "abnormal hair falling stops," that "Ultrasol keeps the hair brilliant" and that "the scalp feels clean, fresh, free from dandruff." These statements are featured, and then follows the statement that "we do not claim that Ultrasol does any of these wonders!"

In June, 1929, the Division of Legal Medicine of the Department of Health of the City of New York wrote to the Bureau of Investigation and stated that "the Post Institute is operating a quack game" and that the Department was anxious to get any information about one "Dr. John Post" who was alleged to have formerly practiced as a dermatologist in New York City and to have died in 1916. A most careful search of the files of the American Medical Association was made. From 1886 until 1916 there was no record of a man by the name of John Post who was a graduate of any reputable medical school who practiced in New York City as a dermatologist.

In June, 1933, the Federal Trade Commission wrote to the Bureau of Investigation with reference to an "alleged Dr. John Post" of 30 Irving Place, New York City, who had been described in an advertisement as a "Dermatologist to Royalty." The Commission stated that its efforts to elicit information on the alleged Dr. John Post had not been successful. The Commission stated further that it had been told that the Post person was an Englishman with a foreign degree and that he had conducted a sanitarium on Cape Cod and had died in 1918 or 1919. The Commission was told of the investigation made at the request of the New York Health Department in 1929 that had been unsuccessful, the Bureau also made another investigation at the time of the Commission's request. This was equally unsuccessful. Furthermore, the Commission was told that if John Post had conducted a reputable sanitarium on Cape Cod any time within the past quarter of a century, the American Medical Association would no doubt have had some record of the fact, it had no such record.

In 1934 the National Better Business Bureau wrote to the Bureau of Investigation regarding the Post Institute and its nostrum Ultrasol. The Better Business Bureau reported that the alleged ingredient of Ultrasol on which the Post concern placed most emphasis was pituitary gland extract, and the Bureau asked whether there was any evidence to indicate that rubbing pituitary gland extract on a bald head would raise hair. The Bureau of Investigation replied that the claim was about as fantastic a piece of hokum as had been seen for a long time. As a result of the Better Business Bureau's report on the Post Institute, a letter was written by one Louis J. Stern of the Institute, stating that the "value of the pituitary extract [in Ultrasol] does not depend upon its being absorbed through the scalp but rather in penetrating along the hair shafts to the hair glands." Mr. Stern further expressed the opinion that in "view of the fact that some extracts of the pituitary are capable of causing powerful uterine contractions in a dilution of one in one hundred billion, it is quite reasonable to suppose that when a powerful chemical such as this is applied locally, it would also have some value."

There seems to be no limit to the fantastic lengths to which certain exploiters of cosmetic preparations will go in selling their nostrums. They know, of course, that there is no national law that puts any penalty on the most preposterously misleading or even fraudulent claims. So far as the federal government is concerned, the sale of cosmetics today is as free from regulation as the "patent medicine" business was prior to 1907.

## Correspondence

### TREATMENT OF SCURVY WITH CRYSTALLINE VITAMIN C

To the Editor —Dr Irving Sherwood Wright of New York has called my attention to a report of his (Treatment of Adult Scurvy and Crystalline Vitamin C [Ascorbic Acid], *Proc Soc Exper Biol & Med* 32 475 [Dec] 1934), in which capillary fragility was reported as one of the signs of scurvy which responds to injections of cevitamic acid

Dr Russell and I would have quoted this earlier observation in our recent paper (The Effect of Cevitamic Acid Injections on Capillary Resistance, *THE JOURNAL*, May 11, p 1701) if we had been acquainted with it. It appears to be the first published report of the effect of cevitamic acid on capillary fragility. A complete report by Dr Wright will soon appear in the *Archives of Internal Medicine*

GILBERT DALLDORF, M D, Valhalla, N Y

### MENINGOCOCCUS TOXIN

To the Editor —The article entitled "Active Immunization with Meningococcus Toxin" by Ferry and Steele, published in *THE JOURNAL*, March 23, has provoked requests for this toxin to be used for active immunization against meningococcal meningitis. It was not the intention of the authors to convey the impression that this toxin is available for distribution or that proof of active protection against the disease had been established. In fact, in the body of the paper the latter phase of the problem is covered in the statement 'While the results of these tests indicate certain facts in regard to the stimulation of active immunity in man against meningococcus toxin they do not necessarily signify that an immunity against the organism can be produced at the same time'

N S FERRY, M D

A H STEELE, M D

Detroit

### SO-CALLED NEW DISEASES

To the Editor —Besides infantile paralysis and encephalitis spoken of by Hans Zinsser (*THE JOURNAL*, May 11, p 1700), many other diseases with marked characteristics have emerged within the last century, and even within the last few years. This seems strange, in view of the fact that it is often stated that physicians of the past possessed a very keen sense of observation and their 'horse sense' was by far superior to modern clinical and laboratory methods

In this connection it is of interest to quote a statement by the French clinician Edouard Rist

"It is strange," writes Rist (*La tuberculose*, Paris, Librairie Arman Colin, 1927), "that certain affections, the symptoms and course of which appear to us sufficiently characteristic as to be distinguished by simple clinical observation without the assistance of special technical methods, failed to be identified by our predecessors for many centuries. Measles and scarlet fever, for example, were first described in the eighteenth century and for a long period afterward were confounded with other diseases. Diphtheria, typhoid fever and pneumonia were identified at the beginning of the nineteenth century"

In truth," continues Rist, 'the most reputable physicians of the past were poor observers. Nourished by dogmas and not by facts, enslaved by a scholastic mentality—resentful of criticism, they lacked the open minded attitude indispensable to the disinterested study of natural phenomena. They shared this deplorable state with scientists' in other branches"

One should not forget," goes on Rist, "that the scientific approach was initiated in the sixteenth century by a few

extraordinary personalities as Leonardo and Vesalius. To the end of the seventeenth century this was looked upon as a heresy, and only toward the end of the eighteenth century it, finally, won the respect and the encouragement of a very limited elite. Its triumph, which has upset the manner of thinking and the mode of living and which has changed the face of our planet, occurred only during the nineteenth century"

With all due respect to the triumph that modern medicine has attained, one must admit humbly that many diseases still escape observation in spite of the "open minded" attitude and technical perfection. Our successors, too, will probably discover 'new diseases' with "striking characteristics." They probably will speak of us in harsh tones such as Rist employs in speaking of our predecessors

B M FRIED, M D, New York.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request

### NARCOTIC ADDICTION

To the Editor —I have a patient who has been using morphine since 1898 and has cost his brother who is quite well to do several thousand dollars. This patient has been in numerous sanatoriums and several years ago I was called to a local hotel to see him (I had never seen him before) and he told me his statement being confirmed by relatives, that he had just been released from a well known institution and had been pronounced cured. He was vomiting most severely and was beginning to enter into coma for several days it required considerable care on my part and with nursing he finally came out of it but only after I had administered in the presence of other physicians 3 grain (0.2 Gm.) doses of morphine sulphate. After I had obtained the man's history two other physicians and myself decided that he was a chronic addict and that morphine was essential for him to live. Time after time I have tried to reduce his dosage but finally gave it up as a bad idea and the other doctors decided likewise. It was agreed that he would come under article 85 exception 2 of the Harrison act wherein it was all right to give a chronic addict sufficient narcotics to maintain health. The patient has seemed willing to work with me and his brother gives him an ample allowance but his tolerance has reached the point at which I am at sea and want some advice. I have seen the man take 25 grains (1.6 Gm.) of morphine sulphate subcutaneously and apparently suffer no ill effects and at present I am giving him 3 drachms (11.6 Gm.) each week. Unless I do, he swells, he is extremely toxic, for he does not eliminate respiration almost ceases and vomiting always occurs. A large dose of morphine relieves this. When I was in college in 1913 our teacher was a Dr. Schultz who was formerly (for twelve years) with the standardization of drugs department in the U S Health Service at Washington D C., and he told us that 3 grains was the maximum dosage of morphine. Can you enlighten me on this patient? He is 69 years old and does not drink alcohol to excess. Please publish for I would like to know how much morphine can be taken without the addict dying

M D West Virginia

ANSWER.—Drug addiction creates no physical disease necessitating its own continuance or renewal after the habit is broken. When the correspondent saw the patient for the first time he was suffering from abstinence symptoms. The continued narcosis locks up the secretions and excretions of the body, and catabolic products and intestinal fermentation produce a mixed toxemia. When an attempt is made to stop the use of the drug without proper treatment, pathognomonic withdrawal or abstinence symptoms appear, which are promptly relieved by a dose of morphine. These are the result of the release of cells from a long maintained functional depression or inhibition, taking the form of exaggerated activity of the different organs.

These symptoms last and increase from forty eight to seventy-two hours and then diminish. They vary and are not so severe as ordinarily supposed. There is no danger of death when the addict is in fair condition. The asthenic symptoms that follow the detoxication are due to the nervous exhaustion following the long period of continuous narcotization of the nerve cells and last about six weeks.

Either the patient had not been taken completely off the morphine or seventy-two hours had not elapsed since his last dose of morphine when he was released from the pay institution. There is also the possibility that if several days had elapsed since his discharge he had started using morphine again and that his supply had been interrupted.

That the number of deaths due to narcotics is not great is shown by the records of the Cook County coroner's office.

From 1916 to 1924 an average of six deaths from narcotics a year has occurred in Chicago and Cook County, and this figure includes victims who were not habitual users of drugs. A habitué develops a tolerance to large doses of morphine and it is questionable whether a fatal result could be produced in the patient by a drachm (4 Gm.) or more. While many addicts use more than 10 grains (0.65 Gm.) daily there is no real physical need, because if the addict is where his supply can be controlled from 8 to 10 grains (0.5 to 0.65 Gm.) of morphine will prevent any abstinence symptoms, but he does not get the pleasure or "kick" effect. When an addict says that he takes his drug only to feel normal, his ideas of normal are normal plus. This pleasure effect of narcotics varies in different persons from a feeling of comfort and relief to a wild, delirious "jag", so the amount used is usually limited by his available supply. A true comparison can be drawn in alcoholism, an alcoholic addict who is taking considerable daily amounts begins to suffer when his alcohol is stopped or attempts are made to reduce his regular dose, and in the morning he must have a drink or several drinks before he can carry on, if he does not get it he is a nervous wreck. Few morphine addicts use alcohol in excess. The solution of the drug evil does not rest on the administration of any specific treatment but rather on the removal, where possible, of the underlying causes for which the drug addiction is merely an expression. These causes vary in individual cases, it is not a mass problem. In the normal or nearly normal narcotic user who has acquired the habit through physical disease or discomfort which no longer exists or can be eradicated, if the patient is sincere and willing to stand, as most of us do, the mental and physical stress that is part of life's conflicts without resorting to narcotics, a permanent cure can be expected. For some patients good health plus normal life do not replace the sensations that narcosis means, and the possessors of these morbid types of personality will use narcotics as long as they live and narcotics are available. The patient in question belongs to this type and the probability of a permanent cure under existing conditions is slight unless he can be put away for a year or longer where the drug is unobtainable. Most relapses are not due to pain or ill health but to a desire for narcotic relief, which may mean anything from simple ease and forgetfulness to wild exhilaration.

#### EFFORT SYNDROME

To the Editor—Will you please discuss for me the following symptom complex and suggest treatment. A woman aged 30 married without children complains of repeated attacks of anginal pain localized in the fourth interspace just inside the apex, a sense of precordial distress with pounding heart beat more or less all the time, some nervousness and insomnia induced by consciousness of the heart beat. She says that she has always had a rapid heart rate. There is no history of any illness of importance. Over a period of several months the pulse rate has varied from 100 to 170 being usually about 150. The heart is not enlarged the apex beat is very forceful at times suggesting a thrill. At various times there has been a suggestion of a presystolic rumble although this has not been heard for several months. The radial pulse is full and regular. Roentgen examination of the heart and gastro-intestinal tract are negative. The basal metabolism is normal. The general physical examination gives negative results. The blood pressure averages about 130 systolic 84 diastolic. Gastric analysis gives normal results. Various medicines have been used in the treatment in addition to rest. The most benefit seems to have been derived from quinine sulphate in full doses and iodine although nothing has brought the pulse rate down nor have the precordial symptoms been entirely relieved. The patient is decidedly nervous, but she does not seem to be apprehensive about her condition and I think that her symptoms are decidedly real rather than imaginary. I shall appreciate any suggestions about this case. Please omit name and address.

M D Alabama

ANSWER.—The symptoms and observations in this case of a normal sized heart by roentgen examination, normal blood pressure, a full regular pulse, and a normal basal metabolic rate suggest the diagnosis of effort syndrome as the cause of the symptom complex. The etiology of this disease is not known, but it occurs most commonly in females following excessive physical or mental strain. It occurred commonly in soldiers during the war as a result of the excessive effort while in civilian life the same men leading less strenuous lives would not be subject to the disease. The symptoms and observations are as indicated in the question. The treatment is often difficult and consists of reassuring the patient, trying to eliminate the causes for worry and mental distress and graduated exercises. This may involve sending the patient to new surroundings or a sanatorium where the difficulties may more easily be adjusted. The remote possibility of an adhesive tuberculous pericarditis with a normal sized heart must be considered as a cause for the symptoms. The cardiac symptoms are chiefly a result of the mechanical interference with the normal activity of the heart.

#### CARDIOVASCULAR SYPHILIS

To the Editor—Last October I was called to see a man, aged 30, complaining of precordial pain and a sense of oppression over the precordia. Close questioning gave a positive syphilitic history fifteen years before with treatment for one year. The treatment consisted of injections in the vein and the patient was pronounced cured. He also stated that he had three similar attacks within the past five years. Suspecting a possible syphilitic aortitis I had his chest roentgenographed, and the report was that a widening of the ascending portion and the arch of the aorta was present suggestive of aortitis. However, a competent clinician from his examination and his own observation of the roentgenogram expressed some doubt as to the diagnosis. The only clinical finding was a hyperactive knee jerk reflex in both legs. The Wassermann reaction was 2 plus. I started the patient on intramuscular injections of bismuth araphenamine sulphamate. Following the second injection an itchy maculopapular rash developed on the trunk and both arms. Discussion with syphilologists and the manufacturer placed the cause for this rash on the arsenic in the preparation. Hence I switched over to biweekly injections of 50 mg of a basic bismuth salt of camphocarboxylic acid. The rash disappeared. Up to the present time the patient has received twenty four injections. His Wassermann reaction after twelve injections amounted to a trace. A Kolmer reaction after twenty four injections was 2 plus. A spinal tap done after the first twelve injections showed the spinal fluid negative. Potassium iodide has been given with the foregoing medication. Up to now the patient has been feeling fine. Bimonthly urinalyses are negative. Please advise me as to further treatment also what will be the significance of a persistent Kolmer reaction? If printed in Queries and Minor Notes please omit name.

M D, New York

ANSWER.—The probability is that this patient has cardiovascular syphilis. Precordial pain, substernal oppression and a widening of the ascending portion and arch of the aorta in the roentgenogram are almost pathognomonic of syphilitic aortitis. As the patient appears to have an intolerance to arsenical preparations, it would be best to continue medication with milder remedies. Iodides should be continued intermittently along with mercurial inunctions or mercury by mouth (mercury with chalk or yellow mercurous iodide pills). This can be alternated with a course of from eight to ten weekly injections of bismuth salicylate. Authorities differ as to the necessity or advisability of administering arsphenamine preparations in cardiovascular syphilis.

The Kolmer modification of the Wassermann test is slightly more sensitive than the original Wassermann. The significance of a persistent Kolmer is about the same as that of a persistent positive Kahn test. Frequently the Wassermann reaction will become negative under treatment and the Kahn or Kolmer reaction may remain weakly positive.

#### USE OF DINITROPHENOL IN OBESITY DUE TO HYPOTHYROIDISM

To the Editor—My sister in law a registered nurse aged 37 height 5 feet 2 inches (157.5 cm.) weight 150 pounds (68 Kg.) during her second year of training in 1927 developed a toxic goiter and was treated in Dublin, Ireland. She was confined in bed fourteen months and was ambulatory six months before resuming training. Her pulse rate was 172 and she was given one hour of roentgen therapy to the front of the neck and one hour to the back of the neck in August 1927 and again two hours in the same manner in March 1928. She improved and finished her training. However hypothyroid symptoms now are pronounced she carries excess weight and her pulse rate is consistently 64. The tonsils were incompletely removed in 1918 and she has suffered severe headaches with chronic arthritis for the past ten years. The menstrual periods are regular of normal duration and without dysmenorrhea. She arrived in New York last September and while visiting there became worse and submitted to a physical survey. She had infected tonsil stubs and a streptococcal infection of both antrums, ethmoids and sphenoids. The basal metabolic rate is -32. Nov 15 1934 the tonsil stubs were removed both antrums were drained through intranasal openings the ethmoids and sphenoids were cleaned up and a submucous resection was done. A copious pus drainage occurs as yet on each nasal douching but the arthritic pain in both shoulders and both knees and the headaches are diminishing. She has been taking 3 grains (0.2 Gm.) of Armour's thyroid daily for the last four weeks and thrives on it. She is gaining weight when she needs to reduce. In view of her history would dinitrophenol be too risky? What would you suggest to reduce her weight with this hypothyroidism present? If published, please omit name and town.

M D Ohio

ANSWER.—The gain in weight following recovery from toxic goiter is not necessarily, or even usually, a manifestation of myxedema. It occurs frequently after thyroidectomy or roentgen treatment at a time when the basal metabolism is normal or even high and no definite signs of hypothyroidism (dryness or myxedema of the skin, physical and mental sluggishness, menstrual disturbances, low blood pressure, anemia, loss of hair, constipation) are noticeable. On the other hand, patients with typical postoperative myxedema with low metabolic rates may not gain much weight beside that due to water retention.

Weight gained immediately following recovery from thyrotoxicosis is chiefly that which was lost during the period of development of the toxic goiter. The gain is occasionally

greater than the previous loss, probably because the sudden shift from the negative to the positive energy balance upsets to some extent the previous level of body fat content regulation. The marked tendency to gain weight in the case described, seven years after recovery from thyrotoxicosis, might have spontaneously appeared at this period of life of the patient, regardless of the previous history, as it does in many cases of uncomplicated obesity.

Accordingly, the dietetic treatment of the obesity must receive as much attention in this case as in any other case. In addition the administration of thyroid substance is indicated in this case to combat water retention and relieve other symptoms of myxedema. The amount given may not be sufficient and should be raised to the tolerance limit, judged by clinical signs and by repeated metabolism tests.

Alpha-dinitrophenol (1-2-4) is probably no more risky in this than in other cases. It may cause a loss of weight but does not relieve the direct symptoms of myxedema (Tainter, M. L., Stockton, A. B., and Cutting, W. C. Use of Dinitrophenol in Obesity and Related Conditions *THE JOURNAL*, Nov. 4, 1933, p. 1472).

#### ENLARGEMENT OF CERVICAL LYMPH GLANDS

*To the Editor*—A three year old girl was brought to me because of enlarged cervical glands on the left side of several months duration, apparently not dating back to an acute infection of the upper respiratory tract. These glands are distinct, are the size of beans and are not adherent to the skin. There are no other glands the spleen is not palpable. The child is apparently in the best of health is gaining weight and is very active. The remainder of physical examination is essentially negative. The tonsils are enlarged but apparently not diseased. The child has had no serious diseases. She had whooping cough about a year ago. A Mantoux test was markedly positive. A roentgenogram of the chest did not reveal any pathologic changes. There is no history of tuberculosis in the family. What is the significance of the positive Mantoux test in this case? Would it be advisable to remove the tonsils? Please omit name.

M D, Minnesota

*ANSWER*—While tuberculosis is only one cause of enlargement of the cervical lymph nodes, it must be considered, since the tuberculin test is positive. On the other hand, a positive test does not necessarily mean that the tuberculous disease is in the lymph nodes. The test indicates merely that tuberculosis is present somewhere in the child's body. The fact that the x-ray film does not reveal any evidence of pathologic changes in the lungs is not significant. In such cases, x-ray films are helpful only when they reveal definite evidence of disease. A negative film of the chest, like a negative laboratory examination of the sputum, by no means rules out disease. Tuberculous foci of first infection often exist in the lungs of such size that they do not cast shadows on the x-ray film that one is able to visualize, therefore the negative film of the chest is not good evidence that the tuberculous lesions are not in the lungs. There is no way to determine with certainty whether or not the cervical lymph nodes are tuberculous except through biopsy and they are so small that this would hardly seem justified. If the nodes are the seat of the tuberculous foci, x-ray films through the cervical region may in time show evidence of calcium deposits in them. While this is good evidence of tuberculosis, it cannot be compared with biopsy from the standpoint of accuracy in diagnosis.

The fact that the child is in the best of health is gaining weight and is very active is quite in keeping with the first infection type of tuberculosis. Indeed, there usually are no outward manifestations of the existence of this disease in children of any age. Drolet has called attention to the fact that only 103 per cent of children who develop the first infection type of tuberculosis up to the age of 15 years die of tuberculosis.

The same condition that resulted in hypertrophy of the tonsils may be responsible for the enlargement of the cervical lymph nodes. There is controversy regarding the removal of tonsils in children but the general opinion is that unless they are definitely infected and are harbingers of pathogenic microorganisms, such as tubercle bacilli, or are sufficiently large to obstruct the air passages it is better not to remove them.

Even if the lymph nodes should prove to contain tuberculous lesions in all probability it is of the first infection type and no special treatment is indicated. In a child of 3 years with a positive tuberculin reaction, the source of the disease will probably be found in an unsuspected form in some of the close human associates. The best treatment consists of finding the source and breaking the contact with the child. Beyond that the ordinary care that any normal child should receive by way of diet rest and atmospheric conditions is all that is necessary. However as the period of puberty is approached periodic examinations including x-ray films of the chest should be made every year and preferably every six months, since it is during this period that the destructive type of tuberculosis begins to make its appearance with considerable frequency.

#### ORR TREATMENT OF FRACTURES AND OSTEOMYELITIS

*To the Editor*—Please describe the Winnett Orr treatment of infected fractures and osteomyelitis. Please omit name.

M D, New York.

*ANSWER*—Orr's method was developed as a reaction against practices which included timidity in operating, overboldness in operating, failure to drain adequately, inability to recognize acute bone abscess, and too many disturbances during the patient's attempt at healing.

The principles of the Orr treatment include (1) good surgical operation providing adequate drainage, (2) wide-open packing of the wound with petrolatum gauze, (3) immobilization of the extremity, and (4) the minimum number of dressings.

Orr's chief contributions to this subject are (1) the reduction in the number of dressings, that is, the reduction in the number of times the wound is exposed to further contamination and the reduction of the pain and suffering that are caused by repeated dressings, (2) rest of the wound, (3) avoidance of painful dressings, and (4) the saving of the bacteriophage.

Orr advises (1) immediate adequate drainage at whatever stage the osteomyelitis is encountered, (2) the maintenance at rest of inflamed parts by the application of a plaster-of-paris cast, aided if necessary by ice tongs or other methods of skeletal fixation, (3) wide-open drainage by means of a sterile petrolatum pack, (4) primary asepsis or antiseptics, avoiding the use of irritating antiseptics in the wound, (5) postoperative care, emphasizing rest without antiseptic dressings, which usually increase and complicate infection, (6) maintenance of all injured parts, bones and soft parts, in their correct anatomic position during the entire period of healing.

In a discussion of the treatment of compound fractures, Orr states that a certain dexterity in the use of moleskin traction, plaster-of-paris and skeletal traction devices, sometimes included in plaster-of-paris casts, is essential. He states that these appliances are not only comparatively simple and easy to use but also more effective than other splints and traction devices in ensuring more permanent length, correct position and immobilization. The first operation sees the wound cleaned and the bones immobilized in the correct position.

Orr states that, when a compound fracture occurs, the bones involved are not only broken but thrown forcibly out of their normal position. It is therefore of paramount importance that these bones be restored as nearly as possible to their correct position and that between the time of fracture and the time of restoration as little damage as possible be done to the tissues surrounding the fracture. To ensure this, it is best to splint the patient at the scene of the accident and to place the bones in the correct position at operation and immobilize them. It is highly important that this immobilization be maintained.

Wound treatment is secondary in that it is possible to provide an aseptic wound that will heal easily and satisfactorily while at the same time giving primary consideration to the fractured bones. He advises wide open drainage without the use of drainage tubes, usually without sutures.

The correspondent should refer to a book by Dr. H. Winnett Orr, called "Osteomyelitis and Compound Fractures," published by the C. V. Mosby Company, St. Louis, in 1929.

#### ATROPHY OF TESTIS AFTER INGUINAL HERNIOTOMY

*To the Editor*—Are there any statistics available that will show the percentage of atrophy of the testicle following inguinal herniotomy? A local doctor—not a member—is urging suit against one of our local surgeons because of atrophy of the right testicle following herniotomy. I do not know the type of repair used but told the doctor and attorney that in my opinion the fact that the testicle is atrophied following the operation does not prove poor surgery or mismanagement and made the statement that often orchitis followed hernial repair and that sometimes atrophy followed. They want to know in what percentage atrophy follows and I cannot even guess at the figure. Of course it is small but the fact that it has happened before may help prevent this case going further.

M D, Illinois

*ANSWER*—W. S. Halsted reported (Discussion on Hernia *Tr. Am. S. A.* 13:343, 1895) three cases in which atrophy of the testicle occurred after his operation for hernia, in which some of the large veins were ligated to diminish the size of the cord. He stated that they had stopped ligating the veins of the cord as a routine part of his operation.

Cattell and Anderson, in a follow up of 150 patients operated on for hernia at the Lahey Clinic found (*New England J. Med.* 205:430 [Aug. 27, 1931]) that in ten, or 6.7 per cent, of cases examined there was evidence of atrophy of the testicle on the operated side. In none of these was there any atrophy noted previous to operation. They emphasized the importance of leaving an adequate opening for the passage of the cord without interference with its blood supply. In five of these cases



in which atrophy occurred, operation had been done by the Gallie technic. In the other cases apparently the Bassini technic was used.

In a report of 1,878 operations for hernia (*Tr Am S A* 48 306, 1930) Gibson and Felter reported the occurrence of epididymitis and orchitis twenty-one times, or 11 per cent, the cutting with repair of the vrs twice, the cutting of the cord followed by removal of the testicle once, hydrocele seventy-four times, spermatocele once and varicocele twenty-three times. They did not report the incidence of atrophy of the testicle, but it is well known that atrophy of the testicle frequently follows traumatic epididymo-orchitis. McCullagh reported (*M Clin North America* 17 969 [Jan] 1934) the occurrence of hypogonadism in two cases seen following hernia operations. In both cases the testicles were smaller than the average, but there was no record of the size before operation.

Claverley called attention (*Lancet* 1 277, 1917) to the occurrence of atrophy of the testicles on the same side with a hernia before operation and reported two cases which he thought were coincidental rather than due to a developmental condition. He emphasized the necessity of the patient signing a statement of this condition before operation as a safeguard to the surgeon in case of litigation.

#### DRESSING FOR LABORATORY TABLES

To the Editor—Some time ago if I am not mistaken there appeared in this department of *THE JOURNAL* a description of a method for finishing the tops of laboratory desks. Can you supply me with the formula?

D W CARTER JR MD Dallas, Texas

ANSWER.—As considerable time has elapsed since we published the formula for an ebonizing preparation to render laboratory tables resistant to staining or corroding chemical reagents we repeat it herewith.

Solution A	
Copper sulphate and potassium chlorate each	125 Gm
Water	1 000 Gm
Boil till salts are dissolved	
Solution B	
Aniline hydrochloride	150 Gm
Water	1 000 Gm
or	
Aniline	120 Gm
Hydrochloric acid	180 Gm
Water	1,000 Gm

Two coats of Solution A are applied while hot, the second as soon as the first has dried. Two coats of Solution B are applied and the wood is allowed to dry thoroughly. Next a coat of raw linseed oil is rubbed in by means of a cloth to give a polish. In the treatment with the oil, the deep black color is partially brought out, but this does not uniformly appear until the table has been thoroughly washed with hot soapsuds. The latter treatment removes superfluous chemicals. To keep the table in condition, it is said to be necessary only to wash off occasionally with soap and water and then to rub with oil. The amount is sufficient for 10 square yards of surface.

#### FRACTURE OF HIP IN WOMAN AGED FIFTY

To the Editor—What possibility of walking may be promised in a case of intracapsular fracture at the hip with nonunion? This fracture, in a woman in the fifties was immediately at the junction of the head and neck of the femur treated by a Steinmann pin and extension and internal rotation. No union occurred, and when absorption of the neck was noted to begin in ten weeks the patient was returned home as she did not wish open operation. There is now 3 inches shortening and 75 per cent normal active movement. Will she be able to bear weight and walk and when should she start weight bearing or what treatment is indicated? Please omit name.

MD New York

ANSWER.—A woman in the fifties with an ununited fracture of the neck of the femur and 3 inches of shortening should certainly have an operation performed if she is a reasonably good surgical risk. A Whitman reconstruction would enable her to be up and about much earlier than a bone graft or a Brackett operation but would result in slightly more shortening than the other methods.

If no operation is accepted, she can begin to bear weight at once, using crutches and gradually increasing the time and amount of weight bearing. The ultimate shortening will be 3½ or 4 inches, and the hip joint usually remains quite painful. The body weight is borne by the capsule and ligaments, like a sling and walking is difficult and unstable with a marked limp. A high soled shoe or a metal patten must be used to equalize the length of the legs.

The late result of a nonunion therefore is extremely unfavorable and every effort should be made to obtain the consent of the patient to an open operation.

#### POISONING FROM COMPOUND SOLUTION OF CRESOL FOLLOWING UTERINE INJECTION

To the Editor—I wish to secure some information regarding the toxic effect of cresylic acid, which is commonly used and sold under the trade name of Iysol particularly in connection with the absorption of this substance through the uterus when injected to produce an abortion. In this case the solution was injected through the uterus by catheter to produce an abortion. The patient was delirious and unconscious within half an hour and died two days later without regaining consciousness. The theory, however, for the death of this woman was that cresylic acid was absorbed directly into the blood stream in this way. As soon as the solution found its way into the cavity of the uterus the uterus would make an attempt to expel it in the way of contraction of the elastic fibers of the uterus then on the rebound part of the placental tissue would be detached from the uterine wall and the large veins through which the young fetus is being fed and nourished would suck in the solution and in that way it would get into the blood stream. This is a rather unusual occurrence and I would like full information regarding the possibility of this occurring. I am of the opinion that the girl died not from the condition as stated but from poisoning due to taking emmenagogues. At autopsy in this case the stomach of the patient was found to be perforated probably the result of autodigestion. Could you advise me how soon this would occur after death and in what percentage of autopsies autolysis of the stomach occurs within forty-eight hours of death.

LOUIS PANCARO, MD, Sudbury, Ont

ANSWER.—In view of the circumstances described in this case the possibility of poisoning from compound solution of cresol following intra-uterine injection cannot be denied. Witt-haus and Becker (*Medical Jurisprudence, Forensic Medicine and Toxicology*, ed 2, 4 1187, 1911) state that they have collected the reports of eleven poisonings by uterine irrigation with five deaths, in three cases the irrigation was made to produce abortion and in one case death occurred. No emmenagogues give rise to symptoms like those described.

The stomach may digest itself more or less under many different conditions. The digestion may start almost at once after death, especially in the posterior wall of the fundus and at the junction with the esophagus, because those parts ordinarily come in immediate contact with the gastric juice. Naturally, the state of secretory activity at the time of death is important. Self digestion is favored by warm weather. The entire thickness of the wall of the stomach may be digested and the process may even extend to neighboring organs. Just how quickly and how extensively digestion may occur cannot be stated in definite terms, because the factors involved are subject to great variation.

#### PORTAL CIRRHOSIS WITH ASCITES

To the Editor—1 How frequent are spontaneous remissions in decom-pensated portal cirrhosis without treatment? 2 Can the current high carbohydrate diet alone cause disappearance of the ascites? 3 Do you know of any instances in which the xanthine group of diuretics used alone notably theocalcin have caused the disappearance of the ascites?

BENJAMIN J MACCHIA, MD Jersey City, N J

ANSWER.—1 Spontaneous remissions do occur but far too infrequently to afford any basis for statistical data. Dense adhesions may be found resembling those of a Talma operation without any history indicating when the inflammatory processes occurred. Adhesions may follow repeated tapplings, resulting in a remission.

2 A high carbohydrate diet is of great advantage to such patients but there is no reason to suppose that it could possibly cause a remission of the ascites.

3 There are no reported instances available in which the xanthine group of diuretics used alone have caused the disappearance of the ascites. In a case of cardiac decompensation with what may be considered a cardiac cirrhosis of the liver, it is conceivable that one of these diuretics might effect some improvement, although it is very doubtful.

#### EFFECTS OF INSULIN ON SERUM

To the Editor—What are the effects, if any of insulin on the blood serum in vitro? I would appreciate any information you can give me on this subject. Please omit name.

MD New York

ANSWER.—There is no generally accepted action of insulin on blood serum in vitro.

Lundsgaard and Holbøll (*J Biol Chem* 62 453 [Dec.] 1924, 70 71 [Sept] 1926) reported that insulin and finely minced muscle tissue acting together change the optical rotation of dextrose without altering its reducing power, i e, the mixture converts dextrose into a new form.

Bierry and Moquet (*Compt rend Soc de biol* 93 322 [July 10] 1925, abstr *THE JOURNAL*, Oct. 17, 1925, p 1259) found that the spontaneous disappearance of dextrose and phosphates from the blood in vitro was accelerated by the addition of insulin.



## SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor—Kindly let me know who was the first one who brought out the diagnosis of 'subacute bacterial endocarditis (septic)' caused by *Streptococcus viridans*. Were there ever reported any cases that were cured and if so what was the treatment? How many cases were cured, if any? Somebody has said that Dr Libman and Dr Baird from Mount Sinai Hospital New York were the first who discovered that disease. Dr Harlow Brooks it was said asserted that he cured six cases. Out here in Boston I spoke to several cardiologists and none know of any cures or have heard of any cures.

BERNARD ZUCKERMAN M.D. Dorchester Mass.

ANSWER.—It is hard to give any one man the credit for bringing out the diagnosis of subacute endocarditis. Prolonged forms of endocarditis were described by Jaccoud as early as 1882 by Osler in 1885 and by numerous other authors in subsequent years. Schottmüller described it as endocarditis lenta in 1910 and the disease is occasionally referred to by his name. He deserves a great deal of credit for calling attention to the subacute form.

There have been several cures reported which have stood the test of time. It is possible that this number would be increased by earlier diagnosis in the milder forms. It is possible also that several very mild forms have recovered without being diagnosed.

There is no specific treatment available, and rest and time are still the chief factors. The correspondent is referred to *Studies on Bacterial Endocarditis* by William S. Thayer, *Johns Hopkins Hospital Reports* 1926, where treatment was discussed on page 168 and to Dr Libman's report appearing in the *Transactions of the Association of American Physicians*, 1933, page 44.

It would be much better to go through these articles and others to which references will be found than to rely for information on such a short response as can be given here.

## DIFFERENTIAL DIAGNOSIS OF MYASTHENIA GRAVIS

To the Editor—A man aged 33, 5 feet 11 inches (180 cm) in height of large boned type, 205 pounds (93 Kg) in weight complains of excessive fatigue. He is emotionally stable. The weight was 230 pounds (104 Kg) four months ago at which time he was definitely conscious of overweight and had the beginning of his fatigue. By diet and exercise the weight was gradually dropped to its present level. It seemed that after his weight began to drop below 220 pounds (100 Kg) his fatigue progressively increased. Now he complains of being tired at all times and at the end of the day (he is an office worker) he can barely keep on his feet and he looks it. The blood pressure is normal, the basal metabolism is -5 per cent (checked twice by different individuals and records taken one month apart) and the blood sugar is 80. Everything else is normal and I have had my figures checked by two good internists. Thyroid was suggested for a try-out and I gave 2 grains (0.13 Gm) of a standard preparation three times daily for four weeks. This had no apparent effect on the fatigue but did increase perspiration and slightly accelerated the weight loss. The patient says he does not seem to have much choice that when his weight is way up he feels puffed up like a swelling toad and has a little shortness of breath and when his weight is where it is now he has fatigue that he cannot overcome. Suggestions will be greatly appreciated. Please omit name.

M.D. Virginia.

ANSWER.—The data given are far too meager on which to base a diagnosis. Muscle weakness and fatigability are due to many causes and the differential diagnosis of the various conditions is usually quite difficult. In this case myasthenia gravis as well as other conditions for example Addison's disease, should be considered. On the other hand the condition may be simple fatigability. A suggestive symposium on some of the various forms of myopathy and the results of treatment in the different groups with fatigability was recently presented by Moersch, Boothby, Wilder and their associates (*Proc Staff Meet Mayo Clin* 9:589 [Oct 3] 1934) which might furnish suggestions appropriate for this patient.

## RETARDING GROWTH

To the Editor—Is there any known method of retarding the growth of the long bones? The patient is a girl of 10 in good health. Please omit name.

M.D. New York

ANSWER.—There is no adequate method for controlling the growth of the long bones in healthy persons. If an anterior pituitary tumor is present, its removal would stop excessive growth. High voltage intensive roentgen therapy might be administered to the pituitary, but so many functions reside in this organ that such procedures might prove harmful in other directions, especially in subsequent gonadal development. Watchful waiting is probably the wisest plan to follow for the present.

## Medical Examinations and Licensure

## COMING EXAMINATIONS

AMERICAN BOARD OF PEDIATRICS St. Louis Nov. 19 Sec. Dr. C. A. Aldrich 723 Elm St. Winnetka Ill.  
ARIZONA Phoenix July 2 Sec. Dr. J. H. Patterson 826 Security Bldg. Phoenix  
CALIFORNIA San Francisco July 8-11 and Los Angeles July 22-25 Sec. Dr. Charles B. Pinkham 420 State Office Bldg. Sacramento  
COLORADO Denver, July 2 Sec. Dr. Harvey W. Snyder 422 State Office Bldg. Denver  
CONNECTICUT Hartford July 9-10 Endorsement Hartford, July 23 Sec. Medical Examining Board Dr. Thomas P. Murdock, 147 W. Main St. Meriden  
DISTRICT OF COLUMBIA Washington July 8-9 Sec. Commission on Licensure Dr. George C. Ruhland 203 District Bldg. Washington  
HAWAII Honolulu July 8-11 Sec. Dr. James A. Morgan 48 Young Bldg. Honolulu  
MAINE Augusta July 2-3 Sec. Board of Registration of Medicine Dr. Adam P. Leighton Jr. 192 State St. Portland  
MASSACHUSETTS Boston, July 9-11 Sec. Board of Registration in Medicine Dr. Stephen Rushmore 413 State House Boston  
NATIONAL BOARD OF MEDICAL EXAMINERS The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination Sept. 16-18 Ex. Sec. Mr. Everett S. Elwood 225 S. 15th St. Philadelphia  
NEVADA Reno Aug. 5 Sec. Dr. Edward E. Hamer Carson City  
NORTH DAKOTA Grand Forks July 2-5 Sec. Dr. G. M. Williamson 434 S. 3d St. Grand Forks  
PENNSYLVANIA Written Philadelphia and Pittsburgh July 9-11 Bdsd Philadelphia July 12-13 Dir. Bureau of Professional Licensure Mr. W. M. Denison 400 Education Bldg. Harrisburg  
RHODE ISLAND Providence July 2-3 Dir. Department of Public Health Dr. E. A. McLaughlin 319 State Office Bldg. Providence  
SOUTH DAKOTA Rapid City, July 16-17 Dir. Division of Medical Licensure Dr. Park B. Jenkins, Pierre  
UTAH Salt Lake City July 8-10 Dir. Department of Registration Mr. S. W. Golding 326 State Capitol Bldg. Salt Lake City  
WASHINGTON Basic Science Seattle July 11-12 Medical Seattle July 15-17 Dir. Department of Licensure Mr. Harry C. Huse Olympia  
WEST VIRGINIA Clarksburg July 8 State Health Commissioner Dr. Arthur E. McClure Charleston

## California February Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held in Los Angeles, Feb. 5-7, 1935. The examination covered 10 subjects and included 90 questions. An average of 75 per cent was required to pass. Sixty-four candidates were examined, 56 of whom passed and 8 failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Arkansas School of Medicine	(1932)	94.4	86
College of Medical Evangelists	(1931)	87.9	81.9
Stanford University School of Medicine	(1932)	83.1	90.6
University of California Medical School	(1934)	82.7	84
Univ. of Southern California School of Medicine	(1934)	82.7	85.4
University of Colorado School of Medicine	(1931)	89	86.4
George Washington Univ. School of Med	(1931)	89	84.1
Emory University School of Medicine	(1934)		82.7
Chicago Medical School	(1934)		84.3
Northwestern University Medical School	(1934)		83.8*
Rush Medical College	(1934)	78.9	86.6
School of Med. of the Division of the Biological Sciences	(1933)		87.1
University of Illinois College of Medicine	(1934)	87.1	92.8
Indiana University School of Medicine	(1932)		81.6
University of Louisville School of Medicine	(1934)		82.9
Tulane Univ. of Louisiana School of Med	(1933)	86.2	84.9
Harvard University Medical School	(1930)		85.7
Tufts College Medical School	(1933)		83.4
University of Michigan Medical School	(1933)		87.7
University of Minnesota Medical School	(1934)		82.4
Washington University School of Medicine	(1934)	86.8	89.9
Univ. of Oregon Med. School	(1933)	87.4	86.6
Hahnemann Medical College and Hosp. of Philadelphia	(1934)		80.2
Temple University School of Medicine	(1930)		87.4
University of Pennsylvania School of Medicine	(1933)		84.6
Vanderbilt University School of Medicine	(1934)		81.1
Univ. of Santo Tomas College of Medicine & Surgery	(1924)		78
McGill University Faculty of Medicine	(1934)		91.3
Albert Ludwigs Universität Medizinische Fakultät Freiburg	(1925)		80.1†
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1922)	81.9†	76†
Johann Wolfgang Goethe-Universität Medizinische Fakultät Frankfurt am Main	(1924)	78.7†	75.8†
Ludwig Maximilians Universität Medizinische Fakultät München	(1927)		78.6†
Universität Heidelberg Medizinische Fakultät	(1922)		85.7†
Universität Köln Medizinische Fakultät	(1921)		75.3†
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása Budapest	(1913)		77.3†
Universität Bern Medizinische Fakultät	(1934)		84.1
Faculté Française de Médecine de l'Université de St. Joseph Beyrouth	(1927)		76.9†
Zagrebackog Univerziteta Medicinski Fakultet Yugo	(1927)		80.8
School	FAILED	Year Grad	Per Cent
University of California Medical Department	(1904)		56.8
American Medical Missionary College, Chicago	(1902)		72
University of Oklahoma School of Medicine	(1933)		71.4

Ludwig Maximilians Universität Medizinische Fakultät, München	(1931)	39
Schlesische-Friedrich Wilhelms Universität Medizinische Fakultät Breslau	(1925)	65 9†
Université de Strasbourg Faculté de Médecine	(1900)	70 6†
Regia Università degli Studi di Modena Facoltà di Medicina e Chirurgia	(1932)	62 1†
Kharkov Medical Institute	(1918)	54†

Ten physicians were licensed by reciprocity and 4 physicians were licensed by endorsement from February 28 to March 21. The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College		(1902)	Illinois
Indiana University School of Medicine		(1927)	Indiana
University of Minnesota Medical School	(1922)	(1925)	Minnesota
Columbia Univ. College of Physicians and Surgeons		(1920)	New York
Fordham University School of Medicine		(1917)	New York
New York University, University and Bellevue Hospital Medical College		(1908)	New York
University of Buffalo School of Medicine		(1932)	New York
University of Pennsylvania Department of Medicine		(1898)	New York
Meharry Medical College		(1927)	Louisiana

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
Rush Medical College		(1926) U S Navy
Harvard University Medical School	(1925)	(1929) N B M Ex
Jefferson Medical College of Philadelphia		(1925) U S Navy

\* This applicant has received an M B degree and will receive an M D degree on completion of internship.  
† Verification of graduation in process.  
‡ License has not been issued.

### Washington January Report

Mr Harry C. Huse, director, Department of Licenses, reports the oral and written examination held in Seattle, Jan 14-16, 1935. The examination covered 7 subjects and included 70 questions. An average of 70 per cent was required to pass. Eighteen candidates were examined, all of whom passed. Six physicians were licensed by reciprocity and 4 physicians were licensed by endorsement. The following schools were represented

School	PASSED	Year Grad	Number Passed
Northwestern University Medical School		(1934) 4*	4
Harvard University Medical School		(1933)	1
Croighton University School of Medicine		(1934)†	1
University of Nebraska College of Medicine		(1933)	1
University of Buffalo School of Medicine		(1934)†	1
University of Rochester School of Medicine		(1934)†	1
University of Cincinnati College of Medicine		(1934)*	1
University of Oregon Medical School		(1933) 4	4
Medical College of Virginia		(1933)	1
University of Toronto Faculty of Medicine		(1928)	1
McGill University Faculty of Medicine		(1933)	1
Universität Heidelberg Medizinische Fakultät		(1933)‡	1

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists		(1934) 2	Oregon
St. Louis University School of Medicine		(1932)	Missouri
University of Nebraska College of Medicine		(1932)	Oregon
(1932) (1933) Nebraska			

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad. of
Rush Medical College		(1930) N B M Ex
University of Buffalo School of Medicine		(1928) 2) N B M Ex
University of Oregon Medical School		(1931) N B M Ex

\* These applicants have received an M B degree and will receive an M D degree on completion of internship. Licenses have not been issued.  
† License has not been issued.  
‡ Verification of graduation in process.

### Hawaii January Examination

Dr James A. Morgan, secretary, Board of Medical Examiners, reports the written examination held in Honolulu, Jan 14-17, 1935. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Nine candidates were examined, 7 of whom passed and 2 failed. The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists		(1934)	84
Stanford University School of Medicine		(1934)	81*
Loyola University School of Medicine		(1934)	80
Tufts College Medical School		(1925)	80
Washington University School of Medicine		(1932)	81
University of Oregon Medical School		(1934)	82

School	FAILED	Year Grad	Per Cent
Loyola University School of Medicine		(1930) 73 (1934)	75†

\* This applicant has completed the medical course and will receive his M D degree on completion of internship. License has not been issued.  
† Failed in three subjects.

## Book Notices

**The Content of Motion Pictures [Combined with] Children's Attendance at Motion Pictures** By Edgar Dale Research Associate Bureau of Educational Research Ohio State University Cloth Price, \$2.50 Pp 234 81 New York Macmillan Company 1935

This volume contains two separate and distinct studies. The study of the content of motion pictures is a most intensive and meticulous one. The writers have gone to untold trouble to arrive at an objective evaluation of what actually is in motion pictures, not what the observer reads into them by virtue of preconceived notions and prejudices. The general themes of 1500 motion pictures have been studied and, in addition, 115 of the same pictures have been subjected to more intensive analysis, while forty have literally been put under the microscope. Not only general themes have been studied, but locales and settings, leading characters, clothing worn, circumstances of meeting and lovemaking, sex, marriage, and romantic love, crime, vulgarity, recreation, liquor and tobacco, and the goals sought by the leading characters. Besides this the content of newsreels has been studied. In the summary it appears, according to "a balance sheet for motion-picture content," that heavy emphasis has been placed on the life of the upper economic strata, on metropolitan localities, on problems of the unmarried and the young, on problems of love, sex and crime, on the motif of escape and entertainment, on interest appeal to young adults, on the professional and commercial world, present problems in a limited field, comedy foreign characters, diverse and passive reactions, individual and personal goals, crime technic, the romantic and unusual in friendship, "living happily ever after," physical beauty, physical action, and, in the newsreel, sports and trivial happenings. On the contrary, scant attention has been given to life of the middle and lower economic strata, small towns and rural areas, problems of the married, middle aged and old, problems of everyday life, social enlightenment, interest appeal to children and older adults, industry, agriculture, governmental problems representative foreigners, active and inexpensive recreations, social goals, causes and cures of crime, undramatic and enduring friendship, happy marriages, beauty of character, and, in the newsreels, world news of an intellectual and undramatic character, scientific observations, and pictures of real conditions in the different parts of the world.

The second study deals with children's attendance at moving pictures and gives attention to children's companions in the movies, frequency of attendance, time of attendance, and age composition of the motion picture audience. The conclusion, which could have been anticipated, is that children and youth the country over are frequent patrons of motion picture theaters that they contribute a larger percentage of the total audience than has been commonly believed, and that therefore the effect of motion pictures is universal and must be faced in a statesmanlike manner by exhibitors, producers, teachers and parents.

The book is an excellent contribution to the store of factual material on which advancement of the motion picture as an educational force must be based.

**Glándulas endocrinas y prostitución** Por Dres J J Bereterride y S Rosenblatt. Prólogo del Prof Dr Mariano R Castex. Paper Pp 254 Buenos Aires Librería y Editorial El Ateneo [n.d.]

The authors have examined 110 prostitutes, apparently thoroughly and with great care, and they have attempted to correlate their observations with the present knowledge of endocrinology. It is difficult to understand why the authors chose to use biologic methods in the study of an economic disease. This alone is sufficient to raise serious doubt as to the fundamental value of the work. It appears further however that, of the few reliable methods available to evaluate the function of the endocrine glands, fewer still have been employed in this investigation. Many if not most of the correlations are purely theoretical, these in turn are based in large part on half-baked theory which the authors have uncritically culled from the vast literature of endocrinology. However, they have assembled a large amount of data, while the significance of the information as related to prostitution is not clear some of it may possibly be useful for reference.

**Economic Problems of Medicine** By A. C. Christlo Professor of Clinical Radiology Georgetown University Medical School. Cloth Price \$2 Pp 242 New York Macmillan Company 1935

Such a book, "written from the viewpoint of the private practitioner of medicine," fills a real need. It is based on the application of the principles of medical ethics to present economic conditions and surveys the economic side of medical education, private practice, the hospital, medical organization and the community. There are chapters on workmen's compensation, health insurance, industrial medicine, medical society experiments, and a final chapter discussing the "Essential Elements in a Comprehensive Plan for Medical Care." It assumes that "if the physician is to fulfil his whole duty to his community he must maintain a position of leadership in everything that pertains to the people's health."

The chapter on "The Physician and the Medical Organization" summarizes the great contribution made to society and to the profession by the American Medical Association and constituent societies. County medical societies are constantly assuming more effective and extensive leadership in all matters concerned with the health of the community. It is not fair to blame physicians for defects in present society. "The causes of this condition are interwoven with the social and economic structure of present-day civilization, and the cure for it must be sought in more equitable distribution of the fruits of industry." The origins of health insurance for example, are due to the fact that "the conditions of modern industry imposed a wage upon laborers so close to a bare subsistence plane that it was only through compulsion that health insurance could be maintained."

The chapter on "New Methods of Medical Care Under Trial or Recommended by Medical Organizations" describes the plans conducted in Alameda, San Diego, Detroit, Washington, D. C., and other places. There is an impartial consideration of the merits and demerits of health insurance and a final summary of the "Essential Elements in a Comprehensive Plan for Medical Care."

It is a work that deserves study by all those who are interested in medical economics. If some criticism must be made to make an impartial review, objection might be raised that too great reliance is placed on the reports of the Committee on the Costs of Medical Care.

**Collected Papers of St. Mark's Hospital London Including a History of the Hospital Centenary Volume 1835-1935** Compiled by the Medical Committee April 1935. Boards Price 30s Pp 440, with 96 illustrations. London H. K. Lewis & Co. Ltd. 1935

In London in 1835 Dr. Frederick Salmon founded St. Mark's Hospital for the treatment and study of the "diseases of the rectum in all their baneful varieties." The hospital has grown and flourished and now in 1935 the medical committee has published a centenary volume in honor of the completed century of usefulness. This volume contains a series of collected papers written by Dr. Salmon and the staff that has succeeded him. A study of the early papers is interesting indeed. The modern surgeon will find much that is amusing and much that is stimulating. In a paper on stricture Salmon attributes this condition in one of his patients who had just returned from a polar expedition to sitting on the ice, and yet in the same paper there is a good differential diagnosis between the benign and malignant varieties. The antipathy to chloroform is noted in a paper in 1857 because of increased bleeding resulting from relaxation of the sphincter, although it is evident that the anesthetic was used at that time by most surgeons. An article on the injection treatment for hemorrhoids, written in 1888 might have been published by one of the advocates of this form of treatment today, the evils of this injection of strong solutions are denounced in an article published in 1924. The shaping of present ideas concerning the treatment of cancer of the rectum and lower portion of the bowel is seen in the series of articles on this subject from the time the hospital was founded up to the final stage of present-day methods as described in Gabriel's excellent article on one stage perineo-abdominal excision of the rectum in 1934. The book is well printed on glazed paper and has an exceedingly attractive binding simulating the style in vogue a hundred years ago. A short history of the hospital completes the record. The collection will appeal especially to

all proctologists or physicians interested in proctology, because in it to a certain extent they will be able to relive the development of their specialty. Physicians interested in medical history will enjoy owning and perusing its contents.

**The Romance of Exploration and Emergency First Aid from Stanley to Byrd** Cloth. Pp 160 with illustrations. New York and London Burroughs Wellcome & Co. [n. d.]

This book is frankly an advertising brochure but it is at the same time a charming souvenir and an interesting series of historical highlights on exploration and emergency first aid. When a commercial product has been to all sorts of remote and inaccessible regions, including both poles and the depths of the Dark Continent, it ceases to be a mere commodity and becomes a historical relic. Burroughs Wellcome & Co. has offered first aid and medical equipment to all the important explorers since Stanley. While deprecating the unwillingness of this company to cooperate with efforts of the Council on Pharmacy and Chemistry of the American Medical Association, one can still recognize its contributions, both directly and indirectly through the Wellcome Institute, toward the development of fine pharmaceutical products and compact first aid equipment that will stand the vicissitudes of extreme climates and varied conditions of transportation.

**Arzneikunde und Arzneiverordnung Ein Lehrbuch** Von Prof. Dr. Otto Reisser und Dr. Gert Taubmann. Paper Price 12 marks Pp 430 Berlin & Vienna Urban & Schwarzenberg 1935

As the authors state in the preface, the purpose of their work is to supplement but not to replace lectures on pharmacology, they did not intend to cover the subject thoroughly, and the reader seeking further information is referred to larger textbooks. Since pharmacology developed into an independent branch of medicobiologic science, it became necessary not only to describe the mode of action of drugs but to discuss the causes of such action. Conforming with this requirement, the authors divided each chapter into two parts, theoretical and practical. Description of the therapeutic application of drugs is preceded by an evolution of its scientific basis, this arrangement of the text reflects the fact that pharmacology stands on the borderline between the theory and the practice of medicine. The authors are familiar with the aversion of the majority of medical students to chemistry, however, the knowledge of composition of drugs is essential and therefore attached charts offer an easy survey of chemical formulas. Certain drugs well known in the United States, such as mercurochrome, acriflavine and mucin, are not mentioned. A statement that ethylene is not a popular anesthetic certainly does not apply to this country. Vermicides have been described in an inadequate manner. Bibliographic references have been omitted because, as stated the work is not to serve as a textbook. The biologic approach to the subject is highly instructive, the style fluent. One who looks for instruction in prescription writing will be disappointed, but the book offers a well balanced presentation of everything that is modern in pharmacology and deepens the understanding of the physiologic aspect of this science.

**Principles of Genetics and Eugenics A Study of Heredity and Variation in Plants Animals and Man** By Nathan Fasten Ph.D. Professor and head of Department of Zoology Oregon State College. Cloth. Price \$2.80 Pp 407 with 120 illustrations. Boston & London Ginn & Company 1935

For the beginner in the study of genetics and eugenics this is an exceptionally clear, well organized and well written book. From its opening chapter on the scope and need of genetics through various theoretical considerations to the chapters on problems of genetics and eugenics and human betterment, it deals with difficult and complicated questions in a clear and sane manner. It has an ample bibliography containing 213 references, a glossary of twenty-six pages, and an index of sixteen closely printed pages, which add much to the practical value of the volume, as do many helpful diagrams and a few photographs. For the teacher of biology, for the reference library, for the high school, for the junior college and for the general community library, this is an excellent book of elementary principles. While the handling of the subject is sufficiently simple for the beginner, it is not so elementary that the more advanced student will not find the book useful.

**Le nodule de la corde vocale** Par Jean Tarneaud oto rhino laryng. ecologiste de l'Hôpital Bélian et du Conservatoire national de musique de Paris. Préface de M le Professeur Sebileau. Paper Price 30 francs Pp. 139 with 24 illustrations Paris Norbert Maloine, 1935

This is a rather large book, relatively speaking, on small objects, the vocal nodes or singers' nodes, as they are called. Since even the tiniest of nodes are sufficient, in many instances, to ruin the fine quality of the voice and thus bring disaster to the career of the artist, the importance of the subject will justify the detailed discussion of it by Jean Tarneaud. The subject is systematically treated. There is a preface by Professor Sebileau, followed by a chapter on the etiology of the nodule. The author discusses the various theories and feels that a general hypotonicity of the laryngeal muscles always rests at the basis of the formation of the nodes. There follow the chapters on the pathology and the clinical forms, together with symptomatology and diagnosis of singers' nodes. Both the medical and the surgical treatment of the various forms of nodes is discussed, followed by a chapter on the treatment of the voice. A rather complete bibliography concludes the volume. This work is based on many years of clinical experience and investigation, and, its perusal will bring much information to the laryngologist interested in this subject. The facts are presented with a clearness that is usually characteristic of French writers, and the illustrations are helpful.

**Martini's Principles and Practice of Physical Diagnosis** Edited by Robert F. Loeb M.D., Associate Professor of Medicine College of Physicians and Surgeons Columbia University. From an authorized translation by George J. Farber M.D. Cloth Price \$2 Pp. 213 with 30 illustrations. Philadelphia & London J. B. Lippincott Company 1935

Dr. Martini dedicates this book "to teaching the essentials of seeing, hearing, and feeling in their relation to the body in health and disease. The training of these three faculties represents the foundation without which the development of the student of medicine is impossible." Most works on physical diagnosis are so voluminous that they can be used only for reference. This little volume can be carried in the pocket to be used as a guide and ready reference by the student. Chapters are devoted to general examination, to examinations of the respiratory and circulatory system, and to an examination of the abdominal organs. Outlines for history taking and recording of physical examination are appended. The work is concise and thorough and can be highly recommended as a handbook for students.

**Women on Their Own** By Olga Knopf M.D. Edited by Alan Porter. Cloth. Price \$2.75 Pp. 306 Boston Little Brown & Company 1935

In this book the author discusses the position of woman in America today and all her relationships with men and other women in work, at home, in pleasure and, indeed, in all the aspects of woman's life. She takes up the question of friendships between men and women and between women and other women, paying a considerable amount of attention to the choice of occupation and to the question of marriage as opposed to a career. The book is written with rare understanding and calls attention in case histories to some of the individual problems that have come to her attention. She sees nothing but a broad outlook for woman in the future, with increasing opportunities. Incidentally, Dr. Knopf is a pupil of Alfred Adler and represents the school of individual psychology.

**Die Hormonforschung und ihre Methoden** Von Max Reiss Dr. med. Dr. rer. nat. Privatdozent für pathologische Physiologie an der Deutschen Universität in Prag. Paper Price, 15 marks. Pp. 415 with 26 illustrations. Berlin & Vienna Urban & Schwarzenberg 1934

This book is apparently intended to be a brief but comprehensive survey of present knowledge of endocrinology, including descriptions of technical methods and an extensive bibliography. It is designed primarily for the use of investigators. Adequate discussion of so detailed a work is impossible in a limited space, this would require a book of no mean proportions in itself. It appears that the author, who is to be commended at least for zeal and industry, has not attained his primary aim. Perusal of any section chosen at random reveals that much essential information has been omitted and that a great deal of non-essential, unconfirmed, unconfirmable and definitely erroneous

material has been included. Little effort has been made to distinguish between demonstrated fact and the overwhelming number of fanciful excursions into endocrinology with which the physiologic literature is deluged, this volume will serve at least as much to perpetuate error as it does to present fact. The bibliography (which is extensive but not by any means complete) and the section on technical methods may be of use to investigators, a large part of this book otherwise will be chiefly of historical interest. The format is poor for an encyclopedic work of this kind, so that in many cases a desired subject (perhaps fortunately) is difficult to find. The author has essayed a task that could adequately be accomplished only through the cooperation of many experts, endocrinology is too vast a subject and it is moving at too fast a pace to be successfully reviewed in its entirety by one man.

**Leitfaden der Pathologie und Therapie der Kampfgaskrankungen** Von Dr. med. Otto Muntsch Oberstabsarzt im Reichsheere. Third edition. Boards. Price 11 marks. Pp. 132 with 43 illustrations. Leipzig Georg Thieme 1935

The fact that this monograph is in its third edition since 1931 is sufficient evidence of its popularity. The author has attempted to portray particularly the pathologic effects of the poisonous gases used in warfare. Twenty-two beautiful colored plates illustrate the clinical and histopathologic effects on the various organs that may be affected. The seven chapters deal with the history and development of chemical warfare, the general toxicology and chemistry of the most common war gases, the specific pathology and therapy of the effects of war gases, and the late effects and the methods and principles used in combating and treating war gas injury. There is an excellent bibliography from both German and foreign literature and a convenient index. This booklet will be of great service to all pathologists who may deal now or in the future with war gas injuries.

**Capitalism Carries On** By Walter B. Pitkin. Cloth. Price \$1.75 Pp. 282 New York & London Waltham House McGraw Hill Book Company Inc. 1935

Mr. Pitkin is an eminent journalist who has written journalistically about many topics and with great success. He here offers his views as to our future in relationship to the capitalist system. His book is full of truisms, and he brings himself to the view that the capitalist system must carry on in the United States, but that, of course, it must modify itself to changing conditions. He looks on the middle class as the hope of humanity, at present being ground to dust through the desperate rich and desperate poor.

**Wissenschaftliche Forschungsberichte. Naturwissenschaftliche Reihe.** Herausgegeben von Dr. Raphael Ed. Liesegang. Band XIX. Hormone und innere Sekretion. Von Dr. Fritz Laquer Professor an der Universität Frankfurt. Second edition. Paper Price 18 marks. Pp. 368 Dresden & Leipzig Theodor Steinkopff 1934

In preparing the second edition of this well known work (the first appeared in 1928), the author has added some 6,000 references to the bibliography. The format is excellent and the bibliography extensive (but not complete) and well arranged, the book may therefore be useful for reference. However, there are a great many serious omissions from the text (for instance, the fundamental work of Hanson on the parathyroid is not even mentioned) and many of the discussions are uncritical and inaccurate. Much of the work is simply a compilation from the literature. Thus this volume, like so many others on the difficult subject of endocrinology, has a decidedly limited usefulness.

**The Modern Method of Birth Control** By Thurston Scott Welton M.D. F.A.C.S. Cloth. Price \$3 Pp. 159 with illustrations. New York Walter J. Black Inc. 1935

In this book the author offers an ingenious series of charts and a celluloid wheel together with brief explanation of the so-called safe period and practice of this method in relationship to birth control. Dr. Welton is inclined to believe that the method has value. He discusses the literature pro and con emanating from various places. His book should be most useful to those who care to try this method.

*L'examen du malade Guide clinique de l'étudiant et du médecin Médecine chirurgie obstétrique neurologie et spécialités. Par P. Delmas professeur à la Faculté de médecine de Montpellier et al. Paris 30 francs Pp 318 Paris Masson & Cie 1935*

The scope of this elegant little book is to serve as a guide for a novice writing histories and examining patients. Nine specialists in their respective lines collaborated in preparing chapters on examination of medical, surgical, obstetric, pediatric, dermatologic, gynecologic, neurologic, otorhinolaryngologic and ophthalmologic cases. These subjects are supplemented by a chapter describing simple laboratory examinations that can be performed by a general practitioner in his office. The compendium is frankly a student's manual for systematic questioning and physical examination of patients and does not pretend to be a diagnostic guide. The subject is presented in a succinct manner teaching the student to gather and correlate observations and thus arrive at a correct diagnosis. The book is a valuable addition to the library of French students.

*The Scientific Basis of Evolution By Thomas Hunt Morgan Ph.D. D.Sc. LL.D. Second edition. Cloth. Price \$3.50. Pp 306 with 45 illustrations. New York W. W. Norton & Company Inc. 1935*

The Nobel prize winner in medicine here presents lectures given at Cornell University in the spring of 1931, revised and modified to include newer studies in the field of genetics. His book explains in language understandable certainly to any physician the scientific studies that have led to our present views regarding the origin of species and the evolutionary process by which human beings came upon the earth.

## Medicolegal

**Dental Practice Acts Circuit Court's Holding of Unconstitutionality Excuse for Licentiate's Violating Act**—Hunt was prosecuted for practicing dentistry in Florida without a license. He brought habeas corpus proceedings and was discharged Jan. 11, 1933, the circuit judge before whom the proceedings were pending holding that the Florida dental practice act was unconstitutional. On appeal, however, the Supreme Court of Florida, division A, March 24, 1933, reversed the circuit court's holding (109 Fla. 248, 147 So. 282), *THE JOURNAL* (Jan. 20, 1934, p. 239).

Apparently, before the Supreme Court had passed on the constitutionality of the dental practice act but after there was a "circuit court adjudication that the entire law was unconstitutional and void," Williams, a licensed dentist employed and permitted Hunt to practice dentistry in his offices. After the Supreme Court's decision the board of dental examiners revoked Williams' license, relying on a provision of the dental practice act which authorizes revocation if a licentiate employs, allows, or permits an unlicensed person "to perform unauthorized dental work in his dental office." Williams brought mandamus to review and reverse the board's action. The trial court denied him relief and he appealed to the Supreme Court of Florida, division A.

The dental practice act contains no provision authorizing an appeal to the courts from a decision of the board of dental examiners in revocation proceedings. Apparently some question was raised in view of that fact as to Williams' right to bring mandamus. A state, said the Supreme Court, may validly create a statutory tribunal, such as a board of dental examiners, may grant to it the final determination of whether or not licenses shall be revoked for causes set forth in the law, and may confer on it power to decide legal questions necessarily arising in the course of its proceedings. For such a statute to accord the due process of law guaranteed by the state and federal constitutions, it is not necessary that that statute expressly provide for an appeal to the courts. However if no method of judicial review is provided for in the statute, mandamus is the appropriate remedy to enable the courts to review the record to ascertain whether or not the tribunal correctly applied the law to the facts of the case and whether or not the record as a whole discloses an abuse of delegated authority or arbitrary or unreasonable action.

In the opinion of the Supreme Court, the board of dental examiners in revoking Williams' license misapprehended the applicable law. The dental practice act in authorizing the revocation of the license of a licentiate guilty of employing, allowing, or permitting any unlicensed person to perform any work in his office which under the provisions of the act can only be legally done by persons holding a license to practice dentistry, the court held, has reference only to a conscious and culpable act on the part of a licentiate amounting to a wilful design to do that which is denounced as unlawful. The provision in question has no reference to an act done by a licentiate in recognition of the supposed correctness of a judicial decision of a competent court declaring the acts prohibited by the statute not to be unlawful because of the alleged unconstitutionality of the statute denouncing those acts. While it would be no defense, the court said, for a dentist to show in justification of his unlawful acts that he deliberately violated a valid statute believing in good faith that the law was unconstitutional, yet it is a defense for him to show that in violating the act, i. e., in employing an unlicensed person to practice dentistry, he placed reliance on the decision of a competent court that the statute was unconstitutional. The Supreme Court held, therefore, that the board of dental examiners was not warranted in law in revoking Williams' license to practice and reversed the action of the board revoking his license.—*State ex rel Williams v. Whitman et al., State Board of Dental Examiners (Fla.)*, 156 So. 705.

**Optometry Practice Acts Right to Register After Continued Failure to Register Annually**—The North Carolina optometry practice act (C. S. Code 1931, sec. 6696) requires an optometrist to renew his license and to pay a registration fee to the board of examiners in optometry annually prior to April 1. If he neglects to do so his license may be revoked by the board after notice and hearing, but a license may not be revoked if a holder "shall pay, before or at the time of consideration, his fee and such penalty as may be imposed by the board." Mann, a licensed optometrist, paid the required fee and renewed his license annually until 1913, when he discontinued the practice of optometry. The board never instituted an action to revoke his license. In 1931, when he attempted to renew his license, by tendering the annual fees he had failed to pay since 1913, the board, contending that he had abandoned his license, insisted that he be reexamined. He then instituted proceedings in the superior court, Wake County, to compel the board to renew his license without requiring him to submit to examination. The trial court denied him relief and he appealed to the Supreme Court of North Carolina.

Revocation, said the Supreme Court, being the only method prescribed by the optometry practice act for depriving a licentiate of his right to practice optometry, is the only way a licentiate can be deprived of that right. He is not deprived of his right to practice merely because he has failed to practice over a period of years. Since revocation proceedings were never instituted, Mann is still a licensed optometrist and has the right to have his license renewed on the payment of the delinquent fees and the statutory penalty.—*Mann v. North Carolina State Board of Examiners in Optometry (N. C.)* 175 S. E. 281.

## Society Proceedings

### COMING MEETINGS

Montana Medical Association of Helena July 23 Dr. E. G. Balsam  
208½ North Broadway Billings Secretary  
National Medical Association New Orleans Aug. 11-17 Dr. C. A. Lanon  
431 Green Street South Brownsville Pennsylvania Secretary  
Northern Minnesota Medical Association Duluth Aug. 12-13 Dr. Oscar O. Larsen  
Detroit Lakes Secretary  
North Pacific Pediatric Society Seattle August 9-10 Dr. F. H. Douglass  
509 Olive Street Seattle Secretary  
Washington State Medical Association Everett Aug. 12-14 Dr. Curtis H. Thomson  
1305 Fourth Avenue Seattle Secretary  
Wyoming State Medical Society Lander Aug. 12-13 Dr. Earl Whedon  
50 North Main Street Sheridan Secretary

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to *THE JOURNAL* in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests must be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (\*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia 180 601 752 (May) 1935

Chemical Estimation and Significance of Calcium Ion Concentrations in the Blood. F. C. McLean and A. B. Hastings. Chicago—p. 601.  
Failure to Find Pressor and Antidiuretic Substances in Patients with Toxemia of Pregnancy. D. Hurwitz and I. T. Bullock. Boston—p. 613.

Histopathology of Hematopoietic Tissues in Hemophilia. Unexplored Field. R. P. Custer and E. B. Krumbhaar. Philadelphia—p. 620.

Note on Differential Cell Counts of Bone Marrow with Especial Reference to Estimation of Infrequently Appearing Cell Types. E. B. Krumbhaar and R. P. Custer. Philadelphia—p. 630.

\*Chronic Granulocytopenia of Five Years Duration with Recurrent Acute Attacks. Case Report. C. I. Stealy. San Diego, Calif.—p. 631.

\*Cytoplasmic Changes in Peripheral Neutrophils as Aid in Diagnosis and Prognosis. D. R. Meranze, T. H. Mendell and T. Meranze. Philadelphia—p. 639.

Mechanisms of Cardiac Rhythm Illustrated by Unusual Human Electrocardiograms. M. Goodman. New York—p. 657.

Left Axis Deviation With and Without Heart Disease. S. H. Proger and W. R. Minnich. Boston—p. 674.

Electrocardiographic Changes Following Administration of Potassium Iodide in Syphilitic Heart Disease. J. M. Bamber, New Orleans—p. 681.

Auricular Fibrillation in Hyperthyroidism. Influence of Age. H. R. Magee. Santa Monica, Calif. and H. L. Smith. Rochester, Minn.—p. 683.

Observations on Prognosis in Angina Pectoris. A. M. Wedd and R. Elouise Smith. Clifton Springs, N. Y.—p. 690.

Effect of Bacteria on Normal Stomach and on Acute Experimental Gastric Ulcer in Dogs. S. Morrison and M. Feldman. Baltimore—p. 696.

Blood Glucose Clearance. Its Determination by a Micro Interval Method. I. Studies in Normal and Diabetic Persons. R. M. McKean, G. B. Myers and E. C. Von der Helde. Detroit—p. 702.  
Thomson's Disease. Myotonia Congenita. B. I. Comroe. Philadelphia—p. 714.

**Histopathology of Hematopoietic Tissues in Hemophilia.**—Custer and Krumbhaar studied three cases of hemophilia, one died as the direct result of hemorrhage another of a combination of infection and hemorrhage and the third of infection without any relation to hemorrhage. The subjects were of about the same age. The cytology of the bone marrow is presented in detail, especially that of the megakaryocytes which are generally regarded as the originators of the blood platelets and directly concerned with blood coagulation, the major disturbance in hemophilia. The state of the thrombocyte series in the bone marrow was the striking feature in all three cases. Estimations of the incidence of this series of cells in approximately 12,000 cells per bone were compared with similar estimations in a group of nonhemophilic controls. The differences indicate the need for an estimation covering a much larger number of cells than the usual differential count of 500 or even 1,000 in categories that are sparsely represented. The relative percentage in the three hemophilic patients was fairly uniform. An average in hemophilia of 57.3 cells of the megakaryocyte series per 12,000 total cells opposed to 29.7 in eight nonhemophilic controls is regarded as significant. The largest percentage of megakaryocytes appeared in the purely hemorrhagic case, the smallest in the purely infectious and a midposition was held by the case in which hemorrhage was a minor factor, the increased incidence of megakaryoblasts, evidence of regenerative activity, was associated with hemorrhage, matched only by the apparently recently hyperplastic femur in the infectious case, in which the increase in young forms was offset by the sparsity of degenerate cells. The morphology of megakaryocytes in this disease does not vary from the normal. The megakaryoblast is seen as a hypertrophic, moderately basophilic cell which may be strictly mononuclear or may exhibit early nuclear polymorphism, nuclear

lobes occasionally appearing to be one on the other, the vague acidophilic granularity is rarely seen in this stage. The normal adult megakaryocyte presents a more or less vesicular nucleus which is multilobated with a sharp perinuclear membrane, fine chromatin strands and prominent nucleoli lying in a large cytoplasmic mass with a pale basophilic background and extremely delicate pink-staining granules. The degenerate cell is characterized by a shrunken or faded nucleus and a frayed vacuolated cytoplasm which stains poorly. On four occasions it was possible to demonstrate the so-called "Wright's figures," i. e., cytoplasmic buds of megakaryocytes which extend through the wall of a blood sinus into the lumen, confirming J. H. Wright's observations on the mechanism of platelet formation, two such cells are pictured. Formation of erythrocytes and granulocytes in all three cases conformed strictly to normal standards. Erythropoiesis seemed rather more active in the flat bones than one usually finds except in the severe anemias. No structural abnormality of blood vessels was demonstrated. The accessory blood forming organs showed no significant changes although an increased prominence of cells of the reticulo endothelial system was noted in each case, there was no evidence for or against the autochthonous formation of the megakaryocytes seen in the spleen of the first case.

**Chronic Granulocytopenia.**—Stealy presents a case of chronic primary granulocytopenia which has been under observation for five years. The symptoms, history, physical observations and blood counts during the acute attacks and during the periods of remission present a typical picture of the chronic primary type of the disease without ulceration. On three occasions an increase in neutrophils was noted a few hours before, after or at the same time the total leukocyte count started to fall. The fall of the neutrophil count from this higher point was abrupt and caused a complete reversal of the neutrophil-lymphocyte ratio. It is possible that such an increase in neutrophils may be used as an indicator of an oncoming acute attack. Drugs of the benzene ring were discontinued after the first acute attack in 1929. Pentnucleotide was given in two of the most severe attacks. The rise in the leukocyte and neutrophil count corresponded to the results apparently obtained by its use by Jackson. Only supportive measures were used during other less severe attacks. During the periods of remission various forms of medication have been tried. Concentrated forms of vitamins B and D, in addition to a well balanced diet, have been given empirically since June 1934. During this time there has been apparent improvement in subjective symptoms and a rise in the general level of the leukocytes and the neutrophil-leukocytes to within normal limits. This line of treatment is being continued on the basis that granulocytopenia may be a deficiency disease in the same way that pernicious anemia is one.

**Cytoplasmic Changes in Peripheral Neutrophil.**—Meranze and his associates present the subject of toxic cytoplasmic alterations in peripheral neutrophils. These changes have been shown to be of value diagnostically. They are most uniformly found in infections, and probably their greatest value lies in differentiating localized from generalized infections or the development of complications, whether this is a secondary infection or a spread of the initial infection. These changes are most uniformly found in pneumonia, peritonitis, bacteremias and septicemias. The addition of toxic cytoplasmic changes in the neutrophils to the hemogram in which they were previously absent should suggest an added complication. From a prognostic point of view an increasing degenerative index lends increasing gravity to the outcome. The addition of this examination as a routine to the hemogram is of clinical value, often gives more information than the total leukocyte count and, if followed serially is often more informative than the Arneith-Schilling shift. No hemogram in infection or in serious disease states is complete without the determination of toxic cytoplasmic changes and their recording in some quantitative scheme, such as Rosenthal's "degenerative index." Cytoplasmic changes in the peripheral neutrophil consist of an alteration of the staining quality of the cytoplasm and its components from a normal eosinophilic pink to a dirty gray or blue and an increase in granulation. In the abnormal neutrophil the cytoplasmic granules are coarse irregular in distribution, staining a deep blue and oxidase negative. They may be sparse, grouped on one



side, or diffusely scattered over the entire protoplasm. All the neutrophils are not uniformly granulated. In some the granules may be so large that the cell may be mistaken for a basophil. Vacuolization of the cytoplasm is usually observed, giving the cells a moth eaten appearance about the periphery or throughout the cytoplasm.

## American Journal of Physiology, Baltimore

111 483 728 (April) 1935

- Utilization of Galactose Following Complete Removal of Liver J L Bollman F C Mann and M H Power Rochester Minn—p 483
- Absorption and Utilization of Carotene and Vitamin A in Choledochocolonostomized Vitamin A Deficient Rats J D Greaves and C L A Schmidt Berkeley Calif—p 492
- Utilization of Carotene by Jaundiced and Phosphorus Treated Vitamin A Deficient Rats J D Greaves and C L A Schmidt Berkeley Calif—p 502
- Prolongation of Pregnancy in Rat by Injection of Human Pregnancy Urine Extract Edith C Hoopes and Jessie L King Baltimore—p 507
- Relation of Direct Currents to Linearly Rising Currents as Stimuli H A Blair Rochester N Y—p 515
- Metabolic Fate of Galactose in Adult Dogs and Rabbits J H Roe Washington D C and G R Cowgill New Haven Conn—p 530
- Experimental Fever in Sympathectomized Animals J O Pinkston Boston—p 539
- Distribution of Glucose in Blood J M D Olmsted Berkeley Calif—p 551
- Relation Between Heart Rate During Exercise and That of Immediate Postexercise Period F S Cotton, Boston and D B Dill Sydney Australia—p 554
- Changes in Human Cerebral Blood Flow Consequent on Alterations in Blood Gases F A Gibbs E L Gibbs and W G Lennox Boston—p 557
- Effect of Different Sizes of Balloons Inserted in Gut and Changes in Pressure Within Them on Activity of Small Intestine C M Gruber and A DeNote Philadelphia—p 564
- Experimental Production in Cat of Condition Simulating Pseudobulbar Palsy O R Langworthy and L C Kolb Baltimore—p 571
- Spleen Hemoglobin and Erythrocytes in Nutritional Anemia of the Rat C J Hamre and C D Miller Honolulu T H—p 578
- Rhythmic Changes in Fetal Liver After Feeding H A Stuart and G M Higgins Rochester Minn—p 590
- Influence of Glycine on Excretion of Creatine and Creatinine Mildred Adams M H Power and W M Boothby Rochester Minn—p 596
- Effect of Denervation on Sensitivity to Adrenaline of Smooth Muscle in Nictitating Membrane of Cat C W Hampel Boston—p 611
- Certain Blood Changes Associated with Physical Exhaustion in Normal Dog F W Schlutz A B Hastings and Minerva Morse Chicago—p 622
- Standards for Predicting Basal Metabolism in Immediate Preadult Years Marian E Stark Madison Wis—p 630
- Nature of Action Potentials in Frog's Gastrocnemius Muscle J A E Eyster F Maresh and M R Krasno Madison Wis—p 641
- Inhibition of Heart Under Anaerobic Conditions W E Garrey and J T Boykin Nashville Tenn—p 649
- Local Variations in Normal Polymorphonuclear Count in Man J MacLeod New York—p 655
- Functional Studies of Nervous System in Experimental Beriberi C F Church with assistance of Jean Warren and Claire F Freeman Philadelphia—p 660
- Influence of Electrolytes on Respiration in Nerve T H Chang M Shaffer and R W Gerard Chicago—p 681
- Influence of Blood Constituents on Oxygen Consumption in Nerve M Shaffer T H Chang and R W Gerard Chicago—p 697
- Mechanism of Arsenite Action on Medullated Nerve F O Schmitt and R K Skow St Louis—p 711

## Annals of Internal Medicine, Lancaster, Pa

8 1247 1386 (April) 1935

- \*Influence of Dietetic and Other Factors on Swelling of Tissues in Arthritis Preliminary Report C W Scull and R Pemberton Philadelphia—p 1247
- Some Observations on Mercurial Diuretics J H Crawford and W S McDanel Brooklyn—p 1266
- Cutaneous Tuberculosis and General Medical Diagnosis F E Senechal Chicago—p 1274
- Atypical Hay Fever Seasons Their Significance in Treatment S M Feinberg Chicago and O C Durham North Chicago Ill—p 1282
- Sensory Changes and Reflexes in Juvenile Parietic Neurosyphilis W C Menninger Topeka Kan—p 1287
- Basophilic Adenoma of the Pituitary Report of Case of Pituitary Hypertension Terminating in Cerebral Apoplexy B A Gouley Philadelphia—p 1294
- Artificial Pneumothorax Therapy W C Pollock Denver—p 1302
- Closed Intrapleural Pneumolysis J H Forsee Denver—p 1309
- The Present Status of the Problem of Rheumatism Review of Recent American and English Literature on Rheumatism and Arthritis P S Hench Rochester Minn W Bauer Boston A A Fletcher Toronto D Ghrist Los Angeles F Hall Boston and P White Charlotte N C—p 1315

Influence of Diet on Edema in Arthritis—Scull and Pemberton direct attention to the fact that convalescence from arthritis is frequently characterized by a reduction of swelling

of the soft tissues, particularly evident though rarely conspicuous in the hands, and concurrent with a diminution of pain and increasing range of motion of the joints. Approximate water balance estimations indicate that a net loss of water from the body accompanies a subsidence of swelling of tissues, pain and limitation of motion. Disturbances of water distribution in tissues constitute significant factors in the dynamic pathologic changes of the rheumatoid syndrome. The administration of several types of low calory diets has been shown to be associated with a net loss of water and with clinical improvement. Dehydrating diets, adequate in calories, high in protein, low in fluid and high in fat induced a net loss of water from arthritic patients with clinical evidence of improvement, and the authors suggest that the relative increase of fat and protein metabolized on low calory diets exerts a significant influence in the striking clinical results frequently achieved. Recumbent rest is considered as acting, in part, by favorably influencing a shift of fluid from the tissues to the blood and lymph channels. A negative water balance contributes to recovery from both atrophic and hypertrophic arthritis. This suggests that both types of arthritis arise in part from similar or comparable premises and, further, that rigid restriction of many therapeutic measures, especially the foregoing, to one type alone is unwarranted. Dehydrating measures alone do not constitute a therapeutic escape from arthritis. Vigorous sweating, purgation or diuresis have long been known to be of only limited value and even dangerous. So far as changes in the distribution of tissue fluids in arthritis may be desirable, they should be achieved by the more sustained and "physiologic" influence and measures discussed.

## Annals of Medical History, New York

7: 201 310 (May) 1935

- Dr Benjamin Winslow Dudley W O Bullock Lexington, Ky—p 201
- The Medical School at Padua and the Renaissance of Medicine. A Castiglioni Padua Italy—p 214
- Short Review of Development of Medical Education and Schools of Medicine Eileen R Cunningham Nashville Tenn—p 228
- Birth of the First Independent Proprietary Medical School in New England at Castleton Vt in 1818 F C Waite Cleveland—p 242
- Claude Bernard as a Dramatist J M D Olmsted, Berkeley Calif—p 253
- Short History of Iron Therapy L J Goldwater New York—p 261
- Madstones with an Account of Several from Virginia W B Blanton, Richmond Va—p 268
- Fact and Fiction in Names and Titles of Paracelsus R E Schlueter, St Louis—p 274
- History of Jewish Physicians in the United States Up to About 1900 S M Simon New York—p 285
- Robert Koch (1843 1910) American Tribute Part II L Brown Saranac Lake N Y—p 292

## Archives of Neurology and Psychiatry, Chicago

33 917 1142 (May) 1935

- Crossed Atrophy of Cerebellum Pathologic Study of Case G B Hassin Chicago—p 917
- Studies in Multiple Sclerosis IV Encephalitis and Sclerotic Plaques Produced by Venular Obstruction T J Putnam Boston—p 929
- \*Dermoid Tumors of Spinal Cord Report of Four Cases with Observations on a Clinical Test for Differentiation of Source of Radicular Pains H C Naffziger and O W Jones Jr San Francisco—p 941
- \*Parenchymatous Cortical Cerebellar Atrophy (Subacute Cerebellar Encephalitis) H L Parker and J W Kernohan Rochester Minn—p 959
- Significance of Panic and States of Consciousness in Grasping Movements A M Rabiner Brooklyn—p 976
- Mental Symptoms in Cases of Tumor of Frontal Lobe I Strauss and M Keschner New York—p 986
- Dementia Paralytica Results of Treatment with Malaria in Association with Other Forms of Therapy H C Solomon and S H Epstein Boston—p 1008
- Respiratory Metabolism of Excised Brain Tissue II Effects of Some Drugs on Brain Oxidations S B Wortis New York—p 1022
- Caffeine Sodiumbenzoate Sodium Iso-Amylethyl Barbiturate Sodium Bromide and Chloral Hydrate Effect on Highest Integrative Functions H G Wolff New York, and W H Gantt Baltimore—p 1030

Clinical Test for Intradural Spinal Lesions—Naffziger and Jones call attention to a clinical test that has enabled them to differentiate radicular pain of intradural origin from extradural pain of radicular type. In cases of gross space-consuming lesions within the spinal canal, radicular pain commonly is caused by tension or traction on sensory roots. In lesions of the cauda equina, pain, particularly of the bilateral sciatic type



produced by coughing, straining, sneezing or muscular movements, has long been known to be characteristic. It is well known, however, that muscular movements, straining or any sudden effort, such as coughing or sneezing, may give rise to pain in patients with scirrhous resulting from lumbosacral, sacroiliac and other lesions of extradural origin. When the test is performed the patient is placed in a comfortable position, and when he is free from pain the cervical veins are compressed as in the Queckenstedt test. As the intracranial and intraspinal pressure above the level of a block is raised the typical radicular pain is reproduced because the tumor or other gross lesion presumably is displaced sufficiently to cause traction on or irritation of a nerve root. Although the radicular pain most often is reproduced on compression of the jugular and other cervical veins in certain instances, depending presumably on the direction in which the tumor dislocates most readily, such pain may be experienced only on the sudden release of the jugular compression. It is easy to understand the dislocation of a pedunculated neurofibroma with its traction on a sensory root occurring as a result of this test, but in addition the test was found to be positive in association with other gross lesions, such as spongioblastoma multiforme of the conus medullaris, hemangio-endothelioma involving the cauda equina and conus medullaris, and arachnitis serosa circumscripta of the fourth thoracic segment. If the test is positive, it furnishes presumptive evidence of the presence of a gross, space-consuming intradural lesion. A positive reaction may not be obtained in all persons with tumor of the spinal cord. Another sign of diagnostic value was present in two of the authors' four cases. When the needle encountered dural resistance at the time of lumbar puncture, the patient experienced excruciating pain. In one case the fluid was obtained on puncturing in another interspace, but in the other case, regardless of the interspace used, pain was so intense that it was necessary to employ general anesthesia in order to complete the puncture. In each instance a tumor was found anterior to the roots of the cauda equina, displacing the roots posteriorly against the dura so that they were immobile and under tension. The slightest pressure on the dura irritated the immobile nerve roots, causing pain. In a suspected case of tumor, therefore, severe pain produced during a lumbar puncture is suggestive. In two of the cases reported the slow-growing nature of the tumor produced definite bony alterations that were demonstrated roentgenographically.

**Cortical Cerebellar Atrophy**—Parker and Kernohan discuss the possibility of a virus disease with a special affinity for the Purkinje cells, which attacks younger patients, runs a much more rapid course and is associated with general weakness and prostration. This disease shows certain analogies to chronic anterior poliomyelitis, to Parkinson's syndrome of epidemic encephalitis and to the disease known as "louping ill" in animals. The case of Murri and that previously reported by them may fall into this category, their present case suggests even more strongly the possibility of a virus infection. The clinical picture was that of some general noxious condition that caused the patient to lose strength and weight and that also had a specific influence on his cerebellar system, in that it was conspicuously injured. The whole illness from onset to death lasted almost twelve months. It was insidious in onset and steady in progress and seemed in general to present a fairly clear cut clinical syndrome. Microscopically there were processes still active, which with good reason could be called encephalitis. The lesion in the hemispheres was more advanced and thus possibly older than that in the vermis, where signs of encephalitis were most marked. Theoretically the perivascular collections of cells might be the result of tissue degeneration, but the other observations suggest an inflammatory cause for the degeneration of the cells. The reactions in the cerebellum corresponded to those associated with virus disease in general and here were limited to the cerebellum alone particularly to the Purkinje cells, even the fiber tracts to and from the cerebellum were intact. In suggesting a virus as the etiologic agent in some of these cases of atrophy of the cerebellum, the authors recognize that they depended on histologic signs alone. Nevertheless, considering the clinical course and the pathologic changes at least in their present case, they think that there is sufficient evidence to suggest

strongly that the condition is a virus disease. The two other cases one described by them and the other by Murri, could also fit into this category by reason of the subacute nature of the process. The remaining eleven cases, by reason of the chronicity of the disease, do not justify such a hypothesis unless one accepts a chronic type of virus disease and rejects all other possibilities.

### Canadian Public Health Journal, Toronto

26 157 208 (April) 1935

- The New Canadian Death Certificate W R Tracey, Ottawa Ont — p 157  
The Physician and the New Canadian Death Certificate R D Defries and A H Sellers Toronto — p 160  
The Development of Public Health in New Brunswick W Warwick Fredericton N B — p 168  
Problems of the Medical Officer of Health in Urban Sanitation L A Pequegnat Toronto — p 176

### Illinois Medical Journal, Chicago

67 389-484 (May) 1935

- Malignant Tertian Malaria Report of Small Epidemic H J Ireland and M G Bohrod Peoria — p 445  
Pyelocystitis Diphasic Strains of Bacteria Appearing in Urine C C Saelhof Chicago — p 450  
Successful Extensive Resections of the Small Intestine P W Greeley, Winnetka and P E N Greeley Waterman — p 451  
Hailux Virus (Bumons) P H Kreuscher and H Helikan Chicago — p 453  
Value of Blood Findings in Prognosis of Acidosis in Diabetes R M Parrott Oak Park — p 457  
Dosage of Histamine for Stomach Tests E E Seidmon and H Necheles Chicago — p 458  
Congenital Absence of Uterus and Vagina Case H O Veach Kewanee — p 459  
Renal Dwarfism L F Miller and G C Coe Chicago — p 459  
Modern Advancement in Serology H Phillips Anna — p 461  
Treatment of Carbuncles on Back of the Neck E B Williams Chicago — p 467  
Treatment for Vaginal Trichomoniasis O W Tulisalo Rockford — p 467  
Liver Abscess (Amebic) in Boy Aged Seven Years M H Streicher Chicago — p 468  
The Medical Aspect of Chronic Arthritis S J Lang Evanston — p 470  
\*The Importance of Nephrosclerosis in Treatment of Urinary Obstruction C Milles Chicago — p 473  
Pollen Contamination of the Air in Illinois O C Durham North Chicago — p 475  
Noise E Podolsky Brooklyn — p 478

**Nephrosclerosis and Urinary Obstruction**—Milles prefers the term benign nephrosclerosis or benign arteriolar sclerosis of the kidneys to chronic interstitial nephritis. The condition is primarily due to an arteriolar spasm of the renal vascular bed which may be local or part of a general condition and of the nature of a fatigue reaction. As the process continues hypertrophy or degeneration of the vessel wall, or both, results. Thus the muscular elements in the media hypertrophy, the intima proliferates and finally a gradually developing ischemic degeneration sets in. The resulting hyaline changes and fibrosis in the intima, media and adventitia produce more or less complete occlusion of these important vessels. The rate of the process varies but is usually extremely slow. With the gradual interference with the blood supply the tubular epithelial cells undergo slowly progressive atrophic degeneration and the less differentiated and metabolically more sluggish cells of the connective tissue proliferate. Concomitantly, the glomerular tufts degenerate and are replaced by hyaline scar tissue. The result is obliteration of a percentage of the glomeruli, atrophy of the tubules and proliferation of the interstitial connective tissue. Round cell infiltration in the interstitial tissue occurs secondarily as an incidental process, the result of either degenerative changes or the acute changes occurring with renal decompensation. In the presence of a slowly progressive process which involves destruction of glomeruli the surviving glomeruli must function twice as actively in order to maintain renal compensation. Any additional strain placed on the kidneys may dissipate the reserve, and then actual renal decompensation ensues. Reduction in the available oxygen such as would result from heart failure with its attendant circulatory failure and drop in blood pressure, would accomplish this. Similarly, mechanical obstruction to the outflow of urine, such as occurs in prostatic hypertrophy with obstruction, places an added burden on the urine secreting mechanism.

**Johns Hopkins Hospital Bulletin, Baltimore**

56: 183 246 (April) 1935

- Neuromyelitis Optica. Anatomic Pathologic Study of One Case. Clinical Studies of Three Additional Cases. F B Walsh Baltimore—p 183
- Urgency and Frequency of Micturition in Neurologic Disease. O R Langworthy and L G Lewis Baltimore—p 211
- Statistical Survey of One Hundred and Eighty Six Cases of Manual Removal of Placenta. C H Peckham Baltimore—p 224
- Cardiac Arrhythmia in Experimental Suprarenal Insufficiency in Dogs. W M Nicholson and L J Soffer Baltimore—p 236

**Journal of Urology, Baltimore**

33: 427 520 (May) 1935

- Bilateral Renal Carcinomas. A Sprenger and M G Bohrod, Peoria, Ill.—p 427
- \*Tissue Changes in Mixed Tumors of Kidney After Roentgen Therapy. A E Bothe Philadelphia—p 434
- Primary Tumor of the Ureter. End Results in Three Cases. A W Hunter Vancouver B C—p 443
- Autonephrectomy with Subsequent Extrusion of the Kidney Through an Emergency Nephrotomy Wound. W H Haines Philadelphia—p 464
- Foreign Body of Paraffin in Urinary Bladder Removed with Xylol as Solvent. Case Report. J H Turner Houston Texas—p 471
- Vesical Diverticula. J A H Magoun Toledo Ohio—p 474
- Nongonorrheal Urethritis in Women. Granular Urethritis—Cystalgia. J K Ormond, Detroit—p 483
- Suburethral Abscesses and Diverticula in the Female Urethra. H D Furniss New York—p 498
- Cautery Punch Operation for Removal of Obstructive Lesions at Vesical Orifice in Women and Children. J R Caulk and J F Patton St Louis—p 504

**Changes in Mixed Tumors of Kidney After Roentgen Therapy.**—Bothe studied two mixed tumors of the kidney that were irradiated before surgical removal in order to determine the tissue changes. Although both patients died within a short time following the removal of the tumor, the microscopic studies show very definite change of the tissue in the tumors which was undoubtedly due to the irradiation. The embryonal sarcomatous cells of mixed tumors of the kidney are radio sensitive. The epithelial cells in mixed tumors of the kidney are radioresistant. When mixed tumors of the kidney are irradiated before surgical removal, the tumor is usually reduced in size. The reduction in size of the tumor following irradiation appears to be dependent on the amount of embryonal sarcomatous tissue. Irradiation of the tumor does not completely destroy all the malignant cells. Mixed tumors of the kidney should always have sufficient preoperative irradiation. They should always be removed after irradiation. Surgical procrastination results in subsequent growth and metastasis.

**Laryngoscope, St. Louis**

45: 243 324 (April) 1935

- Proper Role of Vaccines in Chronic Infection of Upper Air Passages. M Solis Cohen Philadelphia—p 243
- Tuberculosis of the Larynx. C Hirsch New York—p 269
- History of Surgical Treatment of Otogenic Abscess of the Brain. L M Davidoff New York—p 295
- Chlorine Gas Burns of Inside of Right Cheek Anterior and Posterior Pillars Right Side of Soft Palate Posterior Pharyngeal Wall Larynx Trachea and Bronchi. P S Stout Philadelphia—p 307
- Septum Forceps. M M Cullom Nashville, Tenn.—p 309
- Graduated Nasal Probe Sphenopalatine Needle. R A Luongo Philadelphia—p 311

**Minnesota Medicine, St Paul**

18: 269 350 (May) 1935

- Value of Cholecystography by Oral Method with Analysis of One Hundred and Eighty Nine Operated Cases. E. Schons St Paul—p 269
- Postoperative Pulmonary Complications and Postoperative Use of the Trendelenburg Position. H K Gray Rochester—p 273
- Study of Tuberculosis in Families. G A Hedberg Nopeming—p 276
- Factors Contributing to Further Reduction of Tuberculous Infection. F L Jennings Oak Terrace—p 280
- Management of Kidney Injuries with Especial Reference to the Value of Intravenous Pycelography. T H Sweetser Minneapolis—p 283
- Late Toxemia of Pregnancy. L A Lang Minneapolis—p 287
- \*The Care of the Allergic Child. A V Stoesser and E Shaperman, Minneapolis—p 292

**The Allergic Child.**—Stoesser and Shaperman review the treatment carried out in 141 children having such allergic disorders as eczema, coryza, hay fever, asthmatic bronchitis and bronchial asthma, urticaria and gastro-intestinal allergy. They belong to that section of a newer classification of allergy entitled natural or atopic hypersensitiveness characterized by a strong hereditary tendency. A large number of patients

received relief. In obtaining this result, no elaborate methods of diagnosis were used, but instead a few rather simple procedures were followed. Treatment involved the thorough removal of the offending foods from the diet, or the irritating inhalants from the child's environment. Pollen allergy responded well to proper and careful desensitization. A small number of patients required surgical treatment to obtain relief. Success depended on the avoidance of all haste in the diagnosis and treatment. Delays in relieving the child were often necessary because histories had to be retaken, cutaneous tests repeated and trial diets rearranged. A rather exhaustive search was conducted for the offending allergen or allergens, and an effort was made to avoid placing the patient on some form of drug therapy, thereby dismissing the search.

**Oklahoma State Medical Assn Journal, McAlester**

28: 157 198 (May) 1935

- Present Trends in Medical Education. L J Moorman Oklahoma City—p 157
- Treatment of Liver Diseases. D D Paulus Oklahoma City—p 161
- General Consideration of Acute Intestinal Obstruction. H M Trussler Indianapolis—p 164
- The Physiology of the Endocrine Glands. P A Staley Ponca City—p 169
- The Use of Dilaudid in General Practice. C M Bassett Cushing—p 178

**Pennsylvania Medical Journal, Harrisburg**

38 465 568 (April) 1935

- Some Diseases of Oral Mucosa. H Fox New York—p 465
- Malignant Tumors of Kidney. L P Gibbons Scranton—p 471
- Electrocoagulation for Retinal Detachment. Motion Picture Demonstration. L C Peter Philadelphia—p 473
- Retinal Detachment. Operative Results in Series of Twenty Two Consecutive Unselected Cases. B F Baer Jr and J S Shupman Philadelphia—p 475
- Hyperthyroidism Treated by Irradiation. Report of Cases. J J Quinney Easton—p 480
- Roentgen Therapy versus Surgery in Treatment of Hyperthyroidism. J T Farrell Jr Philadelphia—p 484
- Fracture of Body of Calcaneum. T A Outland Sayre—p 487
- Observations on Metabolism and Treatment of Undernutrition. J M Strang Pittsburgh—p 493
- Management of Vertex Occipitoposterior Position. R. E. Nicodemus Danville—p 497
- Hypochloremia. G M Piersol and W G Karr Philadelphia—p 500
- Treatment of Chronic Suppurative Otitis Media. K M Day Pittsburgh—p 505
- Survey of State Emergency Medical Relief During Its First Year of Operation as Seen by the Physician. M Behrend Philadelphia—p 508
- State Emergency Medical Relief as Seen from an Administrative Point of View. H A Miller Harrisburg—p 510
- Organized Medicine and Social Insurance. F F Borzell Philadelphia—p 513

**Philippine Islands Med Association Journal, Manila**

15 177 238 (April) 1935

- Biologic Control of Anopheline Vectors of Malaria in the Philippines. Preliminary Report. A Ejercito Manila—p 177
- Have the Filipinos Increased in Size in Last Twenty Years? I Concepcion Manila—p 195
- Physical Peculiarities of Aged Filipinos. G T Lantin Manila—p 204
- Bacteriophage in Identification of Bacteria. I Identification of Shigella Dysenteriae and Eberthella Typhi by Use of Their Corresponding Bacteriophages. A Pio de Roda Manila—p 209
- Trial of High Fat Diet and Fixation Abscess in Leprosy Reaction. M C. Cruz Cullion—p 214
- Observations on Some Effects of Intradermal Injection of Certain Esters of Different Degrees of Saturation. M Lagrosa and J Ignacio, Cullion—p 220

**Psychiatric Quarterly, Albany, N Y**

9: 181 330 (April) 1935

- Medical Aspects in Prevention and Management of Late and Latent Syphilis. A Pfeiffer Albany N Y—p 185
- Trends in Outcome of General Paresis. H M Pollock, Albany, N Y—p 194
- Determinants of Adequate Psychotherapy in Public Mental Hospital. L E Hinsie New York—p 212
- Concept of Mental Deficiency in Theory and Practice. D Wechsler New York—p 232
- Practicable Objectives of Physical Education in the Treatment of the Mentally Ill. J E Davis Sr Perry Point Md—p 237
- Sedimentation Test in Psychotic Patients with Pulmonary Tuberculosis. G C Bower and G Schein Marcy N Y—p 263
- Rupture of the Brain Stem in Cases of Traumatic Sudden Death. C H Hochman and F M Kramer New York—p 271
- Parental Attitudes as Observed in Child Guidance Clinics. F Rosenheim Central Islip N Y—p 279
- Hereditary and Environmental Factors in Causation of Dementia Praecox and Manic Depressive Psychoses. H M Pollock, B Malberg and R G Fuller Albany N Y—p 287

# Puerto Rico J Pub Health & Trop Med, San Juan

10: 255 416 (March) 1935

- Observations on Dermatomyomycosis in Puerto Rico Further Report on Etiology of Epidermophytosis A L Carrión, San Juan—p 255  
Rise and Fall of Tuberculosis in Certain American Peoples E R Long, Philadelphia—p 270  
Bacillary Dysentery in Puerto Rico O C Mandry San Juan—p 308  
Apparent Points of Contact Between Daily Course of Magnetic Components of Earth Together with Certain Solar Elements and Diastolic Pressure of Human Beings and Total Count of Their Leukocytes A M Alvarez San Juan—p 388  
Appendicitis J del Toro San Juan—p 396

## Science, New York

81: 409-442 (May 3) 1935

- \*Meningitis in Man Caused by Filtrable Virus T M Rivers and T F M Scott, New York—p 439  
Cymarose R C Elderfield, New York—p 440  
Effect of Practice on Interrelations of Motor Skills C E Buxton and L G Humphreys Portland Ore—p 441

**Meningitis Caused by Filtrable Virus**—Rivers and Scott observed two men in whom an illness developed that was characterized by headache, vomiting, stiff neck and a high cell count, 1,700 and 720 per cubic millimeter, respectively, in the spinal fluid. The cells in the fluid were practically all mononuclear elements. Both patients made a slow uneventful recovery. The clinical pictures presented were almost identical and suggested a virus meningitis. Consequently, spinal fluid from each of them was inoculated intranasally, intraperitoneally and intracerebrally into six Swiss albino mice. By means of emulsions of bacteriologically sterile brain material injected intracerebrally into mice, the active agent has been passed serially through ten lots of mice and at present small amounts of a 10 per cent emulsion of infectious brain material kill practically all the mice in seven days. An active agent free from bacteria was obtained by the inoculation of a patient's spinal fluid into Swiss mice. The virus has been passed through nine sets of mice and reinoculation experiments clearly show that both strains are immunologically identical. The results of the experiments indicate that the virus obtained from the spinal fluid collected from the two patients is pathogenic for man. Two mice that received spinal fluid and recovered and five that received spinal fluid and did not become sick were later found to be solidly immune to the virus introduced intracerebrally. Neutralization tests conducted in mice and guinea-pigs show that serum collected from the patients at the beginning of their illness fails to neutralize the virus, while serum collected late in convalescence does inhibit its activity. The authors' virus is not similar to any active agent heretofore described, with the exception of those of Armstrong and Lilie and Traub.

## Virginia Medical Monthly, Richmond

62: 61 122 (May) 1935

- I. Sterility II Hormones in Gynecology E H Richardson Baltimore—p 62  
Clinical Study of Rocky Mountain Spotted Fever Eastern Type H B Mulholland University—p 71  
Prophylaxis in Head Injury T N Spessard Roanoke—p 76  
Discussion of Rubin Test and Hysterosalpingography in Sterility J Bear Richmond—p 79  
Chronic Lead Poisoning in Early Childhood H H Donnally C A Schutz and A Nimetz Washington D C—p 83  
Carotid Sinus Reflex as Cause of Fainting and Convulsions J P Baker Jr Richmond—p 89  
Self Retaining Vaginal Retractor P H Picot Richmond—p 93  
Modification of the Belly Trocar C R Irving Saltville—p 93

## West Virginia Medical Journal, Charleston

31: 193 240 (May) 1935

- Eczema of Children S L Bauer, Cincinnati—p 193  
Acute Septic Throat—Treatment with Roentgen Rays Preliminary Report of Thirty Two Consecutive Cases A R MacKenzie Huntington—p 196  
Epidemic Jaundice in Children M A Moore, Kingston—p 198  
Resection in Prostatic Carcinoma R M Bobbitt, Huntington—p 202  
Diphtheria A B Spahr Newhall—p 203  
The Trained Nurse T W Moore Huntington—p 207  
Copper Ionization Treatment of Cervicitis W A Quimby Wheeling—p 210  
New Legislation of Interest to the Hospitals and Doctors J W Harris Jr Charleston—p 213

## FOREIGN

An asterisk (\*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## Archives of Disease in Childhood, London

10 61 124 (April) 1935

- \*Atelectatic or Compensatory Bronchiectasis L Findlay—p 61  
Osteomyelitis of Maxilla in the New Born H D White—p 85  
\*Gastric Secretion in Celiac Disease. Jessie W Ogilvie—p 93  
Carcinoma of Thyroid Gland in Childhood Report of Case A B Taylor and B M Wilkinson—p 99  
\*Blood Transfusion in Malnutrition of Infancy M L Thomson—p 109  
Red Corpuscles in Acidosis and Alkalosis W T W Paxton—p 115

**Atelectatic or Compensatory Bronchiectasis**—Findlay reviews the history of atelectasis in the production of bronchiectasis. The view that the bronchiectasis accompanying pulmonary collapse is compensatory in nature is supported. The specific cause is the inability of the lung to fill the thoracic cavity and hence the necessity for some space communicating with the external air (alveolus or bronchus) to dilate. The significance of the so-called triangular shadow in the roentgenogram occupying one or the other diaphragmatico-vertebral angle is discussed. This shadow is shown to be caused by encysted effusions, fibrosis of the lung and thickened pleura, pneumonic consolidation and collapse of the lung. Stress is laid on the re-inflatability of the lung as essential for a diagnosis of pulmonary collapse. Some previously recorded cases of atelectatic bronchiectasis are considered and the correctness of the diagnosis is submitted to criticism. Three personally observed examples of bronchiectasis with an accompanying triangular shadow are described. In all, the bronchiectatic lesion was situated at the right base, was of mild degree and was completely recovered from. In one the shadow was certainly due to collapse of the lung, and it is concluded that this was the cause of the bronchiectasis. In another case collapse was the probable cause, and in the third case pneumonic consolidation appeared to be the more likely etiologic factor.

**Gastric Secretion in Celiac Disease**—Ogilvie gives the results of gastric analysis in a series of seventeen cases of celiac disease which confirm the observations of other workers that there is impaired secretion of free hydrochloric acid in the stomach but that true achlorhydria does not occur. There was no diminution in peptic activity, but a slight prolongation was noted in the emptying time. The total chloride was increased, a finding that is presumably the result of the greater concentration of chloride in the blood, which is to be attributed to the decrease in the red cell count and the increase in plasma. The hypochlorhydria is probably an important etiologic factor in the production of hypochromic anemia in patients with celiac disease.

**Blood Transfusion in Malnutrition of Infancy**—Thomson illustrates that, in the marasmic infants whose constitution is such that neither skilful feeding nor expert nursing can coax them to health, blood transfusion is a worthy adjunct to routine methods. Used as an emergency measure in the extreme stages of enteritis, the results are often disappointing. The fact that one such patient, apparently moribund when transfusion was done, is now a healthy baby indicates that all measures should be tried even when the cause seems lost. The author's group of twenty cases in which blood transfusion was employed soon after the onset of enteritis shows distinctly favorable results. When the condition of malnutrition remained uncomplicated, blood transfusion led to an immediate and sustained gain in weight. These infants had failed to respond to routine treatment over a long period. No addition to the treatment was made either following the transfusion or for some days previous to it. Five patients with severe enteritis died. All the others to whom blood was given have subsequently done well. The results indicate that in most cases blood transfusion does supply a stimulus to the marasmic infant. Blood transfusion may act by supplying physiologic fluid by supplying a deficiency of one or more of the solid contents of the blood and/or by exciting a tissue response in the bone marrow or elsewhere. In most of the cases one of the parents acted as donor, and in every case the recipient's serum was tested directly against

the donor's corpuscles. The serum and corpuscles were left in contact for twenty minutes before a decision was made on the compatibility of the bloods. In two instances the baby's serum agglutinated the mother's corpuscles, and one of these was a baby aged 6 weeks—an indication of how early in life the blood groups may be distinctly differentiated.

### British Journal of Dermatology and Syphilis, London

47 143 180 (April) 1935

Sympathetic Surgery in Treatment of Cutaneous Lesions N C Lake —p 143

Effect of Angle of Incidence on Dose of X Rays Absorbed by Skin E H Molesworth and A R Riddle —p 152

### British Medical Journal, London

1 749 812 (April 13) 1935

\*Induction of Abortion and Labor by Means of Estrin A L Robinson M M Datnow and T N A Jeffcoat —p 749

Hay Fever Its Immunologic Mechanism Diagnosis and Treatment D Harley —p 754

Treatment of Cerebrospinal Fever J M Kennedy —p 756

Injury to Blood Vessels Two Cases J C Gillies —p 760

Sodium Evipan Anesthesia in Ophthalmic Surgery with Especial Reference to Disadvantages I L Johnstone —p 761

Evipan in Ophthalmic Surgery Further Experiences T K Lyle and F G Fenton —p 763

**Induction of Labor by Means of Estrogenic Substance**—Robinson and his associates believe that their animal and clinical results support the view that estrogenic substance is the main sensitizing factor of the human uterus. They find that it is impossible to overcome the inhibitory phase of the normal pregnant uterus by the injection of large quantities of the nonstimulating factors and that the hormone balance in normal pregnancy in the human being is not maintained simply by the relative quantities of progesterin and estrogenic substance. They were unable to procure abortion by means of the material. Their clinical results have shown that when the substance is administered near term it may or may not induce premature labor but that it is not a reliable means of induction. It is an especially unsuitable method for cases in which it is necessary to bring on labor immediately because of the uncertain interval (up to seven or eight days) that intervenes between the commencement of treatment and the onset of expulsive contractions. Their experience has demonstrated that estrogenic substance is the best method of evacuating the uterus in cases of missed abortion or intra-uterine death of the fetus. The method, when correctly carried out, is successful in at least 80 per cent of cases, and it has the additional merit of being free from risk. The patient has the discomfort of several intramuscular injections, but she is immune from the danger of uterine trauma, infection and hemorrhage. The substance may prove of value in dealing with primary uterine inertia, as the authors' results have shown that the response to the therapy is dramatic and that it entails no risk to either mother or child. This treatment is at present expensive, but so far no attempt has been made to determine how little or how much of the hormone is required for therapeutic use, and it is quite possible that the amount being used may be unnecessarily large.

1 813-802 (April 20) 1935

Organization of Treatment of Fractures E W H Groves —p 813

Analgesics in Labor J E Stacey —p 817

\*Ligation of Splenic Artery for Advanced Splenic Anemia R B Watson —p 821

Uncertified Death Analysis of Two Hundred Postmortem Examinations Done in Public Mortuaries at the Request of the Coroner T S Keith —p 822

Unusual Case of Heart Block F W Preston —p 825

**Ligation of Splenic Artery for Splenic Anemia**—Watson cites a case of splenic anemia in which ligation of the splenic artery was followed by general improvement. There was a history of splenomegaly for nineteen years. He states that the value of ligation of the splenic artery is apparent in that the case was seemingly hopeless. Rapid reduction in the size of the spleen took place gradually and the interval between tapings was increased. The improvement in general health has continued for more than three years after operation. There was apparent recovery of the liver. Ascites was present for six months prior to operation. Thrombosis occurred on the seventh day. Platelet counts were not made before operation.

Ligation of the splenic artery is apparently a safe procedure, provided it is done sufficiently far from the spleen to avoid interference with the communication between the splenic and left gastro-epiploic arteries.

### East African Medical Journal, Nairobi

12:1 34 (April) 1935

Streptococcal Disease G V W Anderson —p 6

Histamine in Treatment of Rheumatism A D Charters —p 22

### Indian Medical Gazette, Calcutta

70:181 240 (April) 1935

Incidence of Pneumococcal Types in Pneumonia in Assam L E Napier and Dharmendra —p 181

\*Preliminary Observations on New Soluble Atabrine Compound J R Blaze and A T W Simeons —p 185

Habitual Use of Barbituric Acid Derivatives in India R N Chopra and G S Chopra —p 188

Bernhardt's Syndrome E Muir and S N Chatterji —p 192

Reticulo Endothelial System in Malarial Hemoglobinuria of Monkeys K V Krishnan —p 193

Id Part II Relation of Spleen to Hemoglobinuria K V Krishnan and B M Ghosh —p 197

Preliminary Note on Cultivation of Vaccinia Virus on Chorio-Allantoic Membrane of Chick Embryo K S Shah —p 200

Hygienic Method of Composting Refuse with Night Soil J J Rao and V Subrahmanyam —p 202

Value of Phrenic Exeresis in Treatment of Pulmonary Tuberculosis P V Benjamin —p 207

**Treatment of Malaria with Atabrine Musonate**—Blaze and Simeons treated twenty-one malaria patients with atabrine musonate an atabrine salt of musonic acid, soluble in water. Its intramuscular injection in therapeutic doses does not give rise to toxic symptoms. While a single injection of 0.375 Gm. has in some cases a remarkable effect on the clinical picture, a recrudescence usually occurs within a few days. Heavy malignant tertian infections are only slightly influenced. Two injections of 0.375 Gm. given on successive days are sufficient to control the temperature within forty-eight hours, and in a maximum of four days all forms of benign tertian parasites and the ring forms of malignant tertian parasites disappear. Crescents appear to be in no way influenced and must be destroyed by plasmochin. In some cases there is a reappearance of parasites in the blood after a few days, but they disappear spontaneously. In no case has there been a return of fever after two injections. The intravenous route though harmless is not satisfactory for routine treatment. The immediate results of treatment with atabrine musonate justify a preliminary report, but the authors state that the period of observation has not been long enough to enable them to compare the rate of relapse after atabrine musonate with that after oral atabrine or quinine.

### Journal of Physiology, London

84 1 110 (April 26) 1935

Some Factors Influencing Heat Production of Muscle After Stretching U S Euler —p 1

Antiketogenic Substance and Phlorhizin Diabetes P T Black —p 15

Role of Nerves in Action of Acetylcholine on Embryonic Heart P B Armstrong —p 20

Alleged Occurrence of Acetylcholine in Saliva O S Gibbs —p 33

Effect of Fat on Gastric Motility B A McSwiney and W R Spurrell —p 41

Excitation of Medullated and Nonmedullated Nerves by Currents of Short Duration H Rosenberg —p 50

Mortality of Adrenalectomized Young Rats with Improved Technique of Operation and After a Period of Treatment with Cortical Hormone P Schultz —p 70

Effect of Nonelectrolyte on Size of Action Potential of Nerve K Yamagawa —p 83

Quaternary Ammonium Salts and Action Currents in Nerve S L Cowan and H R Ing —p 90

### Journal of Tropical Medicine and Hygiene, London

38 93 104 (April 15) 1935

Etiology of Diabetes in War Pensioners S Vatcher and M Douglas —p 93

### Medical Journal of Australia, Sydney

1 447-478 (April 13) 1935

Plea for More Intensive Study of Surgical Pathology H S Stacy —p 447

Tasmanian Craniums in Collections in the Commonwealth J Wunderly —p 455

Use of Permanent Standard in Fohn Wu Method of Determination of Sugar in Blood S S Rosebery —p 461

**Presse Medicale, Paris**

43: 569 600 (April 10) 1935

- General Considerations on Carillae Insufficiency A Clerc—p 569  
Diphtheria in Subjects with Negative Schick Reactions F Meersseman and P Renard—p 572  
\*New Treatment of Cerebral Hemorrhage R Colella and G Pizzillo—p 574  
Standard of Lowest Dynamic Pressure V Arnoljevic and J B Milovanovitch—p 576  
\*Attempt at Substitution of Vaccinotherapy by More Practical Method S Golovine—p 579

**New Treatment of Cerebral Hemorrhage**—Colella and Pizzillo report observations on thirty-five patients with cerebral hemorrhage. The method of research consisted primarily in precision of diagnosis and close observation of the symptoms before, during and after the intramuscular injection of the patients own blood. Especial attention was given to the coma state, arterial pressure, muscular power and capacity for movement. The technic of treatment consisted in the removal of from 25 to 30 cc of venous blood and its immediate reinjection in the gluteal region of the well side. If immediate injection is impossible a few cubic centimeters of sodium citrate should be aspirated into the blood to prevent clotting. The authors report seven cases in detail. All the patients with cerebral hemorrhage did not obtain an equally rapid improvement of the lesion, but all or almost all had a return of consciousness often during the course of injection of blood, and all had a more or less rapid and complete return of their capacity for movement. Even old lesions can be favorably influenced to a varying degree. The theories brought forward to explain the action of autohemotherapy are multiple and indefinite. Even though adequate theoretical explanation is now impossible, the authors believe that the practical aspects are indubitable.

**Substitute for Vaccinotherapy**—Golovine describes a method of automicrobiotherapy which can be carried out without extensive bacteriologic equipment. For patients in whom the pathogenic organism is found in the urine, the technic is as follows. From 15 to 20 cc of urine is centrifugated the supernatant fluid decanted, and the centrifugate resuspended in about 5 cc. of sterile physiologic solution of sodium chloride. Sterilization is obtained by adding two drops of iodized alcohol per cubic centimeter of liquid. In a few minutes it is ready for injection. Injection is subcutaneous or intramuscular and the first is with 0.25 or 0.5 cc. The technic for other conditions, i. e. furunculosis, soft chancre, and so on, consists in removal of the material from the lesion by means of a sterile platinum loop to 5 cc of sterile physiologic solution of sodium chloride until the liquid is thickly turbid. After this the technic is the same as for the specimens of urine. The results of the treatment are as good if not better than those obtained with autogenous vaccines, and the method is one that can be followed in the colonies or other regions in which careful bacteriologic isolation and culture are impossible.

43 625 640 (April 17) 1935

- Masked Cholecystitis and Colon Bacillosis P Jacquet and S Thieffry—p 625  
\*Schultz Charleton Blanching Phenomenon in Scarlet Fever T Dumitresco—p 626  
Intestinal Occlusion Case Ho Dac Di and Huynh Tien Doi—p 629

**Cholecystitis and Colon Bacillosis**—Jacquet and Thieffry were struck by the frequency with which unrecognized cholecystitis was associated with known colon bacillus infection or even simple colon bacilluria. After studying all colon bacillus infections systematically they reached the conclusion that the gallbladder and biliary passages act as a reservoir of infection for the production of bacteria. Hence, they play a definite part in the persistence of colon bacillosis and its frequent incurability.

**Blanching Phenomenon in Scarlet Fever**—Dumitresco reviews the definition, frequency, significance, mechanism and theoretical basis and makes some personal observations on the skin blanching which occurs in scarlet fever. As a result he concludes that there is a definite analogy between the blanching caused by convalescent serum, normal serum and Dick's anti-carlatinal serum. The only difference is that with calcium

chloride the blanching is produced over a smaller surface and in a less intense manner. In general, the phenomenon is produced over a wider surface by the weaker dilutions (1 or 2 per cent) than by more concentrated solutions (5 or 10 per cent).

**Revue Française de Pédiatrie, Paris**

11: 137 264 (No 2) 1935 Partial Index

- \*Treatment of Bronchopneumonia in Infants by Blood Transfusion P Rohmer and B Tassovatz—p 137  
\*Erythema Nodosum with Negative Tuberculin Reaction N Landorf—p 157  
Site of Predilection of Primary Bony Mycoses E Allenbach and M Zimmer—p 168  
Tuberculous Infection of Nursing by Short Lived Contact A Vallette and B Rosenkranz—p 179

**Treatment of Bronchopneumonia in Infants**—Rohmer and Tassovatz treated bronchopneumonia in infants by means of citrated blood transfusions. The first step of their technic consisted in collecting the blood from the donor. The 100 to 120 cc of blood necessary was collected in a 300 cc. cylindric tube containing 0.8 Gm of sodium citrate per hundred cubic centimeters of blood. The second step was the exsanguination of the infant. This was accomplished by withdrawing blood from the lateral sinus in infants or from the veins of the elbow in children aged more than 1 year. The amount of blood withdrawn depended on the severity of the disease process in less severe processes only a small portion need be withdrawn, but in toxic-infectious cases the amount withdrawn should almost equal the quantity to be injected. The final step, the injection of blood, was made directly after the bleeding. The injection was made slowly—about 20 cc each five minutes. During the course of injection it was necessary to watch the pulse, respiration and facies of the infant. The mode of action of transfusions in infectious states is not known. It appears, however, to be multiple and affects the general condition, the temperature, the cardiovascular system and the anatomic lesions of the respiratory apparatus. Simple bronchopneumonia recovers without transfusion. In the more complicated and severe forms transfusion sometimes repeated three or four times, results in a marked decrease in mortality. In this group the authors obtained a statistical decrease in mortality from 70 per cent in untreated cases to 30 and later 20 per cent of the treated. Serious accidents may occur and the authors recommend the preventive injection (one hour before the transfusion) of camphorated oil and epinephrine-hypophysis and to repeat this in severe cases at the end of the transfusion.

**Erythema Nodosum with Negative Tuberculin Reaction**—In the Scandinavian countries, according to Landorf, about 97 per cent of the cases of erythema nodosum can be definitely connected with tuberculosis by means of the roentgen ray or the tuberculin test. In this report, however, he studied a group of children with erythema nodosum who failed to give any evidence of tuberculosis even when tested with tuberculin in high doses. These observations reject the idea that erythema nodosum without sensitivity to tuberculin can have the same etiology as erythema nodosum possessing a high degree of sensitivity to tuberculin and accompanied generally by unquestionable manifestations of tuberculosis. One case, cited in detail, offers strong evidence that erythema nodosum may occur in children not affected with tuberculosis as a nonspecific allergic symptom.

**Policlinico, Rome**

42 261 324 (May 1) 1935 Medical Section

- Grave Anemia with Splenomegaly and Erythremia Case P Stefanutti—p 261  
\*Parathyroids and Metabolism of Carbohydrates A Ferrannini—p 285  
Dextrose in Saliva G Dessy—p 299  
\*Ptosis Palpebralis Consensualis (Supranuclear Paralysis) A Giannelli—p 302  
Hyperplasia of Plantar Aponeurosis in Lesions of Sciatic Nerve Case R Liberti—p 319

**Action of Parathyroid Extract on Carbohydrate Metabolism**—Ferrannini studied the action of parathyroid extract on glycemia of normal persons. He carried out his investigations in three groups of individuals. In one group he investigated the action of parathyroid extract on glycemia in another its

action on sugar tolerance and in the third the relation that exists between the action of parathyroid extract and that of epinephrine on glycemia. From the results of his investigations the author concludes that parathyroid extract produces a decrease of glycemia, which oscillates between 13 and 56 per cent. These results were seen in almost all cases (thirteen out of fourteen). Parathyroid extract produces also an increase in the tolerance to carbohydrates. Its action on glycemia is similar to that of insulin.

**Ptosis of Upper Eyelid**—Under the name of "ptosis palpebralis consensualis," Giannelli reported, in 1906, the following phenomenon. In producing passive closure of the eye with normal vision in certain persons suffering from unilateral amaurosis, the upper eyelid of the amaurotic eye would also close. On covering the normal eye with a protector, both upper eyelids would lie lowered. The author reports four new cases in which he observed this phenomenon. In one case, left hemiparesis and conjugate deviation of the eyes to the right existed simultaneously (Foville's syndrome). The phenomenon disappeared with the syndrome by antisiphilitic treatment. In another case, the author made a serial examination of the encephalon. He reviews the anatomicopathologic literature on the nervous supply of the different ocular muscles especially that of the levators of the eyelids. He shows the lack of agreement in the opinions of observers as well as in those of experimenters in relation to the site of the nervous lesion causing ptosis of the upper eyelid and in this connection he emphasizes the importance of one of his clinical cases, in which the palpebral condition coexisted with Weber's syndrome of the Foville type. He concludes that the loss of sight in one eye is not necessary for the development of palpebral ptosis, that there is no relation between the presence of ptosis and the ability to close the eye voluntarily and that the type of palpebral ptosis described is a form of supranuclear paralysis localized in the ventral proximal portion of the pons or in the immediate vicinity of the distal part of the nuclear column of the third pair of nerves in such a way that the corticonuclear channels through which the antagonistic action of the nerves on the levator and the orbicularis is conducted are interrupted and result in the production of the palpebral phenomenon.

### Archiv für Gynäkologie, Berlin

159 101 312 (April 18) 1935 Partial Index

Demonstration of Prolan in Tumors U Baudler—p 101

\*Bacteriology of Uterus and Vagina During Puerperium A A Smorodintzeff G D Dertschinsky and I G Wygodskaja—p 155

\*The Weather and Labor Pains F Jacobs—p 226

Eclampsia and Weather F Jacobs—p 255

\*Connection Between Eclampsia and Changes in Weather A von Latzka—p 286

**Bacteriology of Uterus During Puerperium**—Smorodintzeff and his associates show that the generally accepted theory that the uterus of puerperal women without fever is infected after the fifth day must be revised. They show that the erroneous conclusions reached by most investigators are due to an incorrect evaluation of the bacteriologic changes, to the neglect of a qualitative and quantitative analysis and to the imperfection of the method of withdrawal of specimens of the uterine contents. The authors withdrew on different days of the puerperium specimens of lochia in seventy-five puerperal women. They obtained the lochia with the improved method of Dertschinsky (THE JOURNAL, January 19, p 268), subjected the specimens to quantitative and qualitative analysis and found the uterine contents sterile in the majority of puerperal women who were free from fever. However, in puerperal women who had fever they found that the uterine cavity contained large numbers of bacteria, primarily streptococci and staphylococci. Döderlein's opinion that there is a parallelism between the clinical course of the puerperium and the bacterial contents of the uterine cavity was corroborated by their observations.

**The Weather and Labor Pains**—The statistical analysis of a large material convinced Jacobs that birth and death are to a certain extent determined by the weather. In studying the part played by meteorologic factors, he gave especial attention to the atmospheric pressure and the temperature. He

detected an especially close connection between the life processes and the temperature and shows that the "retardation" in the biologic curves in relation to the atmospheric pressure can largely be explained from the course of the temperature. However, the author concedes that all meteorologic elements, even those disregarded in this study, are interrelated and that therefore the results reached by him are not final. He found that a considerable decrease in the mortality curve accompanies a considerable decrease in the birth and temperature curves and follows shortly after a reduction in the atmospheric pressure.

**Eclampsia and Changes in Weather**—In reviewing the eclampsia material of the women's clinic of the University of Budapest, von Latzka gained the impression that the incidence of eclampsia is highest during the months of June, July, August and September. A study of the meteorologic conditions disclosed that the twenty-six cases of eclampsia, which were admitted to the clinic since 1931, all were meteorotropic. However, studies on the material from other clinics disclosed the absence of such a relationship in almost 10 per cent of the cases. It appears that the eclamptic attacks of hepatogenic and cerebral origin are independent of the changes in the meteorologic conditions.

### Beitrage zur klinischen Chirurgie, Berlin

101 337 512 (April 24) 1935 Partial Index

Injuries Due to Bites L Hudacek—p 337

Edema and Disturbances of Motion and Sensation After Radical Operation for Cancer of Breast Ruth Beyer—p 347

\*New Method of Obtaining Prostatic Tissue for Biopsy H Viethen—p 361

\*Experimental Contribution to Origin of Intestinal Ulceration (Duodenum) S Stelzer—p 399

**Method of Biopsy of Prostate**—According to Viethen, biopsy on the prostate has been but seldom carried out because of the difficulty of the transvesical, perineal or rectal approach. The easiest approach is by way of the urethra. This was made possible by electrotomy instruments so constructed that the active electrode excises rather than incises the tissue and that the current employed cuts rather than coagulates. In diagnosing the tissue thus obtained, one must bear in mind the characteristic alterations produced by the current, such as enlargement of nuclei and of cells, and the frequent tearing away of glandular duct epithelium. The endo-urethral method of biopsy is indicated when the differential diagnosis between inflammatory conditions, tuberculosis, hypertrophy or carcinoma cannot be made on clinical data. With proper technique the procedure is devoid of danger or later complications. It was successfully carried out in the Münster clinic (Prof H Coenen) on forty patients.

**Origin of Intestinal Ulceration**—Stelzer made a Pavlov pouch in dogs from the infrapapillary portion of the duodenum and introduced a cannula into it. After the pouch had healed, he performed an anastomosis between the stomach and the duodenum thus making the gastric juice flow directly over the infrapapillary portion of the duodenum. The pH determinations of the blood plasma and of the duodenal secretions were made on alternating days. The animals were given daily hypodermic injections of histamine, 0.1 mg for each 15 Kg of body weight, for from six to eight weeks, at the end of which time the animals were killed. The author found typical ulcers in the infrapapillary portion of the duodenum below the anastomosis and none at the anastomosis. It appears that the mechanical damage to the mucosa from the use of clamps and suturing played a subordinate role in the causation of ulceration and that the ulcers found in the duodenal portion were due to the direct action of the histamine-stimulated gastric secretion introduced directly on the intestinal mucosa. The upper portion of the duodenum did not prove to be more resistant to the continued action of the gastric juice than other portions of the small intestine. In view of the fact that nervous influences, muscular spasms and circulatory disturbances could be definitely ruled out in these experiments, the damage to the mucous membranes must be ascribed to the peptic action of the gastric juice.



# Deutsche medizinische Wochenschrift, Leipzig

61 697 740 (May 3) 1935 Partial Index

- Neglected Diagnosis of Carcinoma F G Dietel and H Ditsch—p 698
- \*New Method of Roentgenoscopy in Pulmonary Diagnosis Roentgenography of Sections and Layers of Lung (Tomography) H Chaoul—p 700
- Deformities of Peripheral Diaphragm R Raspe—p 703
- \*Etiology of Kohler's Disease of Navicular Bone of Foot J W Camerer—p 713

## Roentgenography of Sections and Layers of the Lung

—The new method described by Chaoul makes possible roentgenograms of sections and layers of any thickness desired and of structures at various depths, with the exclusion of portions located anteriorly and posteriorly. The advantage of this method becomes evident when it is considered that an ordinary roentgenogram is the product of the superposition of the shadows of all the structures that are within the cone of the rays. This summation of the shadows results in pictures the analysis of which is not only difficult but also misleading. The author illustrates this on a schematic sketch. He points out that the roentgenologic demonstration of sections of the body was first attempted by Bocage in 1921 and later by von Bartelink and Ziedes Des Plantes. However, the apparatus constructed by those investigators had shortcomings so that they were useless for practical purposes. Grossmann succeeded recently in constructing a tomographic instrument that proved suitable for practical work. The author improved the apparatus further so that the tomograph is now capable of producing roentgenograms of layers measuring from a few millimeters to 2 cm. in thickness. The instrument consists of a double-armed pendulum turnable on its horizontal axis to which are fastened the tube focus above and the film holder below. If the pendulum is swung from one point through the perpendicular central position to the other terminal point, the body layer located at the level of the axis of rotation is demonstrated as a sharply outlined picture, whereas all the structures located above and below become effaced. Thus the axis of rotation or the pendulum system needs only to be lifted or lowered in order to obtain pictures of higher or lower layers. The time required for making a tomogram varies from one to several seconds. The author reproduces and describes tomograms of a lung presenting productive fibrous tuberculosis, of a normal lung and of a lung showing fibrous cavernous tuberculosis.

## Etiology of Kohler's Disease of Navicular Bone—

Camerer observed Köhler's disease of the navicular bone of the foot and also disturbances in the ossification of the first cuneiform bone in two enzygotic triplets. The third triplet, although exposed to the same environmental influences, did not have this disorder. He differed from the other two triplets in several factors, so that the triplets may be considered as dizygotic. The author considers the fact that only the two enzygotic triplets developed Köhler's disease proof that genotypical factors are responsible for this disorder. He cites several reports from the literature that indicate the same etiology.

# Klinische Wochenschrift, Berlin

14: 593 624 (April 27) 1935 Partial Index

- \*Development of Local Edema and Its Therapeutic Modification. C Ernst—p 599
- Further Studies on Power of Erythrocytes to Destroy Insulin F Rosenthal, Hc Friedheim and R Nagel—p 603
- \*Chorea Minor and Avitaminosis F Widenbauer—p 608
- Familial Cholemia C A A. Schrumpf—p 612

**Local Edema**—Ernst states that he was able to demonstrate local edemas or an increased fluid content in the tissues of patients with vasoneurosis and of patients with red hypertension. He discusses the various factors that play a part in the development of local edemas such as changes in the capillary contents in the permeability of the capillary walls and in the structure and function of the tissues. That the capillaries of the two groups of patients have an increased permeability has been clearly demonstrated by cutaneous wheal tests which proved that the capillaries have an increased permeability for protein, and, since relatively small amounts of protein are capable of binding comparatively large amounts of water, this factor deserves especial consideration in local edemas. The author sug-

gests the possibility of a hereditary deficiency to explain the origin of the increased permeability. Moreover, the capillaries, particularly the venous ones, are dilated and dilatation is nearly always accompanied by increased permeability. The author thinks that endocrine, nervous and ionic factors play a part in the dilatation. However, the increased permeability alone is not a satisfactory explanation and it is possible that the tissue colloids also play a part. In this connection the author points out that in an acid milieu the cells have a tendency to retain greater amounts of water and that the simultaneous administration of acids increases the diuretic effect of salyrgan. To be sure, here too the mechanism is somewhat involved, for, according to Veil the diuresis is increased in greater acidity as well as in greater alkalinity. The author stresses the relation of the local edema to certain therapeutic measures, particularly venesection. He points out that venesection generally produces considerable improvement in patients with red hypertension. The author thinks that the favorable effect of venesection in patients with vasoneurosis or hypertension may be due to the fact that it effects a change in the abnormal constituents of the tissues. These patients frequently complain of fatigue, drawing pains in the back and in the extremities, vertigo, gastric disturbances and headaches. He points out that on the basis of his studies it appears probable that, as a result of the abnormal circulation, the tissues contain not only greater amounts of fluid, but also metabolic waste products, which result in the aforementioned symptoms. Venesection, by producing a sufficient difference in concentration between the tissue and the blood, makes an adequate discharge possible.

## Chorea Minor and Avitaminosis—

Widenbauer gives the history of a boy with chorea mollis who also had gastric achylia. He cites factors that suggest relations between chorea minor, spasmophilia, funicular myelitis and B avitaminosis. Yeast therapy was instituted because a deficiency in vitamin B was suspected. This treatment proved successful after other measures had failed. Subsequently the author resorted to treatment with yeast in three cases of chorea minor. These cases were likewise cured within a short period.

14: 625 664 (May 4) 1935 Partial Index

- Determination of Oxygen Pressure F Meyer—p 627
- Tests on Therapeutic Applicability of Intermedin in Diabetes Insipidus J Dischreit—p 629
- Cranio-cerebral Iontophoresis H Ehrenwald—p 632
- Determination of Skin Temperature in Sciatica E Eldblom—p 639
- \*Cholesterol in Xanthomatosis L Nékam Jr and Berta Ottenstein—p 641

## Cholesterol and Xanthomatosis—

Nékam and Ottenstein relate the history of a woman, aged 53, who had on the trunk, particularly in the gluteal region and on the extensor surfaces of the upper extremities, numerous yellow papules, the size of lentils. The patient's skin likewise was slightly yellow, but the mucous membranes showed no icteric discoloration. Histologic examination of the papules disclosed a typical xanthomatous structure. The authors examined the blood of the patient for total fat content, total cholesterol content, cholesterol ester, free cholesterol, lecithin, and lipid phosphorus. The cholesterol and lecithin values were increased. The ratio between free cholesterol and ester cholesterol, which in the beginning was 1:6.5, was altered in the course of the treatment to 1:2, that is, it approached the normal ratio. Because there have been cases of xanthoma, in which the cholesterol was not increased, various theories have been advanced to explain the pathogenesis of xanthomatosis. Some stressed the importance of the lipid correlation, while others assumed that the impairment of the esterizing action of the liver was important. In the patient whose case is reported, the esters were increased, however and other functional tests of the liver disclosed normal conditions. In view of the hypercholesteremia, the authors considered the possibility of a deficient decomposition of the cholesterol and conducted a number of tests, which disclosed the absence of a functional disturbance in the decomposition of the cholesterol. They demonstrated that even under physiologic conditions there was no fermental cleavage of the cholesterol. However, they observed bacterial decomposition of cholesterol with a suspension of colon bacteria and with an extract obtained from the colon.



## Medizinische Klinik, Berlin

31 569 600 (May 3) 1935 Partial Index

- \*Morphology and Functional Significance of Dome of Stomach H. Heckmann—p 576  
 Rare Disorders Simulating Acute Appendicitis R. Stohr—p 578  
 Failure to Recognize Perivascular Pachyderma C. Nobl—p 580  
 Tuberculosis and Pregnancy Luise Rickers—p 582

31: 601 636 (May 10) 1935 Partial Index

- When Is Surgery Indicated in Diseases of Biliary Tract? H. Finsterer—p 601  
 \*Morphology and Functional Significance of Dome of Stomach H. Heckmann—p 611  
 \*Hypochloremic Azotemia in Surgical Patients K. Franke and S. Litzner—p 614  
 \*Splenectomy in Leukemia H. I. Popper—p 615  
 Examinations in Acute Gastritis E. Frohlich and I. Zwillinger—p 616

**Morphology and Function of Dome of Stomach**—Heckmann shows that under normal conditions the dome of the stomach is in intimate contact with the left half of the diaphragm. If this is not the case, that is, if the distance of the upper aspect of the dome of the stomach from the upper aspect of the diaphragm is more than the combined thicknesses of the gastric wall and of the diaphragm it is an indication of a pathologic condition. This symptom appears in ascites, in carcinoma of the gastric dome or of the cardia, in perigastric adhesions in the region of the dome and in case of a displacement of the transverse colon above the stomach, between it and the dome of the diaphragm. The gastric dome has several functions, the most important of which is regulation of the internal pressure of the stomach, in that its size varies so that the total volume of the gastric contents becomes adjusted to the tonus determined internal space of the stomach, that is, the dome is small in case of high tonus of the gastric walls and large in case of low tension so that the necessary tonus is still attained. Phenomena such as persistent eructation and aerophagy occasionally may be compensatory mechanisms in other instances they are probably not the result of a primary change in the tonus but are of psychogenic origin. In the latter case they signify a functional disturbance of the stomach, which becomes manifest in sudden changes in the gastric pressure during the motor processes if the dome is too small, and in inadequate evacuation if the dome is too large.

**Hypochloremic Azotemia in Surgical Patients**—Franke and Litzner examined the behavior of the sodium chloride and the urea contents of the blood in forty patients who had been operated on. They found that the reduction in the sodium chloride and the increase in the urea (hypochloremic azotemia) are changes that take their course independently of each other but which frequently have a common origin. It is not so much the surgical wound surface that is the cause of this, but rather a hepatic disturbance, which in turn is the result of the primary disease or of the anesthesia. The hepatic disturbance causes changes in the mineral economy and in the nitrogen disintegration. In this connection the authors call attention to the advantages of local anesthesia compared to general anesthesia. They point out that, in cases with a considerable reduction in the sodium chloride content of the blood it is advisable to administer sufficient quantities of sodium chloride before or after the operation, although an oversupply of sodium chloride should be avoided, because it exerts an unfavorable influence on the healing process. Protective treatment of the liver is advisable, particularly if general anesthesia is employed.

**Splenectomy in Leukemia**—Popper relates the history of a man, aged 32, with intraperitoneal hemorrhage in myeloid leukemia. Splenectomy was done and was well tolerated by the patient. The blood picture improved at first, but when after several months, it again became unfavorable roentgen irradiation was instituted and improved the blood status again. The patient's general condition was good for about a year. Then leukemic swelling of the glands developed, but these, too improved under roentgen therapy. The patient died fifteen months after the splenectomy as the result of strangulation ileus. The author thinks that splenectomy should not be absolutely rejected in myeloid leukemia. He considers it justified in acute conditions, such as intraperitoneal hemorrhage, torsion of the spleen or infarcts and with preliminary roentgen irradiation also in other suitable cases.

## Münchener medizinische Wochenschrift, Munich

82 733 772 (May 9) 1935 Partial Index

- Helminthiasis and Cancer G. B. Gruber—p 733  
 Clinical Aspects of Hypophyseal Diseases W. H. Veil—p 735  
 Practical Significance of Electrocardiography H. Müller—p 739  
 \*Practical Application of Salt Free Diet. W. Anton—p 742

**Practical Application of Salt-Free Diet**—According to Anton, a restriction in the use of water is of great importance in the preparation of salt-free food, for as a rule salt becomes necessary in proportion to the water content of the food. The generous use of raw vegetables is another great aid in salt-free diet. Moreover, the patient will require a certain time before he becomes accustomed to the salt-free diet. Meat can be made tasty without the use of salt by browning it quickly and adding only a little water. Natural condiments such as caraway, mustard, nutmeg, onions, cheese, butter and lemon can be used. Soups are improved in taste by the addition of vegetables, egg, cream and butter. Sweet, cold fruit soups may be served. Leafy vegetables should not be boiled in water. Potatoes should be boiled with their skins on, for then the lack of salt is not so noticeable. Root vegetables likewise should be boiled uncut and unpeeled. In preparing salads from raw leaves, care should be taken that the leaves are well dried after they are washed. If this is done vinegar, lemon or dressings prepared with them will give a good flavor without the aid of salt. If boiled vegetables are used for salads, they should be marinated for some time before serving. The taste of farinaceous foods is generally improved by the addition of cheese. A tasty salt substitute may be used in the water in which the farinaceous foods are boiled and also for seasoning at the table and in the preparation of some other foods.

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- \*Relation of Adrenal Cortex to Gonads S. Thaddea—p 225  
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**Relation of Adrenal Cortex to Gonads**—Reports in the literature as well as his own animal experiments and clinical observations convinced Thaddea that the hormones of the adrenal cortex play an important part in the regulation of carbohydrate metabolism. Experimental and clinical observations indicate that interrelations exist between the adrenal cortex and the gonads and between the anterior lobe of the hypophysis and the adrenal cortex. The hormone of the adrenal cortex influences the gonadal function apparently by way of the anterior lobe of the hypophysis. The author calls attention to the close biologic relation between vitamins and hormones particularly between the hormone of the adrenal cortex and vitamin C. Moreover, it cannot be doubted that vitamin C, just as the fat soluble vitamins, has correlations with the sexual sphere. The author considers the connection between Addison's disease and certain problems of pregnancy namely, susceptibility to toxins, uterine contractions, pigment formation, sodium chloride exchange and adynamia. The organism's requirements for the hormone of the adrenal cortex are apparently considerably increased during pregnancy and there are indications of increased sensitivity to toxins during Addison's disease. In mild cases of Addison's disease it may be possible to carry the pregnancy to term, provided suitable hormone therapy is instituted. However, in severe cases interruption of the pregnancy is indicated. The uterine contractions are normal during Addison's disease. Pigmentation increases during pregnancy, in spite of treatment with the adrenal cortex extract. The symptoms most worthy of attention in the pregnant woman with Addison's disease are hyperemesis and adynamia. The sodium chloride content is usually reduced and since the hyperemesis reduces it still more, it is advisable to administer sodium chloride solution in addition to the usual dextrose-hormone therapy. The author sees the cause of the adynamia in a reduction of the glycogen, the lactic acid and the creatine phosphoric acid. Studies on the carbohydrate metabolism during Addison's disease and pregnancy indicate that it undergoes great changes in the hepatic and muscular chemistry which cannot be compensated by the administration of adrenal cortex extract. That deficiency in the hormone of the adrenal cortex produces severe structural changes in the gonads was observed in human subjects and was corroborated in animal experiments.

